

**A SURVEY TO DETERMINE THE KNOWLEDGE AND
PERCEPTIONS OF BIOKINETICISTS WITH RESPECT TO
THE CHIROPRACTIC PROFESSION.**

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2008


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PERCEPTIONS OF BOKINETICISTS WITH RESPECT TO
THE CHIROPRACTIC PROFESSION.**

By

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

I, Magashri Naidoo, do declare that this dissertation is representative of my own work in both conception and execution.

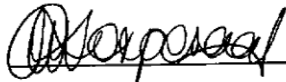


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DEDICATION

I would like to dedicate this work to my husband, Dinesh, for his endless love.

ACKNOWLEDGEMENTS

- To Om Bhagavan Sri Sathya Sai, who gave me the talent and ability to become a chiropractor.
- To my mother for being my pillar of strength through these years and for loving me unconditionally.
- My brother, Jeniel and sisters Kubashni and Devashni, for giving me the strength and inspiration through the difficult times.
- My friends Amashnee and Aradhna, who shared both the good and the bad times with me through the past few years, thanks for all the retail therapy.
- My supervisor, Dr Charmaine Korporaal, for all her time, invaluable input, advice and direction well beyond the call of duty.
- Linda and Pat for all your support and laughs in the clinic during the past few years.
- Mrs Ireland for your assistance during the research process.
- Kershnee, for your help during my times of need, it is greatly appreciated.
- Ms Tonya Esterhuizen, who assisted me with the statistical aspects of my study.
- Finally a big thank you to Dinesh for his overwhelming support, patience and encouragement during my student life so that I could achieve my dream. I could not have done this without you by my side.

ABSTRACT

Objective: To determine the current knowledge and perceptions of biokineticists with respect to the chiropractic profession in South Africa.

Design: A descriptive design was utilized in a qualitative questionnaire in order to evaluate, in a structured manner, the knowledge and perceptions of biokineticists with respect to Chiropractic.

Subjects: The total population size used in the study was 657 (response rate n=78; 11.87%).

Outcome Measures: These were based on a questionnaire which addressed biokineticists knowledge of Chiropractic, interaction with Chiropractic, Chiropractic terminology and scope of Chiropractic practice.

Results: Of the 657 questionnaires that were mailed, only 78 questionnaires were returned and this gave a response rate of 11.87%. The most frequent view or attitude towards chiropractic was that it had a valuable role in the health care system (64%). About 50% of the respondents believed chiropractors to be greatly competent in examination and diagnosis whilst 40% felt that chiropractors were moderately competent in examination and diagnosis. Nevertheless, the rate of communication between biokineticists and chiropractors was found to be quite high, in this study. All together, 67% of biokineticists had communicated with chiropractors. Of those that had communicated, the communication was rated as positive (94.4%). Of those who had referred patients to chiropractors, 41.8% had received treatment feedback reports and of those who had received reports, 68.8% said they were concise and valuable.

Conclusion: The results of this study show that the mean knowledge score was 60%. Thus the overall knowledge of chiropractic was high. The only factor that significantly affected respondents' knowledge was their self reported knowledge of chiropractic. In congruence with this, the most common attitude towards chiropractic was that it had a valuable role to play in the health care system (64%).

Key Words: Chiropractic, Biokineticists, Perception

TABLE OF CONTENTS

DEDICATION.....	i
ACKNOWLEDGEMENTS.....	ii
ABSTRACT.....	iii
TABLE OF CONTENTS.....	iv
LIST OF FIGURES.....	vii
LIST OF TABLES.....	viii
GLOSSARY.....	x
CHAPTER ONE: INTRODUCTION	
1.1 Background to the study.....	1
1.2 The problem statement.....	2
1.3 Research Objectives.....	2
1.4 Rationale for this study.....	3
1.5 Delimitations.....	4
1.6 Conclusion.....	4
CHAPTER TWO: LITERATURE REVIEW	
2.1 Introduction.....	5
2.2 Perception.....	5
2.3 Chiropractic.....	16
2.4 Biokinetics.....	18
2.5 Summary.....	20

