PATIENTS’ PERCEPTIONS OF THE PRIMARY CARE CHARACTERISTICS IN A MODEL OF INTERPROFESSIONAL PATIENT-CENTRED COLLABORATION BETWEEN CHIROPRACTORS AND PHYSICIANS

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
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Abstract

Background: Considerable attention has been paid to evaluating the roles and relationships of professionals participating in team-based or collaborative practice; however, less attention has been paid to exploring the patients’ views and impact of such practice despite claims of it being patient-centred.

Objectives: To examine the relationship between patient and provider characteristics and patients’ ratings of measures of quality of care and integration, and to explore the patient views of care delivered in a patient-centred collaborative study involving chiropractors and physicians.

Design: Cross-sectional survey.

Method: A mixed methods sequential approach with a quantitative priority was used in data analysis. Quantitative data were collected from 2597 patients participating in a collaborative study involving chiropractors and physicians and 530 patients attending chiropractors not
involved in collaborative care. All participants presented with musculoskeletal pain. The Primary Care Assessment Survey (PCAS) was modified and scores from six of its scales were used to assess attributes of quality patient-centred care between the two study groups. Qualitative transcript-based data from six purposefully selected focus groups was analyzed using an interpretivist approach.

**Results:** The revised PCAS demonstrated acceptable psychometric properties. Patients in both study groups received quality, patient-centred care. Patients’ reporting being completely satisfied and feeling improved by their care was positively associated with rating chiropractors as high performers on all scales. Survey findings were confirmed in focus groups of study patients. Patients appreciated positive interpersonal interactions, sharing in the treatment decision-making process, having a choice in provider and treatment, and the provision of holistic care. Patients perceived that collaboration between chiropractors and physicians varied, favouring those who were co-located. Patients with chronic or co-morbid conditions desired greater involvement in their care. Patients felt sharing of clinical information was more important than co-location as facilitating coordination and integration of collaborative care.

**Conclusion:** The study suggests that patients suffering from musculoskeletal pain benefit from interprofessional collaborative care that includes improved access to and choice of providers and treatment options, as well as enhanced interprofessional communication and coordination of care.

**Key words:** patient centered care; patient satisfaction; outcome assessment; interprofessional relations; chiropractic.
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Chapter 1  Introduction

Thesis Overview
1 Introduction

Health care delivery at the turn of the last century focused on diagnosing a problem and providing the appropriate elixir, a rather reductionistic biological approach to the delivery of care. Today, as a consequence of our deeper understanding of the human structure, function, behaviour and social interactions, the more complex biopsychosocial model of health and disease requires the integration of knowledge from different disciplines and often the involvement of a multidisciplinary health care team (Mead & Bower, 2000; Plsek & Greenhalgh, 2001; World Health Organization, 2008). Now, add to this equation of health care delivery, the growing resource constraints and financial pressures to maintain adequate funding (Bazzoli et al., 1997) and the importance of a health care system disposed to efficiently coordinate care delivery becomes fundamental.

The Ontario government’s announcement to establish primary health care teams holds the promise of making available the provision of comprehensive and integrated care to meet the needs of patients (Smitherman, 2004). This ‘integration echo' has reverberated nationwide as a consequence of federal reports suggesting that the health care system in Canada needs to be transformed into one in which system participants involved in the spectrum of health services work collaboratively to deliver seamless comprehensive care (Kirby, 2001; Romanow, 2002). The challenge however is that the current health care system is fragmented and comprised of health care providers who in the main have not experienced collaborative or integrative care (Pringle et al., 2000).

Efforts to address the fragmented health care system and improve system integration has resulted in the regionalization of services in an effort to streamline the provision of health care services, enhance accountability, and decrease costs, based upon a needs-based
Regionalization is primarily a structural change in the delivery of certain health care services that in general has been implemented in limited form across Canada; nevertheless preliminary evidence suggests that it has met some of its goals (Lewis & Kouri, 2004). What are not regionalized are physician services in the delivery of primary care.

Physicians are the gatekeepers to the health care system and have a direct impact upon its efficiency and effectiveness (Kirby, 2001). Thus reforming the delivery of primary care has many potential advantages including a focus on disease prevention and health promotion, improving access, and having health care providers working in multidisciplinary teams. The importance of health care professionals working more collaboratively has been identified as a key strategy of primary care reform in many provincial and federal reports (Oandasan et al., 2006).

Considerable attention has been paid to evaluating the roles and relationships of professionals participating in team-based or collaborative practice (D'Amour et al., 2005; D'Amour & Oandasan, 2005; Kinnaman & Bleich, 2004; Mior et al., 2002; Oandasan et al., 2006). However, there has been limited work exploring the views and impact of interprofessional collaborative practice from the perspective of the patient despite it being patient-centred (Cott, 2004; D'Amour et al., 2005).

The purpose of this thesis was to examine the relationship between patient and provider characteristics and patients’ ratings of measures of quality of care and integration, and to explore the patient views of care delivered in a patient-centred collaborative study involving chiropractors and physicians.
1.1 Interprofessional Collaborative Practice

Collaboration between health care providers has been proposed to be the answer to many complex and innovative health care solutions (Kinnaman & Bleich, 2004; Sullivan, 1998). It ensures that patients are provided with holistic and comprehensive care. Collaboration could potentially optimize intellectual resources, maximize the coordination of care, and recognize contributions of various professions (Barrett et al., 2007; Pringle et al., 2000). However, the literature is abounding with myriad descriptors of its definition.

1.2 Defining Collaboration

Collaborative practice has been defined as "…an inter-professional process for communication and decision making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client/patient care provided" (Way et al., 2000, p.3). Sicotte et al. (2002) defined interdisciplinary collaboration as the “process by which individuals from different professions structure a collective action in order to coordinate the services they render to individual clients or groups” (p. 992). D’Amour et al. (2005) portrayed collaboration more as an ideology suggesting that it “conveys the idea of sharing and implies collective action oriented toward a common goal, in a spirit of harmony and trust, particularly in the context of health professionals” (p. 116). Sullivan (1998) using concept analysis of the definitional terms found in the literature, defined collaboration as “a dynamic, transforming process of creating a power sharing partnership for pervasive application in health care practice, education, research, and organizational settings for the purposeful attention to needs and problems in order to achieve likely successful outcomes” (p. 6).
Leathard (2003) contributed to this concept suggesting that collaboration is a dynamic event that is situational dependent. One model she identified was proposed by Hudson (1998) who differentiated levels of collaboration between primary care providers and social services. Hudson suggested levels ranging from the simplest communication (interactions confined to information transfer) to co-ordination (individuals separated by organization and location, develop formal working relationships across boundaries) to co-location (individuals from different professions work in the same location along side each other) and lastly, commissioning (professionals with ‘a commissioning remit’ develop a shared approach to the activity).

Kinnaman and Bleich (2004) approached the concept of collaboration as one based upon the degree of relationship and the level of communication required under certain circumstances. Combining the concepts of mechanical systems thinking and complex adaptive systems, their model suggested that certain problems engaged different levels of behaviour depending upon the certitude of the outcome of the action selected and the degree of agreement among decision makers regarding the chosen action. They identified four different behaviours requiring different levels of communication and interaction. The first two involved a ‘plan and control’ approach in which certainty and agreement were relatively high. Toleration required only marginal and superficial levels of communication since individuals assumed their unique roles but there was limited or no understanding or input about the issues each faced. Coordination was the next level and was marked by formal communication strategies or actions between individuals; process was important but relationships were not formalized. The next two involved behaviours in the ‘zone of complexity’ where certainty and agreement regarding solutions to problems were lower.
Cooperation represented individuals who negotiated within professional boundaries and practices for shared benefits where relationships became more important since solutions to more complex problems had to be attained. Collaboration was the most highly developed and resource-intensive interprofessional behaviour where interdependence was crucial and financial and human resources were combined under common focus to solve complex problems. In this model, collaboration became the elusive goal where the inequities in power, decision-making, professional boundaries and hierarchy were transcended.

Boon and colleagues (2004) proposed a framework that described a continuum of various levels of involvement amongst health care providers. They proposed practice models ranging from parallel practice (individual providers independently providing services in separate locations) to consultative (individuals providing expert opinion) to collaborative (independent providers informally sharing information about common patients) to coordinated (providers who were formally connected to a team providing shared care services) to multidisciplinary (emerging from the coordinated model, a team evolved and was led by a leader who oversaw the integration of services and activities) to interdisciplinary (extension of multidisciplinary where team members met regularly to discuss and plan patient care) to integrative (interdisciplinary team functioning and behaving under similar goals and objectives in a non-hierarchical respectful environment).

The use of the terms interdisciplinary and multidisciplinary has also appeared in the definition of collaboration. These terms have been described as “individuals with different training backgrounds, who share common objectives but make a different but complementary contribution” (Leathard, 2003, p. 5). Leathard went on to differentiate interprofessional as a term reflecting interaction between professionals of different backgrounds with the same
common goals, as opposed to intraprofessional which suggested a similar interaction between different groups found within the same profession (e.g., medical specialists and family physicians). D’Amour and Oandasan (2005) introduced a new concept, ‘interprofessionality,’ in an attempt to define the cohesive relationship that developed and was fostered between professionals for the benefit and with the involvement of the patient. However, others considered reference to ‘professional’ as too narrow having the potential to limit the inclusion of groups that may not be considered professional, yet may play a role in collaborative practice (Drinka & Clark, 2000; Orchard et al., 2005).

For the purpose of this thesis, Sicotte et al’s (2002) definition of interprofessional collaboration was used, namely: “process by which individuals from different professions structure a collective action in order to coordinate the services they render to individual clients or groups” (p. 992).

1.3 Theoretical Frameworks of Collaboration
D’Amour et al. (2005) recently reviewed the core concepts and theoretical frameworks related to interprofessional collaboration. They provided a unique contribution to the literature on collaboration by identifying several theoretical frameworks applicable in studying collaboration. These frameworks borrowed from organizational theory and sociology, social exchange theory, systems theory, group developmental stages, and other disciplinary models. The majority of these frameworks have not been adequately tested nor assessed to determine if they significantly affect outcomes of care.

There have been numerous reviews summarizing the key and essential concepts, barriers and facilitators related to interprofessional collaboration, such as sharing of
responsibilities and knowledge, communication strategies, nature of partnerships, the role of interdependency, trust and respect among professionals, the structure and location of the practice, autonomy, and power. Collaboration has also been seen as a dynamic, interactive process that is ever evolving (D'Amour et al., 2005; Oandasan et al., 2006a; Orchard et al., 2005; San Martin-Rodriquez et al., 2005; Sicotte et al., 2000; Sullivan, 1998; Way et al., 2000).

The structure or setting of the practice also appears to facilitate the interprofessional collaborative relationship. Qualitative studies assessing the impact of co-location upon the level of collaboration, in particular of teams in institutional settings, have suggested that evaluations of such arrangements were usually favourable and important (Hudson, 1998; Oandasan et al., 2006a; San Martin-Rodriquez et al., 2005). However, there is little information about the effect upon collaboration in settings where multiple health care professionals are not co-located, which is often the situation involving the delivery of primary care in the community (Hudson, 1998; Oandasan et al., 2006).

In summary, interprofessional collaborative practice is a complex, voluntary, dynamic intervention that is impacted by various structures and processes (D'Amour et al., 2005). In the Kinnaman and Bleich (2004) model, it is the nature and level of the relationship required to solve a problem or address an underlying need which determines the level of collaborative practice, rather than a particular structure. In primary care many of the interprofessional relationships are fundamentally a dyad, a partnership between two health care providers, where organizational and team concepts may not be fully transferable. In this primary care dyad the relationship tends to be founded on the “mutuality of concern for each other as well as for the patient” (Way & Jones, 1994, p.30). The degree of involvement of each of the
providers may be determined by the patient, or may be a consequence of the clinical plan of management proposed by the provider. The patient becomes an active participant in the health care process. The patient comes to the centre.

### 1.4 Patient-Centred Care

Patient-centred care requires the practitioner to empower the patient, share in the power relationship and consider the whole person – the interaction between mind and body (Belle Brown et al., 2003). More simply, it is health care that is delivered humanly and respectful of patient needs and preferences (Institute of Medicine, 2001). Patients of primary care physicians have reported that they wanted care that explored the main reason for their visit; integrated their body, mind and spiritual needs; involved them in care management; promoted illness prevention and health; and enhanced the patient-practitioner relationship (Stewart, 2001). Many of these attributes are consistent with the Institute of Medicine’s definition of the characteristics of primary care, namely: accessibility, comprehensiveness, coordination, continuity, accountability, sustained patient-clinician relationship, and ‘whole-person’ orientation (Safran et al., 1998).

The concepts of ‘whole-person’ care or patient-centred care provide a foundation not only for primary care but also interprofessional collaborative practice. The focus on interprofessional collaborative patient-centred practice implies participation between the providers providing the care and the patients receiving it in an effort to improve outcomes (Herbert, 2005; Orchard et al., 2005). The patient is ‘centralized’ because they are the reason for the interdependency of the health professionals (D'Amour & Oandasan, 2004). However,
the nature of the patient’s interaction and contribution in this collaborative process varies and often is not explicitly stated (D’Amour et al., 2005). Some have felt that it was unreasonable to expect the same level of involvement by patients as by other members of the team (Drinka & Clark, 2000).

The evidence in support of interprofessional patient-centred collaboration seems primarily profession-specific and little is known about the role of the patient in such practices (Cott, 2004; D'Amour et al., 2005; Gerteis et al., 1993). Gerteis et al. (1993) conducted hospital patient focus groups to determine the patient’s expectations of patient-centred care. They identified eight characteristics: respect for patient’s values, preferences and expressed needs; coordination and integration of care; information, communication and education; physical comfort; emotional support and alleviation of fear and anxiety; involvement of family and friends; and transition and continuity. Similar findings were reported by Cott (2004) who explored long-term care clients’ perspectives of their client-centred rehabilitation care.

The aforementioned characteristics have been attributed to professions such as chiropractic and other complementary and alternative health care therapies such that by the nature of their underlying philosophy of providing holistic care, are presumed to be delivering patient-centred care (Institute of Medicine, 2005). Chiropractic has been considered as being more patient-focused than conventional medicine (Davis & Bove, 2007; Gatterman, 1995; Jamison, 2001). Notwithstanding there has been little research conducted justifying this commonly held belief (Institute of Medicine, 2005).
1.5 Thesis Overview

In consideration that patients may be treated by other providers in or out of a ‘team’ concept, evidence suggests a large gap exists between such team care and the requirements of effective physician-patient partnership or whole-person care (Safran, 2003). Despite arguments that patients cannot determine the quality of care they receive, they nevertheless are ‘eyewitness’ to, and concerned with, how the system works and is coordinated (Gerteis et al., 1993). Safran (2003) reported that although patients interpreted coordination of their care by their physician with other providers as excellent to very good, their interpretation of the interpersonal components of team-provided care was unfavourable in regard to whole-person knowledge, knowledge of medical history and communication. This finding does not bode well for interprofessional collaborative patient-centred care especially since some consider it the *sine qua non* of effective care (Belle Brown et al., 2003; Belle Brown et al., 2003a).

This thesis explores the views and perceptions of patients participating in a study assessing the implementation of an interprofessional patient-centred collaborative model of musculoskeletal care involving chiropractors and physicians in community-based primary care. Chapter Two provides the context and background from which the model evolved and was subsequently implemented. Chapter Three introduces the theoretical framework underpinning the concept of patient-centred care, the thesis questions, and the design. Chapter Four presents the results of the psychometric analysis of the Primary Care Assessment Survey that was used to collect the data for this thesis. Chapter Five provides an overview of the mixed methodology employed to address the research questions. Chapter Six includes the results of the quantitative and qualitative analyses. Chapter Seven discusses the findings and the relevance of the results as they relate to interprofessional patient-centred
collaborative care. And Chapter Eight closes with concluding remarks, limitations of the study and future directions.
Chapter 2 Background

Designing and Implementing a Model of Interprofessional Collaborative Practice
2 Introduction

In a changing health care environment where the contribution and expertise of different health care providers is recognized as a potential opportunity to provide comprehensive care, collaboration between health professionals and the patient is critical. Chapter 1 provided a brief overview of the link between interprofessional collaboration and patient-centred care. It also highlighted some of the inherent challenges in this linkage and the need to develop and implement effective models of collaboration.

This Chapter describes the research program conducted between 2001 and 2006 that resulted in the development, implementation and assessment of a model of interprofessional patient-centred collaboration between chiropractors and physicians. It provides the context from which the data for this thesis was obtained. Although an objective of the research was enhancing collaboration between chiropractors and physicians in order to improve continuity of care, it also assessed the patients’ perception of the quality of the care received and their perception of the collaboration. The data assessing the latter objective form the foundation of the analysis in this thesis.

2.1 Impact of Musculoskeletal Conditions

The Ontario government’s announcement to establish primary health care teams holds the promise of making available the provision of comprehensive and integrated care to meet the needs of patients. The development of collaborative services begins with decisions regarding which services are to be offered based on the identified needs of the practice population. One such potential patient need is the treatment and management of arthritis and related musculoskeletal conditions.
One of the most common chronic conditions and a leading cause of pain, disability and use of health care services are musculoskeletal conditions (MSC) (Badley, 2004; Badley & DesMeules, 2003; Coyte et al., 1998; Lagacé et al., 2008; Woolf & Pfleger, 2003). In 2000, the prevalence of arthritis and rheumatism was estimated to affect 16% of those 15 years and older and reportedly the third most common chronic condition after non food allergies and back pain, respectively (Lagacé et al., 2008). Back and neck pain affect more than 80% of people during their lifetime and have a considerable impact on society (Côté et al., 2001).

Low back pain is an important health care problem in the industrialized world (Cassidy et al., 1998). About 50% to 80% of the population will report back pain during their lifetime and 15% to 30% will do so at a particular point in time (Cassidy et al., 2005). In a cross-sectional population-based study in Saskatchewan, Cassidy et al. (1998) found that about half of the population reported experiencing low intensity/low disability low back pain, 12% experienced high intensity/low disability, and 11% experienced high disability low back pain in the six months before the survey. While older individuals reported more disabling pain than the younger ones, women were found to be twice as likely as men to report disabling back pain, in particular in the 50-59 year age group. In a subsequent report using the same data set, Cassidy and colleagues (2005) reported that about 27% of people with low back pain at baseline had resolution of their symptoms and about 40% continued to experience pain at 12 month follow-up. In this latter group, about 70% persisted with mild low back pain, about 12% with intense and about 18% with disabling low back pain. Of subjects reporting resolution of symptoms at six months, almost 29% had a recurrence during
the subsequent six months. The authors concluded that low back pain is a common, chronic
and recurrent condition within the adult population (Cassidy et al., 2005).

As with low back pain, neck pain follows a similar clinical course with associated
disability and burden to society (Côté et al., 2004). A recent review suggests that neck pain is
common and when qualified presents with an “iceberg of burden” pattern that typifies other
MSC, namely there are many cases of some pain, fewer cases of significant duration, fewer
requiring use of health services, and fewer still that are disabling (Hogg-Johnson et al.,
2008). One-month prevalence estimates of any neck pain range from about 15% to 45%, with
about 12% to 14% of adults and about 8% of adolescents rating their pain as frequent, and
about 8% to 15% of adults suggesting it interfered with their activity (Hogg-Johnson et al.,
2008). The estimated annual rate of resolution of neck pain is about 37%, with about 33%
reporting some improvement; however, about 37% of people with neck pain at baseline
reported persistent pain, about 10% aggravation of the pain, and 23% recurrence of pain at 12
month follow-up (Côté et al., 2004). As in other MSC, neck pain is a common disabling
condition, marked with an episodic and recurrent course (Côté et al., 2004; Hogg-Johnson et
al., 2008).

The associations between neck and back pain suggest that they are components of a
much broader chronic pain syndrome (Côté et al., 2004). They are common causes of chronic
disability, responsible for a significant proportion of work absenteeism, productivity loss, and
use of health services (Cassidy et al., 1998; Côté et al., 2001). The morbidity and disability
resulting from chronic musculoskeletal conditions have considerable impact upon the
function and independence of individuals resulting in their extensive utilization of health care
and social resources (Cassidy et al., 1998; Hawker, 1998) and an economic burden to society (Cassidy et al., 1998; Stokes et al., 2003).

The total economic burden of musculoskeletal conditions in Canada ranked second in 1998 but was the most costly disease group for women and third most for men (Stokes et al., 2003). Total costs were estimated to be about $16.4 billion when considering both indirect costs ($13.7 billion) and direct costs ($2.6 billion) (Stokes et al., 2003); however, depending upon how such conditions were defined, the total cost estimates could be considerably higher, ranging between $19.9 and $30 billion (Coyte et al., 1998). The wide variation in the costs may be attributed to the various musculoskeletal subcategories where injuries, back and spine disorders, and arthritis and rheumatism were ranked as the most costly (Coyte et al., 1998).

A recent United States (US) national survey examining trends in related health expenditures for back and neck problems (i.e., spine) reported a substantial increase in costs over an eight year period, despite no evidence of significant corresponding increase in self-assessed health status (Martin et al., 2008). The annual estimated total health care expenditures for US adults with a spine condition increased from about $52US billion in 1997 to about $86US billion in 2005 (all estimates were inflation-adjusted to 2005 US$). The average annual age- and sex-adjusted costs for respondents with spine problems and those with non-spine problems was $4,695US and $2,731US in 1997 and $6,522US and $3,516US in 2005, respectively. This difference was partially explained by the significant greater number of comorbid conditions in respondents with spine problems and also by the influence of practice patterns and patient self-perception. The authors also estimated the direct costs related explicitly to spine problems and found the costs increased by 60% during this same
period, from about $20US billion to $33US billion, with the greatest increase in expenditures being spine-related prescription costs (188%), followed by inpatient costs (87%), outpatient costs (43%), and emergency room expenses (27%). In regard to prescription costs, increase costs attributed to narcotic analgesics rose by 443%. The absolute dollar increase over time was for outpatient visits. Costs attributed to chiropractic and physiotherapy costs increased by 111% and 78%, respectively. Although health care expenditures substantively increased over time, the limitations in activities of daily living did not significantly differ between respondents with or without spine problems and over time.

Although estimating the cost attributed to musculoskeletal conditions poses a challenge, the magnitude of its impact upon society, in particular as it ages, is obvious. Evidence suggests that spine problems are expensive and affect a large segment of the population. And like other musculoskeletal conditions, the largest component of cost is the burden of morbidity due to long-term disability (Stokes et al., 2003). There appear to be opportunities to more effectively manage spine problems and musculoskeletal conditions in general, that may contribute to reducing health care and societal expenditures while at the same time reducing the burden to society.

2.2 Utilization of Health Care Services

In an effort to address the accompanying disability and loss of function, people with musculoskeletal conditions access a variety of services. Recent Canadian survey data suggested that a higher proportion of people with arthritis used health care services when compared to other chronic conditions (Lagacé et al., 2008). These services were provided by a range of health care providers from physicians to complementary and alternative health
care (CAHC) practitioners. The majority of people with arthritis utilized physician and specialist services (Lagacé et al., 2008). Physiotherapists were the most commonly sought group for patients with arthritis, while the patterns of use of services rendered by nurses, chiropractors, psychologists, social workers, counsellors, and alternative care providers (i.e., massage therapist, acupuncturist, naturopath and homeopath) for arthritis and other chronic conditions were similar. In almost all instances the proportion of people seeking such services for arthritis was about twice that for non-chronic conditions (Lagacé et al., 2008).

In Ontario, the patterns of health care services use were similar to those reported in the national survey. Analysis of 1997/98 health survey data suggested that people in Ontario were more likely to consult a physician for arthritis compared to other chronic and non-chronic conditions, in particular those less than 65 years of age (Badley et al., 2001). The proportion of people accessing physiotherapists or occupational therapists and chiropractors with arthritis (about 13%) and other chronic conditions (6% and 8%, respectively) were similar. However, their underlying socio-economic and clinically related factors differed; in particular, the association between long and short-term disability levels in people seeking physiotherapy or occupational therapy (Badley et al., 2001). About 5% of the people reported seeing a psychosocial provider (i.e., psychologist, social worker or counsellor), with increasing use by age and females (Badley et al., 2001). The proportion of the population visiting an alternative care provider ranged from 7% and 5% for arthritis and other chronic conditions, respectively, with the largest group being females between the ages of 15 and 44 years (Badley et al., 2001).

Despite being one of the most common reasons for seeking primary care services, musculoskeletal conditions are considered “non-life threatening” or aches and pains of aging;
consequently many do not seek or fail to receive appropriate care (Badley, 2004; Badley & DesMeules, 2003; Gignac et al., 2006; Perruccio et al., 2004). Although not curative, there is limited evidence suggesting that management of arthritis and related musculoskeletal conditions may prevent disability, decrease pain and maintain function (Badley & DesMeules, 2003). A guiding principle in such management, in particular for chronic neck and back pain, is a multidisciplinary approach (Côté et al., 2001).

Canadian data of persons with chronic low back pain, especially if accompanied by co-morbidities, suggest increased use of physician or other health provider services, with considerable percentage of persons (e.g., about 31 to 48%) reporting seeking care from multiple providers (Côté et al., 2001; Lim et al., 2006). Patients with chronic neck and back pain often consulted a chiropractor. For example, of persons surveyed, those with chronic low back pain were 3.6 times more likely to seek chiropractic services compared to those without chronic low back pain (Lim et al., 2006). Those seeking only chiropractic care tended to have less functional limitation and severity of pain (Côté et al., 2001; Lim et al., 2006; Mior & Laporte, 2008). However, for those persons seeking services from a physician and another healthcare provider, there was an association with depressive symptoms, pain creating impaired function, and lower socioeconomic status (Lim et al., 2006). Côté et al. (2001) reported similar findings but noted that persons seeking both physician and chiropractic services had more debilitating and functionally limiting chronic neck and back pain compared to those who only saw a physician.
2.3 Chiropractors and Health Care Delivery

Chiropractors are primary contact health care professionals, regulated by legislation in each Canadian province (Balon & Mior, 2004; Wells, 1994). They are the most commonly sought non-physician primary contact health care providers in Canada with about 36% of Canadians attending for care at some point in their lifetime (Ramsay et al., 1999) and 12% annually (Park, 2005). As noted above, they are commonly sought in the management of MSC, especially for chronic neck and low back pain (Côté et al., 2001; Hurwitz & Chiang, 2006; Lim et al., 2006; Waalen & Mior, 2005). The majority of patients self refer; however, a review of surveys suggested a mean rate of physician referrals to chiropractors of about 40% (range from 2 to 83%) and about 53% of physicians (range 13 to 91%) reported believing that chiropractic care was efficacious (Astin et al., 1998).

Trends suggest that musculoskeletal-related disability and associated costs will continue to rise; and due to the multidisciplinary nature of these conditions, enhanced interprofessional collaboration will need to develop (Brooks, 2006). A recent study found that about 31% of those surveyed reported seeing both a physician and a chiropractor for chronic neck and low back pain, suggesting that the more severe cases were not managed in isolation (Côté et al., 2001). Yet, this did not presume that such cases were collaboratively managed by physicians and chiropractors or that the chiropractors commonly practiced in multidisciplinary settings.

In fact, despite a presumed recognition and reported acceptance of chiropractic (Theberge, 2007), the inclusion of its services in multidisciplinary settings has met with varied success (Pasternak et al., 1999; Triano & Hansen, 2000; Weeks, 1997). Barriers to the inclusion of chiropractic services have included provider competition, philosophical differences, physicians’ lack of knowledge about chiropractic interventions, perceived limited
evidence in support of clinical efficacy, professional bias and prejudice, and lack of funding for services (Astin et al., 1998; Kelner et al., 2004; Pelletier & Astin, 2002). These barriers have contributed to limited interprofessional communication and referrals between chiropractors and physicians (Greene et al., 2006) or patients seeking chiropractic care without consulting or informing their primary care family physician (Kaczorowski et al., 2002).

Routine interprofessional communication is important to the understanding and awareness of patient management (Breen & Breen, 2003). However, communication between chiropractors and physicians is comparatively limited, with only about 25% of physicians suggesting they received information about mutually managed patients (Mainous et al., 2000). This is particularly relevant in the management of chronic MSC where both physicians and chiropractors may be independently involved in the care of patients, patients who are typically prescribed more medication than persons only attending for chiropractic care (Hurwitz & Chiang, 2006). This lack of communication fosters fragmentation of patient care that may affect its continuity and quality (Greene et al., 2006; Mainous et al., 2000).

The continuity and quality of care may be enhanced through effective interprofessional collaboration (Barrett, et al., 2007; Nolte, 2005). Strategies and models have been proposed to facilitate collaboration between health professional groups (e.g., in psychiatry, social work, and nursing) and their integration into primary care (Nolte, 2005; Oandasan et al., 2006). There is growing evidence that opportunities for multidisciplinary practice and the level of interprofessional collaboration between chiropractors and other health care providers are increasing (Johnson et al., 2008).
However, little is known about whether the strategies and models used with other professions are transferable to chiropractors or other complementary and alternative health care providers (Frenkel & Borkan, 2003; Greene et al., 2006). As such, there is little to guide the strategic implementation of a patient care program to facilitate the collaboration between independently practicing health professionals.

2.4 Establishing a Program of Study

As a consequence of limited understanding of the strategies to advance interprofessional collaboration between chiropractors and physicians, a two-phase research program of study was undertaken. The program was established to 1) develop and 2) implement and assess a conceptual framework defining specific structures and processes that would facilitate the successful collaboration between chiropractors and physicians in the delivery of patient-centred musculoskeletal care in a community based primary care setting.

In the first phase, a qualitative study using a grounded theory approach was conducted in order to develop the conceptual framework of a model of interprofessional collaboration that would address the barriers and the enablers to enhance chiropractor-physician relationships and improve the continuity of patient care. In second phase, a two-year observational study was designed to assess the implementation of the model and its impact upon the professional relationship between chiropractors and physicians, the continuity of patient care, and the patients’ experiences with the interprofessional collaboration.
The following two sections provide a brief summary of methods and outcomes of each of the aforementioned phases, thereby providing a context from which the data were collected for this thesis.

2.4.1 Developing a Model of Interprofessional Collaborative Patient-Centred Care

In the first phase, a model of interprofessional patient-centered collaborative practice for the delivery of musculoskeletal care in Ontario, Canada was developed (Mior et al., 2009). Utilizing key informant interviews and focus groups, participants’ meaning of the nature of the interprofessional relationship and the factors or actions that would enable a successful collaboration between chiropractors and physicians were explored.

2.4.1.1 Method

Sixteen (16) key informants were purposefully selected from across North America for their expertise and influential status in primary health care practice, research, or health policy. These opinion leaders came from academia, administration, chiropractic, medicine, midwifery, nursing, and physiotherapy. In addition, focus groups were conducted at two different primary care networks (PCNs) that had expressed interest in interprofessional collaboration with local chiropractors.

The purpose of the focus groups was to explore the unique factors identified by the key informants requiring redress in order to achieve successful interprofessional collaboration between physicians and chiropractors in these primary care community settings. Eight focus groups, comprised of about 10 individuals, four at each of the two PCN sites were held. Each site involved one group composed of the physicians in the PCN; a
second group of chiropractors recruited because of their proximity to the selected PCN; a third group of patients recruited from advertisements in the PCN physician offices, but who had not previously seen a chiropractor; and a fourth group of patients recruited from both the physicians’ and chiropractors’ offices who were receiving chiropractic care. A total of 62 participants provided input in the focus groups.

A grounded theory research method approach was used. Each transcript was independently analyzed by two members of the research team using the constant comparison method (Strauss & Corbin, 1998). All data sources were closely examined for each meaningful phrase, sentence or paragraph, and compared for similarities and differences. Open coding was used to identify categories and sub-categories. Team research meetings were convened to harmonize individual interpretations until consensus was reached on all categories, sub-categories and core thematic impressions. At the conclusion of each meeting, the coding structure was refined and the related transcript data entered into NVivo qualitative data analysis software (QSR NVivo Version1.1. Doncaster, Victoria. Australia. 2002).

2.4.1.2 Results

The results identified the benefits, challenges and enablers of collaboration; specified outcome measures for the assessment of its effectiveness; and identified strategies to facilitate the implementation of a collaborative practice in a primary care community based setting. Two key themes- ‘trusting relationships’ and ‘patient centeredness’- emerged from the data that provided the conceptual reference points for the resultant process-based model’s framework.
The model’s framework was made up of three distinct categories - communication, practice parameters, and service delivery - representing key enablers for building trust and providing patient-centred care. Each category was comprised of particular sub-categories that represented strategies involving specific enablers to building a trusting relationship or providing patient-centred care. These categories and sub-categories thus formed the conceptual basis for the chiropractor-physician patient-centred collaborative model (see Figure 2.1).

2.4.1.3 Discussion

The success of the collaboration was perceived to be dependent upon the forging of trusting interprofessional relationships and delivering care that was patient-centred. It was believed that these would be facilitated by improving interprofessional communication; delineating mutually acceptable scopes of practice; enabling patient access to care through specific referral arrangements and removal of the cost barrier; ensuring appropriate levels of professional liability; creating an equitable reimbursement for services; and creating minimally intrusive administrative responsibilities and costs. The focus on the patient at the centre of this process-based model highlighted the importance and relevance of patient choice, access, and continuity of care.

The main limitation of this study was that it was confined to participants in two pre-selected PCN pilot sites in rural Ontario, Canada. The study participants were selected for their availability or convenience from a larger pool of qualified individuals. Although the results from the groups at both sites were similar, it is possible that additional focus groups in different locations may have yielded different or additional information.
2.4.1.4 Conclusion

In conclusion, frameworks have been proposed to address the structure, composition, settings, and barriers to collaborative practice, but few have related specifically to matters of process or involved CAHC providers who were not organizationally situated (Committee on the Use of Complementary and Alternative Medicine by the American Public, 2005; Coulter et al., 2005; D'Amour et al., 2005; Institute of Medicine, 2005).

This model provided a conceptual framework comprised of the key enablers of trusting interprofessional relationships and patient-centred care deemed necessary in order to
overcome the barriers to, and address the facilitators of, interprofessional collaboration between physicians and chiropractors in a non-institutionalized clinical setting.

2.5 Implementing the Interprofessional Collaborative Model

In phase two of the research program, a two-year observational study was designed to evaluate the implementation of the interprofessional collaborative model and how it impacted upon the professional relationship of chiropractors and physicians, the continuity of patient care, the level of satisfaction of providers and patients, and the reimbursement of chiropractic services.

2.5.1 Participants

Participants in this second phase included physicians practicing in selected Primary Care Networks (PCN) or Family Health Networks (FHN), their rostered patients (i.e., patients who were registered or enrolled with their PCN/FHN physician), and chiropractors who practiced within the PCN/FHN geographic area.

The lead physicians in several PCN/FHNs were sent letters seeking interest in participating in the study. Positive responses were followed by a phone call and meeting with the Principle Investigator. A subsequent presentation by the Principle Investigator to all the PCN/FHN physicians was made to review the study design and secure agreement to participate. Once agreement from the physicians was obtained, letters were sent to all chiropractors in the immediate surrounding area of the PCN/FHN, in particular to those who were seeing many of the patients rostered to the PCN/FHN. Those in the latter group were determined by reviewing Ontario Health Insurance Plan (OHIP) billing data and cross-
referencing the chiropractor and physician patient lists. A meeting was held with interested chiropractors to review the study protocol and obtain agreement to participate.

Patients who were rostered to a study PCN/FHN and presented with a musculoskeletal condition (broadly defined as presenting with pain or discomfort in the spine, a joint or muscle) were eligible to participate. Patients were informed of the study from advertisements placed in the offices of the participating providers, as well as by their providers.

2.5.2 Interventions
The study intervention was the sum of the activities comprising the model’s categories and sub-categories, i.e., it operationalized the collaborative model (see Table 2.1). In an effort to improve the communication between providers, specific activities were developed to support formal and informal communications. The formal communication activities included the creation of specifically designed consultation forms, intended to improve the continuity of patient care. These forms evolved over the two years, undergoing numerous modifications in an effort to improve their simplicity, use and information transfer. Each physician and chiropractor enrolling a patient in the study completed the required clinical form. Providers also agreed upon less formal communication methods, e.g., phone calls, to discuss study or patient related matters.

