

**THE KNOWLEDGE OF GENERAL PRACTITIONERS  
ABOUT CHIROPRACTIC AS A FACTOR THAT MAY  
INFLUENCE HEALTH CARE INTEGRATION IN SOUTH  
AFRICA.**

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HEALTH CARE INTEGRATION IN SOUTH AFRICA.**

By

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A dissertation submitted to the Faculty of Health Sciences at The Durban  
Institute of Technology in partial compliance with the requirements for a  
Master's Degree in Technology: Chiropractic.

I, Jan Daniel Louw, do declare that this dissertation is representative of my  
own work in both conception and execution.

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## **DEDICATION**

I would like to dedicate this work to my late grandfather and namesake, Dr. Jan Daniel Louw, who passed away during the last year.

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- To The Almighty God, who gave me the talent and ability to become a chiropractor.
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## ABSTRACT

Health care integration is very important in the development of a balanced health care system. This integration is strongly associated with the levels of interprofessional communication. In the South African context, optimum health care integration has obvious health benefits for patients as well as improved cost-effectiveness.

The chiropractic profession is attempting to improve co-operation with the medical profession via the scientific validation of its theories and practice through research. The current perception in South Africa is that GP's do not really tend to refer patients to chiropractors. Therefore, as the current "gatekeepers" of primary healthcare, it is important to ascertain the perception and knowledge that this group has of the chiropractic profession in South Africa.

The purpose of this study is to develop an understanding of the perceived knowledge-related causes of low levels of interprofessional communication between GP's and chiropractors. This should establish a knowledge base to facilitate greater understanding and co-operation between GP's and chiropractors.

A postal survey was conducted on a random sample of 596 GP's in the 5 main metropolitan cities of South Africa. A response rate of 13,8% was achieved. Most of the respondents tended to be in the age group of 35-54 years and most were male (62,3%). Eighty percent of the participants responded that they knew something about chiropractic, and of these, almost 60% obtained their information from patients who were treated by a chiropractor. More than 75% of the sample thought that chiropractic could help selected patients or conditions, while only 25% felt it could not.

Forty three percent of the sample have communicated with a chiropractor via telephone or letter before. Of the GP's who have communicated with

chiropractors, 51,5% found it a positive experience. However, 75% of the sampled GP's said they would like the communication to be improved. Forty six percent of the GP's referred patients to chiropractors and then mostly at both the patient's request and on their own judgement. Of the referring respondents, 88,9% also referred patients for physical therapy to chiropractors for conditions like headaches, whiplash and low back pain and then mostly after 2 visits. All the respondents said they would like to receive a treatment feedback report.

Eighty two percent of the participants considered neck and shoulder pain, 79% cervicogenic headaches, 79% low back pain and 69% tension headaches appropriate conditions for chiropractors to treat. Participants felt that less than 15% of their patients use chiropractors for treatment and that less than 15% of the South African population use chiropractors. However, when they asked whether they would like more patients to see chiropractors, 51,6% responded that they would.

There was a statistically significant difference in mean scores between GP's who communicated with and referred patients to chiropractors to those who did not ( $p=0.001$ ). This study suggests that GP's who communicate or refer patients to chiropractors tend to have a higher degree of knowledge about chiropractic. Demographic factors did not significantly influence communication and referral between GP's and chiropractors. The only factor which was significantly associated with communication levels was area of practice. This study provides useful information which could influence future referral and collaboration between GP's and chiropractors in the South African health care system.

## LIST OF FIGURES

<b>Figure 1:</b> Percentage of Participants with Special Interest Areas (n=77).....	21
<b>Figure 2:</b> Sources of Information on Chiropractic (n=62).....	22
<b>Figure 3:</b> Histogram of the distribution of the Composite Knowledge Score (n=77) .....	23
<b>Figure 4:</b> Median rating per profession for importance in serving in a primary health care capacity .....	24
<b>Figure 5:</b> Median scores for role of Chiropractic in Health Care .....	25
<b>Figure 6:</b> Respondent's rating of communication (n=42) .....	26
<b>Figure 7:</b> Circumstances under which participants referred patients to chiropractors (n=36) .....	27
<b>Figure 8:</b> Timing of referral to chiropractors by respondents (n=33) .....	28
<b>Figure 9:</b> Percentage of respondents who agreed with chiropractic referral for specified conditions (n=77) .....	30
<b>Figure 10:</b> Mean Composite Knowledge score by area (n=77) .....	33
<b>Figure 11:</b> Communication with a chiropractor by area .....	34



## LIST OF TABLES

<b>Table 1:</b> Demographic Information on Study Participants (n=77) .....	20
<b>Table 2:</b> Views of participants on Chiropractic (n=77) .....	24
<b>Table 3:</b> Communication with a chiropractor (n=77) .....	26
<b>Table 4:</b> Responses to whether participants referred patients to chiropractors themselves (n=77) .....	27
<b>Table 5:</b> Participant's views on competency of chiropractors for neuromusculoskeletal diseases .....	29
<b>Table 6:</b> Participant's views on competency of chiropractors for general medical management .....	29
<b>Table 7:</b> Participants view of the percentage of the market share for chiropractors (n=74) .....	31
<b>Table 8:</b> Tests of Between-Subjects Effects for composite knowledge score .....	32
<b>Table 9:</b> Demographic factors and Communication with a chiropractor .....	34
<b>Table 10:</b> Mean composite knowledge score % by group (n=77) .....	35
<b>Table 11:</b> Mean composite knowledge score by group .....	35
<b>Table 12:</b> Results of t-test for difference in mean composite knowledge scores between groups .....	35

## TABLE OF CONTENTS

DEDICATION .....	i
ACKNOWLEDGEMENTS .....	ii
ABSTRACT .....	iii
LIST OF FIGURES .....	v
LIST OF TABLES .....	vi
TABLE OF CONTENTS .....	vii
CHAPTER ONE: INTRODUCTION	
<b>1.1 Background to the Study</b> .....	1
<b>1.2 Aims and Objectives of the Study</b> .....	2
<b>1.3 Chapter layout</b> .....	3
CHAPTER TWO: LITERATURE REVIEW	
<b>2.1 Introduction</b> .....	4
<b>2.2 General Practitioners' Knowledge about Chiropractic</b> .....	5
<b>2.3 The Role of Chiropractic in the Health Care System</b> .....	7
<b>2.4 Confusing Chiropractic Jargon</b> .....	8
<b>2.5 Interprofessional Communication between General         Practitioners and Chiropractors</b> .....	9
<b>2.6 The Scope of Practice of Chiropractic</b> .....	10
<b>2.7 Conclusion</b> .....	11

## CHAPTER THREE: METHODOLOGY

<b>3.1</b>	<b>Study design</b> .....	13
<b>3.2</b>	<b>Sampling</b> .....	13
<b>3.3</b>	<b>Delimitation</b> .....	14
<b>3.4</b>	<b>Inclusion criteria</b> .....	14
<b>3.5</b>	<b>Exclusion criteria</b> .....	15
<b>3.6</b>	<b>Data collection tool</b> .....	15
<b>3.7</b>	<b>Focus group</b> .....	16
<b>3.8</b>	<b>Pilot study</b> .....	16
<b>3.9</b>	<b>Confidentiality</b> .....	16
<b>3.10</b>	<b>Statistical methods</b> .....	17
	3.10.1 Scoring systems .....	17
	3.10.2 Descriptive analysis .....	17
	3.10.3 Analytical statistics .....	18
	3.10.4 Abbreviations .....	18

## CHAPTER FOUR: RESULTS

<b>4.1</b>	<b>Response Rate</b> .....	19
<b>4.2</b>	<b>Descriptive Analysis</b> .....	19
	4.2.1 Demographics .....	19
	4.2.2 Knowledge of Chiropractic .....	21
	4.2.3 Role of Chiropractic .....	23
	4.2.4 Communication .....	25
	4.2.5 The Scope of Practice .....	28
	4.2.6 Market Share .....	30
<b>4.3</b>	<b>Analytical Statistics</b> .....	31
	4.3.1 Demographic factors and knowledge .....	31
	4.3.2 Demographic factors and communication .....	33
	4.3.3 Knowledge and communication .....	35
<b>4.4</b>	<b>Summary of the Analytical Results</b> .....	36
	4.4.1 Limitations of the Study .....	36
	4.4.2 Strengths of the Study .....	36
<b>4.5</b>	<b>Summary of the Key Points</b> .....	37

## CHAPTER FIVE: DISCUSSION OF THE RESULTS

<b>5.1</b>	<b>Demographics</b> .....	38
<b>5.2</b>	<b>GP's knowledge about Chiropractic</b> .....	39
<b>5.3</b>	<b>The Role of Chiropractic in the South African Health Care System</b> .....	40
<b>5.4</b>	<b>Confusing Chiropractic Jargon</b> .....	41
<b>5.5</b>	<b>Interprofessional communication between GP's and Chiropractors</b> .....	41
<b>5.6</b>	<b>The Scope of Practice</b> .....	43
<b>5.7</b>	<b>The Market Share of Chiropractic</b> .....	44
<b>5.8</b>	<b>Limitations of the Study</b> .....	45

## CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

<b>6.1</b>	<b>Conclusion</b> .....	47
<b>6.2</b>	<b>Recommendations</b> .....	47

<b>LIST OF REFERENCES</b> .....	49
---------------------------------	----

<b>APPENDICES</b> .....	51
<b>Appendix A</b> .....	51
<b>Appendix B</b> .....	52
<b>Appendix C</b> .....	58
<b>Appendix D</b> .....	59
<b>Appendix E</b> .....	60
<b>Appendix F</b> .....	61
<b>Appendix G</b> .....	62

# CHAPTER ONE: INTRODUCTION

## 1.1 Background to the Study

Several studies in Europe, Canada and the USA indicate that communication between GP's and chiropractors is not ideal. Langworthy and Birkelid's (2001) study concluded that with increasing emphasis on multidisciplinary health care, greater understanding and better communication is needed in order for the patient to obtain optimum benefits.

The medical profession in the past has generally been opposed to the theories and practice of chiropractic, for a variety of reasons, including lack of scientific validity as well as unsubstantiated management utility (Silver, 1980). However, a Canadian study indicates that much progress has been made in diminishing the gap between GP's and chiropractors (Verhoef and Page, 1996).

Few studies have investigated GPs' knowledge, awareness and attitudes toward complementary and alternative health care providers, especially in relation to the balance between market rivalry and interprofessional care (Langworthy and Smink, 2000). One such study performed in the Netherlands by Brussee et al. (2001) found that a statistically significant relationship existed between the level of knowledge of chiropractic and the frequency of referral of patients by GP's. In the UK, it was found that many GP's were more comfortable in referring to physiotherapists because they felt they had a better understanding of the treatment involved (Breen, et al., 2000).

The chiropractic profession is attempting to improve co-operation with the medical profession via the scientific validation of its theories and practice through research (Rubens, 1996). The current perception in South Africa is that GP's do not tend to refer patients to chiropractors. This has implications for chiropractic in

the South African context in terms of integration. Therefore, as the current “gatekeepers” of primary healthcare, it is important to ascertain the perception and knowledge that this group has of the chiropractic profession in South Africa.

The purpose of this investigation was therefore to determine the current knowledge and perception of GP’s in South Africa of chiropractors and chiropractic treatment in general. This should establish a knowledge base to facilitate greater understanding and co-operation between GP’s and chiropractors.

## **1.2 Aims and Objectives of the study**

The aim of this study was to determine if knowledge about chiropractic influenced interprofessional communication between South African GP’s and chiropractors.

Before the study was undertaken, it was hypothesised that: A low level of knowledge about chiropractic exists amongst GP’s, which contributes toward a negative perception and lowers interprofessional communication.

The first objective was to establish the level of knowledge about chiropractic amongst South African GP’s, in terms of a questionnaire.

The second objective was to establish the degree of association between the level of knowledge of chiropractic and levels of communication between GP’s and chiropractors.

### **1.3 Chapter layout**

The rest of the thesis will be laid out in the following order. Chapter two will consist of a review of the current literature around the topic. This will include the five variables that were identified in the literature viz. General practitioners' knowledge about chiropractic; the role of chiropractic in the health care system; confusing chiropractic jargon; interprofessional communication between GP's and chiropractors; and the scope of practice of chiropractic.

Chapter three will cover the methodology used to capture the data. Chapter four follows with the results obtained during the study and the statistical analysis thereof. This chapter includes 11 figures and 12 tables that highlight important data.

The discussion of the data follows in chapter five. Headings in this chapter again represent the five variables mentioned earlier. Limitations of the study are also pointed out in this chapter.

The conclusion and recommendations that can be drawn from this study are laid out in chapter six. The list of references and appendices follow this chapter.