CHAPTER THREE: METHODOLOGY

3.1 Introduction.....22

3.2 Study design.....22

3.3 Methodology.....22

3.4 Advertising.....23

3.5 Sampling procedure.....23

3.6 Sampling characteristics.....24

3.7 Procedure.....24

3.8 Method of distribution.....25

3.9 Questionnaire background.....26

3.10 Statistical Method.....30

CHAPTER FOUR: RESULTS

4.1 Introduction.....31

4.2 Response rate.....32

4.3 Descriptive analysis.....32

4.4 Demographics.....32

4.5 Knowledge.....37

4.6 Perception.....43

4.7 Communication and referral.....47

4.8 Correlation between knowledge, perception and demographics.....52

4.9 Other factors that may have influenced knowledge and perception.....57

4.10 Summary of analytical results.....59

4.11 Summary of key points.....60

CHAPTER FIVE: DISCUSSION

5.1 Response rate.....61

5.2 Demographics.....62

5.3	Biokineticists knowledge of chiropractic.....	63
5.4	Role of chiropractic in the health care system.....	64
5.5	Inter-professional communication between biokineticists and chiropractors.....	65
5.6	Correlation between knowledge, perception and demographics.....	66
5.7	Discussion of hypotheses.....	68

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1	Conclusions.....	70
6.2	Recommendations.....	72

LIST OF REFERENCES	74
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APPENDICES

Appendix A.....	82
Appendix B.....	83
Appendix C.....	84
Appendix D.....	94
Appendix E.....	95
Appendix F.....	97
Appendix G.....	98
Appendix H.....	99
Appendix I.....	100
Appendix J.....	101
Appendix K.....	102
Appendix L.....	110
Appendix M.....	111
Appendix N.....	120
Appendix O.....	130

LIST OF FIGURES

Figure 1: Type of practice of study participants (n=76).....	34
Figure 2: Institution Attended.....	35
Figure 3: Percentage of responses to the source of their chiropractic Information.....	38
Figure 4: Responses to perception question 2.3.....	43
Figure 5: Responses to perception question 2.11.....	44
Figure 6: Median rating of professions in terms of their importance.....	45
Figure 7: Method of communication.....	48
Figure 8: Participant's response to questions 2.23.....	50
Figure 9: Percentage of positive responses to question 3.4-3.6.....	51
Figure 10: Scatter plot of knowledge score versus perception score.....	53

LIST OF TABLES

Table 1: Frequency for gender distribution of participants.....	32
Table 2: Summary statistics for age of participants.....	33
Table 3: Frequency table for province of respondent.....	36
Table 4: Responses to knowledge questions 2.12-2.16.....	38
Table 5: Responses to question 2.17.....	40
Table 6: Responses to question 2.24.....	40
Table 7: Responses to question 4.....	41
Table 8: Knowledge score percentage in the sample.....	42
Table 9: Responses to perception questions 2.7-2.9.....	44
Table 10: Perception score percentage in the sample (n=75).....	46
Table 11: Frequency table of responses to whether respondent's had communicated with a chiropractor about a patient.....	47
Table 12: Overall rating of communication experience.....	48
Table 13: Responses as to whether communication can be improved.....	49
Table 14: Suggested methods to improve communication between biokineticists and chiropractors.....	49

Table 15: Responses to question 3.1.....	50
Table 16: Responses to whether the report was concise and valuable.....	51
Table 17: Spearman’s correlation between knowledge and perception scores.....	52
Table 18: Wilcoxon signed ranks test (paired) comparing knowledge and perception scores.....	54
Table 19: Correlation between knowledge, age and years practicing.....	54
Table 20: Comparison of knowledge by demographic group.....	55
Table 21: Correlation between perception, age and years practicing.....	56
Table 22: Comparison of perception scores by demographic group.....	56
Table 23: Comparison of median knowledge and perception scores between responses to other factors.....	58

GLOSSARY

Anonymity: the state of being or remaining unknown to most other people (Hornby, 1995).

Biokinetics: is a profession that focuses on preventative health care, the maintenance of physical abilities and final phase rehabilitation. Biokineticists are specialized exercise therapists that function in professional alliance with health and medicine (www.biokinetics.org.za/index, 2006).

Chiropractic: the World Federation of Chiropractic (2003) defines the chiropractic profession as: “a health care profession concerned with diagnosis, treatment and prevention of disorders of the musculoskeletal system and the effects of these disorders on the function of the nervous system and general health.” This is in congruence with the definition available from the Chiropractic Association of South Africa (<http://www.chiropractic.co.za>, 2006).