In an effort to improve personal and professional relationships and understanding of each discipline, up to six educational sessions were scheduled at each site during the two years. Each educational session focused upon the aetiology, clinical picture and management of a particular musculoskeletal condition; beginning with uncomplicated low back pain and
evolving to more complicated and contentious issues such as manipulation of the neck. The sessions were organized by the Principle Investigator, who often prepared the materials, but were co-taught by a chiropractor and physician involved in the study. As the interprofessional relationships improved, the pedagogical approach used in these sessions evolved from the traditional lecture format to more interactive small group, case-based discussion.

In addition, a social component was built into each educational session to facilitate providers getting to personally know each other. The social component included drinks and food and the opportunity for informal communication. The intent of these activities was to develop trust between the providers.

The last sub-category in the communication category was the creation of an interprofessional advisory committee. Interprofessional advisory committees were established in each of the study sites to provide input and feedback to the research team. The study team used this as a continuous quality improvement approach to address issues arising that could positively or negatively impact the study’s goals and objectives. In addition, study related information and updates were shared with each provider group, separately and together, via verbal presentations made by the research team or via direct correspondence by letter or specially designed study newsletters.

The category, practice parameters, had three subcategories that addressed clinically related activities. The chiropractors who agreed to participate were required to provide care according to agreed upon treatment algorithms for acute, chronic and recurrent musculoskeletal conditions (Henderson et al., 1994). Chiropractors were also provided a standardized report of clinical findings so as to regularize the clinical information that they
provided to patients. In addition, chiropractors were provided special exercise software capable of generating individualized patient-specific exercises to promote activity and participation in the treatment process for the purpose of empowering the patient in self-care. These activities were incorporated in an effort to standardize and improve the consistency of the care delivered by the chiropractors in the study.

The category, service delivery, addressed related issues of access, availability, liability and reimbursement of services. In consideration of improving access, the financial barrier to patients attending for chiropractic services was removed, i.e., patients did not pay for their chiropractic care. Chiropractors were reimbursed for their care at a maximum annual amount for the provision of care to study patients regardless of the nature of the condition or number of visits required. This was achieved by developing a blended capitated model for chiropractic services based upon in-depth analyses of billing and OHIP data for chiropractors over three consecutive years; the computed yearly average amount was used to compensate participating chiropractors. The blended model included fixed dollar values allocated to a base amount per patient (inclusive of an administrative fee for data collection), a small amount for individual patient visits, and an amount to promote patient self-care (i.e., exercise and education). This reimbursement model was used to limit the potential impact of fee-for-service utilization and to also emulate physician reimbursement in PCN/FHN settings. Physicians were paid a nominal amount for each completed referral note.
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*Table 2.1:* The various activities in the intervention that were used to address the defined attributes in the model.
2.5.3 Study enrolment

There were two points of entry for eligible patients into the study (see Figure 2.2). The first point of entry was from the physician referring a patient to a chiropractor. All referred patients were given a choice of seeing one of several local study chiropractors. The physician provided a referral note outlining the reason for referral and any pertinent medical information.

The second point of entry was at the chiropractor’s office when eligible patients presented directly (self-referred). In this case, the chiropractor sent a letter to the physician indicating that the patient presented for care without a physician referral. If the patient was not suitable for chiropractic care based upon the relevant Clinical Practice Guidelines (Henderson et al., 1994), the patient was referred to the physician with an accompanying note outlining the reason for referral.

Patients were informed of the study and the interprofessional collaboration from specially created brochures and posters. The posters were clearly displayed in the offices of all the study providers. Each patient was also provided a verbal and written description of the study, the expectation of their participation, and permission for case discussion by their study physician and chiropractor. All participating patients signed informed consents for study involvement and chiropractic care.

2.5.4 Risk Management

The risks associated with clinical care were considered to be no greater than risks normally associated with clinical care provided according to approved CPG. The providers’ risks of participating in the study were related to the potential of vicarious or joint and
several liabilities. Vicarious liability is a form of liability that holds one person responsible for the wrongdoings of another typically under an employer-employee relationship. Joint and several liability is a form of liability where two or more persons acting independently may be held responsible for causing or contributing to another's damages. Since providers were considered to be independent contractors, the risk of vicarious liability was remote (Picard, 1996). The potential for joint and several liability was similar to the liability to which providers are currently exposed when making a recommendation or referral to another regulated health care provider. There is no known Canadian case law providing guidance in regard to the referral of patients from physicians to chiropractors. All providers agreed to maintain liability insurance at a level and comprehensiveness defined by their national malpractice association.

2.5.5 Privacy and Confidentiality

Participating providers maintained all clinical records in compliance with their respective professional standards as established by their regulatory body and Privacy law. Patient referral and clinical notes were either sent by post or by facsimile to the respective provider after obtaining patient consent to do so and remained in the patients’ files at the providers’ offices. All materials collected during the study were for the sole purpose of clinical management and research and were not used for any other purpose without the participants’ explicit consent. Patient and provider names were linked to confidential, study generated identification numbers. Primary data were kept in secure password-protected electronic files or paper files in locked filing cabinets in locked offices.
2.5.6 Data Collection

Qualitative and quantitative data were collected. Quantitative data included administrative data collected from the chiropractors using a specially modified computer software program capable of capturing billing, treatment and outcome data; standard pain (numerical rating scale) and disability (Neck Disability Index and Roland Morris) scales, patient self-report (Measure Yourself Medical Outcome Profile) and quality of life scale (SF-12) collected at baseline and at two, four and eight weeks; and the Primary Care Assessment Survey (PCAS) was collected at week four. Qualitative data were collected from the chiropractors and physicians using semi-structured interviews and from patients using focus groups.

Descriptive and inferential analyses of quantitative data were conducted using SAS (SAS Institute, 1990) and SPSS (SPSS, 2004).

2.5.7 Results

Study outcomes included both quantitative and qualitative assessments (Mior et al., 2007). A total of 46 chiropractors and 20 physicians agreed to participate. A total of 4688 patients were entered into the study by the chiropractors, of which about 35% were referred by the physicians. There was considerable variance in the numbers of patients enrolled per chiropractor due to the proximity between the chiropractic and physician offices.

About 59% of study patients were female with an average age of 50 years. Back pain was the most frequently referred condition (about 40%) with about 60% of patients reporting their pain was more than 3 months in duration. A comparison between study and non-study patients suggested that a greater percentage of patients referred by physicians had lower
family incomes (40% earned <$40k vs. 29% of non-study patients) and a higher mean number of pain days (85 days for study vs. 57 for non-study patients).

Figure 2.2: Schematic of patient flow during the implementation study.
Almost 50,000 chiropractic services were provided over the two year period with the average number of services per patient being about 11 per year; which was higher than the average of 8 for non-study patients and the pre-study benchmark of about 7 services. There was one reported adverse event – a rib fracture resulting from a dorsal manipulation delivered to an osteoporotic patient. The average captitated dollars paid to the chiropractors per study patient per year was about $300CDN, which compared favourably to the average of about $240CDN paid by non-study patients per year in a fee-for-service patient pay model.

A number of clinical outcomes were used to assess changes in levels of pain, disability, and quality of life and were measured at four discrete points during the treatment protocol. In summary, the clinical outcome data collected from study patients showed statistically significant (one way ANOVA, p<0.001) differences for the majority of pain (NRS) and disability (NDI and Roland Morris) scores between baseline and Weeks 2 and 4 but not between Weeks 4 and 8; however, clinically important differences were mostly observed between baseline and Week 2. The mental and physical scales of SF-12 were measured at baseline and at Week 4 and improved over time but found not to be significantly different. There was a moderate clinically important improvement in Measure Yourself Medical Outcome Profile (MYMOP) scores between baseline and Week 2, and minimally important improvement between Weeks 2 and 4, which were also statistically significant (p<0.001 ). The percentage of patients reporting that they were taking medication dropped from about 48% to 37% over 8 weeks, as did the average number of doses per week – from 12 to 8 doses.

A similar trend in symptom and disability scores and analysis was also noted for conditions other than those involving the neck and back. However, the noted trend could
have been a function of the loss of data at follow-up, since data were only collected if patients attended for care, and end point to care was symptom resolution or maintenance care.

The qualitative assessments (i.e., provider semi-structured interviews were conducted at three discrete points in the study) focussed upon the changes in the chiropractor-physician relationship, satisfaction with the collaboration, barriers and facilitators to sustaining collaborative relationships, and impact on practice. Data from interviews suggested that the implemented model positively affected communication and interprofessional relationships between chiropractors and physicians (Mior et al., 2006). Although informal (phone calls) and formal (referral or consultation notes) communications between providers about patients improved, it was inconsistent and a struggle during the study despite modifications to simplify the referral forms.

Both provider groups believed that the educational sessions played a critical role in developing interprofessional respect and mutual trust. Data from provider interviews suggested that these educational sessions positively affected the communication and interprofessional relationships between chiropractors and physicians (Barnsley et al., 2007). The sessions also reportedly increased understanding and awareness of the unique terminology used by each profession, which in turn contributed to a greater sense of comfort in making referrals. The resultant recognition and understanding of each profession positively affected the continuity of patient care, including messaging to patients.

Despite the high levels of reported patient and provider satisfaction, a number of challenges were identified. The most significant one being that some providers had limited participation in study activities because of the lack of available time or heavy workload.
Other challenges noted included lack of leadership amongst the study participants to sustain change, inconsistency in interprofessional correspondence, and professional cultural differences. Several enablers were identified including co-location of providers, a specific focus on musculoskeletal conditions, opportunity to meet and interact, and commitment and open mindedness of participants.

2.5.8 Discussion

The study found that professional relationships differed depending upon the organizational arrangement of the primary care practice. Providers who were co-located evolved to a stage of interdisciplinary practice that transcended the simplest level of communication and exchange of clinical information. The inherent “hallway chatter” emblematic of co-location helped to address preconceived professional biases and concerns and helped ‘stretch’ professional boundaries.

Patient access to chiropractic services improved because of the removal of the financial barrier to patient and enhanced understanding of each professional’s contribution to patient care. Removal of the financial barrier also decreased physician concern about recommending treatment that would be costly to patients, in particular those with low household annual income or no third party insurance.

Patient views of their relationship with both the chiropractor and physician were collected using the Primary Care Assessment Survey (PCAS). Patient focus groups at each site were conducted to explore their impressions of the study, their levels of satisfaction, and what was of importance to them in the chiropractor-physician collaboration. PCAS measures
were also obtained from non-rostered patients attending non-study chiropractors. This patient information forms the basis of this thesis.

2.5.9 Conclusion

The emergent interprofessional patient-centred collaborative model in the first study proposed to address the commonly cited challenges and opportunities to collaborative clinical care. This process-based framework comprised strategies that would advance interprofessional trust while maintaining patient centrality.

The subsequent implementation of the model in the second study resulted in improved interprofessional relationships that in turn contributed to the continuity and coordination of patient care. Access to care was improved by health care providers’ understanding of each others practices as well as by the removal of financial barriers to patients. The removal of the latter barrier provided a viable therapeutic option to patients who otherwise could not afford it, particularly for those with multiple or chronic health conditions that would otherwise not have sought or considered chiropractic services.

2.6 Program Participation and Funding

Each of the two studies was executed by a multidisciplinary research team in which the author of this dissertation was the lead co-principal investigator. The lead co-principal investigator was responsible for the general design of both studies, selection of the outcomes, writing of the proposals, seeking and applying for funding, oversight of both studies, directing the research manager and her team, and the writing of progress and final reports.
Funding for the first study was obtained from a special chiropractic research fund provided to the Ontario Chiropractic Association by the Ontario Ministry of Health and Long Term Care. The second study was funded from grants obtained from the special chiropractic research fund, as well as the Primary Health Care Transition Fund (Grant # G03-05422). Each proposal was peer-reviewed by the respective agencies.

Both studies underwent and received ethics approvals from the Research Ethics Boards of the University of Toronto and the Canadian Memorial Chiropractic College.
Chapter 3  Thesis Purpose

Where’s the Patient in Interprofessional Patient-centred Collaborative Practice?
3 Introduction

Patient-centred care is considered to be a core value of medical practice (Stewart et al., 2000) and an underlying philosophy of chiropractic care (Jamison, 2001). Chapter 1 provided a brief overview of the relevance of patient-centred care to clinical practice and in particular, to interprofessional collaboration. It also defined patient-centred care as health care delivered humanly and respectful of patient needs and preferences (Institute of Medicine, 2001). This chapter provides more detailed information on patient-centred care, how it affects clinical outcomes, and its role in collaborative practice. It concludes with the thesis’ statement of purpose and questions.

3.1 Patient-Centred Care

Patient-centred care is increasingly considered crucial to the delivery of quality health care (Mead & Bower, 2000) and considered central to the delivery of primary care (Committee on the Future of Primary Care, 1994). Stewart et al. (2000) have suggested that the concept of a patient-centred approach can be traced to the ancient Greeks. More recently, it has been attributed to Balint who in the 1950’s emphasized the importance of considering patient individuality in the assessment and understanding of their presenting complaints rather than simply focussing on their underlying pathology (Duggan et al., 2006; Lewin et al., 2001; Mead & Bower, 2000; van Dulmen, 2003). Most agree that one of the factors leading to the wide adoption and appeal of the patient-centred approach has been the inherent limitations of the biomedical model and the need to contextualize the patient’s presenting symptoms within a paradigm popularized by Engel that considered the patient’s physical,
psychological and social dimensions while at the same time engaging them in their care (de Haes, 2006; Engel, 1977; McWhinney, 1993; Mead & Bower, 2000).

In the ensuing years following Balint’s assertion, the definition of patient-centred care evolved and expanded from being open to patients’ feelings to one incorporating multiple components of the doctor-patient encounter. Unfortunately this expansion has resulted in numerous definitions that have also contributed to greater confusion (Lewin et al., 2001). Adding to this confusion is the articulation of various theoretical frameworks that have created a ‘fuzziness’ around the concept of patient-centred care (van Dulmen, 2003).

For example, patient-centred care has been promoted to address the inherent flaws of the biomedical model. The biomedical model was founded on a traditional science approach whereby one studied the results by dissecting them into explainable parts. Paradoxically, this traditional approach is often used to study patient-centeredness by dissecting parts that may not only be inseparable but unique to individual patients. This may perhaps explain the confusion regarding the definition and underlying frameworks of patient-centeredness (de Haes, 2006; Epstein et al., 2005; Lewin et al., 2001; Mead et al., 2002; van Dulmen, 2003), wherein different researchers focus upon different aspects of the patient-centred approach with limited integration of the knowledge gained (Ong et al., 1995).

Patient-centred care is not seen as an abandonment of the biomedical model but rather an expansion with the broader consideration and influences of the patient as person (Stewart et al., 1995). It is an attempt of making the implicit explicit (Stewart, 2001). As such the confusion may not lie in its definition but in the foundational frameworks supporting the dimensions that facilitate the process of being patient-centred. It can be seen as an effort of capturing “the indivisible whole of the healing relationship” (Stewart, 2001, p. 445).
3.2 Defining Competing Frameworks

The Institute of Medicine also recognized that patient-centeredness included different factors such as practitioner-related qualities, the entirety of the health care system (Committee on Quality of Health Care in America, 2001; Epstein et al., 2005), and care delivered humanly and respectful of patient needs and preferences (Committee on Quality of Health Care in America, 2001). It also recognized patient-centred care as one of six specific aims necessary for improving the quality of the American health care system.

3.2.1 Gerteis’ Model

Gerteis et al. (1993) defined the attributes of patient-centred care as: respect for patient’s values, preferences and expressed needs (i.e., involving patients in the decisions and care while addressing their needs and preferences which may change over time); coordination and integration of care (i.e., the sharing of patient information to foster continuity and seamless transition of care); information, communication and education (i.e., the dissemination of trustworthy and individualized health related-information); physical comfort (i.e., the delivery of timely, effective individualized care); emotional support and alleviation of fear and anxiety (i.e., recognizing the affects of pain manifest not only in physical symptoms but also touch the emotional and spiritual elements); and the involvement of family and friends (i.e., the accommodation and recognition of family and friends of the patient). This broad definition could be influenced independently and interdependently by a number of factors, including those related to patients, clinicians, relationships, and the health care system (Epstein et al., 2005).
3.2.2 Stewart’s Model

Stewart and colleagues were early promoters of the patient-centred approach (de Haes, 2006), defining a conceptual framework comprised of components empirically deduced from clinical experience. They identified six interactive components of the patient-centred process; and although each was discretely defined, they were interdependent (Stewart et al., 1995).

The first component involved the physician exploring the patient’s experience of their disease and four dimensions of their illness: ideas as to what was wrong with them, how they felt about being ill, its effect on function, and expectation of what should be done. The second component was comprised of the physician’s understanding of the ‘whole patient’, including personal and social contexts. The third component was the patient and physician finding a ‘common ground’ regarding the nature, goals and roles in treatment management. The fourth component had the physician incorporating prevention and health promotion ideas into the encounter. The fifth component advanced the concepts underpinning patient-physician relationships. And the sixth component required the physician to be realistic in his/her management of the patient. These components provided guidance to the various processes required for a successful patient-centred encounter; processes developed with the intent of “entering the patient’s world, to see illness though the patient’s eyes” (Levenstein et al., 1986, p. 26).

3.2.3 Mead and Bower’s Model

In contrast to Stewart’s model, Mead and Bower (2000) derived a conceptual framework of patient-centeredness from a focussed review of the empirical literature that
quantitatively assessed its measurement in general medical practice. They identified five key dimensions related to the doctor-patient relationship that underlay patient-centred medicine. The first was the biopsychosocial perspective; broadening the understanding of illness beyond biological factors to include those involving the psychological and social. The second dimension was the patient as a person, i.e., the appreciation of the uniqueness of a patient’s individuality. The third one considered the promotion of an equalitarian relationship between patient and doctor – the sharing of power and responsibility. Next was the establishment of a therapeutic alliance; valuing the importance of the personal relationship between doctor and patient. And finally the ‘doctor as person’; appreciating the impact of the subjective nature of the doctor’s contribution to the clinical encounter.

Unlike Stewart et al. (1995), Mead and Bowers suggested that their framework may not be generalizable to other health care professions since the context in which a particular health care provider practiced may influence different dimensions of patient-centeredness; dimensions that in their opinion represented uniquely distinct components of clinical work (Mead & Bower, 2000; Mead & Bower, 2002; Murray et al., 2007). They recognized that their dimensions may be influenced by physician and patient behaviours that in turn may be predisposed to external factors including: cultural and societal norms; profession-specific contexts and policies; and clinical delivery issues (such as time, workload, and communication barriers).

3.2.4 Summary

In summary, a patient-centred approach is an important component in the delivery of patient care. The frameworks presented herein differ in wording and conceptual application.
Gerteis et al. (1993) developed their framework from first exploring the experiences and insights from patients discharged from their hospital care and their families, as well as from physicians and hospital staff. Stewart et al.’s (1995) model evolved from the informed experiences of primary care physicians and defined components that enhance the patient encounter, implying a non-linear, adaptive clinical process. Mead and Bower’s (2000) theoretical model evolved from research synthesis of the sum of distinctly defined parts, uniquely attributed to primary care physicians.

The two competing frameworks of Stewart and Mead and Bower can be considered to be different, whilst also complementary. They differ in their application, the former conceivably taking a more holistic compared to the latter’s reductionistic approach to defining the attributes of patient-centred care.

Despite current controversy regarding the fuzziness of a supportive conceptual framework, considering the ‘patient-as-person’ in a clinical encounter impacts upon the patient-physician relationship, which in-turn appears to be influenced by health system factors, that together may ultimately affect clinical health outcomes.

The aforementioned factors are believed to impact all levels of health care delivery but perhaps most prominently primary care, which is founded on the sustained patient-physician relationship (Committee on the Future of Primary Care, 1994; Safran, 2003a; Starfield et al., 2005). Assessing this relationship within the context of the entirety of the patient’s clinical experience provides an opportunity to assess the quality and performance of primary care (Safran, 2003b). It also provides an opportunity to assess the immediate and longitudinal influences of various organizational and financial characteristics of health care programs on the performance and clinical outcomes of primary care.
3.3 Patient Centeredness and Clinical Outcomes

On a moral basis, patient-centeredness is a clinically desirable and appropriate approach to patient management (Duggan et al., 2006; Lewin et al., 2001; Stewart et al., 1995), but does it influence clinical outcomes? Numerous researchers have examined the influence of various components of the patient-centred approach, in particular physician-patient communication, with varied results.

Ong et al. (1995) conducted a descriptive review of the physician-patient communication literature. They divided their review into topics pertaining to the purpose, method of analysis, behavioural types, and outcomes of communication. Communication was seen as central to optimal medical care and having three main purposes: creating interpersonal relationships, exchanging of information, and decision-making. How these purposes were addressed and analyzed seemed to be influenced by the particular communication behaviour [e.g., instrumental (task focus) or affective (socio-emotional)] of the physician or patient, which in turn affected the outcomes of care. The authors noted that patient satisfaction was a commonly measured outcome that was positively associated with physicians’ performance reflecting affective (in particular non-verbal) behaviours, meeting patient needs, and being less dominant/controlling. However, communication had an equivocal effect on the compliance or adherence to treatment. They also reported that the physician-patient relationship had a positive influence on patient health outcomes, although it had not been extensively studied.

Despite the limited rigor of this review, Ong et al. (1995) suggested that the patient, physician, and nature of their relationship influenced communicative behaviours that could affect short and long term outcomes of care. Their conclusion was supported by an
observational study where physician ratings of recorded primary care consultations found that the quality of the care and patient satisfaction was related to affective physician behaviour (Bensing, 1991).

Stewart (1995) conducted a qualitative review of observational and interventional studies assessing the effects of physician-patient communication on health outcomes. She evaluated the results from 10 observational and 11 randomized controlled studies (RCT) that due to their wide heterogeneity in design and outcomes could not be combined. Instead she divided the studies into two categories based upon communication type, either related to history taking or care management. Studies involving communication training of physicians and patients resulted in statistically and clinically important differences in physiological, emotional, role function and symptom outcomes. Six of seven RCT’s designed to assess information seeking, understanding or outcome of patient management reported positive emotional, pain, functional, and physiological outcomes. Six of eight observational studies reported positive associations between the particular components of communication and emotional and physiological outcomes; however, two studies that controlled for baseline measures reported no differences. Stewart’s review suggested that effective communication positively influences emotional, physiologic status, pain, and symptom resolution. She further concluded that patients who perceived to be active participants in their care and reached ‘common ground’ on treatment approaches had more positive treatment outcomes.

Common ground, where patient and physician reach consensus on a treatment strategy, has been considered an important component of patient-centred care. Reaching common ground was found to result in significantly fewer diagnostic tests (about 4% vs
25%) and referrals to specialists (about 6% vs 25%) compared to patients who did not perceive that common ground was reached (Stewart et al., 2000).

Mead and Bower (2002) questioned the magnitude of the reported association between patient outcomes and a patient-centred clinical communication/consultation. Employing a more stringent protocol for inclusion of studies, they also assessed how patient-centeredness was measured and which of its components was evaluated. Only eight observational studies met their inclusion criteria, of which only four used multivariate analyses to control for potential confounders. Only two studies used random sampling of recruited physicians, who may not have been representative of the general population of primary care physicians (e.g., location, age, skills, and experience). Four of five studies reporting univariate results of multiple hypotheses reported a positive relationship between patient-centeredness and outcome. Patient satisfaction was a commonly assessed outcome and three of five studies reported evidence of an association (one study had both a significant and non-significant association) to patient-centeredness. In four different studies using a multivariate strategy controlling for confounders, only one reported an association between patient satisfaction and patient-centeredness, while two noted an association with reduced levels of concern, and one suggested that patients’ perceptions of patient-centeredness predicted health status outcomes and use of health care services. The authors suggested that the association between patient-centred consultations and improved patient outcomes was ambiguous and that the majority of the studies were of poor methodological quality (Mead & Bower, 2002).

In a recent Cochrane review, Lewin et al. (2001) conducted a systematic review of intervention studies promoting a patient-centred approach in clinical consultations. Although
they focused on intervention studies, they also reported upon the consequent health outcomes. In general, there was some evidence that training health care providers to be more patient-centred was positively associated with patient satisfaction; however, due to the mixed and limited nature of the evidence the authors could not reach a conclusion regarding the association between patient-centred communication and health care behaviours or health status outcomes (Lewin et al., 2001).

The observed contradictory results reported in the above reviews and observational studies may be related to the method of analysis used in assessing patient-centeredness and the quality of the studies. For example, assessing the patients’ perceptions of patient-centeredness appeared to influence outcomes differently than assessments made by trained observers who relied on audio or video tape recordings of clinical encounters. For example, in a study assessing behaviours of patient-centeredness in 173 coded videotaped general physician consultations (14 physicians in nine different practices) and their relationship to patients’ reported levels of satisfaction and enablement, the researchers found that patient-centred behaviours did not predict either outcome (Mead et al., 2002). Yet in another observational study 76% of consecutively surveyed patients attending three different purposefully selected general physician practices reported a positive relationship between patients’ perception of patient-centred care and satisfaction, enablement, reduced symptom burden, and fewer specialist referrals, after controlling for select confounders (Little et al., 2001). The researchers reported that different components of patient centeredness influenced different outcomes; for example, communication, partnership and a positive approach were strongly related to satisfaction; a positive approach was related to improved symptom burden; and interest and a positive approach was strongly related to patient enablement.
The difference in outcomes noted in these two preceding studies may have been related to study design and methodology, especially since non-verbal behaviours and interpersonal relationships have been found to influence patient feelings (Ong et al., 1995). In other words, the nuances found in clinical encounters may only be captured by quantitatively and/or qualitatively assessing patient’s perceptions of the clinical encounter (Little et al., 2001; Mead et al., 2002; Ong et al., 1995; Stewart et al., 1995; Stewart et al., 2000).

3.4 Patients’ Perception of Clinical Encounters

Capturing the patients’ perceptions of their health care encounter under different clinical conditions may shed light on which outcomes may be beneficially affected. Michie et al. (2003) carried out a systematic literature search to assess if two different components of patient-centred communication were differentially associated with health outcomes in chronically ill patients. They identified two separate but interconnected concepts inherent in patient-centred communication, namely the ‘patient perspective approach’ (i.e., eliciting and responding to patient’s beliefs/perspective) and ‘patient activation’ (i.e., facilitating active participation of patient in the consultation and treatment). Thirty studies met their inclusion criteria, with 20 and 10 categorized as taking the patient perspective and patient activation approaches, respectively; all involved patients with chronic illness, primarily diabetes, asthma or hypertension. This review suggested that clinical encounters taking a patient activation approach were more strongly associated with improved physical health outcomes compared to the patient perspective approach; however, there was no difference between the approaches in regard to adherence to care (Michie et al., 2003). The authors admitted to the preliminary nature of their conclusions but suggested that different types of communication
may have a differential affect on outcomes. This may have implication to clinical practice, particularly in the management of chronic illness where the patient treatment goals are individualized and differ from those for acute conditions.

Primary care performance has been found to vary under different models of health care delivery. For example, open-models (physicians accept patients from various health plans) have been reported to have more favourable performance scores than close-models (physicians working exclusively for one organization/plan) in areas related to patient-physician relationship, interpersonal treatment, knowledge of patient, quality of communication, and patient trust (Safran et al., 2000; Safran et al., 2002; Safran, 2003a). Organizational access to care, duration of the patient-physician relationship, and visit-based continuity (i.e., likelihood of seeing patient’s primary physician) performed significantly better in traditional fee-for-service Medicare compared to HMO Medicare models, although financial access to care (ability to pay) was better in the latter model (Safran et al., 2002; Safran, 2003b).

Individualizing patient care based upon reaching common ground brings us full circle to the underlying founding principle of patient-centeredness – understanding each person as a unique human being (Duggan et al., 2006). The importance of listening to patients and incorporating their needs and preferences are important aspects of the health care provider-patient relationship that is used to individualize the treatment plan (Safran, 2003b; Stewart, 2001; van Dulmen, 2003) in order to achieve a therapeutic alliance and optimize clinical outcomes (Duggan et al., 2006; Mead & Bower, 2000).

Positive clinical outcomes (e.g., adherence, satisfaction, and improved health status) have been attributed to sustained patient-physician relationships as characterized by levels of
trust, physician’s whole-person knowledge of the patient, communication and integration of care (Safran et al., 1998; Safran, 2003b). In a cross-sectional observational study of adults employed by the Commonwealth of Massachusetts, adherence to medical advice (i.e., measured by change in behaviour) was significantly predicted by patients’ baseline levels of trust with their physician and their doctor’s whole-person knowledge of them, after adjusting for patient demographics and co-morbid conditions (Safran et al., 1998). They also found a fivefold difference in the likelihood of patients being completely satisfied with their overall care and high level of trust with their physician. However, in a longitudinal study attributes of the primary care relationship were not found to significantly predict functional health status outcomes (Safran, 2003b).

Therefore, the benefit of health care providers being more patient-centred or using the patient-centred approach, either in training or practice, may not be confidently based upon evidence of superior clinical outcomes but perhaps merely on grounds that it is good clinical practice and worthy of being done (Lewin et al., 2001; Stewart et al., 1995). Put differently, “it is a morally desirable feature of physician-patient interaction” (Duggan et al., 2006, p. 275).

### 3.5 Patient-centeredness and Chiropractic Care

Empirical evidence suggests complementary and alternative health care (CAHC) providers offer a more patient-centred, holistic approach to care that often leads to a satisfying therapeutic relationship (Boon, 2003; Committee on the Use of Complementary and Alternative Medicine by the American Public, 2005; Jamison, 2001; Kelner, 2000). Studies have noted that although patient-provider relationships differed between CAHC and
conventional medical providers, both groups offered care that was positive, valuable and not mutually exclusive (Kelner, 2000). The inherent differences between these provider groups appeared to lay in the health conditions seen, the time spent during the clinical encounter (Boon, 2003; Davis & Bove, 2007; Jamison, 2001), and the nature of the patient-provider partnership in the healing process (Kelner, 2000).

The nature of this patient-provider partnership in the healing process is one of the markers of patient-centred care. Chiropractic’s underlying philosophical constructs lend themselves to a more patient-centred rather than provider-centred approach to care (Davis & Bove, 2007; Gatterman, 1995; Jamison, 2001). Evidence of a patient-provider partnership, wherein patients play a more active role in the decision making process, may be one of the reasons patients seek chiropractic services (Jamison, 2001; Kelner, 2000). Chiropractors typically use a shared decision-making (i.e., where provider and patient have equal and mutual participation) (Davis & Bove, 2007; Jamison, 2001; Kelner, 2000; Kelner et al., 1980) rather than a paternalistic (i.e., physician directed or dominated) or consumerist (i.e., patient determined) (Kelner, 2000; Murray et al., 2007) approach. However, the extent of shared decision-making occurring in a patient-chiropractor encounter is ambiguous.

Jamison’s case studies involving international and Australian chiropractors explored such encounters. She suggests there is a natural exchange of ideas between the patient and the chiropractor but the nature of this exchange is primarily guided by the chiropractor with limited patient input (Jamison, 1996; Jamison, 1997; Jamison, 2001). She concluded by suggesting that “it is not what is said to the patient that is important; it is, rather, how the clinical encounter makes the patient feel” (Jamison, 2001, p. 485). This is in contrast to perhaps what is still the most extensive mixed methods study of chiropractors by Kelner and
colleagues (1980). These authors found that chiropractors provided their patients with an extensive explanation of the problem and treatment plan and sought their cooperation and agreement prior to proceeding with care, in essence creating a chiropractor-patient partnership.

Thus it seems it’s knowing the patient and the nature of the verbal and non-verbal communication taking place during the clinical encounter that identifies the patient-chiropractor holistic relationship rather than the therapeutic intervention (Coulter, 1999; Jamison, 2001; Kelner, 2000). In fact, the therapeutic intervention involves primarily a single mode of treatment (i.e., adjustment/manipulation) delivered to a narrow range of conditions (Coulter, 1999) that can be broken down to simply a process of identifying and correcting a lesion – known as a vertebral subluxation or joint dysfunction. This process is essentially reductionistic (Hawk, 2006; Jamison, 2001) and not unlike that espoused in the biomedical model. Regardless of the mechanistic or vitalistic views held by different chiropractors, the therapeutic approach is fundamentally reductionistic (Hawk, 2006). Yet to portray chiropractors as simply “back adjusters” is to negate the intimate relationship created by their knowing and involving the patient – aspects of the biopsychosocial model; however, the boundaries around this knowing are not clearly defined (Coulter, 1999). Further research is required to determine to what extent the chiropractic encounter is truly patient-centred or simply a function of the characteristic clinical demeanour (Jamison, 2001).

Finally, some have suggested it is not necessarily the nature of the verbal communication but rather the positive feeling patients experienced during and after their chiropractic clinical encounter that contributed to the oft reported satisfying relationship (Gaumer, 2007; Jamison, 2001; Jamison, 1998; Kelner, 2000). Despite high levels of
satisfaction with chiropractic care reported by patients (Coulter et al., 1994; Coulter, 1999; Davis & Bove, 2007; Gaumer, 2007; Jamison, 2001; Kelner, 2000; Mior & Laporte, 2008) and the presumed predictors of satisfaction associated with the quality of the communication (Gaumer, 2007) and the patient-chiropractor relationship (Kelner, 2000), there is a need for further research in order to better understand patient attitudes and perceptions of satisfaction and/or expectations of care. Such research will require both quantitative and qualitative methodologies (Gaumer, 2007; Kelner, 2000). Addressing this need has important clinical and policy implications considering the positive associations between shared decision-making, positive patient-provider relationship and whole patient knowledge (i.e., attributes of a patient-centred approach), and the adherence to treatment, satisfaction, and potential improved health outcomes (Murray et al., 2007; Safran, 2003b; Stewart et al., 1995; Stewart, 2001).

3.6 The Patient and Interprofessional Collaboration

Engel highlighted the limitation of the reductionistic biomedical model and proposed one where psychological, social and cultural factors influence the expression and outcomes of disease and illness in individual patients (Engel, 1977). The individuality of the patient and how it influences the patient-provider relationship becomes an important consideration in the overall management and subsequent health outcomes of patients. The patient is an indispensable partner in the health care process, whose voice extends beyond simply disseminating critical historical facts used to label and manage their condition but also provides an interpretation of the clinical encounter and quality of their care (Safran, 2003b). Consequently, health care providers need to engage the patient in a deliberate discussion of
their main health concerns and develop unique strategies to address them (Safran, 2003a; Stewart, 2001).

In today’s growing interest in multidisciplinary teams and collaborative practices, patient relationships with their health care providers and their engagement in their care are being challenged. Evidence from patient surveys have suggested that their primary care physicians’ whole-person knowledge of them consistently ranked lower compared to other measures of interpersonal care, even after controlling for demographic or health status variables (Safran, 2003a). This finding was further accentuated when patients saw other health care providers either in ‘visible’ (i.e., the respective roles of all providers were known to patients) or ‘invisible’ (i.e., the roles and identities of all providers were unknown to patients) team care (Safran, 2003a). In situations where primary care practices relied on teams, about 75%, 33%, and 50% of patients’ unfavourably rated the other providers’/clinicians’ whole-person knowledge of them, knowledge of their medical history, and communication skills, respectively. However, patients attending care from ‘visible teams’ with high relationality (i.e., team members who explained the care to be administered, coordinated with the patient’s physician, and knew the patient and their values) consistently reported more favourable experiences than visible-lower relationality and non-visible teams (Rodriquez et al., 2007).

Although evidence about team based interprofessional collaboration and its outcomes has been growing, it is considered to be in its infancy in Canada (Barrett et al., 2007). In a recent synthesis of related research, Barrett et al. reviewed 535 articles; 206 met the inclusion criteria of which 17 of these articles were graded at the high level, 20 at the medium level, and the remainder at the low quality level of evidence. The authors did not pool the results
nor used meta-analytical methodology, presumably due to the heterogeneity in study designs, interventions, and outcomes. In general, evidence from the high to medium quality studies suggested positive outcomes (e.g., satisfaction, self-care, disease knowledge, functional health status, quality of life, mental health, and compliance) of interprofessional collaboration for patients/clients, providers, and the system, primarily in mental health and chronic disease prevention and management. Low level quality studies suggested positive patient/client outcomes such as satisfaction, physiological measures, access to services, self-reported health status, self-care, and decrease in use of health services. The authors also suggested that the degree of collaboration did not predict clinical outcomes. They also identified several gaps in the literature related to interprofessional collaboration within primary healthcare, including the clarification of the roles of patients/clients in this process.