## **CHAPTER TWO: LITERATURE REVIEW**

In a review of the most recent literature, five variables were identified that in one way or another influenced the interprofessional communication between GP's and chiropractors in Europe, North America and Australasia. In this chapter, an attempt is made to integrate the literature with the identified variables.

### **2.1 Introduction**

Complementary medicine has been defined as that which works alongside and together with orthodox medicine (Langworthy and Birkelid, 2001). Patient use of and demand for complementary practitioners including chiropractors, has continued to increase over the last decade or so. Many patients are drawn towards complementary medicine because of its focus on holistic care, together with patient responsibility for health and well-being (Verhoef and Page, 1996).

The growing trend toward multidisciplinary health care and public demand for greater integration of orthodox and unorthodox medicine has made it clear that more frequent and meaningful interprofessional collaboration is necessary between GP's and chiropractors (Langworthy and Birkelid, 2001). The general practitioners play an important role in this aspect, as they often fulfill the role of a gatekeeper for patients entering the health care system (Verhoef and Page, 1996).

According to Brussee, et al. (2001), the number of chiropractors in the Netherlands has more than doubled in the past five years and there has been an increased public and political interest in chiropractic treatment. This increased interest was possibly caused by the large number of patients with low back pain, the increased economic burden placed on society by low back pain, patient



satisfaction with chiropractic treatment and reports of the cost-effectiveness of such chiropractic treatment.

There is a significant growth in the use of chiropractic care in the United States and Canada, and a growing recognition and acceptance of chiropractic care by the public, despite high and rising levels of co-payments (Manga, 2000). Other studies conducted in the USA suggest that visit rates of the general public to chiropractors have doubled over a recent 15 year period (Konrad, et al., 2003).

## **2.2 General Practitioners' Knowledge about Chiropractic**

When professionals are attempting to work together and communicate, they should be knowledgeable about one another's principles, formation, attitudes, qualifications and basic skills and they should try to discover the differences between individuals and groups of professionals (Brussee, et al. 2001). Few studies have investigated GP's knowledge, awareness and attitudes toward complementary and alternative health care providers, especially in relation to the balance between market rivalry and interprofessional care (Langworthy and Smink, 2000). Previous studies have shown that the majority of GP's do not know enough about chiropractic and are therefore hesitant to refer patients to them (Verhoef and Page, 1996; Breen, et al., 2000; Brussee, et al., 2001).

Langworthy and Birkelid's (2001) study showed that only 5% of GP's in Norway felt they had a good knowledge about chiropractic. Two thirds of them were interested to learn more about chiropractic, and the preferred method of learning was through scientific publications. The main areas of interest were: the indications for chiropractic treatment (75%), techniques (62%), effects and safety (60%) and the difference between chiropractic and manual therapy (52%). Pirota, et al. (2000) conducted a study in Australia and of the GP's surveyed, a

quarter to a third were interested in training in chiropractic, herbal medicine, naturopathy and vitamin and mineral therapy.

According to Verhoef and Page's study (1996), all GP's surveyed had some knowledge of chiropractic and the majority found it useful and effective for back and neck problems. It seems that a large proportion of Canadian GP's accepts chiropractic as a legitimate type of health care, mainly for musculoskeletal complaints. Despite this, only 44% of the surveyed GP's actually referred patients to chiropractors, and then mainly after conventional therapy had failed or at the patient's request. Chiropractic was not seen as a viable treatment option on the patient's initial consultation with a GP (Verhoef and Page, 1996). Another Canadian study indicated a considerable regional variation in GP's knowledge and referral behaviour due to numerous factors, including historical and political circumstances, ethnic traditions, availability and regional demand (Verhoef and Page, 1996).

According to Brussee, et al. (2001), most of the GPs' information about chiropractic (78%) came from patients who were treated by chiropractors. A recent study in Holland found that GP's preferred receiving information about chiropractic via presentations by chiropractors, scientific literature and correspondence with chiropractors about patients (Brussee, et al., 2001). Previous studies indicated that an important factor influencing GP's opinions about chiropractic appeared to be patient's experiences at chiropractor's practices. Patient experience, whether positive or negative, may bias GP's opinions toward chiropractic.

The chiropractors' views of musculoskeletal and non-musculoskeletal problems and their specific treatment approaches sometimes contradict the model used by GP's (Brussee, et al. 2001). This is supported by the fact that many GP's are more comfortable referring to physiotherapists because they feel they have a better understanding of the treatment involved (Breen, et al. 2000). Even though

chiropractic is a popular health care option in many countries, organised medicine remains sceptical of this health profession (Jamison, 1994).

A study conducted in the Netherlands by Brussee, et al. (2001) indicated that a statistically significant relationship exists between the level of knowledge about chiropractic and the frequency of referral of patients. The South African medical curriculum includes very little regarding complementary therapies. Pirotta, et al. (2000) found that 93% of GP's agreed that there should be some education on complementary therapies in core medical undergraduate curricula. Breen, et al. (2000) suggests that the underutilization of manipulation services by GP's might be due to the lack of attention to common musculoskeletal conditions in medical curricula.

### **2.3 The Role of Chiropractic in the Health Care System**

The precise role of chiropractic in health care continues to be disputed, as was found in Jamison's study in Australia, published in 1995. A number of Australian chiropractors continue to envisage a role for chiropractic care in patients with visceral complaints. This, despite the fact that the New Zealand Commission of Inquiry agreed some 25 years ago that modern chiropractic is a valuable branch of health care, but expressed reservation about the role and competence of chiropractors in the management of visceral conditions. According to Jamison, the popular use of chiropractic for various complaints including backache, arthritis, headache and asthma persists both in Australia and other countries (Jamison, 1995).

Verhoef and Page (1996) conducted a survey in two major Canadian cities, assessing GP's opinions and behaviours concerning chiropractic. It was found that complementary care was most often used as an adjunct to and not a replacement for conventional medicine. The majority of GP's who had a positive

view of chiropractors, did so because of feedback received, or results observed in patients or family members who received chiropractic care. Most GP's accepted chiropractic as a legitimate type of health care, mainly for musculoskeletal problems.

Although complementary medicine historically seemed to be in competition with conventional medicine, studies suggest that this was not the case. Patients showed a tendency to visit complementary practitioners in addition to conventional practitioners (Brussee, et.al., 2001).

GP's in the Netherlands and Norway perceived chiropractors to be primary health care professionals, mainly operating outside hospital settings (Langworthy and Smink, 2000; Langworthy and Birkelid, 2001). Relative to other complementary therapies, chiropractic seems to enjoy the widest acceptance among the medical community in Canada (Verhoef and Page, 1996). GP's who referred patients to chiropractors more frequently, were more in favour of considering chiropractic care appropriate for various "musculoskeletal" conditions (Jamison, 1995). Jamison's study also highlighted significant medical opposition toward chiropractic referral for care of visceral conditions. The only "visceral" condition that received support from Australian GP's as a referral option to chiropractors, was migraine.

## **2.4 Confusing Chiropractic Jargon**

The British Medical Association stated that the education and training of complementary practitioners is grounded in orthodox medicine, and thus shares a common language, allowing for close dialogue with medical colleagues (Langworthy and Birkelid, 2001).

The importance of sending a feedback report to the GP after treatment by the chiropractor was identified as very important in previous studies (Brussee, et al., 2001). These feedback reports influenced co-operation and communication between the two professions and demonstrated the responsibility of chiropractors (Brussee, et al., 2001). Chiropractic jargon used in these reports was one of the aspects that caused impaired communication between the two professions (Brussee, et al. 2001; Langworthy and Birkelid, 2001).

GP's had little knowledge of typical chiropractic terms such as *kinematic chain*, *myofascial trigger point*, *entrapment*, *coupled motion* and *viscerosomatic reflex*. More than 60% of the GP's thought the terms *adjustment*, *subluxation* and *fixation* were confusing (Breen, et al., 2000). However, less than 20% felt this about any of the physiotherapy terms covered. Twenty-seven percent of GP's objected to the use of such terminology because it negatively influenced the communication and did nothing to enhance understanding (Brussee, et al. 2001).

## **2.5 Interprofessional Communication between GP's and chiropractors**

Good communication between health care professionals is important in ensuring high standards of care. Previous studies however, showed that communication between primary health care professionals and secondary health care professionals as far from ideal (Brussee, et al., 2001). Bad experiences, the use of confusing terminology, stereotyping, and lack of knowledge seemed to be the major factors influencing the communication process (Brussee, et al., 2001).

GP's were also asked their opinions of feedback reports that they had received from chiropractors in the past (Langworthy and Birkelid, 2001). Ninety-nine percent of respondents wished to receive a report on the referral of a patient. A written format was favoured by 75% of the GP's. These reports should preferably be half a page long, as indicated by 69% of GP's. With regard to what

information should be contained in the report, GP's were interested in diagnosis, advice given, examination findings and treatment administered.

There is a reluctance by GP's to refer outside the sphere of conventional medicine, and when they do refer, it is as a last resort (Pirodda, et al., 2000). Patients use both conventional and complementary practitioners and shop around, using multiple services in their quest for wellness. In the Australian study by Pirodda, et. al. (2000), GP's appear to underestimate their patients' use of complementary therapies. In the Canadian study by Verhoef and Page, 58% of the GP's rated chiropractic "useful" to "very useful". However, only 44% referred patients to chiropractors, and then only when conventional treatment failed, or at the patient's request.

Langworthy and Smink (2000) found that GP's rarely co-operated with other professionals without a medical or physiotherapy background. Brussee, et al. (2001) on the other hand, found that although complementary medicine historically seemed to be in competition with conventional medicine, this was not the case in the Netherlands. Good communication between various health care professionals proved important in ensuring high standards of care.

## **2.6 The Scope of Practice of Chiropractic**

A significant segment of the general public prefers chiropractic care to medical care for low back pain. The usefulness of manipulation in the management of low back pain is well established and the cost-effectiveness of chiropractic care in cases of mechanical low back pain is achieving substantial scientific credibility (Jamison, 1995). A favourable environment is evolving for GP's and chiropractors willing to explore professional collaboration, whether in patient care or medical research.

Pasternak and Lehman (1999) evaluated GP's attitudes towards chiropractic care in a large health maintenance organization in the American South West. According to this study, chiropractic services functioned within a scope of practice that was limited to the diagnosis and treatment of neuromusculoskeletal conditions. It was also found that especially family practitioners were receptive to chiropractic treatment. The conditions most commonly referred to chiropractors by GP's were: low back pain, whiplash, neck pain, headaches, cervicobrachial neuralgia, sciatic neuralgia, degenerative joint disease, spinal subluxations, discopathy of the spine, scoliosis, spinal stenosis and myofascial pain syndromes.

Ninety seven percent of Norwegian GP's sampled agreed that referring patients to chiropractors for low back pain was appropriate. Referrals for neck and/or shoulder pain (59%), cervicogenic headaches (56%) and tension headaches (44%) were rated slightly lower as chiropractic referral options. These GP's also agreed that osteoporosis (84%), chronic asthma (71%), disc herniations or protrusions (61%) and sprains/strains (57%) were not options for chiropractic referral (Langworthy and Birkelid, 2001).

The majority of GP's in Alberta and Ontario found chiropractic generally useful and efficacious for back and neck problems (Verhoef and Page, 1996).

## **2.7 Conclusion**

It is clear from the previous studies regarding the interprofessional relationship between GP's and chiropractors in Europe, Australia, Canada and the United States, that there are quite a few areas that have to be worked on to improve this relationship. No such study has been conducted in South Africa yet, and the aim of this study was to evaluate how GP's knowledge about chiropractic influences their communication with chiropractors.

With the persistent interest of the local and international community in alternative health care and the continuing discourse about “unconventional” medicine in medical journals, increased referral from medical to chiropractic practitioners would seem likely (Jamison, 1994). The results of this study would give an indication as to whether chiropractors are being accepted by South African GP’s and whether meaningful interprofessional communication exists between the two professions.



## **CHAPTER THREE: Methodology**

### **3.1 Study design**

The design of this study was that of an attitudinal survey. A structured questionnaire (Appendix B) was used to collect the data.

### **3.2 Sampling**

Stratified sampling was used in this study. The sample was proportional to the size of the population of the GP's in the respective cities. Five hundred and ninety six GP's were identified in 5 major cities in South Africa, the number per city being according to population size. The cities involved were Johannesburg, Pretoria, Cape Town, Port Elizabeth and Durban.

According to the database administrator of SAMA, there were 4448 GP's in private practice in these cities (Telephonic communication, 17 May 2004). The budget allowed for 600 GP's to be sampled. Johannesburg and Pretoria were combined in this study because of their close proximity. The GP's in these two centres made up 57% of the overall sample. A stratification matrix was utilised to interpret returning questionnaires according to GP's years in practice and their geographical area.