Confidentiality: is an ethical requirement in most research, sensitive and personal information provided by participant’s should be protected (Graziano and Raulin, 2004).

Content Validity: a type of logical validity that assumes an instrument accurately measures what it is supposed to measure (Graziano and Raulin, 2004).

Face validity: is determined by an agreement between researchers and those with a stake in the questionnaire, that on “the face of it” the tool seems valid (Bernard, 2000).

Knowledge: is defined in the as awareness or familiarity; person’s range of information, understanding (of subject); information; and sum of what is known Hornby, 1995).

Motive: is that which causes one to act in a particular way (Hornby 1995, 1995).

Needs: to require something because it is important or useful and not simply because one would like to have them (Oxford Advanced Learner’s Dictionary, 1995).

Perceptions: For the purpose of this research, perceptions refer to the way in which things are seen, understood to be like, and interpreted as. (Chaffe, 1997).

Primary health care: provides comprehensive quality health care including promotive, preventative, curative, rehabilitative and palliative services (Graziano and Raulin, 2004).

Respondent Bias: an opinion that strongly favors one side in an argument or one thing in a group (Graziano and Raulin, 2004).

Technikon Natal / Durban Institute of Technology: previous names of the now Durban University of Technology (DUT).

CHAPTER ONE: INTRODUCTION

1.1 Background to the study

Chiropractors are primary contact physicians who possess diagnostic skills to differentiate health conditions (Gaumer *et al.*, 2002). They provide conservative management of neuro-musculoskeletal disorders (NMS) and related clinical conditions (Brusee *et al.*, 2001). Furthermore chiropractors promote health care through proper nutrition, exercise and lifestyle modifications (Gaumer *et al.*, 2002). In addition some within the medical establishment believe that the education and training of chiropractors is grounded in orthodox medicine and that health care professions share a common language allowing for close dialogue (Langworthy and Birkelid, 2001).

Notwithstanding the above, chiropractors have been on the fringe of mainstream healthcare with levels of communication and collaboration often remaining low compared to those enjoyed by other members of the health care profession (Mainous *et al.*, 2002).

This may be because most potential consumers view chiropractors as back specialists (Gaumer *et al.*, 2002). Chiropractors tend to be regarded by the public (e.g. biokineticists) as specialists within a narrow range of clinical practice related to musculoskeletal disorders (principally low back pain) (Jamison, 1995).

Thus it stands to reason that other health care providers dealing with patients that present with low back pain would refer these to a chiropractor. As health care professionals, biokineticists may be one such provider. Biokineticists' perceptions of various health care disciplines are important as they might affect the manner in which they advise, assist, train or refer their clients. This is especially important when one notes that clients heed the advice of their biokineticist (www.biokinetics.org.za, 2006); and therefore biokineticists'

perceptions of the health care industry will directly or indirectly influence the perceptions of the client. Furthermore, this is important as biokineticists play an important role as a first contact for many of their clients with respect to an injury (www.biokinetics.org.za, 2006). Biokineticists therefore act as a portal of entry into the health care system for their respective clients for their referral to other health care providers (such as chiropractors). Therefore the purpose of this study was to determine the knowledge and perceptions of biokineticists with respect to the Chiropractic Profession. It was important to ascertain the knowledge and perceptions that biokineticists have of the Chiropractic Profession in South Africa as this will help to achieve a greater understanding of each others' professions. This integration may prove to be beneficial to the overall well-being of the patient, as proposed by Brusee *et al.*, (2001).

1.2 The problem statement

To investigate the knowledge and perceptions of biokineticists with respect to the Chiropractic Profession in South Africa.

1.3 Research Objectives

- 1.3.1 To establish the demographics of the responding biokineticists.
- 1.3.2 To establish the extent of knowledge of the Chiropractic Profession amongst biokineticists in South Africa.
- 1.3.3 To establish the perceptions of the Chiropractic Profession amongst biokineticists in South Africa.
- 1.3.4 To establish the communication and referrals between biokineticists and chiropractors.

1.3.5 To establish any correlation between knowledge, perceptions and demographics of the responding biokineticists.

1.3.6 To establish if there were any other factors which influenced knowledge and perceptions of Chiropractic.

Hypothesis 1

The biokineticists level of knowledge with respect to Chiropractic will not be comparable to similar literature in different population groups.