The evidence in support of interprofessional patient-centred collaboration appears to have primarily concentrated on professions and disease prevention and management; and little on the role and perspective of the patient (Barrett et al., 2007; Cott, 2004; D'Amour et al., 2005; D'Amour & Oandasan, 2005; Gerteis et al., 1993; Shaw, 2006). D’Amour and Oandasan (2005) have suggested that patients have a privileged position within the collaborative process; however, how they invoke such privilege depended upon their willingness to engage in the therapeutic process. And the extent of their engagement may be dependent upon their awareness of the collaboration, which in turn may influence their health outcomes (D’Amour & Oandasan, 2005; Safran, 2003a).

Therefore, despite the centrality of the patient in interprofessional collaborative care, there is typically an absence of the patient perspective and how it is conceptualized within the framework of interprofessional collaborative care (D'Amour et al., 2005).
3.7 Thesis Purpose and Research Questions

Considerable attention has been paid to evaluating and assessing interprofessional collaborative practice from the perspective of health care professionals and chronic pain management. However, there is a paucity of research evaluating the outcomes and views of interprofessional collaborative practice from the perspective of the patient, a gap in the literature that is particularly important since the practice is espoused as being patient-centred (Cott, 2004; D'Amour et al., 2005).

Patients have been found to be able to report their experiences, and provide insight into the definition, evaluation and improvement of quality health care (Wensing et al, 1998). Patient assessment of the key attributes of patient-centred care is one of the direct methods that can be used to evaluate the quality of care (Campbell et al, 2001), while also focusing upon what they consider to be important (Wensing et al, 1998).

As government and health care workers advance the agenda of developing, implementing and assessing collaborative practice, evaluating the role, needs and perspective of the patient in such practices is also necessary. Exploring such patient views and perspectives by analyzing cross-sectional survey data is a preliminary step in contributing to an understanding of what is important to patients. Such information will help inform research that in turn can be used to improve and inform policy related to the delivery of health care.

3.7.1 Purpose

The purpose of this sequential mixed methods, cross-sectional study is to examine the relationship between patient and provider characteristics and patients’ ratings of measures of quality of care and integration, and to explore the patient views of care delivered in a patient-centred collaborative study involving chiropractors and physicians.
3.7.2 Research Questions

1) Is there an association between measures of quality of care and integration in patients participating in a patient-centred collaborative care model compared to those that did not participate, controlling for the effects of select patient and provider characteristics?

2) How do patients participating in a collaborative care setting perceive this care, what does patient-centred care mean to them, and how do they view the nature and extent of chiropractor-physician collaboration?

3) How does patients’ perception of care they received in a collaborative setting help inform the reported measures of quality of care?
Chapter 4

Assessing the Attributes of the Collaboration Model:
Revision and Analysis of the PCAS
4 Introduction

This chapter reviews the background related to the selection, modification and psychometric analysis of the revised Primary Care Assessment Survey (PCAS) – one of the primary outcomes used in phase 2 of the collaboration study and fundamental to this thesis.

Chapter 2 provided an overview of the development and implementation of a model of chiropractor-physician interprofessional patient-centred collaboration. As reported, the outcomes of the model’s implementation included a number of administrative, patient and provider measures. One particular outcome was the PCAS. The PCAS was selected because it addressed many of the attributes of the model, while cognizant of the constraints imposed by ethics review to economize on the number of outcomes expected of patients to complete. The selection and rationale is briefly described below in Section 4.2.

The items in the PCAS are specific to physicians and the American health care system. But many of the constructs assessed by the PCAS appear to be generalizable to other health care provider groups but need minor item wording changes that make specific reference to physicians. Hartley (2002) suggests that wording of the PCAS can be modified to address the specific needs of a particular ambulatory setting. Therefore an overview of the changes made to the PCAS to meet the needs of the study is described in Section 4.3.

Finally, despite having been used across different populations, the PCAS’ reliability may be affected when used for a purpose other than originally intended or in a population considered to be sufficiently different (Streiner, 2003). Also, the scale’s factors may be subject to change over time and by different population characteristics being sampled (i.e., socioeconomic status) (Tabachnik & Fidell, 2007). The psychometric properties of the revised PCAS were analyzed using data from surveys gathered during the collaboration study and presented in Section 4.3.
4.1 Background

4.1.1 Selecting the PCAS

Evidence suggests that primary care has a direct impact on mortality, annual health care costs, and better health outcomes (Starfield, 1998; Starfield et al., 2005). And patients in primary care strongly favour a patient-centred approach, in particular improved communication, partnership, and health promotion (Little et al., 2001). The nature and length of the patient-provider relationship is considered to be important in the patient-centred approach and quality patient care. The strength of the physician-patient relationship is often ascertained by inquiring about the levels of communication, trust, knowledge of patient’s health and personal life, and comfort with the encounter (Reid et al., 2002), attributes similar to those in patient-centred care and found in the collaboration model. Therefore, assessing these attributes is important in objectively assessing the quality and continuity of care and interprofessional collaboration.

A literature search was conducted of published papers and reports related to measures of collaboration, continuity of care and outcomes of musculoskeletal conditions. The electronic databases of Medline, CINHAL and Embase were searched using a variety of MESH terms consistent with the measures being defined. For example, MESH terms included: physician-patient relations, quality of health care, primary health care-organization and administration, as well as specific instrument names or authors’ names. Titles appearing relevant were kept and the abstracts reviewed, and pertinent articles retrieved. In addition a hand search was conducted in related reference texts and articles. Summary articles addressing psychometric properties of select instruments were used where available rather
than reviewing separate articles. If necessary, the authors of related instruments were contacted and additional unpublished information requested.

The selected outcomes were cross referenced with categories and sub-categories of the collaboration model (See Figure 2.1). The outcomes were then further assessed for validity, reliability, relevance, utility and responsiveness. The intent of this selection process was to identify measurement tools that provided the required information while at the same time would not be so numerous that it would make it onerous for patients to complete. Therefore, the measure most suitable for the study objectives and with the best psychometric properties was selected.

Four instruments were selected and reviewed. The four instruments included the Primary Care Assessments Tool – adult edition (PCAT-AE) (Shi et al., 2001); the PCAS (Murray & Safran, 1998); the General Practice Assessment Survey (GPAS) (Ramsay et al., 2000); and the General Practice Assessment Questionnaire (GPAQ) (National Primary Care Research and Development Centre, 2003). Table 4.1 summarizes and compares the attributes and psychometric properties of the four instruments. Many of the attributes of the collaboration model are addressed in each instrument and except for the GPAQ, have been reported to have acceptable levels of reliability and validity. There is also little evidence about responsiveness except in one study where the differences in PCAS scores was reported and found to be statistically significant but small (Murphy et al., 2001). The GPAS and PCAS have been successfully used in the primary care community; however, the former was revised into the GPAQ and the original no longer used. The PCAT-AE appears impractical to use in the community due to its length, time required to complete, and written at a high school reading level. Many of the constructs assessed by these instruments appear to be
generalizable to other health care provider groups but would require minor wording changes to the instruments’ items. Therefore in consideration of the psychometric properties, the relevance to the study question, the ease of administration and the face validity, the PCAS was chosen as the outcome of choice.

<table>
<thead>
<tr>
<th>Attributes and Psychometric Properties</th>
<th>Outcome Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PCAT-AE</td>
</tr>
<tr>
<td>Collaboration Attributes</td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td>✓</td>
</tr>
<tr>
<td>Communication</td>
<td>?</td>
</tr>
<tr>
<td>Patient-centred</td>
<td>?</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>?</td>
</tr>
<tr>
<td>Access to care</td>
<td>✓</td>
</tr>
<tr>
<td>Affordability</td>
<td>✓</td>
</tr>
<tr>
<td>Referral process</td>
<td>✓</td>
</tr>
<tr>
<td>Continuity of care</td>
<td>✓</td>
</tr>
<tr>
<td>Reimbursement</td>
<td>✓</td>
</tr>
<tr>
<td>Technical competence</td>
<td>✓</td>
</tr>
<tr>
<td>General advice</td>
<td>✓</td>
</tr>
<tr>
<td>Enablement</td>
<td></td>
</tr>
<tr>
<td>Health status</td>
<td>✓</td>
</tr>
<tr>
<td>Psychometric Properties</td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td>✓</td>
</tr>
<tr>
<td>Validity</td>
<td>✓</td>
</tr>
<tr>
<td>Factor analysis</td>
<td>✓</td>
</tr>
<tr>
<td>Generalizability</td>
<td>?</td>
</tr>
<tr>
<td>Design Properties</td>
<td></td>
</tr>
<tr>
<td>Face-to-face</td>
<td>✓</td>
</tr>
<tr>
<td>Mail</td>
<td>✓</td>
</tr>
<tr>
<td>Telephone</td>
<td>✓</td>
</tr>
<tr>
<td>Reading level</td>
<td>High school</td>
</tr>
<tr>
<td>Item number</td>
<td>74</td>
</tr>
<tr>
<td>Duration to complete</td>
<td>40min</td>
</tr>
</tbody>
</table>

**Table 4.1:** Summary of available outcome measures addressing key attributes of collaboration and their psychometric and design properties. (* Estimated at Grade 5 level.)
4.1.2 Critical aspects of the PCAS

The PCAS is a patient-answered questionnaire that assesses the key aspects of primary care as defined by the Institute of Medicine (Safran, 1998). The PCAS addresses seven characteristics of primary care using 11 summary scales: accessibility (organisational, financial); continuity (longitudinal, visit-based); comprehensiveness (knowledge of patient, preventive counselling); integration of care; clinical interaction (clinician-patient communication and thoroughness of physical examinations); interpersonal treatment; and trust (See Table 4.2). There are 51 items, two (2) of which are screening items and not scored. Each item is answered using either an evaluative (ordinal) or report (nominal) format. Ordinal scales involving patient rating of a specific item are scored on a 6-point Likert scale, ranging from very poor to excellent. All the characteristics should be measured. Scoring ranges from 0 to 100, with higher scores indicating a stronger positive attribute measure. The PCAS has been assessed at a grade 5 reading level and has been estimated to take about seven minutes to complete. The survey is not visit-specific but attempts to measure the clinician-patient relationship developed over time.

The PCAS has excellent measurement properties across a varied population mix (Safran, 1998). The item-convergent validity has been found to be acceptable with all item-scale correlations exceeding 0.30, with 87% over 0.60. Item-discriminant validity revealed that items in 6 of the 7 scales correlated more strongly with their hypothesized scale. Only one of the items in the Trust scale was found to be correlated with another scale. Equal item variance was noted for all the scales. Item-scale correlations were found to be narrowly distributed, ranging from 0 to 0.27. Cronbach's alpha ranged from .81 to .95. A full range of scoring has been observed for all scales except trust, with a low percentage of respondents answering at the floor or ceiling.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Scale (# items)</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility</td>
<td>Financial Costs (2)</td>
<td>Assesses amount paid for visits and prescribed treatments</td>
</tr>
<tr>
<td></td>
<td>Organizational access (6)</td>
<td>Assesses ability to contact office, make appointment, wait times, convenience of location &amp; hours</td>
</tr>
<tr>
<td>Continuity of Care</td>
<td>Longitudinal (1)*</td>
<td>Duration of patient-physician relationship</td>
</tr>
<tr>
<td></td>
<td>Visit-based (2)*</td>
<td>Frequency seeing primary physician for check-up and sick visit</td>
</tr>
<tr>
<td>Comprehensiveness</td>
<td>Knowledge of patient (4)</td>
<td>Knowledge of patient’s work, habits, home, responsibilities and beliefs</td>
</tr>
<tr>
<td></td>
<td>Counselling (7)*</td>
<td>Discussion of risks related to smoking, alcohol &amp; seat belt use, safe sex, diet, exercise, stress</td>
</tr>
<tr>
<td>Integration of care</td>
<td>Integration of care (6)</td>
<td>Assesses physician role in coordinating and synthesizing specialist information</td>
</tr>
<tr>
<td>Clinical interaction</td>
<td>Communication (6)</td>
<td>Assesses physician questioning about symptoms; being attentive, clear, helpful; gives advice &amp; helps in decision making</td>
</tr>
<tr>
<td></td>
<td>Thoroughness of exam (1)</td>
<td>Assesses thoroughness of physical examination of patient</td>
</tr>
<tr>
<td>Interpersonal treatment</td>
<td>Interpersonal treatment (5)</td>
<td>Assess friendliness, caring, respect, patience &amp; time spent with patient</td>
</tr>
<tr>
<td>Trust</td>
<td>Trust in the doctor (8)</td>
<td>Assess physician’s integrity, competence, role of physician as agent for the patient</td>
</tr>
</tbody>
</table>

Table 4.2: A summary of the PCAS scales and their description. (* Items with nominal response.)

The PCAS has been used to assess various aspects of the quality of primary care (Safran, 1998a; Murray, 2000; Murphy, 2001; Hartley, 2002). These studies suggested that trust and knowledge of the patient were important predictors of satisfaction and adherence to care, and to a lesser extent improved health status (Safran et al, 1998a); that there were no significant differences in the patient assessed variables of those attending physicians with varied workloads except for visit-based continuity of care (Murray, 2000); that overtime physician knowledge of patient and visit-based continuity significantly improved but that
communication quality (effect size = .095), interpersonal treatment (effect size = .115), patient trust (effect size = .048), and organizational access (effect size = .165) declined (Murphy, 2001); and longitudinal continuity and interpersonal treatment were important suggesting that the nature and length of the relationship impacted upon communicating health concerns amongst vulnerable populations (Hartley, 2002).

4.2 Assessing the Psychometric Properties of the PCAS-C

As noted, the PCAS is a scale that taps into the key aspects of the patient-physician experience with items that are theoretically related and that measure aspects of patient-centred and quality of care. The PCAS has been used and assessed in a number of studies and reported to have excellent psychometric properties, consistent across various population sectors (Murray & Safran, 1998; Safran et al., 1998; Safran, 2003). Due to the inherent differences between Canadian and American health care systems and the intended use of the PCAS to assess the relationship between family physicians and their patients, the original instrument was revised to enable the assessment of the care provided by chiropractors.

4.2.1 Revising the PCAS

Changes were made to the original PCAS, with the developer’s permission (see Appendix 1). Care was taken to maintain the intent and the Likert scaling for each item, thereby allowing the original scoring methodology to be used in the revised PCAS for chiropractors (PCAS-C).

The changes made from the PCAS to PCAS-C included: changing the reference to doctors to chiropractors; modifying question (Q) 3 and Q9a to reflect a musculoskeletal and
injury focus rather than a medical one; deleting questions specifically dealing with medical care and having no relevance to the study purpose (i.e., Q12a: skipping medication, Q14a,b: seeing their regular doctor for a check up, Q15a,b: seeing their regular doctor when sick; Q26: loss of consciousness or coma; Q27: other doctors or nurses involved in care; and Q28: rating others involved in care); modifying two questions (Q29: knowledge of others of care received by the patient, and Q30: recommendation to see other providers) to reflect the chiropractor and physician focus of the study; adding a question about how patients felt immediately after visiting their chiropractor as a proxy for improvement post visit; and deleting a question on ethnicity.

All the items used in measuring the subscale attributes in the PCAS were maintained in the PCAS-C, except the original subscales of Financial Access and Visit-based Continuity. The changes made did not impact upon the original scoring method used to sum the PCAS subscales values. The appearance of the PCAS-C was slightly modified to improve the aesthetics and changes in the numbering sequence of questions. (See Appendix 2.)

4.2.2 Methodology

Exploratory factor and reliability analyses were conducted on the PCAS-C to determine if: 1) the factor loadings of the indicator variables in the PCAS-C scale loaded on the same latent variables (factors) as in the PCAS; and 2) the reliabilities of the original and revised PCAS scales were similar.

The PCAS-C variables used in the exploratory factor analysis comprised six of the 11 scales originally defined by Safran et al. (1998), namely: Organizational Access, Communication, Interpersonal Treatment, Trust in the Chiropractor, Knowledge of Patient,
and Integration of Care (See Table 4.2). The variables making up the remaining five subscales were excluded from the analysis because 1) they had been deleted in revised versions (i.e., the subscales Financial Access and Visit Based Continuity); 2) only had one variable (i.e., the subscales - Longitudinal Continuity and Thoroughness of Physical Examination) and thus not considered suitable for factor analysis as they would typically have poor reliability (Norman & Streiner, 2008); or 3) the subscale was comprised of variables employing a different item scoring strategy, in essence a dichotomous response (i.e., the subscale Preventive Counselling) which could impact the variable and create an artifactual pattern among the variables (Floyd & Widaman, 1995; Norman & Streiner, 2008).

Two of the most commonly used procedures in exploratory factor analysis are principal components analysis (PCA) and principal axis factoring (PAF) (Field, 2005; Garson, 2007; Munro, 2001; Streiner & Norman, 2003). The difference between the two procedures includes the underlying mathematical computations used in the analysis and the purpose of analysis. PAF differs from PCA in that the analysis uses variances that are common to all other variables (i.e., covariance) rather than using error and unique variance for each variable (i.e., variance) (Norman & Streiner, 2008; Tabachnik & Fidell, 2007). Despite the divergence of the underlying mathematical and theoretical constructs between the methods, the results of their analysis may not significantly differ (Thompson & Vidal-Brown, 2001) and the correlations between the factor loadings produced by the two methods are close to 1.0 (Norman & Streiner, 2008). PAF is also considered to be relatively robust against the violations of normality (Floyd & Widaman, 1995). PAF is preferred for the purposes of data structure and causal modelling (Garson, 2007) or if the study is dependent upon underlying constructs expected to
produce a set of scores from the chosen variables (Tabachnik & Fidell, 2007). Therefore, the PAF method was used for factor extraction in assessing the PCAS-C.

To determine suitability for PAF, the correlations and partial correlation matrices were examined for the presence of high (i.e., values greater than 0.3) and very low values, respectively. Bartlett’s test of sphericity was not used due to its sensitivity to large sample sizes (Tabachnik & Fidell, 2007). Instead, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated to assess the adequacy of the correlation matrix and the appropriateness for factor analysis (Field, 2005). KMO values greater than 0.9 are considered to be ‘superb’ or ‘marvellous’ and values less than 0.70 were considered for elimination (Field, 2005; Norman & Streiner, 2008). Finally, the number of factors was forced to 6 and the Kaiser criterion of eigenvalues was set to greater than 1.0.

In consideration of the underlying theoretical construct and the assumption that scales and items were correlated, the factors were rotated using the oblique method (i.e., direct oblim). Oblique rotations often provide greater structural simplicity (Norman & Streiner, 2008) and produce a pattern matrix outlining the unique contributions of each factor to the variance in the variables (Tabachnik & Fidell, 2007). In general, the ‘rule of thumb’ for the cut-off point for significance of the variable loadings onto factors is a value greater than 0.32, unless there was homogeneity in variable scores then a lower cut-off value can be used (Tabachnik & Fidell, 2007). The variables within each factor in the pattern matrix were sorted by decreasing loading value, eliminating variables with loadings less than 0.2.

Finally, scale and subscale reliabilities were calculated using Cronbach’s alpha. Inter-item and inter-scale correlations were also determined.
4.2.3 Missing data

In consideration that an inherent skip pattern in the PCAS-C could result in a significant non-random pattern of missing data, items were excluded using pairwise deletion rather than using estimation procedures which may result in over fitting of the data and/or factors (Tabachnik & Fidell, 2007).

4.2.4 Sample size

In conducting a factor analysis the sample size should be large enough to enable a reliable estimation of the correlations (Tabachnik & Fidell, 2007). However, there are no available power tables but rather suggested guidelines or ‘rule of thumb’ for the number of cases required for factor analysis (Norman & Streiner, 2008). The general ‘rule of thumb’ is having at least five cases per item providing the communalities are high and many variables per factor (Norman & Streiner, 2008); however, having at least 300 cases is considered ‘comforting’ (Tabachnik & Fidell, 2007).

4.2.5 Sample population

The revised PCAS-C was first reviewed and assessed for grammatical errors and clarity of meaning. In addition, face and content validity was confirmed by the research team. The survey was also pilot tested on a convenience sample of 25 patients for the sole purpose of assessing item comprehension and ability to answer detractors. These patients were recruited in the office of the Principal Investigator prior to beginning the collaboration study and were not included in the study population. No further changes were made to the revised survey.
The population used for assessing the psychometric properties of the PCAS-C was a non-random sample of patients rostered to physicians’ in three select community-based primary care sites in Ontario. Participation was voluntary. Eligible patients were recruited from physicians’ or chiropractors’ offices in each of these locations as described in Chapter 5.3.1. One PCAS-C was distributed to each eligible patient after they attended for their chiropractic visit. A total of 5,210 patients were considered eligible to complete the PCAS-C. All completed and received surveys were used in the factor analysis.

4.2.6 Results

There were 3,071 patients who returned the PCAS-C. This represented 58.94% of eligible patients. Of the surveys returned, 72 were excluded due to unanswered items, leaving 2999 available for analysis. The respondents had a mean age of 43 years; 60 percent were females; about 60% had at least a high school education and 37% had completed college or university; 63% were married; 42% complained of pain in multiple body area, with the second most common complaint being back pain (26%); and 76% reported having chronic pain.

A summary of the frequencies for the items used in the calculation of the PCAS-C scales revealed that most of the items had similar means and standard deviations and tended to be negatively skewed, except those with reversed coding that were positively skewed, and not normally distributed (see Table 4.3). On average, the item missing data rate was 3.4%, except for items in the Integration scale, where about 57% items were not answered. This high rate reflects a built-in skip pattern that requested only patients who had been referred to another provider complete the scale.
In assessing the inter-item correlations, items were significantly correlated with each other (p<.05), with correlation coefficients ranging from -0.096 to 0.892 (See Appendix 3). A scan of the correlation coefficients revealed several items with correlations greater than 0.8; however, in reviewing the content of the items and their relevance to the questionnaire, none were eliminated.

The KMO measure of sampling adequacy was equal to 0.959; falling in the Kaiser range of being “superb” and suggested the data was appropriate for factor analysis (Field, 2005). The KMO values for individual variables reported on the anti-image correlation matrix were all greater than 0.921 and the off-diagonal partial correlations between variables were all considered small (i.e., close to zero) except for a couple of the variables with values not exceeding 0.5.

The resultant six factors explained 66.90 of the total variance. The communalities of the items were all greater than 0.2; however, there were also six items with values greater than 0.8, suggesting that they shared much of their variance with other items in the scale and thus may be considered redundant. The reproduced correlation matrix revealed that there were 21 (3%) non-redundant residuals with absolute values that were greater than 0.5.

After conducting an oblique rotation, the pattern matrix revealed the items that loaded on the six factors (see Table 4.4). (See Appendix 4 for the structure matrix with the shared item variances.) All the items originally predicted to load on their respective scales did so, except items 17a and 20a. However, 17a also loaded in a similar fashion on factor 5, the one in which the remaining items of the scale loaded. Thus only item 20a did not load on to the scale originally defined but did load on the factor 5 at a lower value (0.209).
Table 4.3: Frequency distribution of subscale items.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Organizational Access</th>
<th>Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item #</td>
<td>7b 8b 9b 10b 13a 13b</td>
<td>15a 15b 15c 15d 15e 16</td>
</tr>
<tr>
<td>N valid missing</td>
<td>2899 2934 2953 2884 2424 2968</td>
<td>2934 65 2953 46 2884 115 2424 575</td>
</tr>
<tr>
<td>Mean (sd)</td>
<td>5.13 (.61) 5.12 (.95) 5.18 (.85) 4.97 (.95) 5.26 (.8) 4.99 (.9)</td>
<td>5.29 (.8) 5.44 (.7) 5.41 (.7) 5.34 (.8) 5.36 (.6) 5.62</td>
</tr>
<tr>
<td>Median</td>
<td>5.00 5.00 5.00 5.00 5.00 5.00</td>
<td>5.00 6.00 6.00 6.00 6.00 6.00</td>
</tr>
<tr>
<td>Skewness</td>
<td>-1.085 51.085 5.766 5.872 5.721 5.994</td>
<td>51.267 51.235 51.151 51.190 52.335</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.3 1.3 .59 .12 1.11 .103</td>
<td>.090 2.308 2.104 1.685 1.877 10.694</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Interpersonal Treatment</th>
<th>Trust in Chiropractor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item #</td>
<td>17a 17b 17c 17d 17e</td>
<td>20a 20b 20c 20d 20e 20f 20g 21</td>
</tr>
<tr>
<td>N valid missing</td>
<td>2979 2871 2963 2983 2981</td>
<td>2888 111 2970 120 2936 63 2918 81 2921 78 2929 70 2911 88 2675 324</td>
</tr>
<tr>
<td>Mean (sd)</td>
<td>5.12 (.8) 5.45 (.7) 5.63 (.6) 5.58 (.7) 5.62 (.6)</td>
<td>2.32 (1.0) 4.44 (.8) 1.60 (.7) 4.59 (.7) 1.70 (.8) 1.71 (.8) 4.35 (.9) 9.31 (1.0)</td>
</tr>
<tr>
<td>Median</td>
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<td>2.00 5.00 2.00 5.00 2.00 2.00 5.00 10.00</td>
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<td>.517 -1.722 .739 -2.440 1.531 1.377 -1.526 -1.977</td>
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Table 4.3: Frequency distribution of subscale items.
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<th>Integration of Care</th>
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<tr>
<td>Item #</td>
<td>22a</td>
<td>22b</td>
<td>22c</td>
<td>22d</td>
<td>25a</td>
<td>25b</td>
<td>25c</td>
<td>25d</td>
<td>25e</td>
<td></td>
<td></td>
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<tr>
<td>N valid missing</td>
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<td>2891</td>
<td>2878</td>
<td>2867</td>
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<td>1507</td>
<td>1354</td>
<td>1390</td>
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<tr>
<td>Mean (sd)</td>
<td>4.28 (1.2)</td>
<td>4.44 (1.1)</td>
<td>4.23 (1.2)</td>
<td>4.29 (1.2)</td>
<td>4.73 (1.0)</td>
<td>4.80 (1.0)</td>
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<td>4.69 (1.1)</td>
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<td>5.00</td>
<td>4.00</td>
<td>4.00</td>
<td>5.00</td>
<td>5.00</td>
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**Table 4.3 (cont’d.):** Frequency distribution of subscale items.
Table 4.4: Pattern matrix of oblique rotation.

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<td>Q21 recoded trust</td>
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Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 11 iterations.
Almost all the items in the PCAS-C loaded on the same scale as in the original PCAS and were thus retained in their respective subscales for the purpose of calculating the reliabilities. The alpha coefficients (α) for each of the six scales analyzed ranged from 0.771 to 0.942 (See Table 4.5). Four of the six scales had alpha’s greater than 0.9, with the higher inter-item correlations found within the Knowledge of Patient (ranging from 0.698 to 0.744) and Integration of Care scales (ranging from .692 to .819). The overall reliability for the entire PCAS scale was α = 0.871, with the inter-scale to total scale correlations ranging from 0.430 to 0.786.

4.2.7 Discussion

The analyses supported the previously reported single dimension, multiple factor structure of the PCAS, as was the scaling and item loading as originally defined by Safran et al. (1998). All but one of the 34 revised items used in the PCAS-C loaded on the similar six scales originally identified by Safran. Several of the items loaded with relatively low values (i.e., less than .35), which may be considered for deletion in future versions.

The mean scores, α’s, and range of item-scale correlations of the PCAS-C compared favourably to the PCAS (see Table 4.5). The PCAS-C values were higher for each of the scales but followed a similar trend as seen in the PCAS, except for Organizational Access. Both survey versions had negative skewness for each of the scales. The Cronbach’s α’s for the PCAS-C were also similar. The item-scale correlations were also similar but the range appeared wider in the PCAS-C with two of the correlations falling below 0.3.
Table 4.5: Comparison between original PCAS (Safran et al., 1998) and the revised PCAS-C for chiropractors.

There were other items that had very low and very high inter-item correlations, the latter suggesting that they may have been capturing attributes shared or in common with other items. This could have explained the relatively high Cronbach’s α (i.e., >0.9) seen in both the PCAS and the PCAS-C for the scales Knowledge of Patient, Communication, Interpersonal Treatment, and Integration of Care (See Table 4.4). Such high alphas suggest that there is redundancy with some of the items that potentially could be considered for deletion in future versions (Floyd, 1995; Streiner, 2005).

However, the nature of factor analysis and “what’s in and what’s out” is considered subjective and dependent upon the underlying theoretical construct (Streiner, 2003). In this regard, the PCAS seemed to capture the relevant conceptual attributes of relational continuity of care as evidenced by the loading of all items onto one principal factor. This was also seen when assessing the relatively little impact that the deletion of some items would have had on...
the main scale and scales of the PCAS-C. In other words, the removal of items may have created a scale with fewer items, tapping into fewer related factors, and improving the inter-item correlations, while decreasing the threat of multicollinearity and reducing alpha values to between 0.7 and 0.9.

In both the PCAS and PCAS-C the responses tended to be skewed towards the higher scores with relative few patients scoring at the floor level. Such a response pattern is common in surveys assessing behaviourally related traits or ratings of other people because it is believed that responders will rate the average individual above average thus sacrificing some level of instrument’s precision (Streiner & Norman, 2003). In other words, the respondents tend to base their scoring on some global impression thus ignoring the individual items in the survey, e.g., halo effect bias (Streiner & Norman, 2003). This halo effect could also result in high scores which would then directly impact upon the sensitivity of the scale.

The skewed responses noted may also have been the result of the population sample surveyed. The patients surveyed were patients who were under the care of the chiropractor for variable periods of time. Almost 37% of eligible patients did not complete the PCAS-C. These may have been patients who had not completed their care, were dissatisfied with the care or did not require a return visit within the four week re-assessment period and consequently did not have the opportunity to complete the PCAS-C. It is uncertain if this would have positively or negatively impacted the results; however, a recent study suggested that patients that did not have an established relationship scored their experiences significantly lower than those with an established relationship with their primary care provider, as well as having a substantially lower response rates, although the reliability of the measure was not affected (Rodriquez et al., 2007). Thus is likely that those not responding
may have impacted the total scale scores but not necessarily the psychometric analyses of the PCAS-C.

In general, the psychometric properties and response characteristics between the PCAS-C and the PCAS were very similar. The scale-scale correlations were less than 0.7, except for Communication and Interpersonal Treatment which was 0.79, almost replicating the findings using the original PCAS, and supporting the value of separately measuring and interpreting the individual PCAS scales (Safran, 2003).

4.3 Conclusion

The psychometric properties of the revised PCAS-C behaved similarly to the original version. This justifies its use in assessing patient experiences with attending for care in chiropractors offices. Using a similar evaluative tool may facilitate comparison with other professions in assessing quality of care, clinical outcomes, and patient-provider relationships.
Chapter 5  Methods

Combining Quantitative and Qualitative Methodologies
5 Introduction

Mixed methods research involves the collection, analysis and interpretation of quantitative and qualitative data in a single study to investigate the same incident (Creswell et al., 2003; Leech & Onwuegbuzie, 2009). In health research, combining the strengths of two different methods facilitates the understanding of the complexity of the numerous factors that influence health and illness (Morgan, 1998b). For example, qualitative methods may capture the inherent qualities in a healing encounter that may be missed by patient surveys (Stewart, 2001). Qualities that lay hidden within the ‘internal’ and ‘external’ context of human experience (McWilliam, 1995; Stewart, 2001). Thus the converging or combining the findings from these two methodological paradigms could enhance our understanding of complex healing relationship and generate new insights (Lingard et al., 2008).

This chapter provides an overview of the methodology used in conducting this study. It describes the mixed methods design, population, data collection strategies, and the quantitative and qualitative analytical strategies employed in data analysis.

5.1 Cross-Sectional Study Design

The purpose of this cross-sectional study was to examine the relationship between patient and provider characteristics and the quality of care and integration (as measured by the PCAS-C scales) and explore patient views of the care they received in a patient-centred collaborative model. This purpose incorporated two strategies of enquiry, one requiring a quantitative analysis examining the relationship between survey outcomes and selected independent variables; and the other employing a qualitative analysis exploring and/or giving
meaning to the quantitative findings (Creswell et al., 2003). Therefore a mixed methods design was used in this thesis.

There are various typologies of mixed methods design (Creswell et al., 2003; Creswell, 2003; Leech & Onwuegbuzie, 2009; Morgan, 1998b). These typologies may be differentiated by the degree of mixing (fully or partially) of the quantitative (quan) and qualitative (qual) methods; the timing of this mixing (concurrent or sequentially); and the priority (dominance, weight or principal) given to a method (Creswell, 2003; Leech & Onwuegbuzie, 2009; Morgan, 1998b; Morse & Field, 1995). Leech and Onwuegbuzie (2009) defined fully mixed methods as involving the use of qualitative and quantitative portions within or across stages of the research, and partially mixed where each method was conducted in its entirety before being combined. The timing of this mixing can occur either at the same point in time (concurrent) or after one component was completed (sequential). Finally, they suggested that one component may take priority (dominance) over the other.

In an effort to simplify the various typologies, Morse (2003) developed a convenient notation to summarize the different degrees of mixing. She used upper case letters to define the method of priority and the timing of the mixing by the symbols ‘→’ or ‘+’, representing sequential or concurrent, respectively. Morgan (1998) utilized Morse’s notation to explain that the priority (dominant) method selected a priori was the one that would optimize the answering of the research question and the second contrasting (complementary) method would be selected to provide further insight, explanation or meaning to the study’s objectives.

Therefore, a mixed methods sequential design, with a quantitative priority and a complementary qualitative approach was used (i.e., QUAN → qual). The quantitative data
was first collected and descriptively analyzed. The descriptive analysis partially informed the semi-structured questions used in the qualitative phase conducted at the end of the study, providing further meaning to the attributes measured. Data from each method were independently collected and analyzed and then combined in order to address each of the study questions (see Figure 5.1).

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**Figure 5.1:** Schematic representation of the QUAN → qual study design and analysis strategies.
5.2 **Quantitative Phase**

The first research question focused on the relationship between the measures of quality of care and integration (select PCAS-C scale scores), controlling for the effects of select patient and provider characteristics, *i.e.*, is there an association between measures of quality of care and integration in patients participating in a patient-centred collaborative care model compared to those that did not participate, controlling for the effects of select patient and provider characteristics?

5.2.1 **Method**

The PCAS-C data were collected from two cohorts of patients, those who attended care provided by chiropractors who participated in a collaboration study (study group) and those who attended for care provided by chiropractors who had not participated in the collaboration study (Reference group). This latter cohort was used to assess the influence, if any, that exposure to the implementation of the interprofessional collaborative model may have had on the PCAS-C scores.

Each enrolled study group patient (*n* = 4688) was expected to complete a PCAS-C as a requirement for participation in the collaboration study. They were required to complete the PCAS-C in their chiropractor’s office after their visit and following at least four weeks of treatment from the date of entry into the study. The completed forms were placed in an envelope, sealed and mailed to the study office. All study group patients consented to complete the necessary collaboration study forms, received chiropractic services at no cost, and were not reimbursed for completing the PCAS-C.
In consideration of the different payment methods for chiropractic services between the two cohorts, a second version of the PCAS-C was created. Version 2 was created for the Reference group patients who had to pay for their chiropractic visits. Hence the differences between the two versions were primarily related to changes in wording to questions related to the payment for chiropractic services (i.e., Q11a: missing chiropractic treatments because of cost and Q11b: rating the payment arrangement for visits; Q12a: attending for care if had to pay; 12b: how much are they willing to pay); however, these questions were not used in scoring the scales. Each version of the PCAS-C was color-coded for ease of group identification and data entering.