A list of addresses of registered GP's was obtained from the Health Professions Council of South Africa (HPCSA). The whole register of GP's registered with HPCSA was bought in pdf. format. The amount of GP's to be targeted in each city was calculated according to the percentage of the overall GP population in South Africa present in the respective city. The final number of questionnaires

sent to each city was as follows: Johannesburg and Pretoria, 341; Cape Town, 153; Port Elizabeth, 30 and Durban, 72.

The questionnaires were mailed to randomly selected GP's via the Durban Institute of Technology mailing system. Accompanying the questionnaire was a covering letter that introduced the reader to the questionnaire, explained the study and assured anonymity and confidentiality. The sampling was done in such a way that proper representation of the population of GP's in each city, relevant to the total population, was sampled.

### **3.3 Delimitation**

The five major South African metropolitan cities viz Johannesburg, Pretoria, Cape Town, Durban and Port Elizabeth were selected. This was done to get a broader geographical representation within the South African context. These metropolitan cities were picked because it was assumed that GP's practicing within these cities would have had a greater chance of contact with chiropractic.

### **3.4 Inclusion criteria**

In order to be accepted for participation in the study, the GP's had to comply with the following criteria:

1. All subjects had to be medical practitioners in South Africa.
2. All subjects had to be working as GP's in one of the five selected cities.
3. All subjects had to be South African citizens.
4. All subjects had to have completed their medical training in South Africa.
5. All the critical questions identified prior to the mailing of the questionnaires had to be completed for those questionnaires to be analysed.

### **3.5 Exclusion criteria**

Participants were excluded from the study if they:

1. Did not comply with the above inclusion criteria.
2. Left their clinic, took extended leave, were seriously ill, moved overseas or were retired at the time of the study.

### **3.6 Data collection tool**

Jennifer M. Langworthy (M. Phil., Institute for Musculoskeletal Research & Clinical Implementation, Bournemouth, UK) developed and piloted a questionnaire that was used in studies in Norway and the Netherlands (Langworthy and Birkelid, 2001:577).

This questionnaire comprised 25 questions in 5 sections, covering GP demographics, knowledge of chiropractic, experience of previous communication and referral, terminology and educational material. The questions were predominantly closed, although a qualitative element was included in a small number of questions. Questions were phrased to elicit a response from the GP in relation to communications he/she might have had with a chiropractor.

This questionnaire was modified to suit South African conditions. The new questionnaire comprised 32 questions in 7 sections, covering personal data, knowledge about chiropractic, the role of chiropractic in the health care system of South Africa, confusing chiropractic jargon, interprofessional communication between GP's and chiropractors, the scope of practice of chiropractic and the market share of chiropractors in the South African health care system. Adaptation of the questionnaire was accomplished through the use of a focus group.

### **3.7 Focus group**

The focus group consisted of 2 GP's, 3 chiropractors and one person with statistical knowledge (Appendix C). This group gathered and discussed the questionnaire and the factors that it covered, to rule out any ambiguity and syntax difficulties. Relevant questions were included while some irrelevant questions were omitted.

### **3.8 Pilot study**

After the focus group was held, the changes suggested to the questionnaire were implemented. Ten GP's in Durban were approached to fill out the new questionnaire. This was done to see how long it took to complete the questionnaire and also to identify problem areas. Whilst completing the questionnaire, these GP's had no difficulties concerning ambiguity or syntax within the questionnaire. The pilot subjects were excluded from the main study.

Questionnaires were mailed to 596 GP's with an included business reply service envelope. These practitioners were randomly selected from the list of GP's registered with the HPCSA. Eight weeks were allowed for the returning of completed questionnaires.

### **3.9 Confidentiality**

Confidentiality was ensured through the following methods: Confidentiality was maintained as no names were revealed in the publication of the results. A coding system was used, where each questionnaire was numbered, and the identity of the GP was not revealed to the researcher. A neutral party (Faculty officer) received the returned questionnaires.

### **3.10 Statistical methods**

SPSS version 12 was used for analysis (SPSS Inc. Chicago, Ill).

#### **3.10.1 Scoring systems:**

The scoring system for knowledge of chiropractic was as follows: one point was assigned to each correct response from question 2.1 to 2.6, excluding 2.2. If the respondent gave one response for question 2.2 a score of 1 was added to their total, and if they gave two or more sources of information for 2.2, a score of 2 was added to their total.

Jargon score was compiled by summing together a score of 1 for each correct response to questions 4.1 to 4.4. A score of 4 was the maximum. Raw scores were converted into percentages by dividing the raw score by 4 (maximum possible raw score) and multiplying by 100.

Composite knowledge scores were combined by summing the jargon score/100 and the knowledge raw score. Thus if a respondent got 100% for the jargon, a score of 1 was added to his knowledge raw score, etc. The composite knowledge raw score was converted to a percentage as described above (denominator = 13).

#### **3.10.2 Descriptive analysis:**

Categorical variables were presented in frequency tables showing percentages, or in bar charts. Continuous variables were summarized using means and standard deviations or medians and inter-quartile ranges as appropriate.

### **3.10.3 Analytical statistics:**

Univariate analysis of variance (ANOVA) was used to assess between subject effects of factors and covariates on continuous outcomes. Chi square tests or Fisher's exact tests were used to examine associations between categorical dependant and exposure variables as appropriate. Student's t-tests were used to test for mean differences between two groups of respondents for normally distributed quantitative outcomes.

### **3.10.4 Abbreviations:**

SD- standard deviation

ANOVA – analysis of variance

## **CHAPTER FOUR: RESULTS**

### **4.1 Response rate**

596 questionnaires were mailed to general practitioners. Of these, 29 questionnaires were returned unopened because the intended recipients had: changed address (n=18), emigrated (n=5), retired (n=2), specialized (n=2), or were deceased (n=2). A further 8 questionnaires were returned incomplete and thus not used in the study. Thus out of a possible 559 participants in the study, 77 general practitioners completed and returned useable questionnaires. This was a response rate of 13.8%.

### **4.2 Descriptive analysis**

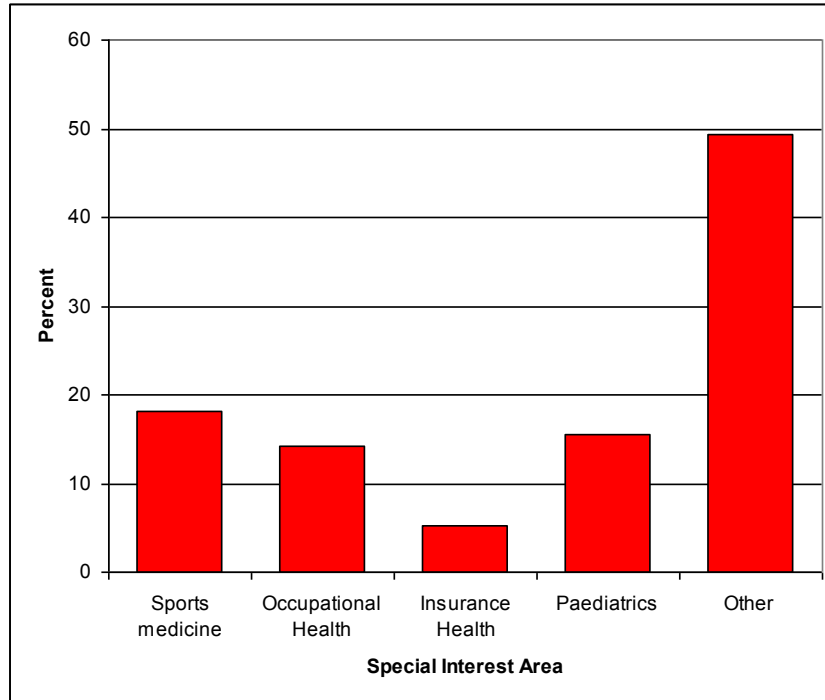
#### **4.2.1 Demographics**

The demographic information of the 77 participants in the study is shown in Table 1. Half the questionnaires received were from the Johannesburg and Pretoria areas. A larger percentage (62.3%) of participants were male than female (37.7%). Most of the participants tended to be in the age group of 45-54 years (32.5%). The respondents had mostly been practicing for more than 21 years, and most were in solo practice. Those practicing in suburban areas comprised 55.8% of the sample, and 57.1% had a further qualification.

**Table 1: Demographic Information on Study Participants (n=77)**

		Frequency	Percent
Area	Cape Town	21	27.3
	Durban	10	13.0
	Johannesburg and Pretoria	39	50.6
	Port Elizabeth	7	9.1
Gender	male	48	62.3
	female	29	37.7
Age group	<=34	14	18.2
	35-44	23	29.9
	45-54	25	32.5
	>=55	15	19.5
Length of time practicing	0-10	22	28.6
	11-20	24	31.2
	>=21	31	40.3
Type of practice	Solo practice	32	41.6
	Partnership	10	13.0
	Group practice	9	11.7
	Health Care Centre	19	24.7
	Corporate/Industrial environment	7	9.1
Where practicing	CBD	32	41.6
	Suburban area	43	55.8
Other Qualifications	Yes	44	57.1
	no	33	42.9



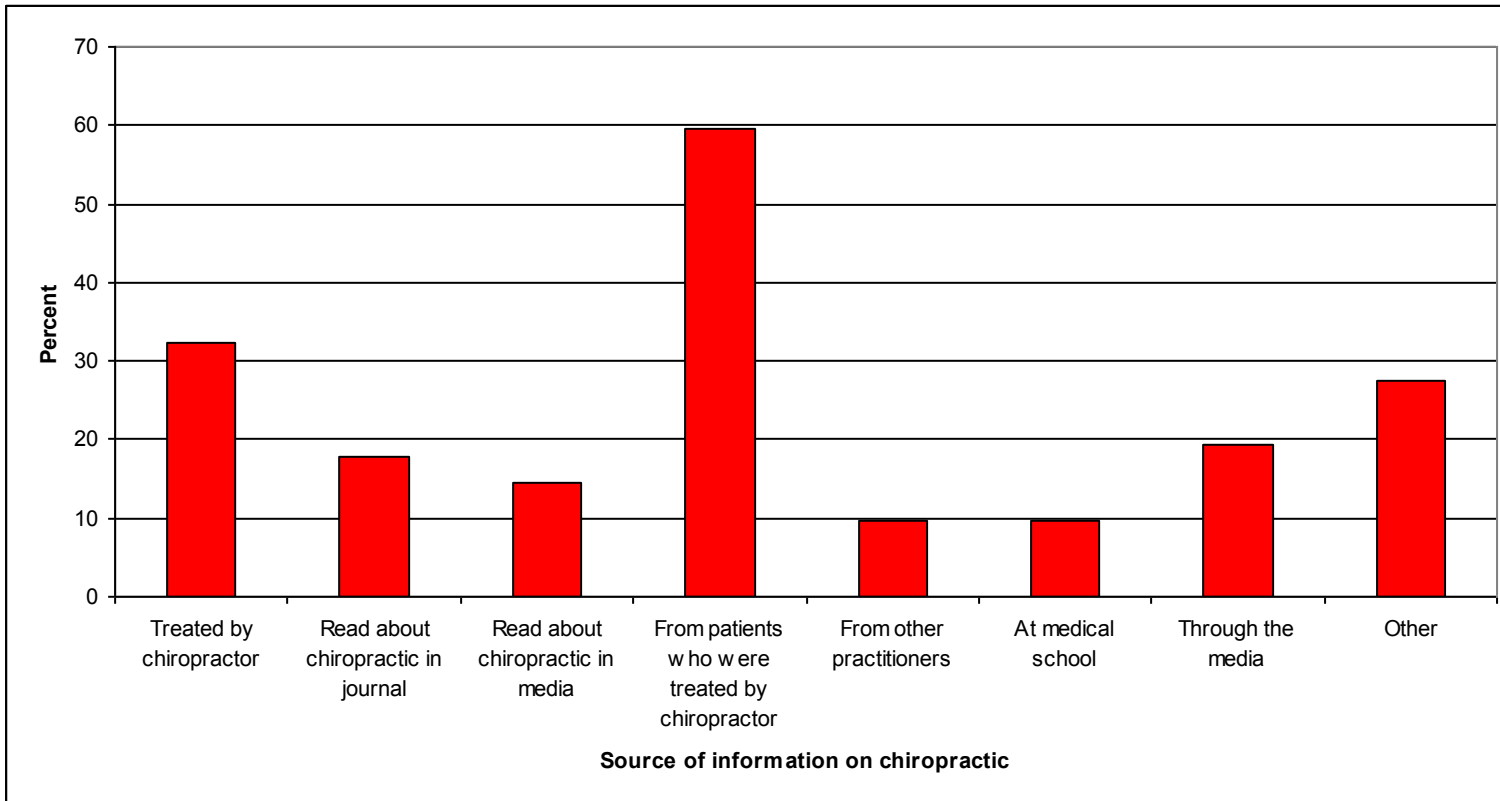


**Figure 1: Percentage of Participants with Special Interest Areas (n=77)**

Figure 1 shows the percentage of participants who had special interests. Sports medicine, occupational health and pediatrics each comprised less than 20% of the sample, while insurance health was an interest of only about 5%. Almost 50% of the sample expressed some other interest.