Hypothesis 2

The biokineticists perception of Chiropractic is not congruent with similar literature in different population groups.

Hypothesis 3

No correlations will be evident between the various factors

1.4 Rationale for this study

Biokinetics is becoming one of the popular segments of the health industry (South Africa, 1998) and clients heed the advice given to them by their biokineticist (www.biokinetics.org.za, 2006), hence the biokineticist's personal perception of Chiropractic may influence the client's perception of the profession (Langworthy and Smink, 2000).

However, the perception of Chiropractic amongst biokineticists in South Africa has not been researched though information about their perceptions could have important implications in terms of communication between these two professions.

Should for example, the research reveal that there is a lack of knowledge about Chiropractic the implication would be to allow for education of biokineticists about

the scope of Chiropractic in South Africa. Thus, avenues can be explored in order to examine how the relationship between these two professions can be enhanced, explored and improved upon. This was however beyond the scope of this study but it could be an eventual resultant effect.

1.5 Delimitations

It was assumed that the respondents in this study would have answered the questionnaire openly and honestly therefore allowing the research to be the best approximation of the knowledge and perception held by the biokineticists (Dyer, 1997).

1.6 Conclusion

Therefore, the aim of this study was to assess the knowledge and perception of biokineticists with respect to the Chiropractic Profession.

With the research question having been introduced in Chapter One, Chapter Two which follows will discuss the related literature. Chapter Three will analyze the materials and methods used in obtaining the information required in order to meet the aims and objectives of the study. The achieved results are then presented in Chapter Four. Chapters Five and Six present the discussions and the recommendations/conclusions of the study, respectively.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter an attempt is made to review the literature around the topic, with regard to the following headings: perception, Chiropractic and Biokinetics.

2.2 Perception

Perception is a process by which we understand reality. Perception helps us to recognize objects and scenes in our environment, to interpret this information and to extract meaningful and useful representations of our world from it (Bergh and Theron, 1999). Reality is often based on perception; perception is often not based on our experience but rather what we sense from our surrounding (Chaffe, 1997).

It was found that individuals may look at the same thing but perceive it differently (Chaffe, 1997). This was based on the fact that a number of factors can shape and sometimes distort perception. These factors can be classified or grouped as those in the perceiver (biokineticist), in the object or target being perceived (Chiropractic) or in the environment in which the former two interact (Robbins, 1996). This, in one way or another, may influence the inter-professional communication between biokineticists and chiropractors.

Factors that influence perception (adapted from Robbins, 1996):

<p><u>Factors in the perceiver</u></p> <p><u>(Biokineticist):</u></p> <ul style="list-style-type: none"> • Attitudes • Motives • Interests • Experience • Expectations • Knowledge 	<p><u>Factors in the environment:</u></p> <ul style="list-style-type: none"> • Time • Work setting • Social setting (legal barriers)
<p><u>Factors in the perceived object</u></p> <p><u>(Chiropractic):</u></p> <ul style="list-style-type: none"> • Motion (patients needs) • Novelty (identity) • Sounds (advertising) • Background (history) • Proximity (geographic access) • Size 	

Factors affecting the perceiver

When a biokineticist looks at Chiropractic and attempts to interpret what he or she sees, that interpretation is influenced by the personal characteristics of the individual perceiver (that is the biokineticist). Different attitudes held by individuals may lead to different interpretations (Hayes, 1994). Negative or positive attitudes of biokineticists towards Chiropractic will affect the way in which they interpret Chiropractic (Robbins, 1996). If a biokineticist has unsatisfied needs or motives about Chiropractic, this may exert a strong influence on their perception of Chiropractic (Robbins, 1996). For example if a biokineticist had been treated by a chiropractor and was unsatisfied with the treatment, this may influence the biokineticist’s perception of Chiropractic (Robbins, 1996).

In addition the focus of one’s attention appears to be influenced by one’s interests. Because people’s individual interests differ considerably, what one person notices in a situation can differ from what others perceive (Hayes, 1994). Just as interests narrow ones perceptions so do past experiences. You perceive those things to which you can relate.