The Reference group patients (n = 530) were recruited from chiropractic offices where the chiropractor was not a participant in the collaboration study. These chiropractors were selected based upon their proximity to the study group chiropractors and their similar practice patterns. No information was obtained to determine if they were aware of the study. Their practice patterns were subjectively determined by the Principal Investigator (PI), in consultation with several chiropractors. Consecutive patients attending each Reference group chiropractor’s office were invited to participate by the chiropractor’s office assistant. Each assistant was provided a standard protocol on how to administer the PCAS-C and obtain informed consent. Patients were approached until 50 completed the PCAS-C forms. All forms were completed after the patient had their chiropractic visit. Upon completion of the PCAS-C, the patients placed it in an envelope, sealed it, and handed it to the office assistant. The patients were provided a $2 coin as a token of appreciation for their participation. The office assistant packaged the 50 envelopes into a single envelope ensuring that the
chiropractor’s office code was affixed to the front of the envelope, and couriered them to the study office.

The chiropractor’s and patient’s names were coded to ensure confidentiality. Data was scored and transformed according to Safran (personal communication) using SPSS version 14 (SPSS, Inc. Chicago, IL.).

5.2.2 Sample selection

The number of PCAS-C forms completed by Reference group patients was based upon previous PCAS research (Murray & Safran, 1998; Safran et al., 1998a; Safran, 2003b). If the unit of analysis was the physician, then it was recommended that 50 forms be completed by different patients for every physician being assessed. If the unit of analysis was a multi-physician practice, then for every five physicians in the practice, it was recommended that 200 forms be collected in order to provide meaningful results. This recommended number of surveys per provider was based upon a power of 80% to detect an eight point or more difference in performance between providers, which represented about two times the standard deviation of the observed differences between providers (Murray & Safran, 1998).

Unlike in the Reference group, the final number of PCAS-C surveys submitted by study group chiropractors varied. This variation was explained by the study criteria limiting participation to patients who were rostered to the physicians involved in the collaboration study (see Chapter 2). It was decided based upon previous research that a cut-off point of 40 PCAS-C surveys completed by patients submitted for an individual chiropractor would be included in the final regression analyses. This number was felt to provide an acceptable generalization of patients’ profiling of a particular chiropractor, while limiting potential
positive or negative biases that could be introduced by including fewer cases (Murray & Safran, 1998).

5.2.3 Outcome variables

The primary outcome variables were obtained from PCAS-C. Summary scores from six of the scales of the PCAS-C were independently used as the outcome variables. Each of the scales was selected because of their relevance to the assessment of the interpersonal and organizational factors impacting upon patient-centred care. The remaining five scales were not used either because the information about the related items was not collected for both cohorts (e.g., Financial costs, visit-based continuity); were used as an independent variable (e.g., Longitudinal); or were descriptively analyzed (e.g., Counselling and Thoroughness of Examination). The following scales were used as outcome variables:

5.2.3.1 Organizational access:

This scale addresses one of the key goals of primary care reform, namely timely access to the most appropriate care by a qualified provider (Kirby, 2002). Better access is presumed to enhance the patient-provider relationship (Berry et al., 2003) and has been associated with greater satisfaction (Penchansky & Thomas, 1981; Thiede & McIntyre, 2008)

5.2.3.2 Knowledge of patient:

This scale deals with questions related to the patient rating of the provider’s knowledge of the patient (4 items). The provider’s knowledge of patient is considered a
critical component of patient-centred care and has been associated with improved clinical outcomes (Kelner, 2000; Safran, 2003a; Safran, 2003b).

5.2.3.3 Integration of care:

There are six items in this scale that address the patient’s rating of the level of integration of their care between chiropractors and physicians. One of goals of the collaborative model was to improve the continuity of care through the integration of health care services, which was primarily achieved by improving the level of interprofessional communication and knowledge. This scale assesses the patient’s perception of the level of collaboration between their providers. Evidence suggests team-based care resulted in improved clinical outcomes (Barrett et al., 2007; Gaumer, 2007; Stewart et al., 2000); however, patients’ tend to perceive lower levels of whole patient knowledge, awareness of their medical history, and communication amongst the providers in the team (Rodriquez et al., 2007a; Safran, 2003a).

5.2.3.4 Communication:

The communication scale includes six items that measure the patient’s perceived level of patient-provider communication. Communication is critically important in clinical practice and has been found to influence various outcomes. In general, the findings suggest there is a positive association between effective communication and patient-provider relationship, satisfaction and clinical outcomes (Gaumer, 2007; Kelner, 2000; Lewin et al., 2001; Ong et al., 1995; Safran, 2003b; Schmid Mast et al., 2007; Stewart et al., 2000).
5.2.3.5 Interpersonal treatment:
There are five items in this scale that address the patient’s perceived level of interpersonal treatment. Interpersonal treatment has been reported to impact upon communicating health concerns amongst vulnerable populations (Hartley, 2002).

5.2.3.6 Trust:
The trust attribute is measured by eight items, with one of the items providing an overall general rating of the level of the patient’s trust in their provider. Trust has been related to patient satisfaction (Fiscella et al., 2004) and also to the level of patient’s desire for control of a clinical situation; for example, patients with high trust were found to have a desire for lower personal control thus taking a more passive approach to the medical interaction (Anderson & Dedrick, 1990). Patient trust in their physician has also been found to be related to patients having a choice in physicians, trusting their managed care organization, and having established a longer relationship with their physician (Fiscella et al., 2004; Kao et al., 1998) Trust has also been found to positively impact compliance and follow-through with care recommendations (Gaumer, 2007; Gerteis et al., 1993; Safran, 2003b; Stewart et al., 2000).

5.2.4 Independent Variables
The following independent variables were selected based upon the study question or theoretical constructs suggesting a possible influence upon the outcome variables.
5.2.4.1 Study group:

Study group was coded dichotomously to identify Study group patients and Reference group patients. Since one of the underpinnings of the model of interprofessional collaboration was patient-centeredness, it was assumed that patients in the Study group would be positively impacted by the improved chiropractor-physician relationship, in particular in relationship to higher scores on PCAS-C scales of Integration of care and Trust. In addition, Study group patients did not pay out of pocket for their chiropractic treatment; thus removing an important barrier to care and which should positively influence the Organizational access scale compared to Reference group patients.

5.2.4.2 Age:

Patient age has been reported to be associated with patients’ rating of certain dimensions of primary care. For example, older patients have favourably rated their physician and their primary health care encounter on such dimensions as knowledge of patient, overall satisfaction, and interpersonal aspects of care (Campbell et al., 2001; Gerteis et al., 1993; Harpole et al., 1996). Others have reported that older patients rate organizational aspects of care higher as they tend to be less critical of external factors due to a greater concern for the care they receive (Kalda et al., 2003; Sitzia & Wood, 1997). Age has also been found to be an important factor in reported satisfaction (Jenkinson et al., 2002). This continuous variable was measured in years.
5.2.4.3 Gender:
The gender (sex) of the patient has been found to be associated with levels of satisfaction (Campbell et al., 2001; Harpole et al., 1996; Sitzia & Wood, 1997). However, Campbell et al. (2001) reported no significant differences in patients’ assessment of primary care. This variable was coded dichotomously.

5.2.4.4 Income:
The income variable provided the level of the patient’s total household income before taxes for the previous year. There were 5 choices: less than $20,000; $20,000 to $39,999; $40,000 to $59,999; $60,000 to $79,999; and greater than $80,000. This variable was included since the collaboration model removed the usual patient pay in order to improve access as user fees at the point of service has been found to reduce demand (Kirby, 2002). Also evidence has suggested that more affluent patients receive better treatment, were more informed of available services, and reported greater satisfaction than less privileged patients (Sitzia & Wood, 1997). This variable was recoded into a dichotomous variable comparing those earning less than $39,999 with those earning $40,000 or more.

5.2.4.5 Duration:
The duration of the provider-patient relationship variable measured the length of time that an individual was a patient of the chiropractor. The measure was taken from the PCAS-C Continuity Scale. It was divided into five time intervals: less than 6 months; 6 months to less than 1 year; 1 to 2 years; 3 to 5 years; and more than 5 years. The nature and length of the patient-provider relationship has been considered important in patients’ assessment of the
quality and satisfaction with their care (Kirby, 2002; Murphy et al., 2001; Orchard et al., 2005; Safran, 2003b); has been associated with trust and greater knowledge and understanding of patients (Jackson et al., 2001; Rodriquez et al., 2007b); as well as communicating health concerns amongst vulnerable populations (Hartley, 2002). This variable was also recoded into two categories, less than 6 months and 6 months or more.

5.2.4.6 Satisfaction:

Patient satisfaction has been considered as an important dimension in the evaluation of quality care (Hutchison et al., 2003). Satisfaction has been associated with health status, compliance with treatment, and continuity and convenience of care (Harris et al., 1999; Hutchison et al., 2003); outcomes of care (Breen & Breen, 2003); with providing information and encouraging patient participation in care (Hertzman-Miller et al., 2002) and patient-centeredness (Collins & O'Cathain, 2003; Kinnersley et al., 1999). Trust and knowledge of the patient have been reported to be important predictors of satisfaction and adherence to care, and to a lesser extent improved health status (Safran et al., 1998b). A physician’s communication style (e.g., being caring, participatory and non-dominant) has also been positively associated with patient satisfaction and less likely to be sued (Schmid Mast et al., 2007). Satisfaction was assessed on a 7 point Likert scale from 1 being ‘Completely satisfied, couldn’t be better’ to 7 being ‘Completely dissatisfied, couldn’t be worse’ from the question: “All things considered, how satisfied are you with your regular chiropractor.” In consideration of the skewed scoring with this variable, the satisfaction variable was dichotomized into two categories, either completely satisfied or very satisfied and less (Safran et al., 1998b). Evidence has suggested that patients discriminate between the
continuum of satisfaction level rating and collapsing completely and very satisfied would fail to capture subtle but important differentiations between levels of satisfaction (Collins & O'Cathain, 2003).

**5.2.4.7 Improved:**

The improved variable reflected the patients’ subjective report of symptomatic improvement after receiving their treatment. Studies have suggested that improved outcomes of care are associated with higher levels of communication, interpersonal care, and trust (Safran, 2003b; Stewart et al., 2000). Improved outcomes have also been associated with satisfaction with care; however, this relationship is equivocal (Afilalo & Tselios, 1996). Due to the skewed scoring, the improved variable was dichotomized into two categories, either feeling much better or less than feeling much better after the treatment.

**5.2.4.8 Location of Practice:**

The variable location of practice represented the geographic region of the practices of Study group and Reference group chiropractors. The variable was dichotomized as either ‘rural’, including all chiropractors practicing in a rural setting (i.e., Locations 1 and 3) or urban, including the chiropractors practicing in an urban setting (i.e., Location 2). Research has suggested that urban practices are less supportive of developing relationships between health care professionals in the community (Oandasan et al., 2006). In the collaboration study, the physicians in Locations 2 and 3 were compensated on a capitated model, unlike those in Location 1 who were paid on a fee-for-service basis. Since fee-for-service payments
have been reported to discourage interprofessional collaboration (Kirby, 2002), it was assumed that this would impact upon patients assessments of integration of care and trust.

5.2.4.9 Practice:
The practice variable was coded dichotomously and related to the two chiropractors who were co-located with the physicians in the same office building in Location 2. Studies examining the impact of co-location upon the level of collaboration, in particular of teams in institutional settings, have suggested that such arrangements were usually favourable and important to facilitating interprofessional collaborative practice (Hudson, 1998; Luff & Thomas, 2000; Oandasan et al., 2006; San Martin-Rodriquez et al., 2005).

5.2.4.10 DC sex:
The sex of the chiropractor was included as an independent variable based upon evidence suggesting that there are sex differences in physician communication and interaction with patients (Schmid Mast et al., 2007). In a recent literature synthesis, Roter et al. (2002) reported that female physicians created a more open and equal exchange of information with their patient compared to male physicians. They concluded that female physicians engaged in a more patient-centred communication style, namely they were able to relate to the patient’s broader psychosocial context of their condition, had more positive and emotional talk, and actively sought patient input but provided the same biomedical information to patients when compared to their male physician colleagues, although the effect sizes were small. Studies have suggested that patient-centeredness may influence health outcomes and satisfaction (Safran et al., 1998b; Stewart et al., 2000), paradoxically
there has been no conclusive evidence suggesting physician sex positively influences the health outcomes or patient satisfaction (Roter et al., 2002; Schmid Mast et al., 2007).

5.2.5 Statistical Analysis

A multiple linear regression model was selected to answer the first research question. However, descriptive analyses of the data revealed that the outcome variables were not normally distributed, that equal variance was not attained for all variables, nor was there a linear relationship between the outcome and independent (predictor) variables. After consultation with the researcher working with the developer of the PCAS, it became apparent these findings were consistent with those found in previously conducted research using the PCAS involving patients attending for medical care in the United States (Angela Li, personal communication, August 17, 2007).

As a consequence, the analytical strategy was changed to the use of multiple logistic regression to assess the association between the selected independent variables and the dependent variables (Tabachnik & Fidell, 2007). Despite loosing information from the data by employing logistic regression, this decision was considered to be statistically more valid than treating the dependent variable as continuous in multiple regression when in fact it was not (Mead et al., 2002).

Each of the continuous dependent variables was recoded into two categories, high performers (response category = 1) and low performers (reference category = 0). The cut points were selected after assessing the mean and 95% confidence intervals, as well as the 5% trimmed mean for each scale score for both the study and Reference group respondents, and compared to the scale scores lying between the 75th and 80th percentile scores.
Descriptive analyses were conducted to determine the percent cases in each category. The final cut point for each dependent variable was subsequently made selecting a point closest to the 80th percentile, a process similarly undertaken by the original author (Angela Li, Personal communication, August 17, 2007).

Cross tabulations between the independent and dependent variables were conducted to ensure sufficient number of cases per variable were present in each of the expected cells to prevent extremely large parameter estimates and standard errors. Tabachnik and Fidell (2007) have suggested that ideally all expected cell frequencies should be greater than 1, and that no more than 20% be less than five. If such did occur, the number of categories in the independent variables with more than two categories was further collapsed. Missing data were not imputed.

The independent variables were either continuous or categorical. Coding of independent variables was determined by the expected association with the dependent variable from the literature analysis (Kleinbaum, 1994). Interval variables were recoded to ensure adequate number of cases per category; however, when large parameter estimates and standard errors were observed following the regression analysis, the categories were further collapsed into a dichotomous variable, rather than simply deleting the variable (Tabachnik & Fidell, 2007). Bivariate correlations between independent variables were calculated to ensure that correlations were less than 0.7 (Tabachnik & Fidell, 2007).

Taking into account the hypothesized theoretical construct as to which independent variables would be related to the outcomes, separate block entries were made for each of the six dependent variables. The independent variables were entered in order of presumed higher contribution to the model and coded accordingly (Tabachnik & Fidell, 2007). The first block
included the association group variable. The second block included satisfaction and feeling. The third block included age, gender, income, and duration. The final block included the independent variables: practice, location of practice, and DC sex.

The goodness-of-fit models were assessed by the Hosmer and Lemeshow goodness-of-fit test and by examining the residuals. Examination of the residuals, Cook’s distance, leverage, and presence of collinerarity was conducted. Cases found to have standardized residual’s greater than 3 standard deviations were deleted (Tabachnik & Fidell, 2007).

All variables were entered and scored according to the PCAS referenced guidelines (Safran, personal communication). Descriptive and inferential statistical analyses were done using SPSS, version 14 (SPSS Inc, Chicago).

5.3 **Qualitative Phase**

In the second phase of this mixed methods sequential design, qualitative methodology was used to help inform and understand the findings from the collected survey data (Johnson & Turner, 2003). In particular, we explored Study patients’ collective perception, attitudes, and opinions of the interprofessional collaboration between chiropractors and physicians. To do so, data were collected from focus groups.

5.3.1 **Focus groups**

Focus groups provide unique insights, critiques and strategies that can offer multiple meanings and perspectives by capitalizing on the complexity of group dynamics, thus yielding richness in experiential data that is rarely seen in individual interviews. (Asbury, 1995; Kamberelis & Dimitriadis, 2003). They are frequently used as an interpretive
qualitative procedure (Kelle & Erzberger, 2004) to explore and complement quantitative research findings by “capturing people’s responses in real space and time” and “strategically focusing interview prompts” based on themes of particular importance to researchers (Kamberelis & Dimitriadis, 2003, p. 899). Focus groups enable the collection of large amounts of data in a limited period of time facilitated by collective interaction focusing “on the multivocality of participant attitudes, experiences, and beliefs” (Madriz, 2003, p. 364).

Focus groups have also been recognized to give patients a voice in identifying barriers and developing solutions to particular issues that would otherwise be less accessible in one-to-one interviews or not captured in surveys (Barbour, 2005; Sim, 1998). They are important in exposing ideas and thoughts promoted by group synergies that may infrequently be accessible in individual memory or threatened by individual interviews (Madriz, 2003). In this regard, an individual’s considered trivial experience may take new meaning or significance when explored in the context of shared knowledge within a like-minded group resulting in powerful interpretative insights (Kamberelis & Dimitriadis, 2003). Thus focus groups capitalize on this group interaction yielding in-depth, rich experiential data not captured by other methods (Slaughter et al., 1999).

Focus groups can provide richness in data not achieved in quantitative methodology; however, they do have limitations and challenges. Focus groups must be carefully facilitated to prevent dominant or subgroup of individuals from controlling the process resulting in a disproportionate sampling of their voice(s) (Sim, 1998); to encourage recalcitrant interviewees to participate and appropriately contribute; and to ensure all voices are heard (Onwuegbuzie & Leech, 2007). Such careful facilitation may prevent ‘social desirability response bias’ where participants wanting to please conform to group comments (Slaughter
et al., 1999) rather than be a reflection of their true individual opinions (Barbour, 2005). Conformity of opinions in a focus group is not necessarily a measure of consensus but can result from the context-dependent social interactions that emerge from the group (Lehoux et al., 2006; Sim, 1998). As such, the findings may not be generalized to a larger population but nevertheless may be ‘transferred’ to other similar contextual settings (Sim, 1998).

5.3.2 Group size and number

Six focus groups were held, two at each of the three collaboration study sites, with each group membership determined by their referral into the study. The number of focus groups was assumed to be adequate for the purposes of the study because previous experience suggested that conducting two patient focus groups at each site led to informational redundancy (Mior et al., 2002). The literature is contradictory as to the ideal number of focus groups required and ranges between one and ten (Slaughter et al., 1999), with potential saturation being reached with three to five groups (Onwuegbuzie & Leech, 2007).

Each focus group contained no more than 14 participants, thus enabling sustained discussion and each person’s opportunity to share their insights in a controllable manner (Morgan, 1998a; Onwuegbuzie & Leech, 2007).

5.3.3 Participant selection

Recruitment of focus group participants was guided by their geographical location and nature of their referral into the collaboration study, i.e., physician or self referral to the
chiropractor. Groups were first organized geographically for convenience of participant attendance. Participants were then allocated to a particular group by the nature of their referral. The assumption was this would create a more homogeneous group to better capitalize on participants’ shared experiences (Slaughter et al., 1999) and facilitate greater input, decreased risk of polarization of participants, while providing information from uniquely informed perspectives (Asbury, 1995; Sim, 1998).

We accessed the patient lists from the collaboration study that had been created to track enrolment-specific information from each study chiropractor and physician. First, homogeneous sampling (Onwuegbuzie & Leech, 2007) was done resulting in two subgroups of patients, one group who had been referred by their family physician and the other had not. Then stratified purposeful sampling within each of these two subgroups was conducted to ensure the level of diversity in each group (Barbour, 2005; Morgan, 1998a; Onwuegbuzie & Leech, 2007).

A list of participants in each physician- or self-referred group was further sorted by physician name (i.e who made the referral) or the chiropractor (i.e., who the patient saw), respectively. About 20 participants in each of these groups were selected using a random number table, assuring similar sex and age distribution and a balanced representation of the providers seen. Consideration of sex and age distribution was given due to the aforementioned reported influence of sex and age on the assessment of quality of care. Sorting by provider enabled the exploration of patients’ perception of their providers’ acceptance of the collaborative model. The number of participants was over-subscribed in anticipation of attrition and refusals to participate (Barbour, 2005; Krueger, 1998; Slaughter et al., 1999).
Selected participants were sent letters of invitation to participate. A follow-up call was made within two weeks of mailing the invitations to confirm their participation. A subsequent confirmation letter was sent outlining the time, date, and location of the focus group. All participants consented to audiotaping and received a financial remuneration for their time. Economic incentives reportedly increase the likelihood of participation and provide recognition of the participants’ time (Madriz, 2003).

5.3.4 Setting and Moderating

Each focus group was held in a local hotel meeting room. The meeting room was sufficiently large to accommodate a table and 16 chairs. Each focus group lasted about two hours. Each group was led by a moderator who was accompanied by an assistant. The assistant was responsible for tape recording, monitoring, and observing the discussion. The PI participated in all the group sessions, facilitating in two of the sessions due to unavailability of the other moderator.

A mixed type of focus group structure was used (Johnson & Turner, 2003). This commonly used structure employed open and closed ended questions enabling the moderator to keep the participants focused on the key areas of interest but allowing discretion to more deeply explore related areas (Johnson & Turner, 2003). Following introductory comments, the facilitator asked an “ice-breaker” general question about the participants’ general experience with the chiropractic care received, so as to familiarize participants to the process and to develop a rapport, prior to moving to more specific questions (Johnson & Turner, 2003; Madriz, 2003). Open-ended questions were used to help clarify and interpret some of the survey findings and also to explore the patients’ perspective of the degree and level of interprofessional collaboration and patient-centeredness that was introduced by the
collaborative model. In addition, probes were employed to encourage discussion when participants did not fully engage in the dialogue. The moderator emphasized that all comments were valued and encouraged participants to provide their opinion, regardless if it agreed with others. Effort was made by the facilitator to avoid influencing the dialogue by offering personal opinion. Two focus group guides were created, one for each physician and self-referred group, differing only in questions related to the referral. (See Appendices 5 and 6 for focus group questions.) Participants were instructed to identify themselves using only their first name prior to speaking to facilitate the tracking of comments and degree of participation.

Following each focus group the moderator and assistants debriefed. The debriefing provided an overview of the sessions, including its facilitation, interaction, and outcomes. The questions and probes were also reviewed, and if necessary slightly modified, to ensure the participants’ experiences and thoughts were being properly captured. These activities provided a measure of content validity (Kidd & Parshall, 2000).

5.3.5 Data Collection

The focus group sessions were audio taped using two tape recorders to ensure data capture, with one set of tapes defined as a ‘master copy.’ Each master copy was transcribed verbatim by a professional transcriber. All references to named individuals were removed to ensure subject anonymity and replaced by pseudonyms.

In an effort to capture incidental comments or tones with the transcribed word, the transcriber was provided with a legend of common reactions to standardize content interpretation (Poland, 2002). The PI reviewed each transcript and compared it to the
audiotape for accuracy of content, including the notation of extraneous comments or sounds
(e.g., laughter, anger, etc.). Errors in content and sentence structure were made and final
transcript copy was produced. All audiotapes were stored in a locked cabinet.

5.3.6 Analysis

Transcript-based analysis was used as it provides the most depth and detail (Morgan, 1998a). An interpretive approach was used to qualitatively analyze each transcript. This interpretivist approach allows for the exploration of the meaning of the patient’s experiences and thoughts rather than developing substantive theory (Morgan, 1998a; Verhoef et al., 2005). Each transcript was examined using qualitative content analysis (Morse & Field, 1995; Sandelowski, 2000). Words, sentences, and paragraphs were coded into categories and sub-categories. These were then collapsed into emergent themes used to develop meaning and explanation of the patterns identified from the data (Barbour, 2005; Morgan, 1998a).

Each transcript was coded and the coding framework independently developed by the principal investigator. Developing a common framework for all the transcripts enhance the internal consistency of coding (Kidd & Parshall, 2000). The coding scheme and interpretation were then cross checked by two other researchers, both experienced in qualitative research, to help refine the coding framework, provide competing explanations (Barbour, 2001), and simultaneously assessing the reliability of the coding (Kidd & Parshall, 2000).

A copy of each of the coded transcripts was made and each page was then uniquely color-coded in the left margin to identify the group data source (Krueger, 1998; Morse & Field, 1995). Passages to the referenced codes were then cut and pasted onto full sheets of
poster paper organized under their related categories. This facilitated constant review of the data and helped focus the interpretation. Particular quotations were selected from the passages and used in the narrative to highlight a particular theme/category; described within or between group differences in views; or for their clarity and focus (Thompson, 2007).

5.4 Ethics

As noted above, the Health Sciences I Research Ethics Board at University of Toronto and the Research Ethics Board at Canadian Memorial Chiropractic College approved the original study, which included the collection of PCAS survey data and conducting of patient focus groups (See Appendix 7).
Chapter 6  Results

Exploring the Patients’ Perspective of Patient-Centred Interprofessional Collaborative Care
6 Introduction

Patients are at the centre of health care yet traditionally they have had no real voice (Black & Jenkinson, 2009). Rather attention has typically focused on assessing pain, disability, and quality of life measures that may have been impacted by a particular intervention or service; however, there is a growing realization of the importance of assessing the patients’ views of the inherent qualities of the clinical encounter (Black & Jenkinson, 2009; Stewart, 2001). Qualities that lay hidden within the ‘internal’ and ‘external’ context of the human experience and that may not be solely accessible by measuring the patients’ perception of the quality of their care but also by exploring the deeper meaning of their experience (Gerteis et al., 1993; McWilliam, 1995; Stewart, 2001).

In this chapter we provide the results of the quantitative analysis of the patients’ reported perception of several quality of care attributes and their association to select patient, provider and organizational attributes, closing with an exploration of their meaning through a qualitative analysis the patients’ experience as voiced in a focus group.

6.1 Description of Participants

6.1.1 Sample Characteristics

There were 2,541 PCAS-C surveys completed by Study group patients and 530 forms completed by Reference group patients. The number of PCAS-C forms from Study group patients assessing a particular chiropractor varied from 1 to 373. Thirty-one (31) of the 47 Study group chiropractors had less than 40 PCAS-C forms completed by their patients; thus 402 forms were excluded from the final analysis. In addition, 72 Study group surveys were
incomplete and excluded. Therefore there were 2597 eligible PCAS-C forms for analysis (see Figure 6.1).

Figure 6.1: Schematic summary of respondents.

6.1.2 Describing the Chiropractors

The location and demographics of the chiropractors from whom the patients submitted PCAS-C forms is summarized in Table 6.1. There were differences between the chiropractors when compared by location; however, when compared by group averages, they
were fairly similar in age (42 and 44 years); years in practice (15.5 and 16.3 years); and office hours worked per week (37.6 and 38.4 hrs) between Study group and Reference group, respectively. Female chiropractors in the Reference group were slightly better represented at 27% compared to 19% in Study group. There were only two Study group chiropractors who shared clinic space in the same office building as physicians who participated in the collaboration study (i.e., co-located). These two chiropractors practiced in Location 2 and contributed about 25% of the total Study group PCAS-C questionnaires.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Study group chiropractors (n=16)</th>
<th>Reference group chiropractors (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Locat’n 1 (n = 9)</td>
<td>Locat’n 2 (n = 4)</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Age (mean)</td>
<td>47</td>
<td>41</td>
</tr>
<tr>
<td>Yrs in practice(avg)</td>
<td>18.9</td>
<td>15.8</td>
</tr>
<tr>
<td>Office hours/week</td>
<td>44.0</td>
<td>38.3</td>
</tr>
</tbody>
</table>

Table 6.1: Demographic characteristics of eligible chiropractors. (Locat’n = location; Yrs = years; avg = average; n = number.)

The characteristics of the chiropractors reported in Table 6.1 were similar to those reported for the average chiropractor practicing in Ontario (Mior & Waalen, 2008). On average chiropractors in Ontario were reported to be about 40 years in age, have been in practice for about 13.2 years, and spend about 33 hours per week in their clinic. Approximately 24% of practicing chiropractors were females. An effort was made to select chiropractors in Reference group who matched those in Study group; no objective data was collected to confirm practice similarity.
6.1.3 Describing the Patients

Descriptive analyses of Study and Reference group patients are summarized in Table 6.2. The age, gender and marital status of patients were similar in both groups; however, there were differences in some of the other remaining characteristics. In particular, there were more Study group patients compared to Reference group patients who had an annual household income of less than $40,000 (38.7% vs 27%) and less post-secondary education (38% vs 56%), respectively. The bodily area of the presenting complaint also differed between the groups, with those in Study group having more extremity complaints than Reference group, the latter being more representative of what is typically seen amongst Ontario chiropractors (Waalen & Mior, 2005).

The majority of patients in both groups reported durations of pain greater than six months; however, about 83% of patients in the Reference group reported having had symptoms for more than six months compared to 59% in Study group. When questioned about the number of days patients were in pain during the six months preceding the completion of the PCAS-C, Study group patients reported an average of 82.9 days (95% confidence intervals (CI) 79.5, 86.3), significantly greater than the 58.2 days (95% CI, 51.7, 64.7) for Reference group.

The two patient groups differed in the length of time they were patients of their chiropractor (i.e., duration of relationship) as illustrated in Figure 6.2. This difference was attributed to the collaboration study design wherein about 35% of the patients enrolled were direct medical referrals who had little to no prior experience with chiropractic care (Mior et al., 2007). Despite this difference in length of the provider-patient relationship, 89% of Study group patients and 94% of Reference group patients reported that they would definitely
recommend their chiropractor to others. This seemed consistent with the high rate of overall satisfaction with the chiropractor reported by both groups of patients (See Table 6.2).

![Graph comparing duration of patient-chiropractor relationship by group and 95% CI. (Study group = Group C; Reference group = Group N.)](image)

**Figure 6.2:** Graph comparing duration of patient-chiropractor relationship by group and 95% CI. (Study group = Group C; Reference group = Group N.)

Also 18.2% of patients in Study group and 16.7% in Reference group were smokers. About 12.4% in Study group and 9.8% in Reference group reported not exercising, while 40.4% and 46.0% reported exercising one hour per week, and 47.2% and 44.1% for more than an hour per week, respectively. The body mass index (BMI) of Study group patients was less than 25 in 34%, 37.3% were between 25 and 29.9, and 28.8% were greater than 30; in Reference group the BMI was 35.8%, 41.5% and 22.7% respectively.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Study group Patients</th>
<th>Reference group Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>% *</td>
</tr>
<tr>
<td>Gender (Female)</td>
<td>2027</td>
<td>60</td>
</tr>
<tr>
<td>Age (mean, sd)</td>
<td>2023</td>
<td>49 (18)</td>
</tr>
<tr>
<td>Marital status: married</td>
<td>2013</td>
<td>65</td>
</tr>
<tr>
<td>Education</td>
<td>1901</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade school</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td>Secondary</td>
<td>51.1</td>
</tr>
<tr>
<td></td>
<td>Post Secondary</td>
<td>38.1</td>
</tr>
<tr>
<td>Household Annual Income</td>
<td>1736</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;$20k</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>$20k to 39K</td>
<td>24.9</td>
</tr>
<tr>
<td></td>
<td>$40k to 59k</td>
<td>23.6</td>
</tr>
<tr>
<td></td>
<td>$60k to 79k</td>
<td>17.3</td>
</tr>
<tr>
<td></td>
<td>&gt;$80k</td>
<td>20.4</td>
</tr>
<tr>
<td>Area of Complaint</td>
<td>2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neck</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>Mid back</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>Low back</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>Arm/leg</td>
<td>18.2</td>
</tr>
<tr>
<td></td>
<td>Headache</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>Other (more than 1 site)</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td># Pain days in last 6 mths [mean, (sd)]</td>
<td>1615</td>
</tr>
<tr>
<td>Duration of complaint</td>
<td>1621</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute (&lt;3months)</td>
<td>21.5</td>
</tr>
<tr>
<td></td>
<td>Subacute(3-6months)</td>
<td>19.1</td>
</tr>
<tr>
<td></td>
<td>Chronic (&gt;6months)</td>
<td>59.3</td>
</tr>
<tr>
<td>Duration of pt-chiropractor relation</td>
<td>2045</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; 6months</td>
<td>42.8</td>
</tr>
<tr>
<td></td>
<td>6 months – 2 years</td>
<td>18.4</td>
</tr>
<tr>
<td></td>
<td>3 – 5 years</td>
<td>15.6</td>
</tr>
<tr>
<td></td>
<td>&gt; 5 years</td>
<td>23.2</td>
</tr>
<tr>
<td>Definitely recommend chiropractor</td>
<td>2054</td>
<td>88.9</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>1930</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completely</td>
<td>57.3</td>
</tr>
<tr>
<td></td>
<td>Very satisfied</td>
<td>37.3</td>
</tr>
<tr>
<td></td>
<td>&lt; very satisfied</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Table 6.2: Description of patient characteristics by group. (*Percentage included in brackets unless otherwise noted in the variable column.)
6.2 Descriptive Analysis of the PCAS-C

Table 6.3 summarizes the scores for each PCAS-C scale by group. The scores for the scales related to the domains of accessibility (Organizational access), clinical interaction (Communication and Thoroughness of exam), interpersonal treatment (Interpersonal treatment), and trust (Trust in chiropractor) ranged from about 80 to 90 out of 100. Statistically significant but unimportant differences between the group mean scores were found for the scales Organizational access (t = 2.36, df = 2586, p<0.05); Integration (integration of care: t = 2.43, df = 1167, p < 0.05); and Trust in Chiropractor (t = 3.59, df = 2542, p < 0.001). Substantial and statistically significant differences between the groups’ mean scores were observed for the domains of continuity (Longitudinal: t = 19.48, df = 2572, p< 0.001) and comprehensiveness (Knowledge of patient: t = 8.93, df = 2525, p<0.001; and Counselling: t = 12.76, p<0.001).

The Longitudinal scale assessed a component of the attribute continuity of care, namely how long an individual had been a patient of the chiropractor. The scale was scored according to one of five responses identifying if one was a patient for less than six months to greater than five years, with higher scores indicating a longer relationship (i.e., longitudinal continuity of care). Figure 6.2 illustrates the response differences in the Longitudinal scale between the groups, with more than 40% of Study group patients knowing the chiropractor for less than six months but about the same percentage in Reference group knowing their chiropractor greater than five years. As previously noted, this difference was attributed to the increased physician referrals to the chiropractors as a result of their participation in the collaboration study.

There was a substantial difference in the Counselling scale scores between the two groups. The Counselling scores were derived from the summated scores obtained from seven
items questioning if the chiropractor provided the patient with information about ‘smoking’, ‘alcohol use’, ‘seat belt use’, ‘diet/weight’, ‘exercise’, ‘stress’ and ‘back/spine care’. Each item was answered by selecting one of five detractors, three in the affirmative (each differentiated by a specific time interval), one negative and the other considered not relevant by the patient. The item-total score was calculated from responses obtained from only the former two categories resulting in a dichotomous score of 0 or 100 for each of the items, but creating a continuous total score for the scale.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Study group</th>
<th>Reference group</th>
<th>Difference in scores between Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean (95%CI)</td>
<td>mean (95%CI)</td>
<td>mean(95%CI)</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Organizational Access</td>
<td>81.99 (81.42,82.56)</td>
<td>80.48 (79.37,81.59)</td>
<td>1.51 (0.25, 2.77) (^1)</td>
</tr>
<tr>
<td>Longitudinal</td>
<td>43.53 (40.72,44.34)</td>
<td>74.10 (71.48,76.72)</td>
<td>-31.57 (-35.36, -27.78) (^2)</td>
</tr>
<tr>
<td>Knowledge of Patient</td>
<td>63.96 (63.01,64.87)</td>
<td>72.91 (71.24,74.57)</td>
<td>-8.94 (-10.91,-6.98) (^2)</td>
</tr>
<tr>
<td>Counselling</td>
<td>50.53 (48.92,52.13)</td>
<td>72.22 (69.29,75.15)</td>
<td>-21.69 (-25.24, -18.15) (^1)</td>
</tr>
<tr>
<td>Communication</td>
<td>88.01 (87.47,88.55)</td>
<td>87.99 (86.67,89.12)</td>
<td>0.13 (-1.30, 1.22)</td>
</tr>
<tr>
<td>Thoroughness of exam</td>
<td>84.77 (84.08,85.46)</td>
<td>85.39 (83.98,86.80)</td>
<td>-0.62 (-2.16, 0.92)</td>
</tr>
<tr>
<td>Interpersonal treatment</td>
<td>89.29 (88.76,89.82)</td>
<td>90.32 (89.22,91.42)</td>
<td>-1.03 (-2.21, 0.16)</td>
</tr>
<tr>
<td>Trust in Chiropractor</td>
<td>83.12 (82.58,83.65)</td>
<td>85.29 (84.23,86.34)</td>
<td>-2.17 (-3.35, -0.98) (^2)</td>
</tr>
<tr>
<td>Integration of care</td>
<td>72.99 (71.79,74.19)</td>
<td>76.83 (74.04,79.62)</td>
<td>-3.84 (-6.94, -0.74) (^2)</td>
</tr>
</tbody>
</table>

Table 6.3: The Group means and 95% confidence intervals about the mean and standard deviations (sd) of the scores for each of the scales and the difference in mean scores between groups. (Statistically significant t-test differences noted as 1. p<0.5 and 2. p<.001.)
Table 6.4 provides a summary of the frequencies of patients’ responses by group. A higher percentage of Reference group patients reported having been spoken to about each of the items in the Counselling scale, except for smoking, alcohol use and seat belt use, which were relatively similar for both groups.