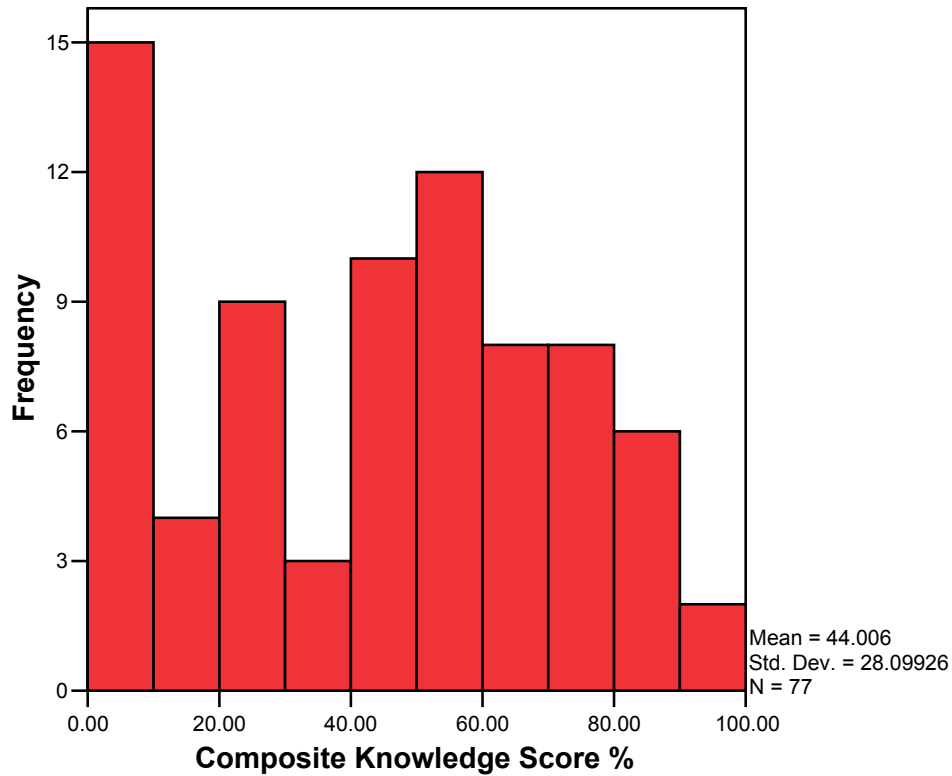
#### **4.2.2 Knowledge of Chiropractic**

Most of the participants (80.5% (n=62)) responded that they knew something about chiropractic. The remainder (n=15, 19.5%) said they did not know anything about chiropractic. Of those who said they knew something about chiropractic, the sources of their knowledge are shown in Figure 2. Almost 60% obtained their information from patients who were treated by a chiropractor. More than 30% were treated by a chiropractor themselves and thus experienced being a patient.



**Figure 2: Sources of Information on Chiropractic (n=62)**

The mean composite knowledge score was 44% (SD 28.1%). The distribution for all participants is shown in Figure 3. The lowest score was 0% and the highest score was 90.4%.



**Figure 3: Histogram of the distribution of the Composite Knowledge Score (n=77)**

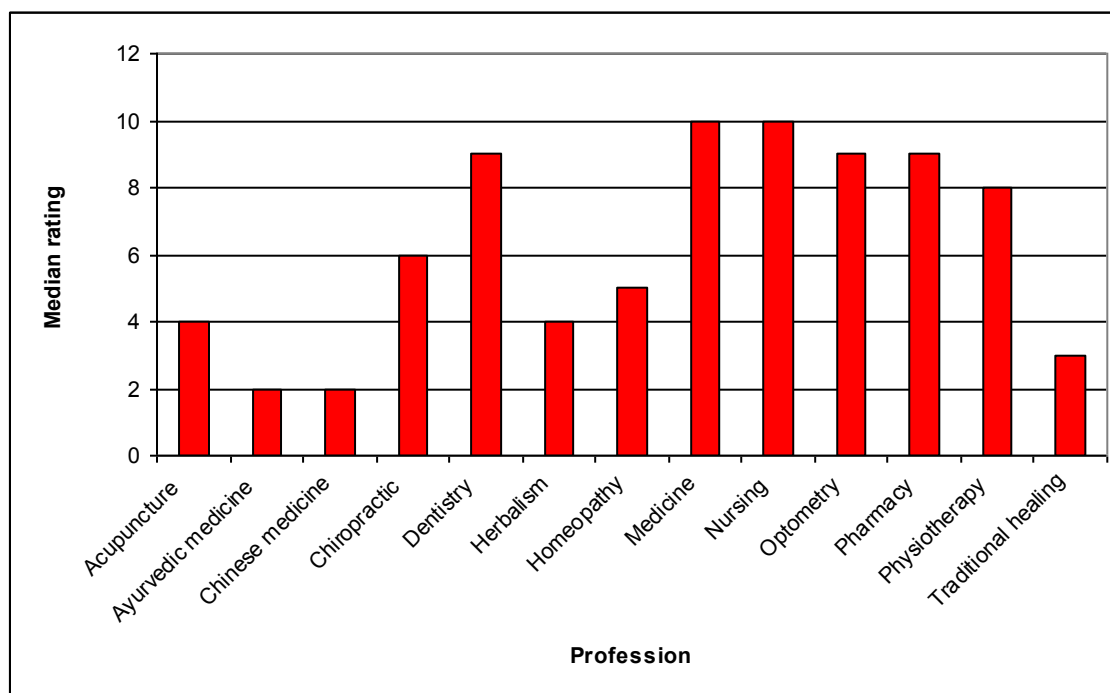
#### **4.2.3 The Role of Chiropractic in the Healthcare System**

One third of the participants thought that chiropractic was effective for some neuro-musculoskeletal conditions, while 27% felt it may be effective for some patients. Fifteen percent thought it may be effective for some neuro-musculoskeletal and visceral conditions, while 13% were uncomfortable with it and 10% did not know enough to comment. Thus, more than three quarters of the sample thought that chiropractic could help selected patients or conditions, while only one quarter felt it could not help. This is shown in Table 2.

Figure 4 shows the median rating given by the participants for each profession listed in serving in a primary health care capacity. Medicine and nursing received a median rating of 10 (most important). Dentistry also scored a high median. Chiropractic received a median rating of 6, while the professions with the lowest rating were Chinese medicine and Ayurvedic medicine (median =2).

**Table 2: Views of participants on Chiropractic (n=77)**

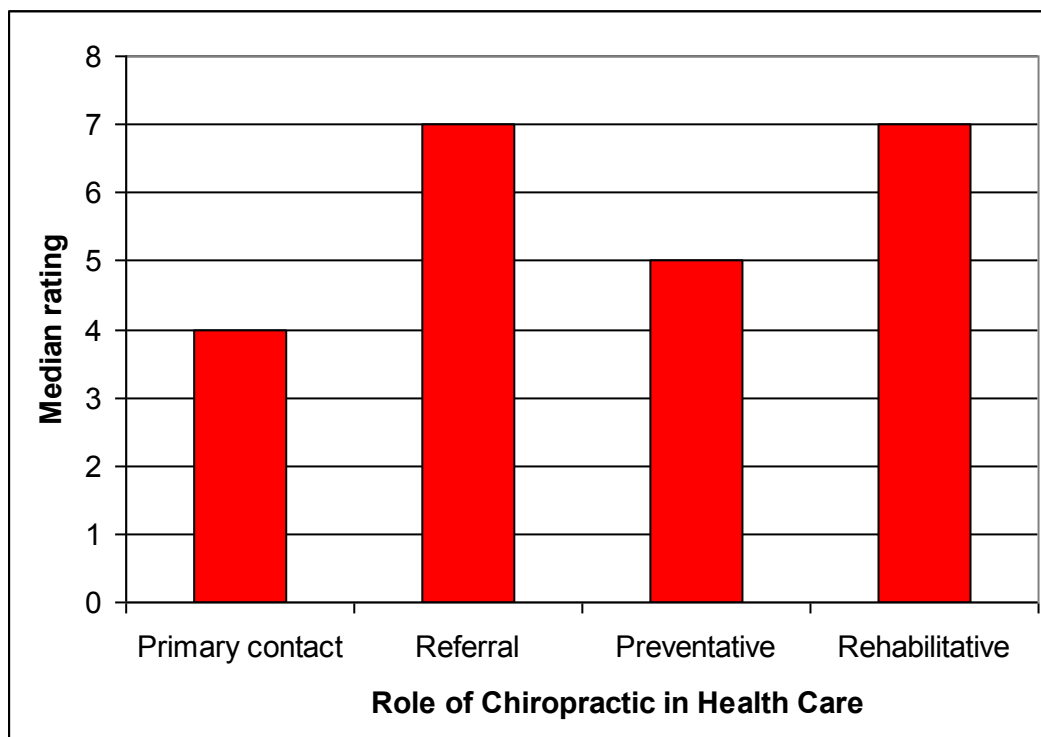
	Frequency	Percent
not informed enough to comment	8	10.4
Uncomfortable with it	10	13.0
May be effective for some patients	21	27.3
Effective for some neuro-musculoskeletal conditions	26	33.8
Effective for neuro-musculoskeletal and visceral conditions	12	15.6
Total	77	100.0



**Figure 4: Median rating per profession for importance in serving in a primary health care capacity**

The median rating for the roles of chiropractic in health care is shown in Figure 5. Referral and rehabilitative roles each scored a median of 7/10 and were seen as the most important roles of chiropractic by the participants. The

practitioners did not score the preventative and primary contact roles as very important (median scores of 5 and 4 respectively).



**Figure 5: Median scores for role of Chiropractic in Health Care**

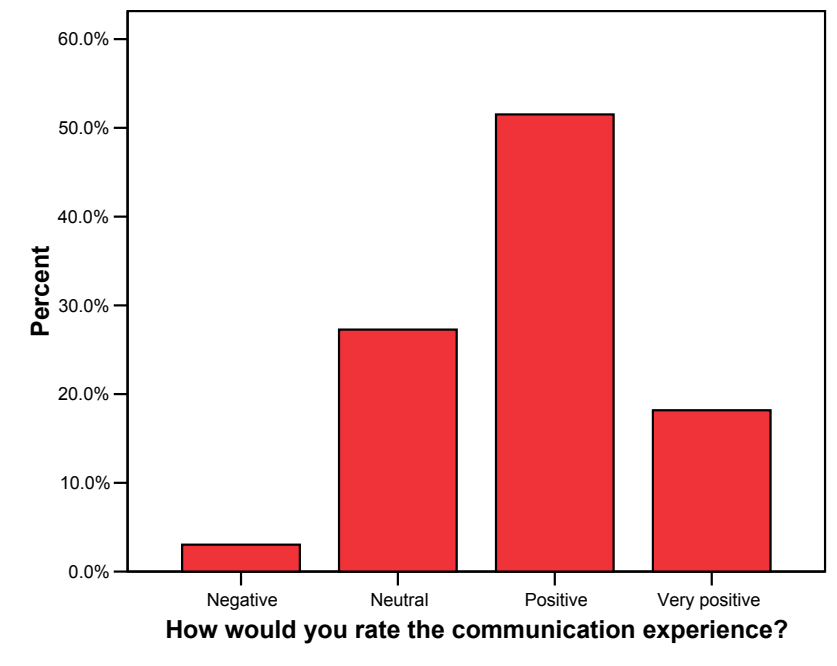
#### **4.2.4 Communication between GP's and Chiropractors**

Of the sample, 43% (n=33) have communicated with a chiropractor by telephone or letter. This is shown in Table 3. Of those who said they have communicated with a chiropractor, 3 (9%) said that they have communicated often, while 30 (91%) said they do not communicate often with a chiropractor. Of the 44 respondents who had not communicated with a chiropractor before, only 20 responded to the follow up question about whether they were interested in communicating with a chiropractor. Of the 20 respondents, 65% said they would be willing to communicate with a chiropractor, and 35% (n=7) said they were not interested.

**Table 3: Communication with a chiropractor (n=77)**

	Frequency	Percent
yes	33	42.9
no	44	57.1
Total	77	100.0

Respondents who had communicated with chiropractors were asked to rate this communication experience. Of the 33 who had communicated with chiropractors, the majority (51.5%, n=17) found it positive. Only 1 respondent found it a negative experience. This is shown in Figure 6.