<table>
<thead>
<tr>
<th>Item</th>
<th>Group</th>
<th>Total cases</th>
<th>Did speak to Patient (%)</th>
<th>Did not speak to patient (%)</th>
<th>Not relevant (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smoking</strong></td>
<td>Study</td>
<td>1863</td>
<td>307 (16.5)</td>
<td>784 (42.1)</td>
<td>772 (41.4)</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>490</td>
<td>77 (15.7)</td>
<td>64 (13.1)</td>
<td>349 (71.2)</td>
</tr>
<tr>
<td><strong>Alcohol use</strong></td>
<td>Study</td>
<td>1834</td>
<td>175 (9.5)</td>
<td>925 (50.4)</td>
<td>734 (40.0)</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>499</td>
<td>52 (10.4)</td>
<td>109 (21.8)</td>
<td>338 (67.0)</td>
</tr>
<tr>
<td><strong>Seat belt use</strong></td>
<td>Study</td>
<td>1309</td>
<td>241 (18.4)</td>
<td>1068 (81.6)</td>
<td>509 (38.9)</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>485</td>
<td>80 (16.5)</td>
<td>196 (40.4)</td>
<td>209 (43.1)</td>
</tr>
<tr>
<td><strong>Diet/weight</strong></td>
<td>Study</td>
<td>1826</td>
<td>561 (30.1)</td>
<td>846 (46.3)</td>
<td>419 (22.9)</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>501</td>
<td>216 (43.1)</td>
<td>116 (23.2)</td>
<td>169 (33.7)</td>
</tr>
<tr>
<td><strong>Exercise</strong></td>
<td>Study</td>
<td>1943</td>
<td>1480 (76.2)</td>
<td>287 (14.8)</td>
<td>176 (9.1)</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>517</td>
<td>430 (83.2)</td>
<td>33 (6.4)</td>
<td>54 (10.4)</td>
</tr>
<tr>
<td><strong>Stress</strong></td>
<td>Study</td>
<td>1875</td>
<td>991 (52.9)</td>
<td>605 (32.3)</td>
<td>279 (14.9)</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>507</td>
<td>357 (70.4)</td>
<td>70 (13.8)</td>
<td>80 (15.8)</td>
</tr>
<tr>
<td><strong>Back/spine care</strong></td>
<td>Study</td>
<td>1951</td>
<td>1555 (79.7)</td>
<td>254 (13.0)</td>
<td>142 (7.3)</td>
</tr>
<tr>
<td></td>
<td>Reference</td>
<td>522</td>
<td>476 (91.2)</td>
<td>24 (4.6)</td>
<td>22 (4.2)</td>
</tr>
</tbody>
</table>

**Table 6.4:** A summary of the frequencies of the patients’ responses to each of the items in the Counselling scale, sorted by Group.

Patients who were counselled on these different aspects of health promotion were then asked if they had acted upon the advice provided by their chiropractor, a crude measure
of compliance. About half of the patients in both groups reported following through with advice given about alcohol consumption; two thirds followed the advice on smoking cessation; about three quarters on weight/diet advice; but almost 90 to 95% of patients in both groups reported taking advice on exercise, stress, and back/spine care. There was about a 10% difference in scores between groups, favouring the Reference group, for the items smoking, alcohol use, seat belt use and diet/weight; but both groups scored about the same for having complied with advice about exercise, stress, and back/spine care.

6.3 **Associations between PCAS-C Scales and Select Characteristics**

The first research question was to determine if there was an association between measures of quality of care and integration in patients participating in a patient-centred collaborative care model compared to those that did not participate, controlling for the effects of select patient and provider characteristics?

6.3.1 **Preliminary analysis**

Sequential logistic regression analysis was performed on each of the outcome variables Organizational access, Knowledge of patient, Communication, Interpersonal treatment, Trust, and Integration of care and 10 independent variables. The outcome variables were dichotomized into high performing (1) and low performing (0) chiropractors based upon patient scores for each of the scales.

Bivariate intercorrelations were conducted between the independent variables. Two independent variables were found to be significantly correlated, these were ‘practice’ and the ‘location of practice’ ($r = .754$, p< .001). Consequently, the variable ‘location of practice’
was excluded from being entered into the regression equation to avoid infringing on the collinearity assumption. The remaining nine independent variables were entered as four discrete blocks containing related variables hypothesized to be associated with the outcome (see Table 6.5).

<table>
<thead>
<tr>
<th>Block Entry</th>
<th>Variable (n)</th>
<th>Coding (% of n values)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study group (2578)</td>
<td>1= Study group patient (79.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0= Reference group patient (20.6)</td>
</tr>
<tr>
<td>2</td>
<td>Satisfaction (2436)</td>
<td>1= patient completely satisfied (55.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0= less than completely satisfied (39.1)</td>
</tr>
<tr>
<td></td>
<td>Improved (2414)</td>
<td>1= feeling much better after treatment (54.2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0= feeling less than much better after treatment (39.4)</td>
</tr>
<tr>
<td>3</td>
<td>Patient age (2526)</td>
<td>Continuous scale: mean=49.3, sd=16.8</td>
</tr>
<tr>
<td></td>
<td>Gender (2535)</td>
<td>1=female patient (59.9)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0=male patient (38.4)</td>
</tr>
<tr>
<td></td>
<td>Income (2190)</td>
<td>1= household income of patient ≥$40k (54.1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0= household income of patient &lt; $40k (30.9)</td>
</tr>
<tr>
<td></td>
<td>Duration (2555)</td>
<td>1= length of patient-provider relationship &lt; 6months (34.9)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0= length of patient-provider relationship ≥ 6months (64.2)</td>
</tr>
<tr>
<td>4</td>
<td>Practice (2578)</td>
<td>1= saw chiropractor co-located with physician (20.1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0= saw chiropractor not co-located with physician (79.9)</td>
</tr>
<tr>
<td></td>
<td>DCgender (2578)</td>
<td>1= saw female chiropractor (13.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0= saw male chiropractor (86.5)</td>
</tr>
</tbody>
</table>

Table 6.5: Description of the independent variables, their coding scheme, and the total number of completed surveys included in the analysis.

A review of all residuals was performed following each regression analysis. Standardized residuals of cases with values greater than 3 were inspected. Cases were deleted if the Cook’s distance, leverage, and the standardized Cook’s distance (DFBeta for constant) was greater than 1, suggesting a possible influential case. If cases were deleted, the regression analysis was re-run. Missing data were not imputed.
6.3.2 Regression analysis on Organizational Access

There were 535 of 2597 cases excluded from the analysis due to missing data. A test of the full model with all the independent variables against the constant-only model was statistically significant \( \chi^2 (9, n=2052) = 312.77, p<.001 \) suggesting the independent variables, as a set, significantly improved the probability of distinguishing between the high and low performing chiropractors on the Organizational access scale. This was further evidenced by a non significant Hosmer & Lemeshow goodness-of-fit test \( \chi^2 = 5.817, df=8, p=.668 \). The variance in the Organizational Access score accounted for by the full model was Nagelkerke \( R^2 = .209 \). Overall the model correctly classified 94.8% of low performing chiropractors (i.e., those with scale scores below the 80th percentile) but 15.4% of high performing chiropractors, for an overall success rate of 74.8%.

Table 6.6 provides the regression coefficients (\( \beta \)) and their standard error (SE), the odds ratio and their 95% confidence interval (CI). Each of the Blocks made a significant, albeit small, contribution to the improvement in the ability of the model to predict the level of Organizational access. There was a positive association between patients participating in the collaboration study and rating their chiropractor as a high performer on the Organizational access scale, when controlling for the other variables. Satisfaction with the overall chiropractic service was positively associated with a higher score on the Organizational access scale compared to patients who were less than completely satisfied.

There was also a positive association between high performing chiropractors on the Organizational access scale and the gender of the chiropractor, with patients attending male chiropractors scoring higher. However, there was a negative association between patients attending chiropractors who were co-located (i.e., practice) and their rating of their
chiropractor as a high performer on the Organizational access scale compared to patients attending chiropractors who practiced independently.

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>SE</th>
<th>Odds Ratio</th>
<th>Upper</th>
<th>Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study group</td>
<td>0.697</td>
<td>.144</td>
<td>2.008</td>
<td>1.514</td>
<td>2.663</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>1.705</td>
<td>.145</td>
<td>5.499</td>
<td>4.136</td>
<td>7.312</td>
</tr>
<tr>
<td>Improved</td>
<td>0.441</td>
<td>.122</td>
<td>1.554</td>
<td>1.223</td>
<td>1.974</td>
</tr>
<tr>
<td>Age</td>
<td>0.008</td>
<td>.004</td>
<td>1.024</td>
<td>1.001</td>
<td>1.015</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.014</td>
<td>.115</td>
<td>.986</td>
<td>.788</td>
<td>1.234</td>
</tr>
<tr>
<td>Income</td>
<td>0.134</td>
<td>.119</td>
<td>1.143</td>
<td>.905</td>
<td>1.444</td>
</tr>
<tr>
<td>Duration</td>
<td>0.41</td>
<td>.132</td>
<td>1.042</td>
<td>.804</td>
<td>1.350</td>
</tr>
<tr>
<td>Practice</td>
<td>-1.051</td>
<td>.177</td>
<td>.350</td>
<td>.247</td>
<td>.495</td>
</tr>
<tr>
<td>DCgender</td>
<td>-0.539</td>
<td>.168</td>
<td>.583</td>
<td>.419</td>
<td>.811</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.370</td>
<td>.300</td>
<td>.034</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.6: Logistic regression of Organizational access scale score as a function of selected independent variables.

A descriptive analysis of the items comprising the Organizational access scale supported the likelihood that the co-located chiropractors were rated as low performers. There was a smaller percentage of patients of the co-located chiropractors who rated the hours the office were opened, wait times for an appointment, time waiting in the reception room, and ability to get through to the office by phone as excellent compared to those patients attending chiropractors who were not co-located. Of particular note, patients rated the convenience of the location of the office for the co-located chiropractors lower than those who attended chiropractors who were not co-located despite the presumed convenience of a “one-stop shop” (see Figure 6.3).

The variables assessing the patients’ subjective ratings of service-related items and those reflecting their chiropractor’s place of practice were more likely to be positively

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associated with high performing chiropractors on the Organizational access scale than the variables that were more patient related. Considering one of the main aspects of the collaboration study was to improve the access to chiropractic services, participation in the study was positively associated with high performing chiropractors on the Organizational access rating when controlling for all other variables.

Figure 6.3: Patients’ rating of the convenience of the practice location (95% confidence intervals) comparing practices where chiropractors are co-located with the patient’s physician and those that are not co-located.
6.3.3 Regression analysis on Knowledge of the Patient

The first regression analysis on Knowledge of the patient yielded 19 cases with high residual values (± 4). These 19 cases were deleted and the regression was re-run. An additional 88 cases were excluded due to missing data. In the second regression, the test of the full model with all the independent variables against the constant-only model was statistically significant \([\chi^2 (9, n=2490) = 514.860, p<.001]\) suggesting the independent variables, as a set, significantly improved the probability of differentiating between high and low performing chiropractors on the Knowledge of patient scale. This was further evidenced by a non significant Hosmer & Lemeshow goodness-of-fit test \((\chi^2 = 3.185, df=8, p=.922)\).

The variance in the Knowledge of patient scale score accounted for by the full model was Nagelkerke \(R^2 = 0.313\). Each Block made a small but significant contribution to the improvement in the ability of the model to predict the level of performance of the chiropractors on the Knowledge of patient scale. The model correctly classified 81.1% of low performing chiropractors (i.e., those with a score of less than 75\(^{th}\) percentile) and 60.2% of those rated as high performing on this scale, for an overall success rate of 73.7%.

There was a positive association between patients reporting being completely satisfied with their chiropractic service (i.e., satisfaction) and feeling much better after the visit (i.e., improved) and rating their chiropractor as a high performer on the Knowledge of patient scale (see Table 6.7). However, there was a negative association between patients who participated in the collaboration study (i.e., study), had a relationship of less than 6 months (i.e., duration), had an annual household income of greater than $40k (i.e., income), and attended for care with a chiropractor who was co-located (i.e., practice) and rating their chiropractor as a high performer on the Knowledge of patient scale.
Table 6.7: Logistic regression of Knowledge of patient scale score as a function of selected independent variables.

The patients’ rating of their chiropractor as a high performer on the Knowledge of patient scale was negatively associated with the length of the time they had known their chiropractor (i.e., duration) and if their chiropractor’s practice was co-located with their physician’s office (i.e., practice). Patients who had a longer temporal relationship with their chiropractor rated their chiropractor as a high performer, but this relationship was diminished by the chiropractors being co-located diminishes (see Figure 6.4).
6.3.4 Regression analysis on Communication Scale

A test of the full model with all the independent variables against the constant-only model was statistically significant \( \chi^2 (9, n=2044) = 466.59, p<.001 \) suggesting the independent variables, as a set, significantly improved the probability of distinguishing between levels of Communication. This was further evidenced by a non significant Hosmer & Lemeshow goodness-of-fit test \( \chi^2 = 8.354, df=8, p=.400 \). A total of 553 cases were excluded due to missing data. The contributions made by each of the Blocks to the overall model were insignificant except for Block 2; it made a significant change \( \chi^2 (2, n=2044) = 455.63, p<.001 \).
The variance in Communication score accounted for by the full model was Nagelkerke $R^2 = .283$. Overall 77.4% of low performing chiropractors (i.e., less than 80th percentile of score) and 60% of high performers were correctly classified on the Communication scale, while the overall success rate was 71.4%.

Table 6.8 provides the results of the regression analysis. There was a positive association between patients who were completely satisfied with their overall care and their rating of their chiropractor as a high performer on the Communication scale compared to patients who were less than completely satisfied. Similarly those reporting feeling much better following their treatment were associated with rating their chiropractor as a high performer. Patients with increasing age and those attending chiropractors who were co-located (i.e., practice) were more likely to rate their chiropractor as a low performer; however the findings were not significant.

One of the aspects of the patient-centred model of collaboration is the patient’s participation in the decision making process. Patients in both Study and Reference groups rated the chiropractor’s advice and help in making decisions about their care as excellent in about 50% and 52% and very good in about 36% and 35%, respectively. In regard to patients’ rating their chiropractors in providing instruction about what symptoms to report and when to seek care, both groups rated about 50% of their chiropractors as excellent and about 35% as very good.
Table 6.8: Logistic regression of Communication scale score as a function of selected independent variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>SE</th>
<th>Odds Ratio</th>
<th>Upper</th>
<th>Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study group</td>
<td>0.239</td>
<td>.134</td>
<td>1.270</td>
<td>.977</td>
<td>1.650</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>2.230</td>
<td>.141</td>
<td>9.298</td>
<td>7.055</td>
<td>12.254</td>
</tr>
<tr>
<td>Improved</td>
<td>0.538</td>
<td>.115</td>
<td>1.802</td>
<td>1.439</td>
<td>2.257</td>
</tr>
<tr>
<td>Age</td>
<td>-0.006</td>
<td>.003</td>
<td>.994</td>
<td>.988</td>
<td>1.001</td>
</tr>
<tr>
<td>Gender</td>
<td>0.115</td>
<td>.110</td>
<td>1.122</td>
<td>.905</td>
<td>1.392</td>
</tr>
<tr>
<td>Income</td>
<td>0.120</td>
<td>.113</td>
<td>1.127</td>
<td>.903</td>
<td>1.408</td>
</tr>
<tr>
<td>Duration</td>
<td>0.211</td>
<td>.128</td>
<td>1.235</td>
<td>.961</td>
<td>1.589</td>
</tr>
<tr>
<td>Practice</td>
<td>-0.221</td>
<td>.154</td>
<td>.801</td>
<td>.592</td>
<td>1.084</td>
</tr>
<tr>
<td>DCgender</td>
<td>0.101</td>
<td>.152</td>
<td>1.106</td>
<td>.821</td>
<td>1.491</td>
</tr>
</tbody>
</table>
| Constant      | -2.714| .279|.066       | .

6.3.5 Regression analysis on Interpersonal Treatment

There were 548 cases that were excluded, leaving 2049 cases for analysis. A test of the full model with all the independent variables against the constant-only model was statistically significant \( \chi^2 (9, n=2049) = 486.64, p<.001 \) suggesting the independent variables, as a set, significantly improved the probability of differentiating between the two levels of the patients’ rating of the chiropractor’s Interpersonal Treatment. This was further evidenced by a non significant Hosmer & Lemeshow goodness-of-fit test \( (\chi^2 = 5.902, df=8, p=.658) \). The variance in the Interpersonal Treatment score accounted for by the full model was Nagelkerke \( R^2 = .289 \). Each Block made small but significant contributions to the improvement of the model except Block 1, Study group.

The ability of the model to correctly classify the patients’ rating of the chiropractor’s Interpersonal treatment was 75.3% for low performing chiropractors (i.e., scores below the 80 percentile) and 64.8% for high performers, for an overall success rate of 71.4%.
Table 6.9 provides the regression coefficients ($\beta$) and their standard error (SE), the odds ratio and their 95% confidence interval (CI). Again the variables satisfaction and improved were positively associated with the rating of the chiropractor as a high performer on the Interpersonal treatment scale when controlling for all other variables. Patients with higher income and female chiropractors were positively associated with the rating the chiropractor in the high performing group on the Interpersonal treatment scale.

![Table 6.9: Logistic regression of Interpersonal Treatment scale score as a function of selected independent variables.]

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>SE</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study group</td>
<td>0.110</td>
<td>.131</td>
<td>1.116</td>
<td>.864 to 1.442</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>2.061</td>
<td>.129</td>
<td>7.854</td>
<td>6.097 to 10.117</td>
</tr>
<tr>
<td>Improved</td>
<td>0.665</td>
<td>.112</td>
<td>1.945</td>
<td>1.561 to 2.424</td>
</tr>
<tr>
<td>Age</td>
<td>0.004</td>
<td>.003</td>
<td>1.004</td>
<td>.997 to 1.010</td>
</tr>
<tr>
<td>Gender</td>
<td>0.160</td>
<td>.108</td>
<td>1.173</td>
<td>.949 to 1.451</td>
</tr>
<tr>
<td>Income</td>
<td>0.407</td>
<td>.113</td>
<td>1.502</td>
<td>1.203 to 1.874</td>
</tr>
<tr>
<td>Duration</td>
<td>-0.045</td>
<td>.127</td>
<td>.956</td>
<td>.746 to 1.226</td>
</tr>
<tr>
<td>Practice</td>
<td>-0.246</td>
<td>.153</td>
<td>.782</td>
<td>.580 to 1.056</td>
</tr>
<tr>
<td>DC gender</td>
<td>0.309</td>
<td>.150</td>
<td>1.362</td>
<td>1.014 to 1.829</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.991</td>
<td>.276</td>
<td>.050</td>
<td></td>
</tr>
</tbody>
</table>

### 6.3.6 Regression analysis on Trust in Chiropractor

The cut-point for the dependent variable Trust in chiropractor was made at the 75\textsuperscript{th} percentile, i.e., scale scores were cut at 93.75 rather than 96.88, respectively. This was done to ensure there were an adequate number of cases per cell in the classification table of the final model. The change in cut-point resulted in an increase in the percentage of cases being correctly classified from 9.9\% to 51.9\%, as well as decreasing the number of cases from 12 to 3 with standardized residuals greater than ± 5. Further analysis of
residuals in the final model with the cut-point at 75% revealed that these 3 cases were not introducing undue influence in the final analysis and therefore were not deleted in the final regression analysis. A total of 566 cases were excluded from the analysis due to missing data.

A test of the full model with all the independent variables against the constant-only model was statistically significant $[\chi^2 (9, n=2031) = 497.33, p<.001]$ suggesting the independent variables, as a set, significantly improved the probability of differentiating between the higher and lower performing chiropractors on the Trust in chiropractor scale. This was further evidenced by a non significant Hosmer & Lemeshow goodness-of-fit test ($\chi^2 = 7.12$, $df=8$, $p= .524$). The variance in the Trust score accounted for by the full model was Nagelkerke $R^2 = .305$. Each Block of variables entered made significant but small contributions to the improvement in the ability of the model to predict the level of Trust in chiropractor, except for Block 4.

The ability of the model to correctly classify the patients’ rating of the level of performance of the chiropractor was similar to the other model’s, with 84.1% of low performing chiropractors (i.e., scores below the 75th percentile) and 51.9% of those scores above the 75th percentile being correctly classified, for an overall success rate of 74.1%.

Table 6.10 provides the results of the regression analysis. The adjusted odds ratio for the effect of being completely satisfied when controlling for all other variables in the model was 9.97, suggesting a positive association between patients who are completely satisfied with their overall chiropractic experience and rating their chiropractor above the 75th percentile on the Trust in chiropractor scale. Similarly the variable improved was also positively associated with patients rating their chiropractor as a high performer in the Trust in chiropractor scale.
Patients with increasing age were more likely to rate their chiropractor as low performer. The adjusted odds ratio of the length of the relationship between patient and provider (i.e., duration) was -0.585 suggesting there was a negative association between patients with relationships of less than 6 months and their rating of their chiropractor as a high performer. There was a positive association between patients attending a female chiropractor (i.e., DCgender) and their rating of them as high performing on the Trust in chiropractor scale. There was a negative association between practice and the Trust in the chiropractor scale.

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>SE</th>
<th>Odds Ratio</th>
<th>Upper</th>
<th>Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study group</td>
<td>-0.004</td>
<td>.134</td>
<td>.996</td>
<td>.767</td>
<td>1.295</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>2.194</td>
<td>.150</td>
<td>9.970</td>
<td>6.681</td>
<td>12.044</td>
</tr>
<tr>
<td>Improved</td>
<td>0.708</td>
<td>.121</td>
<td>2.030</td>
<td>1.603</td>
<td>2.571</td>
</tr>
<tr>
<td>Age</td>
<td>-0.010</td>
<td>.003</td>
<td>.990</td>
<td>.963</td>
<td>.996</td>
</tr>
<tr>
<td>Gender</td>
<td>0.071</td>
<td>.114</td>
<td>1.074</td>
<td>.859</td>
<td>1.342</td>
</tr>
<tr>
<td>Income</td>
<td>0.209</td>
<td>.118</td>
<td>1.233</td>
<td>.978</td>
<td>1.553</td>
</tr>
<tr>
<td>Duration</td>
<td>-0.537</td>
<td>.136</td>
<td>.585</td>
<td>.448</td>
<td>.763</td>
</tr>
<tr>
<td>Practice</td>
<td>-0.237</td>
<td>.167</td>
<td>.789</td>
<td>.569</td>
<td>1.094</td>
</tr>
<tr>
<td>DCgender</td>
<td>0.262</td>
<td>.153</td>
<td>1.299</td>
<td>.963</td>
<td>1.752</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.352</td>
<td>.285</td>
<td>.095</td>
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<td></td>
</tr>
</tbody>
</table>

Table 6.10: Logistic regression of Trust in Chiropractor subscale score as a function of selected independent variables.

Figure 6.5 illustrates how the mean Trust in chiropractor score increased as the patients’ reported level of satisfaction and positive treatment outcome increased. This supported the findings that patients reporting being completely satisfied with the care they received were more likely to rate their chiropractor in the 75th percentile.
Figure 6.5: Change in the Trust in Chiropractor mean score (and 95% confidence interval) as a function of how the patient reported feeling following the visit and the overall level of satisfaction with the service.

Similarly, Figure 6.6 illustrates how the gender of the chiropractor and the duration of the patient-provider relationship influenced the mean Trust in Chiropractor score; however, the level of change in scores was not as great as that noted in Figure 6.5. Also, as the duration of the relationship increased, the influence of gender appeared to decrease.
Figure 6.6: Change in Trust in Chiropractor mean score as a function of the length of the patient-provider relationship and gender of the chiropractor.

6.3.7 Regression analysis on Integration of Care

There were only 1006 of 2597 cases available for the analysis of the Integration of care scale. The reason was that the PCAS-C included a skip pattern so that only patients who were recommended by their chiropractor to see their family doctor answered the related items comprising this scale. As a consequence of fewer cases available for analysis, the cut-point for the dependent variable Integration of care was made at the 73rd rather than at the 80th percentile, i.e., scale score cut at 85 rather than 94 points out of 100, respectively. This was done to ensure an adequate number of cases per cell in the classification table of the final
model. None of the cases were found to provide undue influence in the final analysis; therefore no further cases were deleted.

A test of the full model with all the independent variables against the constant-only model was statistically significant \( \chi^2 (9, \ n=1006) = 136.22, \ p<.001 \) suggesting the independent variables, as a set, significantly improved the probability of differentiating between patient rating of high and low performing chiropractors on the Integration of care scale. This was further evidenced by a non significant Hosmer & Lemeshow goodness-of-fit test \( (\chi^2 = 7.12, \ df = 8, \ p = .524) \). The variance in the Integration of care score accounted for by the full model was Nagelkerke \( R^2 = .181 \). Only the variables ‘study group’, ‘satisfaction’ and ‘improved’ made a significant contribution to the improvement in the ability of the model to predict the level of performers on the Integration of care scale. The model correctly classified 95.2% of the low performers on the Integration of care scale (i.e., scores below the 73rd percentile) and 13.6% of high performers (i.e., those scoring above the 73rd percentile), for an overall success rate of 71.4%.

Table 6.11 provides the regression coefficients (\( \beta \)) and their standard error (SE), the odds ratio and their 95% confidence interval (CI). The adjusted odds ratios for the effect of being completely satisfied with the overall chiropractic experience and feeling much improved following a visit were 9.97 and 2.03, respectively. The only other variable that was significantly associated with high performers on the Integration of care score was ‘practice’; suggesting that patients attending for care where chiropractors were co-located were more likely to score their chiropractor higher on the Integration of care scale than patients attending for care with chiropractors who were not co-located.
A major component of the collaboration study was to encourage communication between chiropractors and family physicians so as to promote the continuity of patient care. Patient involvement in the study made little difference to the likelihood of their rating their chiropractor as a high performer on the Integration of care scale, although the trend favoured patients who were not involved in the study (adjusted odds ratio = 0.777).

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>SE</th>
<th>Odds Ratio</th>
<th>Upper</th>
<th>Lower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study group</td>
<td>-0.253</td>
<td>.203</td>
<td>.777</td>
<td>.522</td>
<td>1.158</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>1.615</td>
<td>.196</td>
<td>5.026</td>
<td>3.425</td>
<td>7.736</td>
</tr>
<tr>
<td>Improved</td>
<td>.699</td>
<td>.166</td>
<td>2.011</td>
<td>1.451</td>
<td>2.788</td>
</tr>
<tr>
<td>Age</td>
<td>-0.002</td>
<td>.005</td>
<td>.998</td>
<td>.989</td>
<td>1.008</td>
</tr>
<tr>
<td>Gender</td>
<td>0.062</td>
<td>.156</td>
<td>1.064</td>
<td>.783</td>
<td>1.446</td>
</tr>
<tr>
<td>Income</td>
<td>0.182</td>
<td>.161</td>
<td>1.200</td>
<td>.875</td>
<td>1.644</td>
</tr>
<tr>
<td>Duration</td>
<td>0.011</td>
<td>.189</td>
<td>1.011</td>
<td>.698</td>
<td>1.464</td>
</tr>
<tr>
<td>Practice</td>
<td>0.474</td>
<td>.206</td>
<td>1.607</td>
<td>1.072</td>
<td>2.408</td>
</tr>
<tr>
<td>DCgender</td>
<td>0.190</td>
<td>.227</td>
<td>1.209</td>
<td>.775</td>
<td>1.886</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.505</td>
<td>.419</td>
<td>.082</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.11: Logistic regression of Integration of Care subscale score as a function of selected independent variables.

One item in the Integration of care scale asked about the patient’s opinion of the level of communication between their chiropractor and physician. Figure 6.7 illustrates the percentage of patients rating this communication and suggested that the collaboration study may have influenced the patients’ perception of enhanced interprofessional communication.

When only the Study group patient responses were analyzed, there was a higher percentage of patients of co-located chiropractors who rated the level of communication between their health care providers as ‘very good to excellent’ but a lower percentage who...
rated it as ‘very poor to fair’ (see Figure 6.8). It is unclear if such differences were real or were biased by attending for chiropractic care in the same location as their physician, thus assuming greater interprofessional communication was occurring.

Figure 6.7: Study and Reference (nonstudy) group patient’s rating of the chiropractor’s level of communication with their regular family physician.
Figure 6.8: Collaboration study patients’ rating of the chiropractor’s level of communication with their regular family physician dependent on practice type.

Descriptive analysis of another question comprising the Integration of care scale addressing the level of chiropractor involvement in care when the patient was also being treated by their physician suggested that the majority of patients considered this to be very good to excellent in both the Study group and Reference group participants (See Figure 6.9). This suggested that patients who were recommended by their chiropractor to see their physicians believed that their chiropractor continued to remain involved in their care while also receiving medical treatment.
Figure 6.9: Study and Reference (nonstudy) patients’ rating of the chiropractor’s level of involvement in their care while also receiving treatment from their regular family physician.

6.4 Exploring the Meaning of the Patients’ Voices

Focus groups were conducted to explore the patient’s perception of the care they received in the collaboration study. The data were used to address the second research question: How did patients participating in the collaborative study perceive the care they received, such as the meaning of patient-centred care, and view the nature and extent of the chiropractor-physician collaboration?
6.4.1 Group Membership and Interaction

Six focus groups were conducted, two at each of the three collaboration study locations. The homogeneity of the group was established by the source of the patient referral into the study, i.e., patients who were referred (referred) or not (self-referred) by their family physician. There were 11 participants in each group, except in FG5 which had 14, for a total of 69 patients.

The age and gender of the patients in each of the groups and their location are summarized in Table 6.12. The average age of patients in each of the focus groups was similar to the overall average of 49 years for the Study group collaboration study patients, except those in FG5, who were older. The percentage of females in the focus groups reflected the overall sample of Study group patients, except in FG2 where they were underrepresented.

<table>
<thead>
<tr>
<th>Location 1</th>
<th>Location 2</th>
<th>Location 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ref. code</td>
<td>FG1</td>
<td>FG2</td>
</tr>
<tr>
<td>Number</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Females</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Avg age</td>
<td>47.3</td>
<td>47.8</td>
</tr>
<tr>
<td>Range(yr)</td>
<td>35 - 67</td>
<td>19 - 56</td>
</tr>
</tbody>
</table>

Table 6.12: Demographic of the focus group participants.

Observance of the participants’ interaction during the focus group meetings revealed that all the participants contributed to the discussion, with some participating more than others. Despite groups being randomly selected, there were a number of participants, especially in the smaller rural communities, who knew each other. There was no one
individual who was observed dominating the conversations nor was there any apparent tension within any of the focus groups. The number of individuals in each group did not seem to restrict participant contribution; however, the younger aged participants were less communicative.

6.4.2 Coding Focus Group Views

One of the main objectives of the study was to enhance interprofessional collaboration between the chiropractors and physicians in order to facilitate appropriate referral and ensure continuity of care. The former was achieved by addressing many of the known barriers to collaboration, in particular increasing provider understanding and decreasing the biases existing between the two groups. In so doing, it was believed that informed referrals would be made and patients would be comforted in knowing that care would be coordinated by providers working together. The patients’ perspective of this referral was explored in the focus groups.

Key themes, their respective categories and sub-categories emerging from the data are summarized in a coding tree (see Appendix 8). The selected words were chosen either directly from the focus group dialogue or as representative of a particular view. The key emerging themes related to the patients’ perspective of the nature and comfort with the referral process between chiropractors and physicians; their views of the degree of provider collaboration; their perspective of the chiropractic care received; and the extent to which their interactions with health care providers was patient-centred.
6.4.3 You want me to see who? - Patients’ Views of the Referral Process

Several categories emerged; the first was patients’ surprise that physicians would refer to a chiropractor. ‘Surprise’ that a physician would recommend seeing a chiropractor was a common response from the referred patients regardless of their geographical location. The surprise stemmed from the patients’ belief of a long-standing conflict between the chiropractic and medical professions. To some patients, this feeling was based on their prior experience with physicians who had not been supportive of or would not refer them for chiropractic care; as well as a sense that the two professions have diverse and conflicting treatment philosophies. This is exemplified in the following quotes:

“B: Because for years I guess chiropractors and doctors worked on two different philosophies and never saw eye to eye. ...I was shocked when my doctor referred me to a chiropractor, whether it was part of a study or not.

ML: Well we worked with it for while but the doctor asking me, yes, I was surprised I have to admit. Because I found a lot of times that some doctors don’t actually agree with the chiropractors, but I think they are becoming more and more accepted by the family doctors or by doctors because too many people are being helped. So how can they say they don’t do any good like they used to years ago? They wouldn’t acknowledge them but today they do. I was surprised at Dr. (physician), yes I was.” (FG 5: 73-74)

“Pt: I found the same thing but I was surprised that the doctor sent me to the chiropractor (laughingly) in the first place.

Int: Why was that?

Pt: Well because I had mentioned it one other time and he said, ‘No, I don’t think so.’ But then all of a sudden he said, ‘I think you had better see a chiropractor.’” (FG 7: 48-52)

Despite physicians referring patients to the chiropractor during the study, patients did perceive differences in attitude amongst the study physicians. Patients perceived a level of apprehension or uncertainty with some of the physicians when they made the referral, thus
leaving the patient questioning the extent of the commitment of some of the physicians towards collaborating with chiropractors. This seemed particularly evident amongst the patients in the two study sites where the chiropractors were not co-located with physicians, as noted in these quotes:

“Int: We wanted to get your perspective on the extent of the collaboration you felt was or was not occurring.

C: It was kind of in reference to what P was saying but I think on a personal note as well with your physician how he respects the chiropractic field. I kind of get a sense from my doctor that, like P was saying, he is not 100% convinced that chiropractors will help you. So I kind of feel that if I had a doctor who thought a chiropractor could help me than maybe there would have been more discussion there, and maybe he would have been more proactive in my treatment.” (FG 7: 664-672)

“Pt: Actually I was never referred, and she actually frowned on it when it was brought up. So that is why I was eager to come here to see that if there is supposed to be collaboration; it is not being brought up on the physician’s end. It is kind of frowned upon, but I still continue to go to the chiropractor because I do find the relief from it.” (FG 3: 33-36).

However, such sentiment was not expressed by all patients in each of the study locations, and particularly not from those whose physicians who were co-located with chiropractors. In the latter circumstance, the patient may still have been surprised but there was a perceived comfort and acceptance of the physicians’ referral to the chiropractor. The importance of the physician appearing supportive of his/her referral was particularly influential to those patients who were sceptical or fearful of attending for chiropractic care. To the majority of the referred patients who expressed fear or concern of attending a chiropractor, this was spurred by anecdotal stories gathered from friends, family, media, and prior personal experience. But their concern was allayed by their trust in the physicians’
recommendation, in part legitimizing or bestowing a level of recognition for the chiropractic therapy.