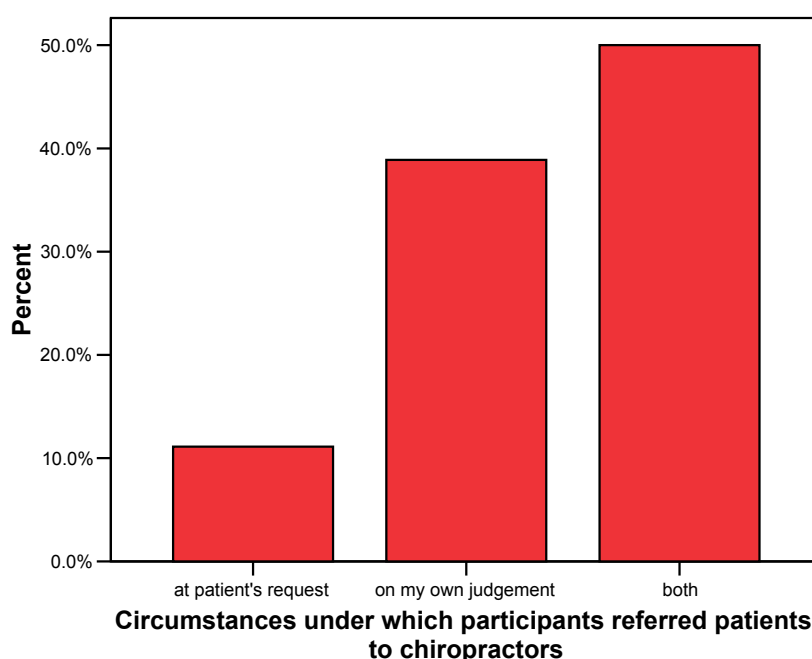
**Figure 6: Respondent's rating of communication (n=42)**

Of those respondents who had communicated with chiropractors, 78.8% (n=26) felt they would like the communication to be improved, while of those who had not communicated with chiropractors, 71% (n=22) responded that they would like the communication improved. Thus, of those who answered the question, 75% (n=48) said they would like the communication improved.

There were 36 participants (46.8%) who referred patients to chiropractors. This is shown in Table 4.

**Table 4: Responses to whether participants referred patients to chiropractors themselves (n=77)**

	Frequency	Percent
yes	36	46.8
no	41	53.2
Total	77	100.0

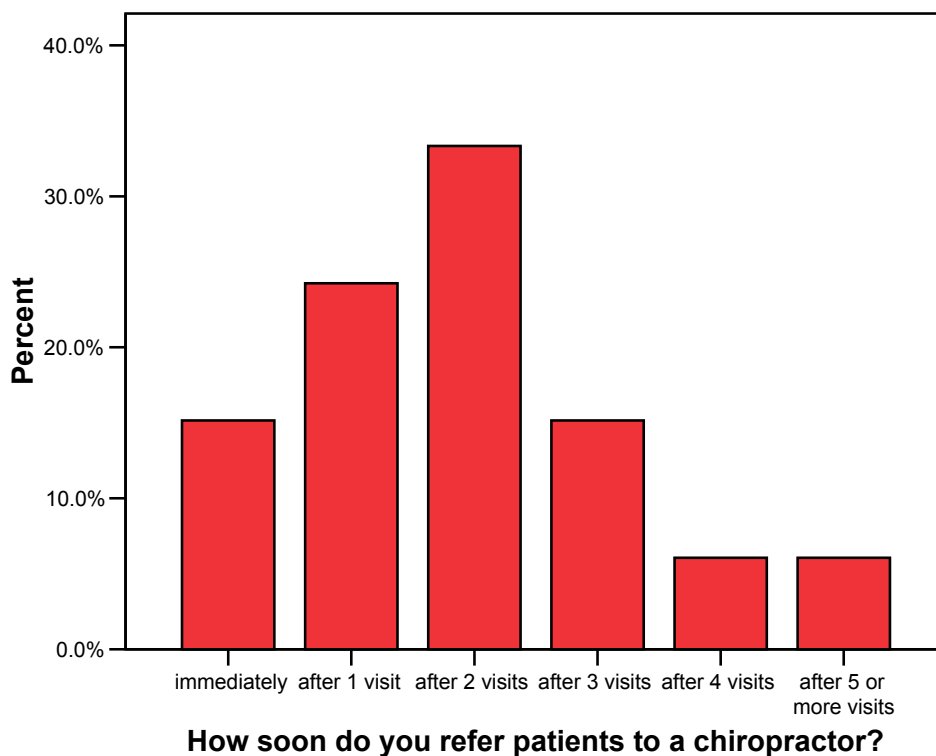


**Figure 7: Circumstances under which participants referred patients to chiropractors (n=36)**

The circumstances under which GP's referred their patients is shown in Figure 7. In 50% of the referring participants, this was at both the patient's own request and on their own judgment. Only 10% referred at the patient's request.

Of the referring respondents, 32 (88.9%) also referred patients for physical therapy to a chiropractor for conditions like headaches, whiplash and low back pain.

33 of the referring respondents answered the question on how soon they refer their patients to a chiropractor. Their responses are shown in Figure 8. They mostly referred after 2 visits.



**Figure 8: Timing of referral to chiropractors by respondents (n=33)**

53.6% of those who had referred a patient to a chiropractor had received a treatment feedback report from the chiropractor. All the participants said they would like to receive such feedback in future.

#### **4.2.5 The Scope of Practice**

Respondents were asked to what extent they believe chiropractors to be competent in neuromusculoskeletal examination and diagnosis. The median response was “moderately competent”. The distribution of responses is shown in Table 5.



**Table 5: Participants' views on competency of chiropractors for neuromusculoskeletal diseases**

	Frequency	Percent
very competent	13	16.9
moderately competent	26	33.8
competent	27	35.1
incompetent	9	11.7
very incompetent	2	2.6
Total	77	100.0

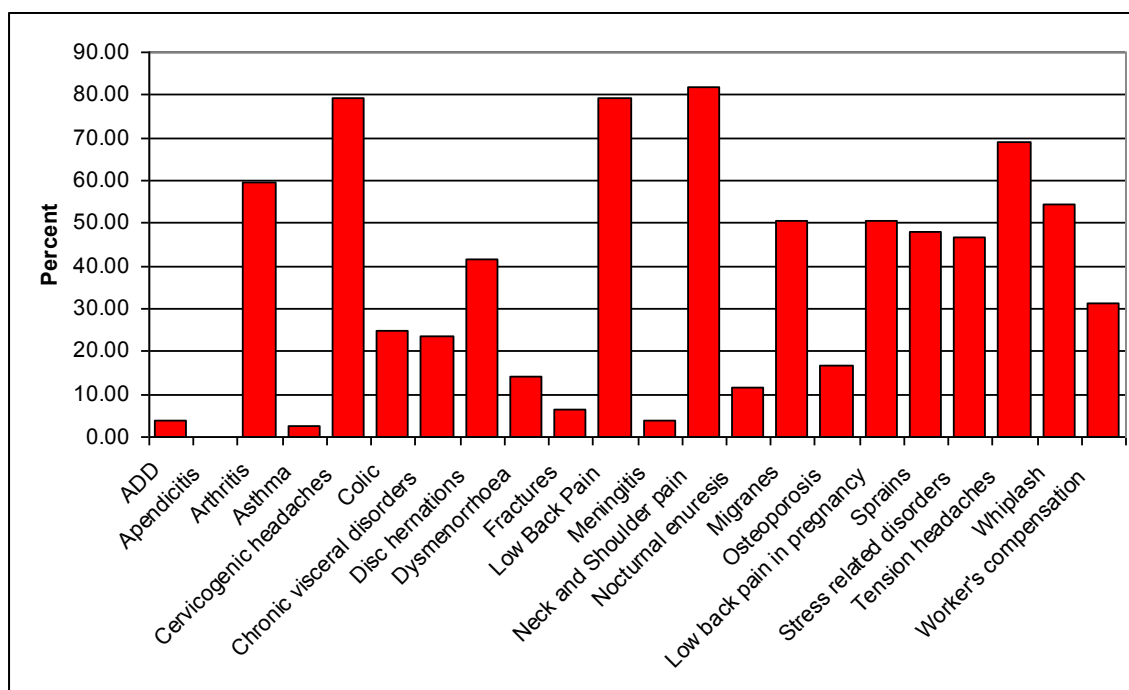
Participants rated the competency of chiropractors in general medical management of patients. The median rating was “competent”, although the mode was “incompetent”. The distribution of ratings is shown in Table 6.

**Table 6: Participants' views on competency of chiropractors for general medical management**

	Frequency	Percent
very competent	3	3.9
moderately competent	9	11.7
competent	30	39.0
incompetent	31	40.3
very incompetent	4	5.2
Total	77	100.0

44.2% (n=34) thought it could be useful for patients to see chiropractors on a regular basis to prevent onset of recurrent conditions.

Respondents were asked which conditions they felt were appropriate for chiropractic referral. The percentage who agreed with referral for each condition is shown in Figure 9. Eighty two percent considered neck and shoulder pain, 79% cervicogenic headaches, 79% low back pain and 69% tension headaches appropriate conditions for chiropractors to treat.



**Figure 9: Percentage of respondents who agreed with chiropractic referral for specified conditions (n=77)**

#### **4.2.6 The Market Share of Chiropractic**

Participants were generally of the opinion that chiropractors had a low market share. They mostly felt that less than 15% of their patients use chiropractors for treatment (70.3%), and less than 15% of the South African population uses chiropractors (55.4%). This is shown in Table 7.

**Table 7: Participants view of the percentage of the market share for chiropractors (n=74)**

		Frequency	Percent
What percentage of your patients visits chiropractors for treatment?	0-15%	52	70.3
	16-30%	14	18.9
	31-45%	7	9.5
	46-60%	1	1.4
	Total	74	100.0
What percentage of the South African population visit chiropractors?	0-15%	41	55.4
	16-30%	25	33.8
	31-45%	7	9.5
	46-60%	1	1.4
	Total	74	100.0

However, when asked whether they would like more patients to see chiropractors, 51.6% responded positively.

### **4.3 Analytical statistics**

In this section three null hypotheses were tested:

1. There is no association between demographic factors and knowledge of chiropractic among GPs;
2. There is no association between demographic factors and communication between GPs and chiropractors;
3. There is no association between knowledge of chiropractic and communication between GPs and chiropractors.

#### **4.3.1 Demographic factors and knowledge**

This null hypothesis was not rejected. No evidence was found of any of the demographic factors being associated with the composite knowledge score. Thus, demographic factors did not explain the variability in the knowledge

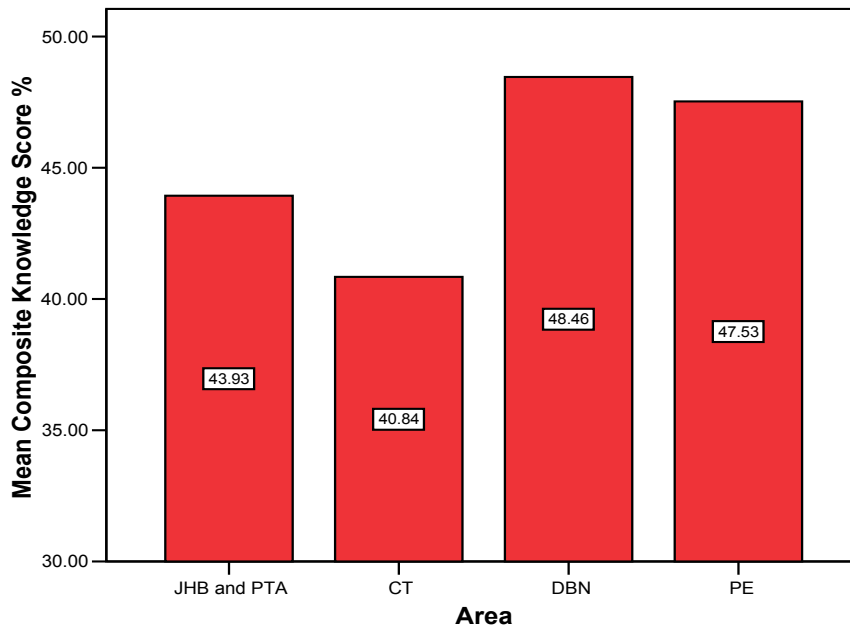
scores between the participants. The results of the ANOVA are shown in Table 8.