“G: I had also been to a chiropractor years ago and it wasn’t, I left that experience feeling unsure because in the end I didn’t feel that it made it completely better and I left before it got better. So this, I mean I don’t think I would have went to chiropractor on my own, but with the doctor referring me it certainly made a difference...

Int: Did any of you have some reservations about going to the chiropractor?

D: I saw a chiropractor quite a few years back and he hurt me actually. So when (physician) suggested that I see the chiropractor, I said, ‘Not a chance.’ And he asked me why and I told him why, and he said, ‘Well why don’t you just give him a chance, maybe you had one that wasn’t doing things properly or what ever.’ So I did and (chiropractor) said to me, ‘You are very, very tense.’ And I explained to him why and he said, ‘You need to learn to trust me.’ So we got through the first few sessions of me being very nervous and now I am fine. I am really glad that I went, but yeah I was very leery about going.

Int: So how important was your trust in your physician and the confidence you have in your physician in allowing the referral to happen, what role did that play? Was that important to you?

G: For me that was important, yeah that was big.

B: Sanctioned it.

Y: I agree with him.” (FG 5: 287-292)

But for patients that had already seen a chiropractor, their prior experience and relationship with their chiropractor and the resultant trust developed over time, outweighed any negative reports or physician uncertainty. To these patients, choice of provider was more important than receiving care at no cost, even if it meant receiving fewer treatments or not participating in the study. Many had tried a variety of chiropractors, realized the inherent differences between them and their treatment approaches, and were not prepared to see another one who may not deliver the care in the same manner, use the same technique, or
uncertain if the same results could be realized. One sensed a degree of loyalty or commitment to the chiropractor they were seeing. But to a minority, particularly those with less of a relationship, not paying out of pocket trumped seeing a particular chiropractor. This is highlighted in the following:

“Int: Was the choice of who you could see important to you? Would that have made a difference to your participation?

P: If my chiropractor wasn’t in the study, then I wouldn’t be in it.

Int: So choice is important?

P: It is important, but yeah I am not going to go to another chiropractor because I have had good success with him. ... 

E: The same thing. I was going to her prior and my own doctor just happened to suggest that one and I stayed with her; but I would have stayed with her regardless.

K: I would probably go to my chiropractor, but I wouldn’t have went as many times as I got to go and I was very fortunate. So I probably would of have paid for it.

B: I would have been open going to another chiropractor but I certainly, I think it is important to develop a trusting relationship with the chiropractor and that they work collaboratively with your physician. I think it would have made a difference. Had I not already had a chiropractor, I would have been open to going to another. ...

M: It wouldn’t really bother me to go to another one. ...

J: I am in the same position. I didn’t know there was a study and I still would have continued with the same chiropractor because he is a person I trust and feel comfortable with.” (FG 2:66-100)

Unlike patients who had an established relationship with a chiropractor, those with limited experience or a relationship were dependent upon their physician’s recommendation of who to see; while others made their decision based upon the location of the chiropractor’s office and/or input from friends. Notably the lack of patient payment was particularly important to those who were referred by their physician and had not previously seen a
chiropractor. The “free visits” allowed those who could not afford or were uncertain about chiropractic care, to at least give it a try. As a consequence of the successful outcome to care and the positive relationship developed with the chiropractor, many suggested that they would attend for care after the study ended and were willing to pay out of pocket. However, others indicated that they simply could not afford to pay for care, notwithstanding the positive response and resultant decrease in their medication use. For example,

“I: How did you come to a decision about who to go to? Was it location or somebody told you something?

S: I asked (my physician) who the better (saying laughingly) was picking and then he said his name, so I went with that one.

I: So a little help from the physician?

S: Yes.

R: Mine was a family friend....

E: I choose somebody based on friends having received care from this person and asked how they liked them, and what the results were.

J: Likewise, just someone who I had heard somebody refer to as providing good care, so that is who I chose.

L: Location.

K: Availability to get in on short notice.” (FG 3: 122-138)

“X: In my case, long before I had benefits for me, it would have been a huge deterrent just because with the type of pain that I had and where the problem is in my back, it does take a quite a few sessions before I start to feel the difference. So for me, and especially not knowing back then if it would work, shelling out that money, taking a risk because in the first few weeks, it actually hurts little bit more, all of those are deterrents. So the fact that I was covered takes away some deterrent. At least I can proceed and hope that if it does work and when it does, you feel great relief.

D: It allowed me to just try it. I wouldn’t have tried it before. I would have said, ‘No. I will try something else.’
Even if the physician said to you, ‘I think D, you need to go.’

D: Even at that point.” (FG 5: 682-694)

6.4.4 No. Yes. Actually, I’m not sure - Patient Perception of Collaboration

In regard to patients’ perceptions of the level of collaboration between chiropractors and physicians in the management of their condition, the data suggested that not all patients believed that significant collaboration was occurring between the two provider groups. In fact, some expressed surprise that it was actually occurring regardless if they were referred. This perception seemed influenced by the study site, the nature of the patient’s complaint, and particular individual physicians. The perception was derived in part by physician’s failure to recognize or acknowledge that the patient had seen the chiropractor, even if they had been referred by the physician. Patients wanted to share the outcomes of the care they received as a consequence of the referral and were surprised the physician did not ask or express interest in knowing.

A minority of patients perceived that there was some level of communication between their providers but they had little to no knowledge of how or how often it was occurring. To others, a sense that collaboration was occurring came from the requests chiropractors made to the physician for imaging or laboratory tests or results.

“Int: ... The study was about bringing two professionals together but as patients did you perceive that?

A: No I didn’t. Were they supposed to in this time be talking to me?

Int: Yes.

A: I had no feeling of that because she (physician) never knew, and I did mention it to her just a few weeks ago the satisfaction with, my chiropractor can do the massages and other treatment. And I told her what I was doing and she has no, neither one of them, at least not that I am aware of. I had no feeling of that all.
Aa: There didn’t seem to be any collaboration or anything because you would need to go to the chiropractor and then you would go to your doctor and, well the one I had anyway, wouldn’t mention a thing about how is the shoulder, how is the back, anything like that. It didn’t seem like there was really too much communication at all between the two.

K: I was just going to say that I agree. I hadn’t heard anything. I see my doctor on a regular basis for allergy shots and he didn’t mention anything.

L: ... I have been listening and thinking, ‘Boy I got one heck of a good doctor.’ He will, like it could be six months, but the first thing he would ask me when I go in, ‘How did you make out? How did you feel? How did you feel after the treatment?’

D: I have been to my doctor a couple of times since the study was over and he hasn’t brought it up. They could very well have been talking but once it has gone by he doesn’t bring it up again. Unless I bring it up, he won’t.

S: Mine did. He asked about my foot and I told him and he was very pleased.

R: Mine were collaborating because they knew my history – my heart disease, my osteoarthritis. So they had to work together.

L: Yes, I know that the chiropractor said that he had a history there that my doctor had sent him and he said that he would be writing him a letter too. So I knew that they would be exchanging whatever.” (FG3; 637-700)

"C: ...Collaboration that is the one thing that I am confused about. There wasn’t any collaboration. ...

J: My doctor, he actually sent me for the CT scan after he and (chiropractor) talked. ...And then they got the results back; but the doctor didn’t have time to read them over with me, so (chiropractor) read them over with me and told me what I had. They did collaborate there.

B: I don’t know whether my doctor ever talked to (chiropractor), but he never said one word to me. ... There hasn’t been one word about the chiropractor since he first sent me to him.

ML: My doctor and chiropractor talk all the time. ...

P: ... None of my doctors have talked with (chiropractor) at all. I mentioned what (chiropractor) was doing and when I seeing him again. And my doctor said, ‘Oh, okay.’ No interest at all.
D: ...Does he (physician) really understand what the chiropractor was doing to me? I really don’t think he did. I know that there was no collaboration between the two of them the entire time that I went.” (FG5: 452-567)

In general, patients referred by the physicians who were co-located with chiropractors, perceived a greater degree of interprofessional collaboration. Patients’ perceived that their providers were communicating and sharing of information about their condition either during or in-between their subsequent visits. This information sharing was conveyed to patients by the providers, reinforcing and acknowledging that there was ongoing case discussion.

“D: ...I had a herniated disc and sprained my back; it was just a whole mess. So I saw Dr. (physician) first of all for the kidney stone follow-up and then days later for my back. We spoke in great length about the chiropractor and the collaboration. I was in so much pain, and then the depression really hit. I am like oh my god this is not a two or three day thing that I am facing, I am going to be off work for a long time and I am a single mom and blah, blah. Both (physician and chiropractor) really took over my care at a time when I didn’t think I had the capacity to emotionally – it was traumatic enough to go through the kidney stone but then also to go through that kind of back pain. ...So at that point, I don’t think I was able to articulate anything other than help me, I am in so much pain; and they kind of took over....

Int: What sense did you have or how did you know that they were...?

D: They told me. Dr (chiropractor) was worried about my emotional state, so with my permission he checked in with Dr. (physician) and talked about what was going on ... So he made it okay. Here I was, I thought my life was ending and you over dramatize when you are in a lot of pain and under a lot of stress, and they took it away from me. And that is huge. It really is. So I had a wonderful experience in that regard.

Int: Any other experiences?

T: Dr. (chiropractor) handed me a form and said, ‘Sign this. Dr (physician) is in the office right now and I will go and speak to him.’ Five minutes later he was back and had all the answers from Dr. (physician) that he needed and was good to go...

X: That was my case too.” (FG3: 367-396)
6.4.5 Choice and Holistic Care

In general patients appreciated the chiropractic-medical collaboration as a means of receiving care they perceived being more holistic. The care was considered holistic because it involved an alternative approach to that offered by conventional medicine. The patient’s appreciated they were receiving, or at least provided the option of, a different therapy from a different provider for a particular health problem. The study facilitated access to chiropractic care, a therapeutic option that had not necessarily been recommended in the past. Patients were offered a choice.

“\textit{Int: What did you think about the chiropractors and medical doctors collaborating together, working together?}

\textit{K: I think they should be and they should have all along because it is more of a holistic approach. I mean it would be like the nurse taking care of you and telling the doctor what she observed. So you need the chiropractor and the physician working together to give you a holistic approach to the care that you are getting. \ldots So why not go to somebody who actually works with the bones, works with muscles and tendons and ligaments?” (FG 3: 606-621)"

\textit{“T: So for me, aside from being free for the time being, the idea of this study of not having to rely on drugs was very nice. I mean, I have two little children and I don’t want to be feeling all drugged up, and that was a big relief for me \ldots and it was just nice to have the option of not taking pills all the time.}

\textit{G: Since the doctor presses the pill aspect of things more than alternative medicine aspect of thing. My back is sore, don’t just kill the pain.}

\textit{T: But again, my doctor for the first time, and I think because of this study, gave me that option whereas before the study the chiropractor wasn’t mentioned. It was just well this is all I can do and offered pain pills.}

\textit{G: They would have depended more on physiotherapy or something like that rather than a chiropractor. Years ago you didn’t go to the chiropractor, you went for physiotherapy.” (FG 5: 185-199.)}
6.4.6 Uncertainty of Sustaining the Change

Despite the noted positive outcomes of care resulting from the collaboration, the majority opinion amongst the focus group participants - in particular those that were self-referred – was a scepticism of the long term impact the study would have on the interprofessional relationships and the sustainability of the collaboration initiated by the study. The key barriers emerging from the data supporting this particular view included: the lack of ongoing funding and the delisting of chiropractic services by the government; patient uncertainty and apprehension of chiropractic care; physicians’ heavy workloads; physicians’ ambivalent attitude towards chiropractic care; and the restricted recognition or legitimization of the chiropractic profession by medicine and society.

Patients’ responses were equivocal of the study’s impact on interprofessional relationships. Whereas many felt the study did influence the relationships of the participating physicians, in general they felt that the interprofessional relationships between chiropractors and physicians were not impacted. These sentiments are exemplified in the following four quotes:

“D: The sad part is that with the college of doctors, which is the governing body, they (chiropractors) don’t have the same equality as a doctor or dentist, which is kind of odd....

De: I am just wondering if the doctor’s perception changed, would that change. If the doctors take the chiropractors more seriously will that change, will that then put them on a level playing field with the other doctors. I think that is the first hurdle they have to get over. The medical profession has to take them more seriously. ...

J: I think it would have to be reflected in how often doctors would refer a patient to see a chiropractor...How often are doctors sending people to chiropractors or are they still you know doing it the old fashion way with script or physiotherapy or some other means to solve injury related problems or degenerative problems?

A: I pretty much agree with J. I don’t really see too much of a change in the relationship until you see your doctor really, you know, if you go in with a back problem or whatever, and instead of him right off the bat writing you out a
prescription for Celebrex or something along those lines, to say, ‘Okay go to the chiropractor down the hall and try him a couple of times and see.’ ... Until I can see a lot of things like that, I don’t know if it will really change too much.” (FG1: 821-881)

“Bi: They (chiropractors) don’t seem to be recognized. Chiropractic services were covered partly by OHIP at one time a couple of years ago and I am not sure why it was discontinued, whether they are not recognized in the same way as a doctor is; but they certainly have a position in the health care system. ... They should go hand and hand, but at this point they don’t. They seem to be outside the sphere of recognition for a lot of people and I don’t understand why because it is a recognized profession. But the medical community doesn’t seem to ... I have had doctors scoff at treatments of chiropractic. They (chiropractors) should be in a logical way a part of the medical system, the main stream medical system; as opposed to being off to the side and rely upon the advice from friends or someone just stumbling in their door because of hearing that they might be able to give you some help. There should be some avenue to direct people to a chiropractor, as opposed to what is going on right now.” (FG 4: 281-303)

“Ba: And it seems to me that there is scepticism out there that is wrongly placed and misguided. When you hear people talk like they are talking around this table and you recognize that there is a very definite place for chiropractic in today’s society, to the benefit of society, it is just unfortunate that the other 88% of the population don’t recognize that there is some potential good for them. ... The medical field for a long time was very anti-chiropractic and I think a lot now are ambivalent to it and maybe a few promote it, but not very many ... 

Int: ... do you feel that it (study) has changed that relationship between the two provider groups?

P: I really don’t know. I do know that my doctor and chiropractor have talked, so I guess in some respect it absolutely has changed to some degree because they never talked before about it. ... It appears to me that my doctor is somewhat more receptive. I still don’t think he is out there banging a chiropractic drum necessarily and vice versa; but I would like to see studies like this and hope that the results help them understand that there really is a place for both of them.

Jo: I think the fact that my doctor and chiropractor participated in this tells me that there is an openness to each other and that there is a willingness there. So to me that elevated my impression of them in their professions because they have an openness to change and they are looking for new ways of treating people.” (FG 4: 665-706)
“Int: Do you think the study has changed the level of respect or trust the physician has with the chiropractor?

ML: Definitely.

Te: Well I haven’t seen my doctor since I have been to the chiropractor; I am sure he is okay with that.

C: No, I don’t think it has changed. I still get the feeling it’s a personal thing. ... If I want to see the chiropractor, he wouldn’t say no. He always discusses all the options. But no, on a personal level I don’t think he respects the chiropractor as much. He would send me to the physio instead of to the chiropractor. ...  

Int: Now do you feel that the level of collaboration between the physician and the physio was greater than it was with the chiro? Well everyone is nodding their head, yes.” (FG 5: 900-910)

Patients mentioned their past fears or hesitation of informing their physician they were seeing a chiropractor. But the study seemed to have produced a degree of openness to sharing such information between them and their physician, despite not all physicians completely endorsing their seeing the chiropractor. Patients were pleased that clinical information was being shared, requests for diagnostic tests by the chiropractor were being filled, and that interprofessional communication, to some level, had improved.

“Pa: I mean, the old school was so different than what the doctor did in this study. I mean the whole thing has changed so much, and to me it is just amazing.

Int: What has changed?

Pa: Well, before it was so taboo. After my other doctor died, fortunately for me I guess, not for him, (laughing) but the whole thing changed. If you had asked me five years ago I would have said you were nuts. This whole process has been great. The guy has been excellent.

Sh: I find it is a good thing now that you are not afraid to tell the doctor about the chiropractor.” FG4: 192-208)
6.4.7 Satisfaction and Expectation – Is There a Difference?

Patients distinguished between satisfaction and expectation of the care they received from their chiropractor. The outcomes of care played an important role in how patients rated their level of satisfaction with the chiropractic care they received; however, it was not the only criteria. Satisfaction embodied an array of attributes often ascribed to patient-centred care. In considering their overall rating, patients took into account the office environment, access and adherence to appointment times, the interaction with office staff, the chiropractor’s behaviour and empathetic attitude, and their dialogue with the chiropractor.

The dialogue seemed to focus around the degree and intensity of the interpersonal, doctor-patient communication that embraced the biopsychosocial model, or as noted by one patient who described that it took a ‘holistic approach’. The nature of the communication went beyond exploring the presenting complaint - the symptom - it focussed upon how their condition impacted upon the whole patient. The provider-patient dialogue integrated information about the physical aspects of their condition, and its consequence upon the patient’s emotional and social well-being. They saw the dialogue as being informative, health related, and interactive; addressing their concerns, questions, and facilitating their participation in their plan of management. In summary, patients’ rating of the level of satisfaction represented the sum total of their experience with the chiropractic encounter. For example,

“K: It is communication. When my doctor (chiropractor) comes in, he always asks how I am doing, and what I was doing on the weekend. And of course from there, then he says, ‘Oh you shouldn’t have been doing that and that is why that is out.’ And yeah, it is a holistic approach. You can’t just treat the symptom. It is just like when your physician comes in and you don’t just go in and say, ‘Well I am down. Well here have some antidepressants.’ No, you need to find out why. …

De: In my experience it is everything that satisfies you. The results, the fact that he is interested in your life, ‘What did you do on the weekend?’ Well I am into horses,
‘How are the horses doing?’ ‘How are your grandchildren doing?’ Just everything: they are pleasant, they are on time, they spend time with you, and it’s just the whole thing. It is like visiting a friend almost; he cared not just in getting results, but also about how you are feeling, your emotions - the whole thing.

Ro: Same here …

Do: I think in the realm of satisfaction or a satisfaction scale for today’s consumer, it is a much higher bar. I think our generation, or the generation of this decade, is looking for instant gratification. I feel better the pain is gone, that is important and it weighs heavy on your scale. But I think it is the whole package of getting the service you require, the attention you require, the wellness that you require; all of that package together because when you look at just one of or the other it is more of a paradigm switch. You would typically score lower because my pain is gone but the person was impersonal, so I will just dismiss that because I feel better, or the person gave me a lot of attention so they will score higher. It is a whole package to arrive at that scale from 1 to 10. (FG 1: 367-397)

“Ph: I look at, I used to teach customer service, and that is where it starts. I look at: do I have to wait, if I have to wait is it comfortable; if I have made an appointment, do I have to wait beyond that, love to see them compared to doctors but (laughing) you know; are the people that deal with me friendly, courteous, knowledgeable; is it a nice clean environment; and can I get an appointment quickly. In this city it is wonderful in most cases, baring a natural disaster, I can get in the same afternoon and to me that is amazing service. Again are my expectations met in terms of do I walk out under my own? But I really want to know all about the environment, the accessibility, and the treatment of the people around me.” (FG2: 415-424)

Unlike satisfaction, the patient’s expectation from their chiropractic care seemed focused mostly on the physical and functional outcomes of their treatment. Self-referred patients typically expected to leave the office feeling better or with their condition resolved, primarily because of previous experience with chiropractic care. The referred patients had varied expectations ranging from none to complete immediate relief of their symptoms; few having been informed by their physician what to expect from the treatment.

Several of these referred patients, particularly those with chronic complex problems, approached their chiropractic encounter with guarded expectations of treatment benefit. For these particular patients, despite the lack of a positive clinical outcome, it did not influence
the level of their reported overall satisfaction with the chiropractic care they received. In part, this was aided by the chiropractor’s understanding of the patient’s underlying condition and providing a realistic prognosis that supported the patient’s expectation. For example,

“De: I expected or hoped to be able to lift my arm again and I certainly can; I can lift it as high as the other one. ...

Sh: Yes, I went in there hoping that I could put my foot down and walk on it because I used to love to walk and it got to the point that I couldn’t....

Al: Truthfully, I didn’t really know what to expect because it was my first time there; but I had been to the doctor quite a few times and nothing had been, well they just prescribed drugs. I was thinking after the first trip of cracking and bending and everything that it would be better, but no I think it was 2 or 3 visits after and everything was fine. So, my expectation, I didn’t’ really know what to expect, but after a couple of visits, it seemed to be a lot better than going to my doctor and just getting drugs prescribed. (FG1: 293-312)

“De: ...Overall even though I didn’t come out of it better or even a little better, I was still totally satisfied with the care that he provided for me, all the information he gave me, and all the follow-up.

Int: So for you it wasn’t necessarily related to a positive outcome, the level of satisfaction?

De: If I had been a little more pain free when I left, and not had some new added areas of pain, then I would have been even more satisfied; but I could never complain about the care that I received or nothing like that. He was just fantastic, even though it didn’t work for me.

Ch: Yeah, he didn’t solve my problem but I was still completely satisfied. I don’t think I ever went in there thinking that he would. I went for similar reasons, just pain control in the hopes that I could just manage my day, my kids, and carry on.

Int: ... Understanding what your level of expectation was which was basically survival; if the chiropractor had turned around and said, ‘Oh, I can cure you and get rid of all your problems.’ How do you think that would have made you feel?

Ch: Sceptical, very sceptical.

De: Yeah.” (FG5: 414-443)
The negative experiences reported by the patients during the study were related to the nature of the treatment or the chiropractor failing to meet patients’ expectation. In essence, many of the same attributes that patients used to rate satisfaction highly were also used to explain their negative experiences. In particular, patients negatively reflected on the length of the office visit; too little time spent addressing patient’s need or building interpersonal relationships. This feeling was accentuated when the chiropractor only resorted to manipulative therapy without including the use of other therapies or prescribing exercises or life style recommendations. And when the treatment outcomes were not positive in comparison to the effort they made to attend the visit, patients either switched to another chiropractor or stopped attending.

Such negative experiences resulted in patients questioning the value of their treatment, as well as the intentions of the chiropractor. Although most focus group participants had a positive chiropractic experience during the study, the aforementioned negative experiences were particularly noted by referred patients with no prior chiropractic experience, but also self-referred patients who reflected on their prior chiropractic encounters.

“Ja: I don’t know if I would refer to it as a non-positive experience, but I went for I guess it was 8 or 10 treatments .... There was always 6 or 7 people in the waiting room, and you would get there for a 4pm appointment and maybe you would get in to see him at 4:15 or 4:20pm, and that may not seem like a huge inconvenience given the fact that if you went to an ER or your own family doctor you could literally be waiting half a day; so to say that 15 or 20 minutes is an inconvenience I guess isn’t really fair. But when you go in for a 5 minute little manipulation and you walk out and you think, ‘Okay, I rearranged my day, my schedule, my family, and everything else to be here for what turns out to be about 40 minutes or half an hour and you ask yourself, do I feel better after I just walked out of there?’.... There are too many other things happening in my life, whatever my lifestyle, my work, athletics, my bed that I am sleeping in, whatever; there is too much working against me and a 5 minute visit isn’t going to fix ... So I walked out of there after about 10 visits and I felt just a tiny bit better than the first visit, and thought I can’t keep doing this. It is not worth it to
me and I don’t think my problem is going to be solved with this style of care. And that is where it ended for me, after about 10 visits.” (FG1:260-285)

“Int: It sounds like most had positive experiences. Were there any negative experiences that people have encountered?

Ke: Not during the study but I have had a few chiropractors that were no good; they just weren’t.

Int: What does that mean?

Ke: I don’t think that they showed the attention that they should have to the aches and pains that you were saying. They were almost focused on, well this is what works and telling you that this is what the other doctors used to do and it does work.

Sh: My first time when I went to the other chiropractor, he just did one little twist thing and he said, ‘Okay, I will see you tomorrow.’ I was not satisfied, and going I want to deal with this today and I wasn’t getting the positive results that I felt that I should have got. And when I switched over, right off the bat like I could tell he wanted to relieve the pain that day if he could, instead of saying, ‘Well, I will see you tomorrow.’...

Li: That was my experience too. How can they make you feel better if you are in there for 5 minutes? It is crack, crack, crack, okay we will see you Wednesday, say it is Monday. I am saying like he wants me come here 3 times a week, like is it the money? I felt the same way.

Int: Was it during the study?

Li: No, that was the first time I went. This time it was different.” (FG1: 189-217)

6.4.8 I’m involved in the care, so its patient-centred.

The majority of patients felt the chiropractic care they received was patient-centred. They interpreted this as being involved, informed, and participant in approving the care they received. They reported being an active participant in the decision-making process of their care and the chiropractor seemed respectful of the patients’ needs and concerns. Perhaps as a consequence of the repeated visits to the chiropractor, the ongoing feedback they received from the chiropractor during their encounters promoted greater communication, which in turn
strengthened the doctor-patient relationship, and facilitated patient participation in their care. This ongoing interpersonal communication, coupled with the positive results of treatment, engendered a sense of comfort that progressed to a trusting relationship. This was particularly noted by referred patients who had no prior chiropractic experience, as highlighted in the following example:

“Do: I was very leery of having my neck adjusted as a (focus group member) mentioned. I was going in initially to have my lower and upper back adjusted when I mentioned that I was leery about having my neck adjusted. But I was having a bit of pain there and headaches, he was very, very cautious. And to this day before he will adjust it, he will ask me if he can adjust it, or tell me that it needs to be adjusted, and see if that is ok. But he is no, he doesn’t just hop in there and do it. It was very, very patient centred. …

El: …As far as the study went, I felt like I was very involved. Number one, he asked every time, ‘Do you think you could come in two more days?’ And I made sure of that because I knew I was getting results and I wanted this to be done quickly. And he would explain that we can get through it more quickly if I went sooner. So I felt very much a part of the process, and very much in control of my care. I felt more in control than I think I have with most physician type of things. So the chiropractor seemed more of a friend and less of someone who is just going to write up a script and send you out the door.

Ja: … Similar. A chiropractor has that advantage or ability to get to know you a little bit and you want to develop that relationship because they are going to be laying hands on you and there has to be a comfort level there. You go to a doctor, he examines your eyes, and you can be in and out. This person (chiropractor) is going to be massaging you, you have various amounts of clothing on, and you want there to be that comfortable feeling; and that is what a chiropractor’s job has to do. He has to make sure you are comfortable, and it is not only the results they get from how your injury is fixed but the other reason for the success of their practice I think, is how well they can have that bedside manner or ability to have a relationship with you, to make you feel comfortable when coming in.” (FG 1: 459-555)

Perhaps the concept of patient-centeredness was most evident when patients spoke of ‘health teams’. Within the concept of a health team, they saw the team as a group of health care providers working in their best interest, being patient focussed, mutually respectful of each health care provider’s opinion, and functioning in a non-hierarchical relationship. The
groups defined communication as a key measure of team effectiveness, as well as a critical facilitator to its success. They saw communication as the relevant exchange of patient information that would result in ‘seamless communication and care’ with the patient feeling as a member of their own team.

Which health care providers would compose their team varied among the different patients in the focus groups; but most wanted to have a choice of providers they would see, or at least be able to transfer the care to another, if they were not satisfied. Many would like to have chiropractors on their team but were sceptical they would be included given chiropractic’s delisting from OHIP coverage, their seemingly ‘exclusion from the system’, and the barriers alluded to above.

“El: For me, a team approach would be that neither person, if there is a four person group or a two person group, feels threatened by the other. So there are no agendas behind what they are doing, that I am not some person in the middle of some kind of threatened agenda thing happening. Sometimes I think in our fast paced society, you feel like you are just somebody caught in the cog of the wheel that they are all doing their own thing. ... I think there is a lot of paperwork that has to be done now. I think liability has gone through the roof and I think doctors and nurses are so worried about that stuff that the patient has got lost in it. I would like to go back to the phone calls by the physician, the house calls.

Do: For me, I think the team approach would have to give me more of a seamless communication and care because that is what is important. I don’t want to go back, my time is valuable and everyone’s time here is valuable, to my doctor and say, ‘Well this is what I had done at the chiropractor and this is my results.’ They should already have that in the file and read it. Well, I suppose there is reason for that too because they (the physicians) are busy and crank over a lot of people. But I want it to be time effective as well, because we always have to wait in waiting rooms and that is never fun. I think everyone should be a member of their own team, because you are your own best advocate, and you have to be an advocate for your own well-being, and I would probably like to see a greater or more equal relationship with both chiropractor and physician.” (FG1: 1012-1069)
The role of co-location was considered to be important in facilitating team work and interprofessional collaboration. Data from the patients of physicians who practiced in the same building with a number of other health care professionals insinuated that co-location of health care providers was convenient, endorsed collaborative practice, clearly identified who was on the ‘team’, improved access, and enhanced communication. Similar sentiments were expressed by patients at other sites; however, the level of importance given to having all health care providers co-located varied amongst all the groups. This varied importance paid to co-location appeared to be reflected in the patient’s personal experience of having attended health care providers in different locations; not knowing any different, they seemed equivocal about the impact of co-location on their care.

“Di: The idea of having several different types of doctors in one clinic is really, really good because then you can get a little more specialized and alternative treatments and you can get it fairly quickly in a familiar environment.

Int: Is that important to others in the group, to have their providers located in the same place?

Pt: It is easier. We have chiropractors, doctors, nurses - nurses now do the blood work and pap smears and stuff like that - and we have physiotherapy here too. So we are only going to one spot and it is all in line, it is great, it is seamless.

Pt2: So all that, seeing the nurse practitioner when the doctor is all full up, because that happens a lot, having the nurse practitioner available and again having the chiropractor and massage therapy all in the same building is nice. They are like a family, I know that sounds pathetic (laughing) but they are like a family. They treat you well.

Pt3: I think they are really working together. ...” (FG3: 465-477)
6.4.9 The Importance of Communication and Information Sharing

The level of interprofessional communication on the other hand, appeared to play a more critical role in team function than did co-location. The ability to share patient information, either through the written clinical notes and diagnostic tests/results or by accessing patient files via a common electronic health record, was considered to be very important. This sharing of information signalled to the patients that their providers were communicating amongst themselves, in turn ensuring informational continuity and suggesting a greater degree of interprofessional collaboration. The extent or detail of personal health information shared varied amongst the focus groups, with patients in focus groups living in smaller communities being somewhat more guarded of their entire medical record being accessible. This guarded feeling came from a concern that there was a greater likelihood that individuals in smaller communities would know each other and learn of personal health issues.

“Ba: ... There has been team functioning all along but within certain jurisdictions if you like the sharing of information I believe as P., J. and others talked about the importance of communication. I think that is the key. It is neat if you can walk into a clinic and there are a number of care providers and you can go from there to there, but how often do you really need to do that? I think the key is the accessibility of information and the openness for the medical field. They are starting to do it, but to refer beyond the medical field if you like.” (FG 2: 1077-1086)

Finally, the sharing of information between health care providers was considered important. The data also highlighted that some patients wanted to play a part in the communication. This view was expressed particularly in the groups made up of patients who had chronic complex pain conditions that had not responded to care and who were concerned about their prognosis. To them, being spoken to directly was of much greater importance than being spoken of by their health care providers. This suggested that the nature and level
of patient interaction with their providers delivering collaborative care maybe a function of the complexity of the condition rather than a general expectation amongst all the patients. In other words, simple uncomplicated back or musculoskeletal pain would not require patient consulting with all their health care providers. However, a patient with chronic, unremitting pain with multiple co-morbidities would expect being an active participant in any discussion with all their health care providers involved in their care.

“We don’t particularly need a report back because my report is losing pain. That is the most important thing to me. My doctor and the chiropractor are both conversing back and forth because when I go and see the doctor he asks if it’s helping. They are well aware of each other. The last time I just bypassed the doctor because I had the pain before, I went straight to the chiropractor and he said the report will go back to the doctor and I said fine.” (FG6: 959-965)

“Communication with the patient as well, because we were speculating on whether or not the doctor and chiropractor even did discuss anything. So it is my body and I want to know, I want to talk, I want to ask questions. If my doctor had talked to the chiropractor, I would have liked to hear his opinion about what was happening and whether he thought I was progressing. So I think access to the file is important but so to is talking to the patient. It doesn’t help me if the nurse practitioner, the chiropractor and my physician are all talking about by case, but no one is letting me in on the information. So for me that is important. I think that also shows a personal side that they care.

Ev: I was going to agree with Ch, if they would try to get you together, all 3 at the same time, where that way you are getting both stories right from doctor and chiropractor, from each of them would be nice. But then I thought well that would never happen.

ML: I think communication is the big item.” (FG 5: 764-786)

6.5 Conclusion

This chapter summarized the quantitative and qualitative results from data obtained from the PCAS-C surveys and focus group interviews. The integration of these two databases will be used to help explain the reported results and provided the basis for the following Discussion chapter.
Chapter 7 Discussion

Mixing the Methods to Enhance Understanding of the Patients’ Perception of Patient-Centred Interprofessional Collaboration
7 Introduction

There is a growing recognition of the essential contribution made by patients’ views and experiences to the quality of health care (Black & Jenkinson, 2009). Involving patients in health care decisions is gaining more attention and considered a policy imperative in health care systems of many countries (Thompson, 2007). In part this has been motivated by the expanding influence of active consumerism and concern of citizen dependency on the state (Thompson, 2007), a move away from the beneficence underpinning the traditional paternalism of health care providers (Coulter, 1999; Deber, 1994a), and the legal and ethical principles of treatment informed consent (Deber, 1994b; Taylor, 2009; Thompson, 2007).

Patient-centred care meets many of the requisite patient needs of becoming active partners in their clinical decision-making. Patient-provider partnerships depend upon mutual trust, respect for each others expertise (e.g., physician skills and patient knowledge of self), non-hierarchical relationships, and the sharing of information, decision-making and care responsibilities (Coulter, 1999). These interpersonal components of successful partnerships, along with the technical skill and competence of providers, are embedded in the assessment of the quality of care (Donabedian, 1988).

Despite the importance of interpersonal processes in the quality of care, its assessment is not so easily measured, as health care providers must adapt to the unique variations in preferences, expectations and needs of individual patients (Donabedian, 1988). Nevertheless assessing the subjective experiences of patients – “its texture and substance, its sentient quality” (Gerteis et al., 1993, p. xxi) – is an important component of quality assessment requiring the inclusion of the patient’s voice (Stewart, 2001).
Thus, in this chapter we combined the results of the quantitative and qualitative analyses to explore the final question: How does patients’ perception of care they received in a collaborative setting help inform the reported measures of quality of care?

7.1 Access and Interprofessional Collaboration

Access is considered important in health policy and services research (Penchansky & Thomas, 1981). It has been defined simply as “freedom to use” (Thiede & McIntyre, 2008, p.1169) or conceptually as summarizing the specific but closely related dimensions of availability (supply of providers and services), accessibility (location of supply), accommodation (organization of supply), affordability (cost and worth of services), and acceptability (attitudes about personal and practice characteristics) (Penchansky & Thomas, 1981). Others have used similar but fewer dimensions, namely availability (all factors related to the existence of the service within the reach of the patient), affordability (direct and indirect costs of the services relative to ability to pay), and acceptability (subjective, social and cultural factors related to the service) (Thiede & McIntyre, 2008).

Access is presumed to influence utilization of services, satisfaction, and provider practice patterns (Penchansky & Thomas, 1981). In a survey of automotive workers in New York, travel time, time to get an appointment and duration of patient-provider relationship were strong predictors of satisfaction with accessibility, accommodation, and availability/acceptability, respectively (Penchansky & Thomas, 1981). Satisfaction with affordability was found to be influenced by travel time and wait time, perhaps reflecting opportunity costs rather than treatment costs. Visit frequency was positively associated with availability, accessibility and accommodation. Despite the small sample (n=287), the results
illustrated the inter-relatedness of the dimensions but did not consider attitudinal and behavioural factors that may influence access.