**Table 8: Tests of Between-Subjects Effects for composite knowledge score**

Source	Type III Sum of Squares	df	Mean Square	F	p value
Corrected Model	5637.361(a)	15	375.824	.421	.967
Intercept	57090.155	1	57090.155	64.027	.000
Gender	3.980	1	3.980	.004	.947
Area	697.936	3	232.645	.261	.853
Age group	2173.415	3	724.472	.812	.492
Length of practicing	710.504	2	355.252	.398	.673
Type of practice	2103.782	4	525.946	.590	.671
Where (CBD/suburban)	397.456	1	397.456	.446	.507
Additional qualifications (yes/no)	1269.516	1	1269.516	1.424	.238
Error	52607.906	59	891.659		
Total	205994.822	75			
Corrected Total	58245.266	74			

a R Squared = .097 (Adjusted R Squared = -.133)

Of particular interest was the area from which the participant came. The mean composite knowledge score by each area is shown in Figure 10. There was no significant difference between the mean scores by area ( $p=0.853$ ), although Durban based practitioners had the highest scores in this sample, and Cape Town the lowest scores.



**Figure 10: Mean Composite knowledge score by area (n=77)**

#### **4.3.2 Demographic factors and Communication**

To test this hypothesis, two indicators of communication were chosen. These were: “Have you ever communicated with a chiropractor by telephone or letter?” (Question 5.1) and “Do you refer patients to a chiropractor/” (Question 5.4).

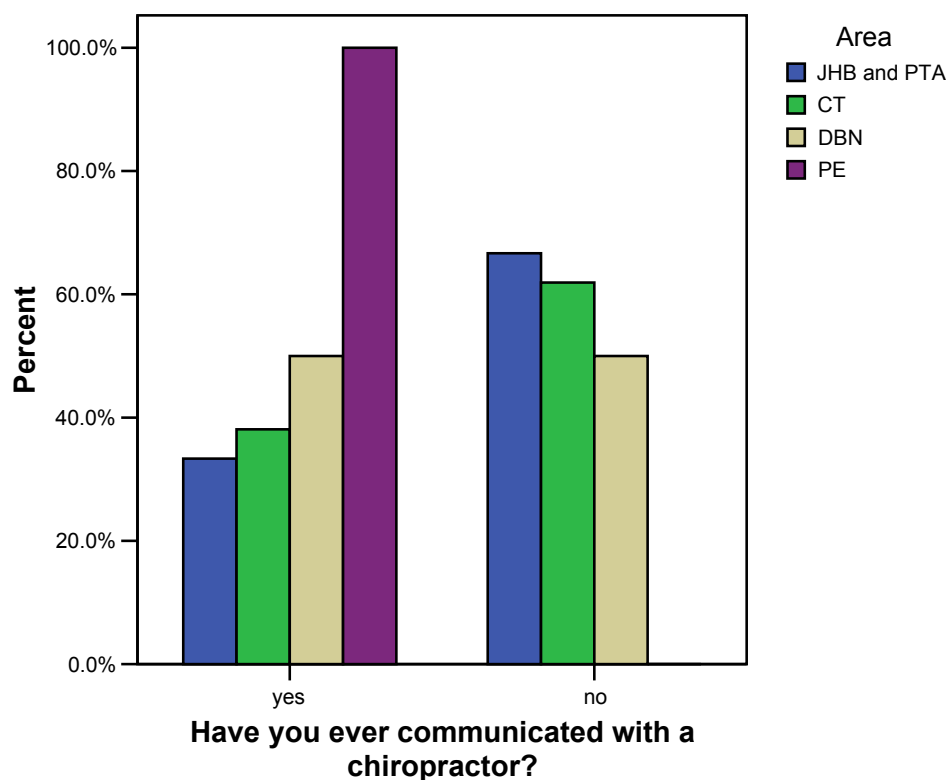
Table 9 shows the results of chi square and Fisher’s exact tests on the demographic variables and outcomes. The only factor which was significantly associated with ever communicating with a chiropractor was area ( $p=0.011$ ). Examination of the plot in Figure 11 shows that the 4 areas had different proportions of respondents who communicated with chiropractors. Port Elizabeth had the highest proportion of communication (100%), while Johannesburg and Pretoria had the lowest (33.3%). No demographic factors were associated with referral of patients. Thus the variability in communication with chiropractors cannot be explained by demographic factors, except to a certain extent the area in which they practice.

**Table 9: Demographic factors and Communication with a chiropractor**

	“Have you ever communicated with a chiropractor?”		Do you refer patients to a chiropractor?	
	Chi square	p value	Chi square	P value
Area	11.181	0.011*	3.099	0.377
Gender	2.655	0.103	2.814	0.093
Age group	1.846	0.605	0.461	0.927
Length of time practicing	3.239	0.198	0.604	0.739
Type of practice	6.574	0.160	6.826	0.145
Where (CBD/suburban)		0.816#		0.815#
Other qualifications		0.817#		0.645#

\* Statistically significant at the 0.05 level

# Fisher’s exact p value used



**Figure 11: Communication with a chiropractor by area**

### 4.3.3 Knowledge and Communication

To test this hypothesis, mean composite knowledge score was compared between the two independent groups (those who had communicated with a chiropractor and those who had not; and those who had referred patients to chiropractors and those who had not) using t-tests since composite knowledge score was normally distributed. The mean knowledge score for each group is shown in Tables 10 and 11. It can be seen that those who said “yes” in each question had higher knowledge scores than those who said “no”.

**Table 10: mean composite knowledge score % by group (n=77)**

Communicated with chiropractor	Mean	N	Std. Deviation
yes	59.2075	33	21.84596
no	32.6049	44	27.01860
Total	44.0060	77	28.09926

**Table 11: Mean Composite Knowledge Score % by group**

Referred patients to chiropractor	Mean	N	Std. Deviation
yes	54.8077	36	25.08860
no	34.5216	41	27.42645
Total	44.0060	77	28.09926

Mean composite knowledge scores were compared in each category. There was a highly statistically significant difference in mean scores between the two groups for each indicator ( $p=0.001$ ). This is shown in Table 12

**Table 12: Results of t-test for difference in mean composite knowledge scores between groups**

	t	df	p value
Communicated with chiropractor	4.631	75	<0.001*
Referred patients to chiropractor	3.369	75	0.001*

\* statistically significant at 0.05 level.

## 4.4 Summary of the Analytical Results

Demographic factors did not influence knowledge of chiropractic, and demographic factors also did not influence communication, except to a certain extent the area from which the practitioner came. Knowledge was highly significantly associated with communication. However, due to the design of the study being cross-sectional, we cannot say whether knowledge influenced communication or communication influenced knowledge.

### 4.4.1 Limitations of study

**Low response rate:** may have biased the study towards more extreme (negative or positive) outcomes, as those with an interest in the topic, or very strong views would be likely to participate. Those with neutral views may not have participated. Thus one cannot extrapolate the results to the whole country.

**Study design cross-sectional:** exposures and outcomes measured at the same point in time, therefore we cannot be certain if knowledge influenced communication or communication influenced knowledge (reverse causality).

### 4.4.2 Strengths of the Study

Different areas were represented. This study tried to get representation from different provinces, thus is more generalisable to South Africa than just a study in KwaZulu-Natal.

**Future studies:** This study provides useful information which could influence future referral and collaboration between GPs and chiropractors as it has shed light on the knowledge aspect being very important in this collaboration. Intervention programmes to educate and increase awareness of chiropractic amongst medical practitioners should take place.



#### **4.5 Summary of the Key Points**

Of the participants who replied to the survey, 80.5% knew something about chiropractic, and almost 60% of those obtained their information from their patients who were treated by a chiropractor. More than three quarters of the sample thought that chiropractic could help selected patients or conditions, mainly neuro-musculoskeletal, while only one quarter felt it could not help. As expected, the professions of medicine, nursing and dentistry received a higher rating than chiropractic. The chiropractor's most important role in health care was seen as that of referral and rehabilitation.

Forty three percent of the sampled GP's had communicated with a chiropractor via telephone or letter before, but only 9% did so on a regular basis. Of the GP's who have communicated with chiropractors, 51.5% found it positive and 75% of the respondents wanted the communication to be improved. Forty six percent referred patients to chiropractors and 50% of these referring GP's did so on both the patient's own request and on their own judgement. When they did refer, it was mostly after two visits. Just over half of the referring GP's received a treatment feedback report, but 100% of them would like such a report in future.

GP's rated chiropractors moderately competent in neuromusculoskeletal examination and competent in general medical management of patients. Interestingly, 44.2% thought it could be useful for patients to see chiropractors on a regular basis to prevent the onset of recurrent conditions. Neck and back problems, as well as headaches were considered by the majority of GP's as appropriate conditions for chiropractors to treat. Although GP's generally thought chiropractors had a low market share, 51.6% did not mind that more of their patients saw chiropractors for treatment.

## CHAPTER FIVE: DISCUSSION

### 5.1 Demographics

In order to achieve a true representation of the different areas, the researcher aimed to receive a similar returning percentage compared to the percentage of mailed questionnaires from each of the different areas. The mailed questionnaires were returned in a more or less representative fashion. This was illustrated by the following: 57% of the questionnaires were sent to Johannesburg and Pretoria and 50,6% of the returned questionnaires were from this area; 26% were sent to Cape Town and 27,3% were returned from there; 5% were sent to Port Elizabeth and 9,1% were returned from there and 12% were sent to Durban and 13% were returned from this area.

A larger proportion of the respondents were male (62,3%) than female (37,7%), most of them between the ages of 45-54 years and their time in practice was 21 years or more. Brussee, et al. (2001) found the male:female ratio a lot higher in the Netherlands, with 89% of the respondents being male. In a study done in Norway (Langworthy and Birkelid, 2001), 67% of the respondents were male. Most of the respondents in these two studies were also between the ages of 40-50 years viz 40% (Langworthy and Birkelid, 2001) and 52% (Brussee, et al., 2001).

The biggest proportion of GP's worked in a solo practice (41,6%) while the next most common setting was in a health care centre (24,7%). In the Netherlands, Brussee, et al. (2001) found 50% worked in a solo practice, followed by 25% in a partnership and only 10% in a health care centre.

The most common special interests of the participating GP's were Sports medicine (18%) and Paediatrics (16%). Under the heading of "Other" the following interests were most common: Anaesthetics (8%), HIV/AIDS (8%), Emergency medicine/trauma (5%), Tropical/travel medicine (4%) and Internal medicine (4%).

## 5.2 GP's knowledge about Chiropractic

Most of the South African GP's (80,5%) knew something about chiropractic. Almost 60% of the participants' knowledge came from their patients who had been treated by chiropractors. This was supported by previous studies that found the same pattern (Verhoef and Page, 1996; Langworthy and Smink, 2000; Brussee, et al., 2001; Langworthy and Birkelid, 2001). Almost a third of the participants themselves had been treated by a chiropractor, and thus had the opportunity of gaining first hand experience of what chiropractic treatment is about. Nineteen percent of the participants claimed to have received their knowledge through the media.

Another 18% of the participants gained their knowledge about chiropractic by reading scientific journals. Langworthy and Smink (2000) suggested that one way to increase awareness between professions would be through the use of journals. Chiropractic research is more often being published in multidisciplinary publications, resulting in a possible gain in knowledge by GP's who read more broadly. Daams (Brussee, et al., 2001) conducted a survey and found that GP's preferred to receive information about chiropractic through such things as presentations by chiropractors, scientific literature and correspondence with chiropractors about patients.

The mean composite knowledge score of the sampled GP's was 44%. This meant that out of a total score of 100, the average GP scored 44 out of 100 for his/her knowledge about chiropractic. When the composite knowledge scores of each area were compared, there was no significant difference between the different areas ( $p=0,853$ ). Durban-based GP's had a higher composite knowledge (48,46) about chiropractic than did the others. CapeTown GP's had the lowest score (40,84). The fact that Durban-based GP's had a higher composite knowledge score might be linked to a higher exposure to chiropractic due to the presence of the first chiropractic college in South Africa being situated at the Durban Institute of Technology, as well as a high density of chiropractors in this area.

### **5.3 The Role of Chiropractic in the South African Health Care System**

In the questionnaire, the participants were asked to pick a statement that best reflected their views on chiropractic. Fifteen percent of the GP's thought that chiropractic treatment might be effective for some neuro-musculoskeletal and visceral conditions. One third of them thought that chiropractic was effective for some neuro-musculoskeletal conditions, 27% felt it might be effective for some patients, while 13% were uncomfortable with chiropractic and 10% did not know enough to comment. Thus, more than 75% of the sample thought that chiropractic could help selected conditions or patients. This is supported in the literature, as most Canadian GP's accepted chiropractic as a legitimate treatment, mainly for musculoskeletal conditions (Verhoef and Page, 1996).

GP's were asked to rate 13 professions in terms of their importance in serving in a primary health care capacity in South Africa. Medicine and nursing were rated as most important, closely followed by pharmacy, optometry and dentistry. Physiotherapy scored a median rating of 8 while chiropractic scored a median of 6. Of the complementary therapies listed, including acupuncture, Ayurvedic medicine, Chinese medicine, herbalism, homeopathy and traditional healing, chiropractic received the highest rating. This correlates with results found in Canada where chiropractic, relative to other complementary therapies, also enjoyed the widest acceptance among the medical community (Verhoef and Page, 1996). Ayurvedic and Chinese medicine were rated the lowest by South African GP's.

The participants were also asked to rate the role of chiropractic in the health care system. The most important roles for chiropractic - according to South African GP's - were those of referral and rehabilitation. Preventative and primary contact roles were seen as less important by the participating GP's. This contradicted results found in the Netherlands and Norway where chiropractors were perceived as primary health care professionals (Langworthy and Smink, 2000; Langworthy and Birkelid, 2001).

#### **5.4 Confusing Chiropractic Jargon**

Chiropractic jargon used in feedback reports was one of the aspects causing impaired communication between GP's and chiropractors (Brussee, et al., 2001). The participants in this study were given four chiropractic terms with four or five different meanings for each, and then asked to tick the most appropriate boxes. The terms were *adjustment*, *manipulation*, *fixation* and *subluxation*. Most of these had more than one correct answer and GP's were given a score up to a maximum of two for each term. Their final score was used to help calculate their composite knowledge scores. The mean composite knowledge score was 44% (SD 28,1%). The lowest score was 0% and the highest score was 90,4%).

#### **5.5 Interprofessional Communication between GP's and chiropractors**

A significant percentage (43%) of the sample had communicated with a chiropractor via a letter or phone call before. However, only 9% of those who had communicated did so on a regular basis. In a study done in the Netherlands (Brussee, et al., 2001), more than half of the sampled GP's had communicated with chiropractors. In Brussee, et.al.'s study (2001), a high percentage (65%) of GP's who had not communicated with a chiropractor before said they would be willing to communicate with a chiropractor in the future. In Norway, Langworthy and Birkelid (2001) found that 93% of the participating GP's were either currently communicating or were interested in communicating with chiropractors.

In our study, 35% of the participants were not interested in communicating with chiropractors. Norwegian GP's showed more interest in communicating with only 7% of their participants showing a lack of interest in future communication (Langworthy and Birkelid, 2001). Dutch GP's showed similar figures, with only 8% showing a lack of interest (Brussee, et al., 2001). Just over half the respondents in our study who had communicated with chiropractors found it a positive experience. This is a lower percentage than that found in Langworhy and Birkelid's study (2001), where 67% of the

Norwegian GP's expressed this communication as positive or very positive. Three quarters of the sample, whether they had communicated or not, would like the communication to be improved. This was more in line with the findings of previous studies in Europe (Brussee, et al, 2001; Langworthy and Birkelid, 2001).

The four geographical areas covered had different proportions of respondents who communicated with chiropractors. Port Elizabeth had the highest proportion of communication (100%) and Johannesburg and Pretoria the lowest (33,3%). This regional variation in communication might be due to various reasons, including historical and political circumstances, availability, regional demand and differences in the provincial health care systems (Verhoef and Page, 1996).

Almost half of the participants reported that they referred patients to chiropractors. In 50% of these cases, the patients were referred at their own request and at the judgement of the GP. Of the doctors that did refer, almost 90% also referred these patients for physical therapy to a chiropractor. The South African referral rate is quite high compared to Canada's 44% - in a market that is saturated with chiropractors (Verhoef and Page, 1996). In Norway, 63% of GP's referred infrequently while 20% frequently referred patients to chiropractors.

Just over half of the GP's had received a feedback report from the chiropractor. All the respondents wished to receive a feedback report after referring a patient to a chiropractor. Ninety nine percent of Norwegian GP's wished to receive a feedback report (Langworthy and Birkelid, 2001). More than 80% of Dutch GP's were also interested in receiving feedback reports (Brussee, et al., 2001). This would indicate that South African GP's also require information about chiropractic and want to be educated about what chiropractors can do in their scope of practice.

No demographic factors were associated with the referral of patients. The variability in communication with chiropractors cannot be explained by

demographic factors, except to a certain extent the area in which they practice. This may be explained by the reasons mentioned previously.

To see how GPs' knowledge about chiropractic affected their communication, the mean composite knowledge score was compared between those who had communicated with or referred patients to a chiropractor, and those GP's who had not communicated with or referred patients to chiropractors. GP's who did communicate and refer, had a higher knowledge score than those who did not. There was a highly statistically significant difference ( $p=0,001$ ) in the mean scores between the two groups for each indicator, viz referring patients and communication with a chiropractor.

## **5.6 The Scope of Practice**

South African GP's thought that chiropractors were moderately competent in examining and diagnosing neuro-musculoskeletal conditions. However, the majority of GP's felt that chiropractors were incompetent in the *general medical management* of patients, i.e. the ability to diagnose, treat and refer the patient for optimum patient benefit.

A reasonably large percentage (44%) of GP's felt that it could be useful for patients to see chiropractors on a regular basis to prevent the onset of recurrent conditions. The majority of GP's agreed that patients with neck and shoulder pain, cervicogenic headaches, tension headaches and low back pain could be referred to chiropractors. This is supported by previous studies in the USA (Pasternak and Lehman, 1999) and Norway (Langworthy and Birkelid, 2001) indicating that South African GP's agree with their American and European counterparts as to what the basic scope of practice for chiropractors is. Arthritis, whiplash, migraines, low back pain in pregnant women, sprains and stress-related disorders also scored highly with regards to referral options to chiropractors.

## 5.7 The Market Share of Chiropractic

The participants felt that chiropractors had a low market share. They felt that less than 15% of their patients and less than 15% of the South African population regularly saw chiropractors. More than half of the GP's however responded positively to the question regarding whether more of their patients should see chiropractors. The most commonly occurring positive comments included:

“Chiropractic provides a useful non-invasive modality for numerous medical conditions, especially back and other musculoskeletal pain”;

“Chiropractic could be beneficial and improve the longterm outcome; avoid the use of medicine chronically”;

“Chiropractors are very under-utilised; they could do much more, doctors need to know more about what they do”;

“Patients with musculoskeletal problems should see chiropractors first, if they still require medical/pharmaceutical intervention, then they can consult their GP”;

“If more use was made of chiropractic treatment as well as other health professionals, patients would respond a lot better to their symptoms without excessive use of medications, particularly analgesics, with all their side-effects”;

“If chiropractors are qualified and if their treatment is endorsed by the medical fraternity, more of my patients could see chiropractors”;

“Chiropractic treatment may reduce the incidence of unnecessary back surgery”.

This showed that chiropractic is starting to become accepted by GP's as an alternative therapy for the management of musculoskeletal disorders. They seem to want to avoid chronic use of medication, especially analgesics, but rather make use of alternative therapies initially. There was still great confusion about what chiropractors can treat successfully, and education not only to the public, but to other health care professionals must be one of the main foci of the chiropractic profession for its future success. Langworthy and



Birkelid (2001) found that 75% of their respondents were interested in the indications for chiropractic treatment.

When GP's indicated that they would not like chiropractors to see more of their patients, the most common reasons were:

"I don't feel chiropractors add greatly to the health of the general population, especially the poor";

" I am not sufficiently informed about chiropractic and their ability, to refer patients to them";

"I feel that physiotherapists are best able to deal with these problems and I get good results from them";

"Chiropractors have a tendency to overtreat".

Chiropractors need to be aware of their limitations and not overtreat patients, but refer them to the correct health care professional when need be. Physiotherapists seem to enjoy more favour than chiropractors for the treatment of musculoskeletal conditions. One of the reasons may be the fact that GP's are aware of their scope of practice and not sufficiently informed about chiropractic. This reason was also highlighted by Breen, et al. (2000), who found that GP's where more comfortable referring to physiotherapists because they had a greater understanding of the treatment involved.

## **5.8 Limitations of the Study**

The number of GP's sampled in this study was 13,4% of the population in the five cities, according to the HPCSA's records of 2003 (596 out of 4450 GP's). Langworthy and Birkelid's study (2001) sample was less than 10% of the GP population. These results cannot be assumed to be representative and should not be extrapolated to the whole population of GP's in South Africa. A study of non-responders was not performed. We can assume that many of the non-responders had no working relationship with a chiropractor. It is equally possible that a great number of non-responders were not interested in working with chiropractors. Possible sampling bias cannot be ruled out.

The questionnaire was of medium length in order to obtain greater insight into GP's perceptions. However, GP's are busy professionals with limited time, and a slightly shorter questionnaire might have yielded a better response.

The response rate of 13,8% to the mailed questionnaires is quite low. According to Russel, et al. (2004), response rates to mail surveys vary depending on the nature of the population studied. There is also evidence that response rates to surveys have declined over time. They analysed 62 surveys published between 1980 and 2000, where the number of contacts with the target population was identified as the strongest predictor of the response rate. "For every additional contact with the population, the response rate can increase by about 10%" (Russel, et al. 2004: 46). This could explain the low response rate achieved with our study, having only one contact.

A recent review found that response rates were lower in surveys if the surveys were anonymous (Russel, et al., 2004). If the topic and questions were sensitive, the survey could have been associated with a lower response rate. Surveys that used advance notices had higher response rates than those that did not use advance notices. According to Russel, et al. (2004), the key to obtaining good response rates as sound methodology including: the use of personalized questionnaires and letters, advance notices, follow-up contact and the sending of additional questionnaires to non-respondents.

In the design of this study, the budget only allowed for one contact between the researcher and the population. If an advance notice was sent to the sample group, followed by the questionnaire, the response rate would have been higher according to the study by Russel, et al. (2004). Follow-up sending of additional questionnaires would have increased the response rate even further. A telephonic reminder was another option used in previous studies to remind non-responders (Brussee, et al., 2001). However, due to the anonymity of this study, there was no opportunity to follow-up on non-respondents, even if the budget had allowed for it.

## **CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS**

### **6.1 Conclusion**

There was a statistically significant difference in mean scores between GP's who communicated with and referred patients to chiropractors, and those who did not ( $p=0.001$ ). This study suggests that GP's who communicate or refer patients to chiropractors tend to have a higher degree of knowledge about chiropractic. This indicates that a GP who understands chiropractic treatment and the usefulness thereof for selected conditions, would be more likely to refer patients to chiropractors than a GP whose knowledge is low.

Demographic factors did not significantly influence communication and referral between GP's and chiropractors. The only factor which was significantly associated with communication levels was geographical area. The four areas covered in this study showed slightly different proportions of respondents who did communicate with chiropractors. This might be due to the presence of chiropractic teaching institutions in Durban and Johannesburg, availability and regional demand, and differences in the provincial health care systems. No demographic factors influenced the referral of patients.

This study provides useful information which could influence future referral and collaboration between GP's and chiropractors in the South African health care system. This study has shed light on interprofessional knowledge being very important in interprofessional communication.

### **6.2 Recommendations**

The response rate to this mailed survey was low. In order to get an improved response rate, it may be useful to change the design slightly. Mailed questionnaires should be as short as possible, obviously focusing on pertinent questions. These questionnaires should not be anonymous, as this decreases the response rate. Sensitive or controversial issues should be avoided if

possible. If at all possible, numerous contacts between the researcher and the participants must take place. This can be done by sending an advance letter, introducing the study. After an initial 2-3 week period, reminder questionnaires should be sent to the non-respondents. Another set of reminders can be sent 3 weeks later. A telephone call can be made to the non-responders as a final ploy to increase the response rate.

Intervention programmes to educate and increase awareness of chiropractic amongst GP's should take place. This could include incorporating introductory courses on alternative health care into the current medical curriculae in South African medical schools, to expose students to viable referral options. Alternatively, talks on chiropractic could also be delivered to Independent Practitioner Associations (IPA's) and at medical schools.

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# Appendices

## Appendix A

Dear Doctor

I am a student pursuing a Master's degree at the Durban Institute of Technology.

**Study Title:**

The knowledge of general practitioners about chiropractic as a factor that may influence health care integration in South Africa.

**Background to the study:**

The health care delivery system in South Africa is undergoing change, and important issues include shortage of resources, the high costs of health care as well as a lack of interprofessional cooperation.

At present, very little quantifiable information on medicine's opinion of chiropractic exists and no studies involving GP's opinions have been carried out in South Africa.

It is therefore the intention of the researcher to determine the current knowledge and perception that GP's have of chiropractic.

**Objective of the study:**

The data obtained by means of this questionnaire will allow for further assessment of the role of chiropractic in the South African health care system. The questions are concerned with your knowledge of chiropractic, the role of chiropractic in the South African health care system, confusing chiropractic jargon, interprofessional communication between GP's and chiropractors, as well as the scope and market share of chiropractors in South Africa. The questionnaire will only take a few minutes to complete, as most of the questions require you to tick or circle the appropriate answer. There are only a few short written responses that are required.