In regard to our study, study patients (Study group) differed from those in the comparison group (Reference group) most likely due to improved affordability and acceptability. The patients in the Reference group appeared similar to the general Ontario population seeking chiropractic services (Coulter et al., 2002; Kelner & Wellman, 1997; Mior & Laporte, 2008; Waalen & Mior, 2005). On the other hand, Study group patients differed in several reported characteristics. In particular, there were a greater percentage of Study group patients who reported annual household incomes of less than $40K, a greater number of pain days in the six months prior to presentation, more extremity complaints, and were more obese than those in the Reference group. Although health related outcome measures were not available, collaborative studies involving chiropractors and physicians were reportedly more likely to treat patients with more co-morbid conditions, chronic pain, and be in poorer general health compared to patients seeing only a chiropractor (Garner et al., 2007; Kopansky-Giles et al., 2007; Mior et al., 2007).

The demographic and socioeconomic differences noted between the two groups of patients could have been attributed to the affordability of chiropractic services for study patients as a consequence of the removal of the barrier for paying for services. There was a positive association between involvement in the study and patients rating Organizational access higher compared to the Reference group patients. However, others have found that where chiropractic services were ‘free’ or covered by insurance (public or private) similar demographic and socioeconomic differences were not observed amongst patients seeing only chiropractors (Legorreta et al., 2004; Shekelle et al., 1996).
In addition, the noted differences may have resulted from greater physician acceptability resulting from improved informedness and enhanced collaboration between the providers. Improved informedness through educational sessions and sharing of information plays a crucial role in health care access (Thiede & McIntyre, 2008). The study physicians’ improved understanding of chiropractic care and interprofessional interaction led to more referrals, in particular of patients with more complex chronic conditions for which they may not have otherwise done (Mior et al., 2007). As the interprofessional relationships improved during the collaboration study, the co-management of complex patients increased and the demographics of patients visiting chiropractors changed. A similar trend has been reported in other studies that have assessed sociodemographic variables of patients seeking both chiropractic and medical care, although it was unclear in these studies if such patients were co-managed (Côté et al., 2001; Hurwitz & Chiang, 2006; Kelner & Wellman, 1997).

This finding of increased access by patients with complex conditions and lower annual household income was supported by data from the patient focus groups. Focus group patients, particularly those with no prior experience with chiropractic care, were open to seeing a chiropractor because of the removal of the payment barrier. Many were patients who reported being unemployed, had no third party insurance coverage, or were in chronic pain with associated comorbid conditions. Although their physicians’ recommendation, or at least openness to seeing a chiropractor, was important in the patient deciding to attend a chiropractor, for many the lack of having to pay for treatments was critical in their decision to attend or even try chiropractic care. For some patients despite a positive clinical outcome to chiropractic care and a reduction in medication use, they would not continue with care after the collaboration study ended due to an inability to afford the treatment costs. For
others, as with patients who had prior experience with chiropractic care, they would continue with chiropractic care but decrease their visit frequency or attend only when pain worsens.

Interprofessional collaborative practice provides patients, especially those in chronic pain and lower annual household incomes, with a choice of various treatment options providing they are affordable and recommended by their primary care provider.

Unfortunately, it is this ‘vulnerable population’ that often has limited access to timely and affordable health care services (Beatty et al., 2003; Landry et al., 2006). The lack of insurance or inability to afford services also encumbers the patient’s relationship with their care giver due to poorer access and continuity of care (Forrest et al., 2002). With the delisting of rehabilitative services in Ontario in the fall of 2004 (i.e., completely for chiropractic and partially for physiotherapy) (Smitherman, 2004) and the trend to shifting from publicly funded to private rehabilitation services (Landry et al., 2006), access to affordable services will continue to plague patients, especially the vulnerable, and pressure health policy decision makers to consider health care reform at least for those in greatest need (Beatty et al., 2003). In consideration of the morbidity, disability and economic burden to society of chronic MSC (Stokes et al., 2003), these findings have important implications to the sustainability of interprofessional collaborative practice and management of MSC conditions, and to future health policy decisions in general.

7.2 Preventive counselling

The sociodemographic profile of patients in both groups, in particular the Study group, suggests a potential role for chiropractors in providing general health counselling and encouraging health promotion, consistent with patient-centred care. Patients reported
receiving advice on health related matters; however, the number of affirmative responses differed between the patient groups, with a higher proportion of Reference group patients reporting receiving advice on all areas questioned. In consideration of the possible direct or supportive role chiropractors can play in encouraging healthy living, there is potential for greater advice giving especially in consideration of the percentage of patients indicating that they followed through with the recommendations.

Hawk et al. (2004) have suggested that chiropractors will need to maintain suitable knowledge of and incorporate health promotion and disease prevention activities into their practice if they are to be viable participants in public health strategies or integrated into the health care system. Their findings suggested that more than 80% of surveyed chiropractors provided counselling/advice on exercise, diet, stress reduction, MSC risk reduction, and injury prevention.

In our study, for those patients considering it relevant to receive advice, more than 80% in both groups reported being given advice by their chiropractor on matters related to exercise and spine care. Approximately 62% and 84% patients in the Study and Reference groups were given advice on stress reduction and about 40% and 65% on diet/weight counselling, respectively. The differences noted between the groups may have been related to the longer chiropractor-patient relationships, reimbursement model, chiropractors’ familiarity with patients’ underlying conditions, or their related subject knowledge. Since patients who are co-managed tend to have more chronic conditions, worse health related quality of life scores, more intense pain, greater obesity, and recent episodes of depression (Côté et al., 2001; Hurwitz & Chiang, 2006), chiropractors participating in collaborative practices will
need to become more actively involved in providing or recommending advice in encouraging healthier living (Hawk et al., 2004; Hurwitz & Chiang, 2006).

Despite the high proportion of patients reported acting on the advice given, long term data assessing if such advice is sustained or resulted in measurable change in health status will be required to be collected. In consideration of the tendency for chiropractors to see patients more frequently than physicians and their provision of patient-centered care, further research is required to better understand how and to what extent chiropractors can play a role in encouraging and promoting healthy living.

### 7.3 Quality of Care and Patient Centeredness

The PCAS is a patient-answered questionnaire that has been used to assess the quality of care and certain aspects of the patient-provider relationship (Murray & Safran, 1998; Safran et al., 1998), the latter tapping into key aspects of patient-centred care. In general, patients in both groups had similar PCAS-C scale scores, suggesting that participating chiropractors provided very good quality of care that was patient-centred. The majority of the study patients participating in the focus groups supported the view that the care they received from the chiropractor was patient-centred. They interpreted this as being participant in decisions about their care, involved in their treatment, having ongoing communication which positively influenced the interpersonal relationships, and trust in their chiropractor. These findings however, may not have been related to the implementation of the collaboration model but rather inherent in the way chiropractors, in general, treat their patients (Coulter et al., 1994; Gaumer, 2007; Gemmell & Hayes, 2001; Jamison, 2001; Kelner et al., 2004).
The main exceptions between the Study and reference group patients were their scores on Preventive counselling and Knowledge of the patient scales, which patients rated as fair and good, respectively. The former may have been partly related to the primary focus of the collaboration study on MSC. Yet because the chiropractors were paid specifically to provide preventive injury advice, information and exercises, it was expected that the level of counselling would have been rated higher or at least at the same level as in the Reference group. Patient feedback during the focus groups supported this quantitative finding, in particular for patients who had no prior chiropractic experience, suggesting that for some patients the chiropractic treatments focused primarily on pain alleviation and not on life style modifications.

The Knowledge of the patient scale score was also substantially different between the two groups of patients. In this scale, the patient rated their chiropractors’ knowledge of their medical history; work, home or school responsibilities; main health concerns; values; and beliefs. Patients in the Study group, as well as those reporting a lower annual household income, attending care from a co-located chiropractor, and having a relationship of less than 6 months were associated with rating their chiropractor as a low performer (below 75 percentile) on this scale, with the largest influence being the duration of the relationship.

These findings were consistent with comments made by study patients in the focus groups comprised of those who were referred by their physicians. These patients typically had no previous chiropractic experience and thus a shorter duration of relationship with the chiropractor. Their comments suggested that some of the chiropractors did not spend enough time with them to assess their needs or to build a deeper relationship. On the contrary, longer term patients recounted that their chiropractor understood their values, family situation, and
how this impacted upon their health. These latter comments are characteristic of patient-centered care (Collins & Nicolson, 2002; Kelner & Wellman, 1997).

Except for income, the independent variables had a similar association with Knowledge of the patient outcome as those patients’ rating their chiropractor as a low performer on the Trust scale; in particular, the duration of the relationship of more than 6 months was significantly associated with high performers. The Trust scale assessed the patient’s perception of the chiropractor’s integrity, competence, and role as a patient’s agent.

In consideration that patients in the referred focus Study group commonly alluded to uncertainty and scepticism of attending for chiropractic care, and may have done so on a recommendation from their physician, it is understandable that their scoring of the level of Trust would be lower.

Also if the patient saw the chiropractor as fulfilling a specialist role (i.e., both consultation time and condition limited) then the duration of time spent with the chiropractor would be shorter, which in turn may affect the nature of the relationship (Forrest et al., 2002). Or the patients realizing the time-limited funding for the collaboration study, would have limited them from investing time and energy in building a relationship, not unlike that experienced by patients in managed care studies where forced health plan switching commonly occurs (Forrest et al., 2002).

Previous studies have also suggested significant differences in the primary care experiences of patients in open- versus closed-model health care systems. These differences were partly explained by physicians’ behaviour (e.g., physicians in open models seemed more concerned and interested in establishing long term relationship with patients), performance (e.g., capitated versus fee-for-service payment strategies were negatively
associated with measures of physician-patient relationship; and financial incentives promoted access, knowledge of patients, and preventive counselling) and adherence to practice guidelines (e.g., extensive use of guidelines was negatively associated to physician-patient communication, interpersonal treatment and trust) (Murray & Safran, 1998; Safran et al., 2000; Safran et al., 2002). Although there were no important differences between the summary scores for the PCAS-C scales in either group, except as noted above, the influence of the reimbursement model used in the collaboration study is unclear and requires further study.

As in social relationships, the length of the relationship has been found to be a predictor of the level of trust and patient-physician relationships (Forrest et al., 2002; Kao et al., 1998a; Kao et al., 1998b; Safran, 2003). The very good rating of Trust in the chiropractor by both groups of patients was supported by the quantitative and qualitative results of the chiropractor’s patient-centred approach; however, this was negatively associated with relationships that were less than 6 months.

Trust is believed to be “developed through an iterative process of interaction and experience” (Kao et al., 1998a, p. 684) such that repeated positive contacts would promote a more trusting attitude between patient and health care provider. The duration of the relationship may also be a function of a “selection effect”, where patients who were not trusting of their health provider were more likely to shorten the relationship or choose another provider (Kao et al., 1998b). It has also been found to be significantly associated with patient-physician relationship, satisfaction and confidence in their physician (Donahue et al., 2005). The ability to choose a provider influences the level of patient trust in their physician (Forrest et al., 2002; Kalda et al., 2003; Kao et al., 1998a).
Data from our study focus groups, especially those with prior chiropractic experience, supported the concept of a selection effect. Consensus amongst these patients confirmed the very good Trust rating from the PCAS-C, where patients explicitly stated they trusted their chiropractor. On the hand, patients who were neither pleased nor satisfied with their treatment results or questioned the chiropractor’s behaviour stopped attending for care or sought another chiropractor. However, it was not clear if exiting from care was secondary to a lack of trust, response to care or other behavioural factors.

Studies have suggested that patients will express their dissatisfaction by exiting from care and seeking another health care provider or relying on ‘voice’ to exert change (Charles et al., 1997; Donabedian, 1988; Thompson, 2007). Results from the PCAS-C supported these observations wherein patients who reported being completely satisfied and feeling much better after a visit were significantly associated with rating their chiropractor as a high performer on the Trust scale.

As health care costs escalate and interprofessional collaboration expands, the influence of payment mechanisms upon the quality of care and clinical performance requires further examination. In addition, longitudinal studies should be conducted to assess if changes in the roles of health care providers participating in interprofessional collaborative practice influence their relationships with the patient and the quality and outcomes of care, i.e., do health care providers working in physician-led primary care teams take on a specialist role, impacting their relationship with patients?
7.4 **Patient Perception of Interprofessional Collaboration**

The overall rating of good to very good of the Integration of care scale and no significant association between Study group and high performer on this dimension was an unexpected finding considering the goal of the collaboration study. However, in consideration of the patients’ feedback during the focus groups, this finding was explainable.

A number of patients in the focus groups recounted little or no awareness of any level of collaboration between their health care providers. This could have been influenced by patients’ uncertainty of the degree of commitment of their physician to the study. Despite patients being referred by their physician, their perceived conflict between chiropractors and physicians (expressed as being surprised by their physicians’ referral to the chiropractors) may have created the impression that some physicians were tolerant rather than cooperative with their referrals to the chiropractor. The limited mention or endorsement by some physicians, especially those in rural settings, created a sense of uncertainty in the minds of patients regarding the degree of collaboration, leaving some patients to question if in fact there was any collaboration.

Patient perception of collaboration may also have been tainted by their limited understanding of the degree of interprofessional communication taking place between providers. Focus group patients, primarily those in the rural settings, had little to no understanding of the level of communication that was occurring between their health care providers. Despite the exchange of clinical information between their providers, such exchange appeared to be occurring in the background to the actual delivery of care without patients’ knowledge; although some indicated that either the chiropractor or the physician had shared relevant clinical information. This finding is not unlike that of “invisible teams” reported by Safran (2003) in her analysis of patients’ view of integrated primary care or by
others suggesting that patients may be unaware of the collaborative relationships between providers (D'Amour et al., 2005).

Interprofessional collaboration is believed to be facilitated by shared space and time (Lindeke & Block, 1998; Oandasan et al., 2006; San Martin-Rodriquez et al., 2005). Similar results were reported in a qualitative study examining factors contributing to sustained complementary therapy services in 10 different primary care sites in England (Luff & Thomas, 2000). Luff and Thomas (2000) suggested that complementary therapies co-located with primary care services maximized perceived benefits, such as the structural integration of complementary therapy into the routine work of primary care; creation of opportunities for greater communication and education; greater access to tests, clinical records and referrals; and enhanced continuity of patient care. Co-location also enabled greater oversight of the scope and shape of the services provided in order to address the particular needs of patients in the practice. They also noted challenges, such as difficulties in communication, teamwork, narrowing of service provision, and access to only clinic registered patients. Complementary services provided off-site allowed for greater control of service provision and autonomy by the complementary provider, and greater access for referrals from other health care providers; however, interprofessional communication and ease of access was decreased.

The results from both the qualitative and quantitative analyses in our study were consistent to that in existing literature (Lindeke & Block, 1998; Luff & Thomas, 2000; San Martin-Rodriquez et al., 2005). Study patients perceived a higher level of collaboration between the co-located providers, citing that the chiropractor, when necessary, simply walked down the hall to speak to their physician. Furthermore, patients receiving care from co-located chiropractors was positively associated with rating their chiropractor as high
performing on the Integration of care scale. Interestingly, patients of co-located chiropractors rated convenience and overall organizational access lower than those of non-co-located chiropractors, suggesting that structural organization of health care services may not be as important as other aspects of health care, such as the quality of daily interactions and communication (Coulter, 2005).

Although co-location was considered important by some of the focus group patients, communication played a more critical role in facilitating many of the attributes of patient-centred care. In fact, communication emerged as an important facilitator across the different themes. It was the nature and degree of communication that promoted interpersonal relationships, collaborative practice, and informational continuity. The collaboration study appeared to have opened the lines of communication between the patient and providers (see Figure 6.8), suggesting an improvement in the continuity of patient care, lessening patient fears of informing their physician they were seeing a chiropractor, and sharing of clinical information, thereby presumably decreasing the fragmentation of care.

7.5 Treatment Decision Making in a Collaborative Practice

But to what extent do patients share in the decision-making about their care in an interprofessional patient-centred practice? Sharing in the decision-making process has been suggested to improve health outcomes and limit the application of professional paternalism (Charles et al., 1997; D'Amour et al., 2005; Deber, 1994a; Frantsve & Kerns, 2007; Guadagnoli & Ward, 1998); however, the extent to which this occurs in a collaborative model has not been extensively studied (D'Amour & Oandasan, 2005; Howarth & Haigh, 2007).
Data from the focus groups suggested patients’ expectations of the collaboration model varied and seemed dependent upon their presenting clinical condition. Patients valued the opportunity to choose between different treatments and providers. The decision-making strategy used by patients and their physician, although not directly measured, appeared to vary among the focus group patients - some were comfortable with a paternalistic approach whilst others valued the informed method. In some circumstances, patients’ voice suggested that a shared decision-making approach was used by the physician especially in situations where patients may have been uncertain or wary of seeing a chiropractor. In other circumstances the patient initiated the dialogue by asking probing questions about wanting to see the chiropractor thus engaging the physician in sharing treatment information.

Empirical evidence suggests that such variation in decision making is consistent with the heterogeneity in patient preferences seen in clinical practice, rather than assuming an ideal single normative model of decision-making (Charles et al., 1997; Hanson, 2008). Others have found that patients’ preference for decision-making was neither variable nor stable over time (Charles et al., 1999; Coulter, 2005; Gafni et al., 1998; Guadagnoli & Ward, 1998).

More recently, secondary analysis of data from a randomized controlled trial assessed the degree to which physicians enacted shared decision-making behaviours within the context of depression care (Young et al., 2008). The findings suggested that primary care physicians performed few shared decision-making behaviours; however, such behaviours were influenced by practice setting and patient initiated requests for medication. Because of organizational, time and financial barriers or perceived patient preferences, physicians may not be inclined to demonstrate shared decision-making behaviours. Instead move towards
such behaviours if patients engaged them in the process (Hanson, 2008; Longo et al., 2006; Young et al., 2008).

Thus defining a single approach to enable decision making for all patients may not be the most effective strategy; rather it may be more appropriate to use that which is most comfortable to the patient (Guadagnoli & Ward, 1998). This requires that health care providers understand and know what their patients want; however, evidence suggests that providers (i.e., physicians) are poor judges of such wants (Deber, 1994b; Frantsve & Kerns, 2007). One recommended remediation to this problem is to elicit the patient’s preference and readiness for a particular treatment decision-making process during the consultation (Charles et al., 1997; Guadagnoli & Ward, 1998; Hanson, 2008). Thus health care providers should not enter the consultation with perceived notions of patient preferences but rather be prepared to make necessary individual adjustments (Donabedian, 1988).

Understanding of patient preferences in treatment decision making becomes more complicated as the number of care givers and others increase, such as in interprofessional collaborative or team-based care. The involvement of others in the decision-making process increases its complexity by expanding the nature and number of decisions, requiring a further level(s) of co-ordination (Charles et al., 1999; Innes et al., 2005). When multiple providers have different opinions about treatment options, patients may become uncertain and confused or use such information to influence their interaction with others (Charles et al., 1997). Failure to account for these others and their potential influences will limit the current clinical reality of this process (Charles et al., 1999).

Interprofessional collaborative patient-centred care implies patients play a central role in their care and by definition share in the treatment decision-making processes. However,
their preferences in this sharing are unclear and little studied (D'Amour & Oandasan, 2005; Howarth & Haigh, 2007). Despite calls for patients to become fully engaged in their health care (Coulter, 2002), a knowledge gap exists between what patients expect and the reality of clinical care (Howarth & Haigh, 2007).

A recent study assessing low back patients’ preferences and satisfaction with care received from a multidisciplinary rehabilitation service suggested that patients rated highly their expectations of receiving a clear diagnosis and effective treatment; whereas ease of service access and follow-up were considered important attributes of their assessment of satisfaction (McCarthy et al., 2005). The authors made no mention of the patients’ expectation of participating in treatment decision-making or interaction with their primary care physician. Unlike in another qualitative study of chronic pain patients seeking specialist care, patients expected that their primary care physicians would share equally in the responsibility of diagnosis and treatment (Frantsve & Kerns, 2007). But again the authors make no mention of the expected nature of the patient interaction with each or all the health care providers.

Focus group patients in our study had varied and different expectations of the extent of their involvement in collaboration between their providers. The variability in their expected involvement seemed related to their specific clinical context. For example, in situations where patients presented to the chiropractor or were referred by their physician with an uncomplicated acute musculoskeletal mechanical condition warranting routine clinical management, patients appreciated the interprofessional communication but did not consider it critically important. Patients presenting with a musculoskeletal condition with accompanying significant co-morbidities or chronic health condition(s), appreciated and
expected the transfer of their clinical information and interprofessional interaction, understanding that such would inform clinical management. However, patients with chronic, unresponsive complicated musculoskeletal conditions had greater expectations from the collaboration; they appreciated communication occurred between the providers but felt that they should be participant in the conversation. This last group of patients are more likely to want to be actively involved in the clinical decision process perhaps because of their greater experience with the health care system (Deber, 1994b; Thompson, 2007). Therefore as noted above, recognizing the unique patient behaviours and preferences enable health care providers to modify their approach to meet patient expectations.

7.5.1 Frameworks Incorporating Patient Views

Explanatory frameworks that consider patient views and characteristics rather than those of professionals are limited. Thompson (2007) conducted a large-scale exploratory qualitative study of the views and preferences of the public, including patients, and developed a taxonomy of patient-desired involvement and participation in health care consultations. Building upon previous literature on clinical decision-making, he posited that there were five potential levels of patient involvement (0 is no involvement to 4 is complete involvement in decision-making), each aligned to an existing theory summarized in three categories: patient-determined (patient determines the degree of the level of involvement); co-determined (patient and professional share in decisions); and professional-determined (professional directs the level of involvement). Where the taxonomy differs from other frameworks is the additional consideration of three distinct contextual dimensions that may influence a patient’s level of involvement; namely: 1) the nature of the health condition –
acute or chronic – the latter offering greater involvement; 2) the personal characteristics of patients, linked to knowledge, experience and personality; and 3) the patient-professional relationship, where trust influences patient confidence in decisions. Although the taxonomy has not been applied in a clinical scenario, it does reflect the complex, dynamic process that occurs in treatment decision-making, at least within the patient-professional dyad.

Others have suggested that this complex, dynamic process is better captured by the adapting complexity theory to the consultation (Innes et al., 2005). The theory accommodates those consultations that are simple where rational decision making is readily achieved between patient and health care provider and those where imperfect information creates clinical uncertainty and disagreement resulting in complex decision making. The theory allows for adapting to internal interactions and external influences, where small changes could create radical changes. The theory considers the health care provider as an enquiring participant in the clinical process concerned with changing a patient’s condition. However, aside from the novelty of the theory, another constraint in its application is the continuous prevalence of the paternalistic approach (Hanson, 2008; Longo et al., 2006; Young et al., 2008).

The degree and nature of patient participation in treatment decision-making between the patient-provider dyad is evolving, although the influence of multiple others e.g., health care providers, care givers, friends, etc., is not well understood (Charles et al., 1997). The constraints of time, workload, and money in primary care settings, impact upon achieving a more shared decision-making consultation (Luff & Thomas, 2000; Murray et al., 2007). Ensuring patient participation and involvement leads to improved outcomes, satisfaction and compliance, especially if the providers assess the level of patient readiness and modify
interventions in order to enhance patient participation (Charles et al., 1999; Guadagnoli & Ward, 1998; Thompson, 2007). Future research could explore and evaluate strategies that enable and ensure patient participation in treatment decisions when confronted by multiple opinions provided by ‘others’, as well as the influences of organizational factors (e.g., if health care providers are co-located or not) and health care conditions (e.g., chronic pain management). Furthermore, research could also examine if health care providers’ behaviours and methods of decision-making change, and how, when involved in collaborative practice.

7.6 The Role of Satisfaction

The patient voice and experience continues to be an important component in the assessment of processes of care, an attribute of quality and an important goal for health care (Donabedian, 1988; Sitzia & Wood, 1997; Williams, 1994). Patient satisfaction, an expression of such experience, has inextricably become linked to quality of care. It has been conceptually defined as “the individual’s positive evaluations of distinct dimensions of health care.” (Linder-Pelz, 1982b, p. 580, italics in the original).

Patient satisfaction has been considered to be a necessary outcome of a transaction regardless of the transactions’ efficacy (Linder-Pelz, 1982b). Satisfaction has been used as a dependent [associated with patient and service (e.g., structure, process and outcomes) attributes] and an independent variable (predictive of certain behaviours, e.g., changing provider or health plan) (Linder-Pelz, 1982b; Ware & Davies, 1983; Williams, 1994). A challenge in relying on a single measure of satisfaction as an indicator of quality of care is that satisfaction is commonly rated highly by the majority of the patients (Avis et al., 1997; Sitzia & Wood, 1997; Ware & Davies, 1983; Williams, 1994) and “inferences made from
surveys may not reflect the true beliefs of service users” (Williams, 1994, p. 509). Research has defined numerous constructs supporting the multidimensionality of the concept of satisfaction; however, the theoretical framework from which such constructs are founded has not been well elaborated (Breen & Breen, 2003; Linder-Pelz, 1982b; Verbeek et al., 2004; Williams, 1994).

7.6.1 Theoretical frameworks for Satisfaction

The focus on patient satisfaction has evolved from two distinct but inter-related movements, one based on the association between satisfaction and compliance with care, and the other linked to the demand for greater consumer input into public services (Williams, 1994). The consumerist model of satisfaction has suggested that the patients’ interpretation of their level of satisfaction is driven by their expectations, values and desires (Avis et al., 1997). The assumption that expectations and values play a central role in explaining satisfaction, led to the development of several theoretical models, originally driven by the job satisfaction literature (Linder-Pelz, 1982b).

Expectancy-value theory, based upon Fishbein and Azjen’s job satisfaction theory, posited that satisfaction reflected a positive patient attitude (i.e., affective response to care) that was determined by their beliefs (i.e., perception of care) in the underlying attributes of care being sought and their respective evaluation (Linder-Pelz, 1982b; Williams, 1994). The discrepancy theory posited that discordance between the patient’s expected desires and what they actually experienced explain the lower satisfaction ratings (Coulter et al., 1994; Linder-Pelz, 1982b; Williams, 1994). The fulfilment theory considered expectation as critically important, reflecting the difference between the rewards desired and those actually achieved
Lawler’s equity theory viewed satisfaction as one’s comparison of the balance between the perceived inputs and outputs with another’s, based upon a social comparison of perceived equity (Linder-Pelz, 1982b; Williams, 1994). But how were these comparisons formulated?

In reviewing social sciences’ theories pertaining to reference groups and social comparisons, Linder-Pelz (1982) suggested that with respect to patient satisfaction, such comparisons involved ‘intrapersonal comparisons.’ Drawing on work of Thibault and Kelley, she surmised that patients established individualized comparative levels based upon their own prior experience or what they believed others had achieved and then measured this against some average value they constructed from the multiple outcomes (implicit or explicit) known to them. Accordingly, satisfaction “is always relative; satisfaction rates change when, for example, standards of comparison or expectations change even though the object of evaluation (such as the actual health care one receives) may stay constant” (Linder-Pelz, 1982b, p.581).

However, these social psychological theories have found little empirical support in subsequent studies (Williams, 1994). Of the various social psychological variables considered associated with patient satisfaction, only prior expectations and values have been found to have an independent effect, but together explained only ten percent of the variance, on three dimensions of satisfaction by patients attending university-based primary care clinics (Linder-Pelz, 1982a). The findings also suggested that expectations of doctor conduct proceeding the encounter was significantly related to the subsequent doctor conduct evaluation and satisfaction rating regardless of the care given by the doctor. Further, patients with positive expectations and prior positive experiences had higher satisfaction scores than
patients with negative expectations and negative experience. These findings provided support for the discrepancy theory but not the value-expectancy or fulfillment theories of satisfaction (Linder-Pelz, 1982a).

While there is some evidence that patients’ expectations and values play a role in assignment of satisfaction, the nature of their relationship is not simple (Rao et al., 2000; Williams, 1994). Proposed explanations have suggested expectations change over time and so influence future evaluations or are influenced by the role patients adopt with their healthcare provider (Williams, 1994); while others questioned that in certain situations, there may not be any expectation at all (Coulter et al., 1994; Williams et al., 1998). Alternatively, the limited explanatory power of many variables presumed related to satisfaction may be due to the inference that patients’ assessments are not based in terms of being satisfied (Williams, 1994). Qualitative studies often uncover higher levels of disquiet compared to the high scores reported in quantitative studies of patient satisfaction (Williams, 1994). In part this is due to the multidimensional aspect of satisfaction (Breen & Breen, 2003) and patient interviews have been recommended to provide the depth and richness in detail that may help explain their satisfaction with their care (Avis et al., 1997; Hudak & Wright, 2000).

Using a grounded-theory to assess the delivery of person-centered mental healthcare services, Williams and colleagues proposed that the discrepant findings between quantitative and qualitative evaluations of satisfaction may be affected by patients’ perceptions of duty (i.e., belief of what the service should or should not do) and culpability (i.e., belief if the service is to be blamed for what it should have done or not done) (Williams et al., 1998). Duty is seen as a type of expectation representing the patient’s belief of what should happen within the context of their perception of the roles and obligations of the service. Patients
would positively evaluate a service even if they had negative experiences with certain aspects of the service providing their perceived duty of the service was met. If duty of the service was not met, patients could still assign a high satisfaction score, if they felt that the negative experience was a consequence of mitigating circumstances. Thus satisfaction may be an interaction between patient attitudes and experiences, with the former modulating the final rating, regardless of clinical outcome of care.

The concept of duty and culpability may help explain the discordant findings of satisfaction and clinical outcomes (e.g., relief of pain) (Afilalo & Tselios, 1996; Avis et al., 1997; Liddle et al., 2007; Verbeek, 2004). Patients have different theories and responses to illness, for example, those with less serious illnesses look to curative services, whilst others may take a more holistic, preventive view (Coulter et al., 1994). Patient expectations of the outcomes of care have been found to be valued more than those related to the care-givers or patient participation – perhaps representing the relative importance to patients and the main reason for seeking care (Staniszewska & Ahmed, 1999).

This distinction was noted by patients in the focus groups who were completely satisfied with the chiropractic encounter but were still in pain or had received no relief. The high satisfaction rating was attributed to the interpersonal aspects of the patient-chiropractor relationship where awareness, understanding, empathy, and the open sharing of information proved helpful especially for patients in chronic pain. Similar human dimensions have been used by hospital patients defining quality of care received (Bowers et al., 1994). But for others, who had prior experience with the benefits of chiropractic care, they did expect to walk out of the office feeling better or with improved function. In these two different examples, patients had different expectations for the pain/function outcomes of care, but
were uniformly satisfied with the patient-centred process of the care. Thus different patients have different perceived outcomes that must be broadly considered and understood by the health care provider (Verbeek, 2004).

The results of the regression analyses suggested that in general, patients who were completely satisfied with their overall chiropractic experience and felt much better following their treatment were positively associated with rating their chiropractor as a high performer on all the PCAS-C scales when controlling for all other variables. The size of the effect may be greater for satisfaction than for the outcome of care, a finding supported by a recent systematic review of patient expectations of treatment for back pain (Verbeek et al., 2004; Verbeek, 2004). These authors also noted that ‘experienced’ chronic pain patients were able to contextualize their pain and put into perspective their expected outcomes, unlike the ‘inexperienced patients’ who had greater expectations of symptom relief, and as such were more likely to be satisfied. They also noted that congruent patients, those who agreed with their health care provider, also related treatment effectiveness and pain relief. In addition, their review suggested that patients appreciated a confidence-based relationship with a health care provider, who was able to communicate, listen, manage their expectations, provide advice and pain relief, and legitimize their condition. Attributes associated with patient-centred care and that have also been reported in studies suggesting high patient satisfaction with chiropractic care (Coulter et al., 1994; Gaumer, 2007; Gemmell & Hayes, 2001; Verbeek et al., 2004). Results of both the quantitative and qualitative data in this thesis support these findings.

Satisfaction is also linked to the patient’s ability to choose their health care provider (Kalda et al., 2003; Schmittdiel et al., 1997). In a cross-sectional survey of patients in a large
HMO, patients who chose their personal physician were more than two times more likely to have higher overall level of satisfaction after controlling for patient demographics, socioeconomic variables, health beliefs and values, and physician demographics and speciality (Schmittdiel et al., 1997). Similar results were reported by Kalda et al. (2003) in a study exploring the impact of patient registration in a socialized European health care system. They also found that patients who self-selected their physician reported significantly higher overall satisfaction scores, including practice characteristics such as organizational and interpersonal aspects of care, compared to those who had a physician assigned. They suggested that higher satisfaction ratings may have been attributed to previous knowledge of and established trust with the chosen physician. However, even among the patients choosing their physician, satisfaction scores were lower for those physicians practicing in group compared to solo practices.

Co-location in our study was significantly associated with patients’ rating their chiropractor as low performing on the Organizational access and Knowledge of the patient scales but as high performing on the Integration scale. The negative association with co-location on the Organizational access scale may have been related to the increased referrals from the physicians resulting in increased wait times and decreased available appointment times. Perhaps the chiropractors may also have been influenced by the physicians’ practice behaviours and patterns, i.e., emulating them.

The lower score on the Knowledge of the patient scale was consistent with reported literature (Forrest et al., 2002; Kao et al., 1998a; Safran, 2003b) suggesting that length of time of relationship was associated with high performing chiropractors; however, the scores were lower for co-located chiropractors. Perhaps working collaboratively resulted in
obtaining more focused clinical information about the patient’s complaint, relying on the premise that more detailed information may have been collected by the other providers in the clinic.

Patients in our focus groups spoke at length of negative past experiences with other chiropractors and their higher levels of satisfaction with the one they saw during the study. Other patients who were dissatisfied with their care would simply stop attending for care. Dissatisfaction with a care provider has been found to be predictive of changing health care providers, disenrollment from pre-paid health plans, and delays in care seeking (Donabedian, 1988; Ware & Davies, 1983). A follow-up study by Marquis et al. (1983) reported that lower general satisfaction scores, younger persons, and those using more medical care services were more likely to change physician providers.

The quantitative and qualitative data in our study support the findings that patients who were completely satisfied with their chiropractor were more likely to have a longer relationship and rate higher the quality of care received. Although a single measure of satisfaction was used in our study, it is likely that the significant influence of satisfaction on the quality measures assessed was underestimated (Marquis et al., 1983; Ware & Davies, 1983).

The above factors provide interesting information regarding the strong influence of satisfaction upon the overall patient rating of the quality of the care they received. The patient’s ability to choose or retain a provider, based upon their prior experience, trust and relationship, also influences their overall scoring of quality of care. Such findings are noteworthy from clinical and social perspectives with potential health policy implications for
family health teams where other health care providers are introduced and made available to
patients rostered to the physician.

Decreasing the option of choice to patients could have a negative impact on overall
patient satisfaction and their assessment of the quality of care, as well as behavioural
consequences such as seeking care from providers inside or outside of the family health team
regardless of need to pay for services. Further study is warranted to ascertain if similar trends
noted with patient ratings of quality of care and satisfaction with physicians are maintained
when assessing chiropractic care in general practice.
Chapter 8  Conclusion
8 Overview

This study examined the association between patient and provider characteristics and select measures of quality and patient-centred care, as well as exploring the patients’ views in the delivery of musculoskeletal care within a model of interprofessional patient-centred collaboration between chiropractors and physicians in community-based primary care. It focussed on giving the patient a voice as they assessed the care they received and opined about their role in collaborative care. Thus, the study contributes to a growing but limited work on the patient’s perspective of interprofessional collaborative care.

The research findings provide a level of support that patients who participated in a model of interprofessional collaboration received quality care that was patient-centred; however, this quality of care was in general similar to that received by a cohort of patients attending chiropractors who did not participate in such a model. Patients participating in the collaboration study did not rate the level of quality and integration higher than those not participating, except for Organizational access. However, in both patient groups there was a positive association between patients’ who reported being completely satisfied and feeling improved after a treatment and rating their chiropractor as a high performer on the PCAS-C scales. This suggests that chiropractors, in general, provide quality care that subsumes many of the attributes of patient-centeredness.

The majority of focus group patients perceived that the care they received was patient-centred, interpreting this as positive interpersonal interactions, sharing in the treatment decision-making process, having a choice in provider and treatment, and provision of holistic care. This view was particularly emphasized in the patients’ interpretation of satisfaction with their care, which embodied many of the attributes of patient-centred care.
and as measured by the PCAS. This finding supports the strong association between the overall level of satisfaction and performance on each of the PCAS-C scales.