**Confidentiality:**

As with all surveys, the information which you furnish will be treated in the utmost confidence. A neutral party (Faculty of Health Officer) at the Durban Institute of Technology, will receive the questionnaire and code them before returning them to the researcher. Thus the researcher will never have access to the identities of the recipients. You are free to withdraw from the study at any stage. Please return the questionnaire in the stamped addressed envelope included for your convenience.

Your time, opinion and assistance in with this project is invaluable and greatly appreciated.

Yours sincerely

.....  
J.D. Louw  
Research Student  
(B.Tech.:Chiropractic)

.....  
Dr. C. Myburgh  
Supervisor  
(M.Tech.:Chiropractic, CCFC,  
CCSP)

# Appendix B

## GP opinion questionnaire:

Dear Doctor

This shouldn't take more than 7 minutes to complete.

You will receive a summary of my findings at the completion of the study.

Thank you for your time

### 1.0 Personal Data

1.1 Gender:

Male

Female

1.2 Age:

34 years or below

35-44 years

45-54 years

55 years and above

1.3 How long have you been practising as a general practitioner?

0-10 years

11-20 years

21 years and more

1.4 In what type of practice do you work?

Solo practice

Partnership

Group practice (3 or more GP's in 1 practice, no other disciplines)

Health care centre (more disciplines in 1 practice)

Corporate/Industrial environment

1.5 Where is your practice situated?

CBD area

Suburban area

1.6 Do you possess another qualification besides M.B.Ch.B?

Yes

No

1.7 Do you have any special interests?

Sports medicine

Occupational health

Insurance health

Paediatrics

Other (please specify).....

### 2.0 Your level of knowledge about chiropractic

2.1 Do you know something about chiropractic?

Yes

No (continue with question 3.1)

2.2 How did you get this information? (More than one answer possible)

I have been treated by a chiropractor

I have read about chiropractic in a medical journal

I have read about chiropractic in a magazine/newspaper

From my patient(s) who has (have) been treated by a chiropractor

From other GP's, specialists, physiotherapists, etc.

At medical school

Through the media

Other (please specify) .....



2.3 Are you aware that chiropractors study for a duration of six years at either the Durban Institute of Technology or Wits Technikon in South Africa?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.4 A chiropractor that qualifies from his/her studies in South Africa does so with which one of the following degees?

<input type="checkbox"/>	Bachelor's degree
<input type="checkbox"/>	Double Bachelor's degree
<input type="checkbox"/>	Master's degree
<input type="checkbox"/>	Other

2.5 Are you aware that the course includes grounding in medical subjects including Anatomy, Physiology, Pathology, Diagnostics, Microbiology, Pharmacology and Radiology?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

2.6 Are you aware that chiropractors can specialize in the following areas?

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Neuromusculoskeletal system
<input type="checkbox"/>	<input type="checkbox"/>	Extremities (eg. Knee, elbow, wrist)
<input type="checkbox"/>	<input type="checkbox"/>	Paediatrics
<input type="checkbox"/>	<input type="checkbox"/>	Rehabilitation
<input type="checkbox"/>	<input type="checkbox"/>	Sports injuries
<input type="checkbox"/>	<input type="checkbox"/>	Radiology

**3.0 The role of chiropractic in the health care system of South Africa**

3.1 Which one of the following statements best reflects your view of chiropractic? (Please tick one box only).

<input type="checkbox"/>	Not informed enough to comment
<input type="checkbox"/>	Chiropractic does more harm than good
<input type="checkbox"/>	I am uncomfortable with it
<input type="checkbox"/>	It may be effective for some patients
<input type="checkbox"/>	Chiropractic is effective for some neuromusculoskeletal conditions
<input type="checkbox"/>	Chiropractic is effective for some neuromusculoskeletal and some organic/visceral conditions

3.2 Please rate each of the following professions in terms of their importance in serving in a primary health care capacity. (Please circle a number for each profession, with (1) indicating least important and (10) indicating most important.)

1. Acupuncture	1	2	3	4	5	6	7	8	9	10
2. Ayurvedic medicine	1	2	3	4	5	6	7	8	9	10
3. Chinese medicine	1	2	3	4	5	6	7	8	9	10
4. Chiropractic	1	2	3	4	5	6	7	8	9	10
5. Dentistry	1	2	3	4	5	6	7	8	9	10
6. Herbalism	1	2	3	4	5	6	7	8	9	10
7. Homeopathy	1	2	3	4	5	6	7	8	9	10
8. Medicine	1	2	3	4	5	6	7	8	9	10
9. Nursing	1	2	3	4	5	6	7	8	9	10
10. Optometry	1	2	3	4	5	6	7	8	9	10
11. Pharmacy	1	2	3	4	5	6	7	8	9	10
12. Physiotherapy	1	2	3	4	5	6	7	8	9	10
13. Traditional healing	1	2	3	4	5	6	7	8	9	10
14. Other (please state) _____										

3.3 To what extent should chiropractic occupy the following roles in health care? (Please circle one

number for each role, with (1) indicating no role at all and (10) the greatest role.)

1. Primary contact	1	2	3	4	5	6	7	8	9	10
2. Referral	1	2	3	4	5	6	7	8	9	10
3. Preventative	1	2	3	4	5	6	7	8	9	10
4. Rehabilitative	1	2	3	4	5	6	7	8	9	10

**4.0 Confusing chiropractic jargon**

4.1 What do you understand by the following terms? (Please tick the blocks that are appropriate.)

**Adjustment**

- A joint is moved back into position under manual traction
- A quick, shallow movement directed at a joint
- A quick, shallow movement aimed at improving mobility using a limb as lever
- A joint is moved by active contraction of the patient's muscle
- A slow, passive movement imparted to an articular surface

**Manipulation**

- A joint is moved by active contraction of the patient's muscle
- A joint is moved back into position under manual traction
- A quick, shallow movement directed at a joint
- A quick, shallow movement aimed at improving mobility using a limb as lever
- A slow, passive movement imparted to an articular surface

**Fixation**

- A psychological condition
- An area of hypomobility between two consecutive vertebrae
- An articular lesion of any joint that is less than a dislocation
- Other

**Subluxation**

- A partial dislocation of one of the vertebral joints
- An articular lesion of any joint that is less than a dislocation
- A fusion of two vertebrae
- A restriction of movement between two vertebrae
- Other

**5.0 Interprofessional communication between GP's and chiropractors**

5.1 Have you ever communicated with a chiropractor by telephone or letter?

- Yes
- No

- If yes,
  - I often communicate with a chiropractor about a patient.
  - I have communicated with a chiropractor but not often.
- If no,
  - I have never communicated with a chiropractor but I am interested in doing so
  - I am not interested anyway.

5.2 How would you rate the communication experience between you and a chiropractor?

- Very negative
- Negative
- Neutral
- Positive
- Very positive

5.3 Would you like this communication to be improved?

Yes

No

If yes, how?

.....  
.....  
.....

5.4 Do you refer patients to a chiropractor yourself?

Yes

No (continue with question 6.1)

If yes,

Only at the patient's request

On my own judgement

At the patient's request and on my own judgement

5.5 Do you refer patient's for physical therapy to a chiropractor for conditions like headaches, whiplash injuries and low back pain?

Yes

No

5.6 How long after a patient's initial consultation do you normally refer?

Immediately

After 1 visit

After 2 visits

After 3 visits

After 4 visits

After 5 or more visits

5.7 Have you ever received a treatment feedback report from a chiropractor after referring a patient?

Yes

No

5.8 Would you like to receive a feedback report from a chiropractor when referring patients?

Yes

No

## 6.0 The scope of practice of chiropractic

6.1 To what extent do you believe chiropractors to be competent in neuromusculoskeletal examination and diagnosis? (Please tick one box only)

Very competent

Moderately competent

Competent

Incompetent

Very incompetent

6.2 To what extent do you believe chiropractors to be competent in general medical management of patients? (Definition of general medical management: The ability to diagnose, treat and refer the patient for optimum patient benefit.)

Very competent

Moderately competent

Competent

Incompetent

Very incompetent



.....  
.....  
7.4 Please feel free to add any other comments you have about the questionnaire or its content below.

.....  
.....  
.....  
.....  
.....  
.....  
.....

**Thank you very much for taking time to complete this questionnaire!**  
**Please return the questionnaire in the enclosed business reply envelope!**



## Appendix D

### LETTER OF INFORMATION – FOCUS GROUP

Dear Participant,

I would like to welcome you into the focus group of my study, the title of my research project is:

**The knowledge of general practitioners about chiropractic as a factor that may influence health care integration in South Africa.**

**Background to the study:**

The health care delivery system in South Africa is undergoing change, and important issues include shortage of resources, the high costs of health care as well as a lack of interprofessional cooperation.

At present, very little quantifiable information on medicine's opinion of chiropractic exists and no studies involving GP's opinions have been carried out in South Africa.

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**Objective of the study:**

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Your participation in this study is much appreciated and you are assured that your comments and contributions to the discussion will be kept confidential. The results of the discussion will only be used for research purposes.

If you have any further questions please feel free to contact either my supervisor/ co-supervisor or myself.

Jannie Louw

## Appendix E

### CODE OF CONDUCT

**This form needs to be completed by every member of the Focus Group prior to the commencement of the focus group meeting.**

As a member of this committee I agree to abide by the following conditions:

1. All information contained in the research documents and any information discussed during the focus group meeting will be kept private and confidential. This is especially binding to any information that may identify any of the participants in the research process.
2. None of the information shall be communicated to any other individual or organisation outside of this specific focus group as to the decisions of this focus group.
3. The information from this focus group will be made public in terms of a journal publication, which will in no way identify any participants of this research.

<b>Member represents</b>	<b>Member's Name</b>	<b>Signature</b>	<b>Contact Details</b>



## Appendix F

**IMPORTANT NOTICE: THIS FORM IS TO BE READ AND FILLED IN BY EVERY MEMBER PARTICIPATING IN THE FOCUS GROUP, BEFORE THE FOCUS GROUP MEETING CONVENES.**

### **CONFIDENTIALITY STATEMENT – FOCUS GROUP DECLARATION**

1. All information contained in the research documents and any information discussed during the focus group meeting will be kept private and confidential. This is especially binding to any information that may identify any of the participants in the research process.
2. The returned questionnaires will be coded and kept anonymous in the research process.
3. None of the information shall be communicated to any other individual or organisation outside of this specific focus group as to the decisions of this focus group.
4. The information from this focus group will be made public in terms of a journal publication, which will in no way identify any participants of this research.

Once this form has been read and agreed to, please fill in the appropriate information below and sign to acknowledge agreement.

#### **Please Print in block letters:**

Focus Group Member: \_\_\_\_\_ Signature: \_\_\_\_\_

Witness Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Researcher's Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Supervisor's /  
Co-supervisor's Name: \_\_\_\_\_ Signature: \_\_\_\_\_

## Appendix G

### INFORMED CONSENT FORM

(TO BE COMPLETED BY THE PARTICIPANTS OF THE FOCUS GROUP)

DATE \_\_\_\_\_ :

TITLE OF RESEARCH PROJECT:

The knowledge of general practitioners about chiropractic as a factor that may influence health care integration in South Africa.

NAME OF SUPERVISOR : Dr C. Myburgh

NAME OF CO-SUPERVISOR :

NAME OF RESEARCH STUDENT : Jannie Louw

#### Please circle the appropriate answer

- |  | YES/NO |    |
|--|--------|----|
| 1. Have you read the research information sheet?   | Yes    | No |
| 2. Have you had an opportunity to ask questions regarding this study?  | Yes    | No |
| 3. Have you received satisfactory answers to your questions?   | Yes    | No |
| 4. Have you had an opportunity to discuss this study?  | Yes    | No |
| 5. Have you received enough information about this study?  | Yes    | No |
| 6. Do you understand the implications of your involvement in this study?   | Yes    | No |
| 7. Do you understand that you are free to  |        |    |
| a) withdraw from this study at any time?   | Yes    | No |
| b) withdraw from the study at any time, without reasons given  | Yes    | No |
| c) withdraw from the study at any time without affecting your future health care or relationship with the Chiropractic day clinic at the Durban Institute of Technology. | Yes    | No |
| 8. Do you agree to voluntarily participate in this study   | Yes    | No |
| 9. Who have you spoken to regarding this study?  |        |    |

**If you have answered NO to any of the above, please obtain the necessary information from the researcher and / or supervisor before signing. Thank You.**

#### Please Print in block letters:

Focus Group Member: \_\_\_\_\_ Signature: \_\_\_\_\_

Witness Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Researcher's Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Supervisor's /

Co-supervisor's Name: \_\_\_\_\_

Signature: \_\_\_\_\_