In this study interprofessional collaboration was defined as a “process by which individuals from different professions structure a collective action in order to coordinate the services they render to individual clients or groups” (Sicotte et al., 2002, p. 992). This definition is congruent to that of patients; however, the extent to which patients perceived such coordination, and hence collaboration between chiropractors and physicians, varied. This variation appeared to be health care provider, site and health condition dependent; favouring health care providers who were co-located and patients with underlying chronic or co-morbid conditions. Co-location was perceived by patients to facilitate the coordination and integration of care. However, patients considered health care providers sharing of clinical information as the most important component of the collaborative model.

Study patients also related improved openness in discussing their outcomes from attending chiropractic care. Despite the presumed improved collaboration between chiropractors and physicians, some patients detected variations in the level of this improvement based upon the degree of provider acknowledgement. In general patients appreciated the improved interprofessional communication and their ability to openly discuss their treatment options, which in turn could improve the continuity and decrease the fragmentation of their care.

The level of patient participation in the collaboration varied and appeared dependent upon patient need and preference. Patients with prior chiropractic experience or uncomplicated mechanical back pain preferred limited interaction with providers. Study patients with a MSC and accompanying co-morbidities appreciated that their providers
interacted or shared their clinical information. Some patients, especially those with chronic
MSC and limited response to treatment, appreciated the sharing of information but felt
treatment or diagnostic discussions between their providers should have also have included
them. These findings support pervious work suggesting that the nature of the patient’s
participation in the collaborative process varies and is not explicitly stated (D'Amour et al.,
2005).

8.1 Contribution to Theory
Consistent with the concept of interprofessional collaboration (D'Amour et al., 2005;
Oandasan et al., 2006; Orchard et al., 2005; Sicotte et al., 2002), patient’s involvement may
also be seen as dynamic and ever evolving, dependent upon the nature, severity and clinical
responsiveness of their health condition. Similar to professional dyads (Way & Jones, 1994),
patient-provider dyads fundamentally possess many of the similar relationship attributes
found in interprofessional collaborative care. Expanding the dyad to include others (i.e.,
health care providers, family and friends involved in caring for the patient) adds another
layer of complexity but one seemingly determined by the patients’ needs and preference in
participation.

Thompson’s proposed taxonomy of patient participation in clinical decision-making
provides a framework that captures the dynamic and evolving interaction seen in
collaborative primary care (Thompson, 2007). Thompson’s framework provides three
fundamental categories of decision-making, each involving five levels of participation, which
can be influenced by contextual factors, and responsive to the changing patient need or desire
for more or less involvement. It provides a framework to explain the complex, dynamic, multi-faceted involvement of patients in clinical decision-making.

The results in our study suggest that patient involvement in collaborative care varies and is dependent on the patient-provider relationship, trust, provider’s referral support, and the underlying clinical condition. Although most patients were provided the opportunity to choose to be referred, their level of involvement in decision-making varied from 1) patients making an autonomous decision (when the physician was not necessarily supportive of the patient’s choice to see the chiropractor) to information-seeking (asking questions about the referral); 2) the patient-provider interacting in shared decision-making (where both the patient and the physician discussed the options related to the referral); to 3) providers primarily influencing the decision (professional-as-agent) or limiting their input to information giving (limited response to patient’s request for a referral). The level of involvement in decision-making was further influenced by the patient’s condition (acute versus chronic), its seriousness (uncomplicated versus complicated), the interpersonal relationship between patient and provider (trust and communication) and desire for less or more involvement in the decision-making process.

Patients in our study, as well as in others (Luff & Thomas, 2000; Murray et al., 2007), have noted that the constraints of time, workload, and money in primary care settings, can impact upon achieving a more shared decision-making consultation. Tensions were expressed by study patients when they wished to change the level of their involvement but their providers failed to adapt. This can create uncertainty or placing the onus on the patient to initiate decision making, as has been noted in general practice (Murray et al., 2007).
Identifying patient preference for their level of shared decision-making could alleviate such tensions.

The results also support the premise that health care providers, especially those working in collaborative or team-based care should understand patient’s preferences and make the necessary individual adjustment (Charles et al., 1999; Murray et al., 2007; Thompson, 2007). Thus, the results in this study support the dynamic and evolving nature of patient participation in interprofessional collaborative care.

8.2 Policy Implications

Patient choice is influenced by available, affordable, and acceptable health care services, which in turn positively impact patient satisfaction and clinical outcomes (Penchansky & Thomas, 1981; Thiede & McIntyre, 2008). Our study suggests that patient’s appreciated having a choice in treatments but also in health care providers. They appreciated a choice in treatments other than medication for the management of their MSC, but affording the care especially among the vulnerable patients was an important consideration. As for choosing a health care provider, this was considered by many study patients, especially those with an established relationship with their provider, to be very important. This is particularly important if collaborative teams are created that potentially could influence prior patient-provider relationships.

In consideration of the morbidity, disability and economic burden to society of chronic MSC (Stokes et al., 2003), these findings have important implications to the sustainability of interprofessional collaborative practice and management of MSC conditions, and to future health policy decisions in general. Policy makers should consider the inclusion
of care options for MSC but be cognizant of patient’s desire for choice in providers and their ability to afford services. As a starting point, expanding options for the treatment of MSC for the vulnerable population may positively impact upon patient satisfaction and outcomes of care.

Another policy implication is the sharing of clinical information to improve the coordination and hence the continuity and quality of care. Improving coordination, especially in light of specialist referrals, continues to be an important challenge facing primary care providers (Berta et al., 2009). Informational continuity can be improved by the use of standardized communication tools, especially if part of an electronic health record (Berta et al., 2009). Access to electronic medical records facilitates interprofessional collaboration and improves interprofessional communication, in particular for health care providers who are co-located (Luff & Thomas, 2000). Our study suggests that improved communication between health care providers, regardless of access to an electronic health record, contributes to continuity of care and supports patient participation in the collaborative process. Health professional associations should encourage the development and implementation of standard consultation, referral or clinical correspondence in order to contribute to improved interprofessional collaboration and facilitate patient involvement in their care.

8.3 Strengths and Limitations

As with any survey data based upon self-report there is potential for bias or inaccuracy (Portney & Watkins, 2000). In consideration of the nature of this research there are limitations and a number of threats to internal and external validity (Cook & Campbell, 1979; Portney & Watkins, 2000). One limitation of the cross-sectional design is that data are
collected at a single point in time. As such the results cannot be used for hypothesis testing to provide definite information about cause-and-effect relationships (Mann, 2003). On the other hand, the preliminary nature of our study provides important qualitative and quantitative data and a framework for hypothesis generation and future longitudinal or controlled studies.

The results of the psychometric testing of the PCAS-C questionnaire were similar to those of the original questionnaire allowing for potential comparison of findings between different health care providers. Using a similar evaluative tool may facilitate comparison with other professions in assessing quality of care, clinical outcomes, and patient-provider relationships. However, there were issues impacting upon the final analyses. In particular, the relatively high item scoring (i.e., positive skew bias producing a ceiling effect) and the potential halo effect found in responses by both groups of patients; however, such effects are commonly observed in survey studies (Streiner & Norman, 2003). Consequently, the resultant skewed data necessitated dichotomizing the total score for each scale, thus creating a potential loss of information by limiting the extent of response variability.

A selection effect resulting from use of convenience and consecutive sampling strategies used to collect the data may not have provided a representative sample of patients attending the chiropractors’ office (Cook & Campbell, 1979; Portney & Watkins, 2000). Despite the inclusion of a Reference group, selection or sampling bias (i.e., involving patients with positive response to chiropractic care, especially in the Reference group) could have influenced the results. Patients attending for chiropractic care, and presumably already satisfied, may have contributed to higher scores regardless of their exposure to the intervention. Unfortunately, patients not agreeing to be referred or those who did not complete their program of care were lost to follow-up and not surveyed, further threatening
internal validity. However, controlling for length of duration of patient-provider relationship provided some insight into this limitation.

The Reference group was comprised of a non-random, convenience sample of patients who volunteered to participate and may not have been representative of the patient population of a particular chiropractor. An effort was made to match the location and particular characteristics of chiropractors in the Study and Reference groups, with the assumption this would result in similar patient profiles. Although the demographics of the Study and Reference groups were similar, the length of the patient-chiropractor relationship was significantly different, which could have influenced the direction of item response [i.e., acquiescence bias – tendency to give positive response (Streiner & Norman, 2003)]; however, the regression analysis did control for this factor.

Another limitation is the threat of “compensatory equalization of treatment”, wherein the Study group of patients were treated at no cost, thus potentially influencing them to positively rate their care higher (Cook and Campbell, 1979, p. 54). However, study chiropractors were ‘capped’ in their reimbursement so the incentive to provide more care was decreased, somewhat mitigating the influence of compensatory equalization of treatment. Furthermore, the analyses controlled for Study group, and aside from its positive association with a higher Organizational access scale score, it did not seem to influence the other scale scores.

In the focus groups, Study group patients were purposefully stratified to optimize the applicability of the results. However, the familiarity of some of the focus group participants in the smaller rural communities may have prevented individuals from speaking out and sharing negative experiences for the fear their perceptions might get around town. Thus,
there is a risk that social desirability response bias may have affected participants’ expression of their true opinion (Slaughter et al., 1999).

Social desirability is defined “as respondents’ tendencies to present themselves in a favourable position with regard to social norms” (Jo et al., 1997, p. 429). It can compress the range of scale responses about the extremes and potentially overestimate the socially accepted behaviour (Streiner & Norman, 2003), posing a threat to construct validity (Jo et al., 1997). Social desirability bias may influence scoring in self-report forms collected as part of a health care assessment, in particular if administered prior to or during the initial examination (Logan et al., 2008). It has also been reported to be positively associated with increasing age and negatively associated with higher education (Deshields et al., 1995).

In our study, efforts were taken to minimize the influence of social desirability bias by having patients anonymously complete the PCAS-C at minimum four weeks after the initial visit and submit it in a sealed envelope. In consideration of the reported association of age and education (Deshields et al., 1995), assuming such variables would influence scale response scores, our results suggested no statistically significant association with age or education (using income as a correlate) except for the scales Trust (negatively associated with age) and Interpersonal treatment (positively associated with income). Both these associations were consistent with those previously reported (Sitzia & Wood, 1997). Also, focus group patients were purposefully sampled and stratified by physician referral resulting in participants that had varied clinical and satisfaction responses. And facilitators did probe for negative opinions and concerns, which would facilitate greater openness in the discussions and provide a range of opinions (Slaughter et al., 1999).
One of the challenges of qualitative research is to ensure there is an adequate sample to enable researchers to make inferences that capture respondents’ truths (Onwuegbuzie & Leech, 2007). An *a priori* decision to include six focus groups was deemed sufficient to achieve saturation or information redundancy in exploring patients’ views of the collaborative model (Morgan, 1998a). However, data were collected that led to inferences regarding the nature of patient involvement or participation in the collaborative process. It is possible that the sampling methodology did not include sufficient representation to substantiate the emergent theoretical framework regarding patient involvement, thus potentially resulting in inaccurate generalizations (Miles & Huberman, 1994). On the other hand, saturation was achieved in capturing the patient’s voice regarding their view of the collaborative model and the meaning of satisfaction as evidenced by the convergence of the qualitative and quantitative data.

Only Study group patients were selected for the focus groups. Thus it is unknown if patients in the Reference group would have had similar opinions regarding the extent of their involvement if any, or if they were aware of interprofessional collaboration between their physician and chiropractor. In addition, the views, perceptions and values of patients who declined the referral for chiropractic care were not explored, although the focus groups were comprised of several patients who did not respond to care. Although the findings may not be generalizable to larger populations they may be transferable to those in similar contextual settings (Sim, 1998).
8.4 Future Directions

The results from this study provide several opportunities for future research. Future research could explore and evaluate strategies that enhance patient participation in treatment decisions when confronted by multiple opinions provided by ‘others’, especially within the context of different primary care organizational structures (e.g., if health care providers are co-located or not) and health care conditions (e.g., acute versus chronic MSC pain management).

Furthermore, participation in collaborative practice requires changes in practice behaviours and attitudes of health care providers if they are to be successful in such environs. Qualitative research could explore if, and how, health care providers’ behaviours and attitudes affect their role in treatment decision-making when involved in the management of a mutual patient, i.e., how and when do providers interact with/without the patient present.

The difference in the Counselling scores between Study and Reference groups in this study will require further research to better understand if this was a function of patient demographics, clinical characteristics, duration of doctor-patient relationship, the reimbursement method, or focus of the interventions (i.e., evidence of bonus payments in primary care facilitate the compliance or adherence to particular preventive strategies). For example, was the difference between the Study and Reference group scores reported herein a function of the reimbursement model or the restriction imposed by the model of care, i.e., restricted to MSC?

The findings in this study suggest that accessible and affordable care is an important facilitator in the delivery of interprofessional collaborative MSC care. In consideration of the escalating health care costs and impact of chronic disease management, in particular the morbidity, disability and economic burden to society of chronic MSC (Stokes et al., 2003;
Cassidy et al., 2005), further research is required to investigate how and what alternative funding strategies promote sustainable interprofessional collaborative management of MSC.

8.5 Closing remarks

In conclusion, considering patients’ views in a systematic and thoughtful manner is a first step to incorporating them into clinical practice (Black & Jenkinson, 2009). Our study suggests that patients suffering from various MSC benefit from interprofessional collaborative practice by improving access to and choice of health care providers and treatment options, as well as enhancing interprofessional communication and coordination of care. The study also makes an important contribution to defining and understanding the potential roles patients play in interprofessional collaborative care.
Chapter 9 Reference List
9 Reference List


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Arthritis in Canada. An ongoing challenge.


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Appendices
Appendix 1: Permission from author of the PCAS to utilize the survey tool in our study.

Primary Care Assessment Survey

User’s Agreement

(Page 2 of 2)

Please type or print clearly

The Primary Care Assessment Survey (PCAS) is a copyrighted document. There are no charges associated with its use, but users are asked to provide some identifying information and a brief statement (paragraph) of their intended use of the PCAS. Finally, users must agree to cite the PCAS appropriately if they use it or items from it in their work (see below).

(1) **Brief Description and Goal(s) of Project (Including Populations of Interest):**

In this study we will evaluate a collaborative care model to determine impact on collaboration between family physicians and chiropractors and on patient care. Two main research questions are: Are patients and providers satisfied with care provided in collaborative settings? Do patients perceive continuity and coordination of care in collaborative settings?

The population of interest are patients enrolled/rostered within one of the participating practice settings who present with musculoskeletal problems.

(2) **Citing the PCAS**

a. I recognize that the PCAS is a copyrighted document. If I include PCAS items in a questionnaire or interview document (verbatim or in modified form), I agree to include a statement acknowledging the PCAS as the source of those items. An example of such an acknowledgement is: Items #1, 2, 3, 11, 17, 27 (for example) were adapted from the Primary Care Assessment Survey (PCAS), © 1995 Safran/The Health Institute.

b. If results of my work using the PCAS are reported in a manuscript or other written format, I agree to cite the source of the measures as follows:

Safran DG, Kosinski M, Tarlov AR, Rogers WH, Taira DA, Lieberman N, Ware JE. The Primary Care Assessment Survey: Test of data quality and measurement performance in Medical Care 1998; 36(5): 711-723.

Name: Jan Beasley
Date: July 29, 2003

Please fax or mail this form to:

The Health Institute
750 Washington Street
Box 345
Boston, MA 02111

(617) 636-8351 fax
(617) 636-8636 phone
Appendix 2: Copy of the revised Primary Care Assessment Survey for use in chiropractic offices.

A Study of Primary Care Interdisciplinary Collaboration

Primary Care Assessment Survey

(Chiropractic Study Patients)

Directions:

1. Please complete this form by answering the questions on each page. There are no wrong answers.

2. Please note that your answers will be kept completely confidential.

3. When you have finished, place the survey in the envelope, seal it closed, and return to the office staff.

Thank you for participating.
INSTRUCTIONS

For each question, fill in one box [✓] or write in your answer ___ on the line provided.

Please answer every question (unless you are asked to skip questions because they don’t apply). It is o.k. to take breaks -- you do not have to complete the whole survey in one sitting.

If you find a question too private or personal, you can skip it and answer the other questions. In any case, your answers are completely confidential and will never be shared with any one. There are no wrong answers.

If you have questions, please call Ms. Janey Hayes, Project Manager at 416-482-2340, ext 212.

When you are finished, please return the survey in the envelope provided and seal it closed.

Thank you for participating.

YOUR REGULAR CHIROPRACTOR

<table>
<thead>
<tr>
<th>1. Is there one particular chiropractor that you consider to be your regular chiropractor?</th>
<th>[☐] Yes [1]</th>
<th>[☐] No [2]</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Is this the person you call when you have a muscle and joint problem or question?</td>
<td>[☐] Yes [1]</td>
<td>[☐] No [2]</td>
</tr>
<tr>
<td>4. Does this chiropractor handle most of your health care needs?</td>
<td>[☐] Yes [1]</td>
<td>[☐] No [2]</td>
</tr>
</tbody>
</table>
The questions from here through page 13 are about care you have received from the chiropractor you think of as your regular chiropractor.

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>7a. How many minutes does it usually take you to get to your regular chiropractor’s office?</td>
<td>Less than 15 min.</td>
</tr>
<tr>
<td>7b. How would you rate the convenience of the office location?</td>
<td>Very poor</td>
</tr>
<tr>
<td>8a. What additional hours would you like the office to be open? (Fill in all that apply)</td>
<td>Early morning</td>
</tr>
<tr>
<td>8b. How would you rate the hours that the office is open for chiropractic appointments?</td>
<td>Very poor</td>
</tr>
<tr>
<td>9a. When you are injured and call the office for an appointment, how quickly do they usually see you?</td>
<td>The same day</td>
</tr>
<tr>
<td>9b. How would you rate the usual wait for an appointment when you are injured and call the office asking to be seen?</td>
<td>Very poor</td>
</tr>
<tr>
<td>10a. How many minutes late do your appointments at the office usually begin?</td>
<td>None, they begin on time</td>
</tr>
<tr>
<td>10b. How would you rate the amount of time you wait in the office for your appointment to start?</td>
<td>Very poor</td>
</tr>
<tr>
<td>11a. Do you ever put off going to see the chiropractor because it is too expensive?</td>
<td>Yes, often</td>
</tr>
<tr>
<td>11b. How would you rate the current arrangement for payment for your chiropractic visits?</td>
<td>Very poor</td>
</tr>
<tr>
<td>Question</td>
<td>Options</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>12a. Would you attend for treatments if you had to pay for your visits?</td>
<td>Yes, Maybe, No</td>
</tr>
<tr>
<td>12b. How much would you be willing to pay per visit?</td>
<td>$5, $10, $15, $20, $25, $30</td>
</tr>
<tr>
<td>12c. How would you rate the amount of money you pay for other chiropractic prescribed treatments or products?</td>
<td>Very expensive, Expensive, Reasonable, Inexpensive, Very inexpensive</td>
</tr>
<tr>
<td>13. Thinking about the times you have needed to see or talk to your chiropractor, how would you rate the following:</td>
<td></td>
</tr>
<tr>
<td>a. Ability to get through to the office by phone?</td>
<td>Very poor, Poor, Fair, Good, Very good, Excellent</td>
</tr>
<tr>
<td>b. Ability to speak to your chiropractor by phone when you have a question or need advice?</td>
<td>Very poor, Poor, Fair, Good, Very good, Excellent</td>
</tr>
<tr>
<td>14. Thinking about the technical aspects of your care, how would you rate the following:</td>
<td></td>
</tr>
<tr>
<td>a. Thoroughness of chiropractor's physical examination of you to check a health problem you have?</td>
<td>Very poor, Poor, Fair, Good, Very good, Excellent</td>
</tr>
<tr>
<td>b. How often do you question whether your chiropractor's diagnosis of your health problem is right?</td>
<td>Always, Almost always, A lot of the time, Some of the time, Almost never, Never</td>
</tr>
<tr>
<td>15. Thinking about talking with your regular chiropractor, how would you rate the following:</td>
<td></td>
</tr>
<tr>
<td>a. Thoroughness of your chiropractor's questions about your symptoms and how you are feeling</td>
<td>Very poor, Poor, Fair, Good, Very good, Excellent</td>
</tr>
<tr>
<td>b. Attention your chiropractor gives to what you have to say</td>
<td></td>
</tr>
<tr>
<td>c. Chiropractor's explanation of your health problems or treatments that you need</td>
<td></td>
</tr>
<tr>
<td>d. Chiropractor's instructions about symptoms to report and when to seek further care</td>
<td></td>
</tr>
<tr>
<td>e. Chiropractor's advice and help in making decisions about your care</td>
<td></td>
</tr>
</tbody>
</table>
16. How often do you leave your chiropractor’s office with unanswered questions?

- Always
- Almost always
- A lot of the time
- Some of the time
- Almost never
- Never

17. Thinking about the **personal aspects** of the care you receive from your regular chiropractor, how would you rate the following:
   
a. **Amount of time** your chiropractor spends with you
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good
   - Excellent

b. Chiropractor’s **patience** with your questions or worries
   - [ ]

b. Chiropractor’s **friendliness and warmth** toward you
   - [ ]

b. Chiropractor’s **caring and concern** for you
   - [ ]

b. Chiropractor’s **respect** for you
   - [ ]

18. Which of the following has your regular chiropractor **ever** talked to you about?

- **Yes, in the last 3 years**
- **Yes, more than 3 years ago**
- **Yes, I don’t remember when**
- **No**

   a. Smoking
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   b. Alcohol Use
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   c. Seat belt use
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   d. Diet/Weight
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   e. Exercise
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   f. Stress
   - [ ]
   - [ ]
   - [ ]
   - [ ]

   g. Back/Spine care
   - [ ]
   - [ ]
   - [ ]
   - [ ]
19. Which of the following have you ever **DONE** because of your chiropractor’s advice?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A (Not relevant to me)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Tried to cut down or quit smoking</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>b. Tried to drink less alcohol</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>c. Wore your seat belt more</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>d. Changed your diet in any way</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>e. Done more exercise</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>f. Tried to relax or reduce your stress</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>g. Been more careful with your back/spine</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

20. Thinking about how much you **TRUST** your chiropractor, how strongly do you **agree** or **disagree** with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I can tell my chiropractor <strong>anything</strong> even things that I might not tell anyone else</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
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<tr>
<td>b. My chiropractor sometimes <strong>pretends</strong> to know things when he/she is really not sure</td>
<td>[ ]</td>
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<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>c. I completely trust my chiropractor’s <strong>judgments</strong> about my medical care</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>d. My chiropractor cares more about his/her <strong>income</strong> than about doing what is needed for my health/injury</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>e. My chiropractor would always tell me the <strong>truth</strong> about my health, even if there was bad news</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>f. My chiropractor cares as <strong>much</strong> as I do about my health</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>g. If a mistake was made in my treatment, my chiropractor would try to <strong>hide</strong> it from me</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

21. All things considered, how much do you **trust your chiropractor**?

<table>
<thead>
<tr>
<th>Rating</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>
<th>10</th>
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</tr>
</tbody>
</table>

Not at all | Completely
22. Thinking about how well your chiropractor **knows you**, how would you rate the following?

<table>
<thead>
<tr>
<th></th>
<th>Very poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Chiropractor’s knowledge of your entire medical history</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Chiropractor’s knowledge of your responsibilities at work or home</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Chiropractor’s knowledge of what <strong>worries</strong> you most about your health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Chiropractor’s knowledge of you as a person (your values and beliefs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. How much would you say your **regular chiropractor** knows about the care you receive from your **family doctor** (for example: visits that you make, treatments recommended)?

- Knows absolutely everything
- Knows almost everything
- Knows some things
- Knows very little
- Knows nothing at all
- N/A Don’t have a family physician

24. Has your chiropractor ever recommended that you see a **your family physician or other health provider** for a specific health problem?

- Yes
- No

GO TO QUESTION 25 ON NEXT PAGE

25. Thinking about the times your chiropractor has discussed the care you have received for your condition, how would you rate the following:

<table>
<thead>
<tr>
<th></th>
<th>Very poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very good</th>
<th>Excellent</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Help your chiropractor gave you in deciding <strong>when to see your family physician</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Chiropractor’s involvement in your care when you were being treated by your <strong>regular family physician</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Chiropractor’s communication with your <strong>regular family physician</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Help your chiropractor gave you in understanding what your <strong>regular family physician</strong> said about you or your condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Quality of <strong>health care providers</strong> your chiropractor sent you to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
26. All things considered, how satisfied are you with your regular chiropractor?
   - [ ] Completely satisfied, couldn’t be better
   - [ ] Very satisfied
   - [ ] Somewhat satisfied
   - [ ] Neither satisfied nor dissatisfied
   - [ ] Somewhat dissatisfied
   - [ ] Very dissatisfied
   - [ ] Completely dissatisfied, couldn’t be worse

27. After seeing the chiropractor today do you feel . . .
   - [ ] Much better than before the visit
   - [ ] A little better than before the visit
   - [ ] The same as before the visit
   - [ ] Worse than before the visit
   - [ ] Does not apply

28. The information you have provided is completely private. Your individual answers will NEVER be shown to your chiropractor, health plan, or anyone else.

   For purposes of this research, however, it is helpful for us to know your chiropractor’s name.

   What is your regular chiropractor’s name? _____________________________ (please print)

**BACKGROUND INFORMATION**

29. How old are you? _________ years old

30. Are you male or female?
   - [ ] Male
   - [ ] Female

31. How many people live in your household, including yourself, other adults, and any children? _________ people

32. Approximately what was the total income of your household last year before taxes (fill in one box)?
   - [ ] Less than $20,000
   - [ ] $20,000 to $39,999
   - [ ] $40,000 to $59,999
   - [ ] $60,000 to $79,999
   - [ ] $80,000 or more

33. What is your current marital status (fill in one box)?
   - [ ] Married
   - [ ] Separated
   - [ ] Divorced
   - [ ] Widowed
   - [ ] Never been married
34. Please circle. What is the **highest grade** you completed in school?

- [ ] Grade School
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
- [ ] High School
  - 9
  - 10
  - 11
  - 12
- [ ] College
- [ ] University
- [ ] Graduate School
  - 13
  - 14
  - 15
  - 16
  - 17+

35. How would you describe your cigarette smoking habits?

- [ ] Never smoked
- [ ] Used to smoke
- [ ] Now smoke

How many cigarettes a day do you smoke?

______ cigarettes per day

36. How often do you buckle your safety belt when driving or riding in an automobile?

- [ ] None of the time
- [ ] A little of the time
- [ ] Some of the time
- [ ] Most of the time
- [ ] All of the time

37. How many drinks of the following alcoholic beverages do you have during a typical week (including weekends)?

(a) __________ bottles or cans of beer
(b) __________ glasses of wine or wine coolers
(c) __________ mixed drinks or shots of liquor

38. How many times per week do you exercise for 20 minutes or more (for example, take a brisk walk)?

______ times per week

39. Thinking about the **amount of stress** in your life, would you say that most days are:

- [ ] Extremely stressful
- [ ] Quite stressful
- [ ] A bit stressful
- [ ] Not very stressful
- [ ] Not at all stressful

40. How **tall** are you?

______ feet ______ inches  or  _______ meters ______ cm

41. How much do you **weigh**?

______ pounds  or  ________ kg
42. What was the main reason you saw the chiropractor?

- Neck pain
- Mid back pain
- Low back pain
- Arm or leg pain
- Headache

Other: Explain ________________________________

43. How long have you had this problem? _____ days _____ weeks _____ months _____ years

44. How many days did you have pain in the last 6 months? _____ days

45. We are interested in any other comments you may have. Please write them here.
   a) Is there anything particularly good about the care you received from your chiropractor?

   b) Is there anything that could be improved?

   c) Any other comments?

Thank you for taking the time to complete this questionnaire. Please place the survey in the envelope provided and seal it closed and hand it in to the receptionist.
### Appendix 3: Correlation matrices for revised PCAS items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Q17a</th>
<th>Q17b</th>
<th>Q17c</th>
<th>Q17d</th>
<th>Q17e</th>
<th>Q20a</th>
<th>Q20b</th>
<th>Q20c</th>
<th>Q20d</th>
<th>Q20e</th>
<th>Q20f</th>
<th>Q20g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7b</td>
<td>.332</td>
<td>.309</td>
<td>.281</td>
<td>.299</td>
<td>.288</td>
<td>-.096</td>
<td>.136</td>
<td>-.168</td>
<td>.154</td>
<td>-.123</td>
<td>-.166</td>
<td>.110</td>
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<td>.412</td>
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<td>Q17c</td>
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<td>.758</td>
<td>1.000</td>
<td>.887</td>
<td>.859</td>
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<td>.327</td>
<td>-.328</td>
<td>.319</td>
<td>-.283</td>
<td>-.287</td>
<td>.297</td>
</tr>
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<td>.887</td>
<td>1.000</td>
<td>.892</td>
<td>-.268</td>
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<td>.859</td>
<td>.892</td>
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<td>Q22a</td>
<td>Q22b</td>
<td>Q22c</td>
<td>Q22d</td>
<td>Q25a</td>
<td>Q25b</td>
<td>Q25c</td>
<td>Q25d</td>
<td>Q25e</td>
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256
Appendix 4: Resultant structure matrix following oblique rotation*.

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* Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.
Appendix 5: Focus groups guide in the self-referred group.

Patients Focus Group Guide
Self Referred Chiropractic Patients

<table>
<thead>
<tr>
<th>Topic</th>
<th>Time</th>
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<tbody>
<tr>
<td><strong>1. Introduction:</strong></td>
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<tr>
<td>Collect informed consent prior to taping.</td>
<td>5-10 min</td>
</tr>
<tr>
<td>Set the stage and purpose for the meeting.</td>
<td></td>
</tr>
<tr>
<td>Outline rules and procedures for the meeting.</td>
<td></td>
</tr>
<tr>
<td>Statement of expectations and outcomes.</td>
<td></td>
</tr>
<tr>
<td>Analysis process</td>
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</tr>
<tr>
<td>Executive summary</td>
<td></td>
</tr>
<tr>
<td>No individual will be identified and not quote attributed</td>
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</tr>
<tr>
<td><strong>2. Content Questions:</strong></td>
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</tr>
<tr>
<td>Did you select the chiropractor or was she/he recommended to you?</td>
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<tr>
<td>If recommended, by whom?</td>
<td></td>
</tr>
<tr>
<td>How important is it to you to have a choice about which chiropractor(s) you see?</td>
<td></td>
</tr>
<tr>
<td>Probe: location, cost, trust, referral, empowerment, direct access,</td>
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<tr>
<td>What have been your positive experiences with chiropractors and their treatment approaches?</td>
<td></td>
</tr>
<tr>
<td>What have been your negative experiences with chiropractors and their treatment approaches?</td>
<td></td>
</tr>
<tr>
<td>Probes: satisfaction, accessibility, location, satisfaction with care, affordability; trust, media publicity, cost</td>
<td></td>
</tr>
<tr>
<td>Were you satisfied with the care you received?</td>
<td></td>
</tr>
<tr>
<td>What were your expectations of your chiropractic treatment?</td>
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</tr>
<tr>
<td>Were your expectations of the treatment encounter met?</td>
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<tr>
<td>Were you provided information on staying well and preventing further injuries?</td>
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<tr>
<td>What role did you play in deciding on the nature and type of care you received?</td>
<td></td>
</tr>
<tr>
<td>Probe: how did you contribute to your own care (compliance with treatment, participation in the care), scheduling and frequency of visits.</td>
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</table>
What did you think of the idea of chiropractors and medical doctors collaborating on your care? Did you have any concerns about chiropractors and medical doctors discussing and knowing about your care?
Probe: Did it make your nervous that they might be talking about your care or did you like the idea?

What was your impression of the level of cooperation/collaboration/ working together between the chiropractor and medical doctor?
Probe: How much do you think they talked about your care/problem referral/recommendation, trust, coordination of care

What is your interpretation of the level of communication between the chiropractor and medical doctor about your condition, and knowledge about your overall health issues?
Probe: Did you get the sense that they were both aware about your broader health concerns/status and related circumstances? Do you prefer to have only information on your specific health problem discussed or do you think it would be useful if the chiropractor had access to your health record.

In your opinion, what are the critical or most important aspects of the collaboration between the medical doctor and the chiropractor?
Probe: trust, respect, satisfaction with care, co-location
Are there one or two things that you think are particularly important

Any final comments you would like to make about your experience with chiropractors?

3. Conclusion

Thank everyone. 5-10 min
Ensure that they acknowledge their correct address for reimbursement.
Appendix 6: Focus groups guide in the physician referred group.

**Patients Focus Group Guide**
Medically Referred Chiropractic Patients

<table>
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<td>Collect informed consent prior to taping.</td>
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<td>Set the stage and purpose for the meeting.</td>
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<td></td>
</tr>
<tr>
<td>No individual will be identified and not quote attributed</td>
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</table>

2. Content Questions:

What did you think of the family doctor referring you to the chiropractor for care?

Did you select the chiropractor or was she/he recommended to you?
How important is it to you to have a choice about which chiropractor(s) you could see?
Probe: location, cost, trust, referral, empowerment, direct access,

What have been your positive experiences with chiropractors and their treatment approaches?
What have been your negative experiences with chiropractors and their treatment approaches?
Probe: satisfaction, accessibility, location, satisfaction with care, affordability; trust, media publicity, cost

Were you satisfied with the care you received?

What were your expectations of your chiropractic treatment?

Were your expectations of the treatment encounter met?

Were you provided information on staying well and preventing further injuries?

What role did you play in deciding on the nature and type of care you received?
Probe: how did you contribute to your own care (compliance with treatment, participation in the care), scheduling and frequency of visits.

**What did you think of the idea of chiropractors and medical doctors collaborating on your care? Did you have any concerns about chiropractors and medical doctors discussing and knowing about your care?**

Probe: Did it make your nervous that they might be talking about your care or did you like the idea?

**What was your impression of the level of cooperation/collaboration/ working together between the chiropractor and medical doctor?**

Probe: How much do you think they talked about your care/problem referral/recommendation, trust, coordination of care?

**What is your interpretation of the level of communication between the chiropractor and medical doctor about your condition, and knowledge about your overall health issues?**

Probe: Did you get the sense that they were both aware about your broader health concerns/status and related circumstances? Do you prefer to have only information on your specific health problem discussed or do you think it would be useful if the chiropractor had access to your health record.

**In you opinion, what are the critical or most important aspects of the collaboration between the medical doctor and the chiropractor?**

Probe: trust, respect, satisfaction with care, co-location

Are there one or two things that you think are particularly important

**Any final comments you would like to make about your experience with chiropractors?**

3. **Conclusion**

Thank everyone. 5-10 min

Ensure that they acknowledge their correct address for reimbursement.
Appendix 7: Ethics approval from the Research Ethics Committees at CMCC and University of Toronto.
Certificate of CMCC IRB Approval

ORA Project Number 76
Principal Investigator Silvano Mior

The project entitled Phase II: Proposal for Introducing a Collaborative Practice Model Between Physicians and Chiropractors in a Primary Care Reform Setting

has received CMCC IRB approval as of 19-Sep-03
This approval is valid for one year. The Principal Investigator must provide a status report of the project no later than 19-Sep-04

The principal investigator must report:
- when the trial is completed,
- any serious adverse events experienced by participants in the project, and
- as required by the IRB.

Planned modifications to the project which may impact on human subjects must be approved prior to their implementation. The ORA must also be informed of any changes in investigative personnel.

The principal investigator must maintain study records which, where applicable, must consist of:
1) A list of all subjects entered into the study;
2) Documentation of informed consent for all subjects entered into the study;
3) A list of all subjects who have dropped out or were removed from the study and the reasons for this dropout/removal if known;
4) Certificates of IRB approval for the project and any amendments;
5) A copy of the current study protocol; and
6) Any further documentation as requested by the IRB.

All this documentation should be easily available for audit. Audits may be done at the discretion of the IRB.

All research conducted under the auspices of the CMCC is subject to the CMCC's Research Policy and Procedure manual

September 22, 2003

Judith Waalen PhD IRB Chair
Appendix 8: Schematic of coding tree of key themes and respective categories derived from the focus group transcripts.