Finally, expectations can distort one's perceptions in that one will see what one expects to see (Hayes, 1994). If biokineticists have a high or a low expectation of Chiropractic that will in turn affect the way in which they perceive Chiropractic (Robbins, 1996).

Factors in the perceived object

Characteristics in the target (i.e. Chiropractic) being observed can affect what is perceived. Targets are not looked at in isolation, thus the relationship of a target to its background influences perception by such things as (Robbins, 1996):

- Motion (the development of the Chiropractic Profession over time).
- Novelty (the identity of the Chiropractic Profession and what chiropractors do).
- Background (the history of Chiropractic).
- Sounds (the advertising of the Chiropractic Profession).
- Proximity (geographical access to Chiropractic and the number of chiropractors in a given space).
- Size (the number of chiropractors relative to the population).

The context in which we see events is important because elements in the surrounding environment influence our perceptions (Robbins, 1996).

Factors in the environment

There are possible differences in the way in which biokineticists view Chiropractic. The context in which we see objects or events is important. Elements in the surrounding environment influence our perceptions (Robbins, 1996). These differences in perception may arise due to multiple factors within the environmental context of the biokineticist; those may include, for example, legal barriers and socio-economic standing of the health care system (Gaumer et al., 2002).

Selected factors will now be discussed, as they relate to these three categories.

2.2.1 The observer/perceiver (i.e. biokineticist)

2.2.1.1 Knowledge of Chiropractic

While public demand has put pressure on orthodox medicine to collaborate with other branches of health care, in reality there is no co-operation with others without a medical background (Visser, 1990). The combination of training, academic background and group dynamics is a result of this poor co-operation (Visser, 1990). Louw (2005) found that General Practitioners (GP's) were lacking knowledge about the scope of practice of Chiropractic and about how Chiropractic has been discussed by members within the GPs' profession. Similarly Brusee et al., (2001) and Van As (2005) in the context of GPs and SGC's (school guidance counselors) respectively, found a lack of knowledge in these respective groups as well as a significant relationship between a lack of knowledge and a positive perception. It is therefore thought that biokineticists may also be lacking in similar areas, as they have similar parameters (Gaumer et al., 2002) that influenced their training when compared to GP's.

2.2.1.2 Chiropractors personal and professional experience

As the public acceptance of Chiropractic continues to grow in the United States of America, the private practice chiropractor may find opportunities for formal inclusion in the fast growing integration of complementary and alternate medicine (CAM) into health care delivery (Menke, 2003). The fact is that of all the CAM therapies, the use of Chiropractic has increased dramatically in the past decade (Menke, 2003). While most chiropractors (88%) believe the profession and its services should be perceived as mainstream (or core to the health delivery system), there is agreement that the profession is not viewed this way by the public at large or by medical doctors. Instead it is viewed as being complementary and alternative (World Federation of Chiropractic, 2003). A 1990

national survey of alternative medicine prevalence, costs and patterns of use demonstrated that alternate medicine has a substantial presence in the health care system (Eisenberg *et al.*, 1998). As a result an increasing number of Americans each year are seeking Chiropractic care for their back problems (Eisenberg *et al.*, 1998). Therefore it would seem people with high expectations of the usefulness of Chiropractic also have a high knowledge of Chiropractic, based principally on practical experience with the profession (Breen *et al.*, 2000). In contrast to this 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). Biokineticists may use similar basis to refer to physiotherapists because they have been trained in an environment that has a common base for understanding of each other scope of practice (Breen *et al.*, 2000). Therefore it would be expected that biokineticists have little interaction with chiropractors and thus also a lack of knowledge with attendant perception.

2.2.1.3 Consumer preferences of Chiropractic

Consumer preferences are a primary driving force in the demand for Chiropractic services and the potential for chiropractors to serve in primary care roles (Gaumer *et al.*, 2002). In Australia, Canada, Italy, The Netherlands, New Zealand, United Kingdom and USA, the most common reason for seeking Chiropractic care was low back and neck pain followed by headache (WFC, 2003). According to Hurwitz *et al.*, (1998), less than 1% of patients were given diagnoses for non-musculoskeletal conditions such as asthma and otitis media.

Curtis and Bove (1992) found there was significantly greater satisfaction with Chiropractic care than family physician care in the treatment of low back pain. Patients believed that family physicians were less confident and showed less concern and understanding of their problems than chiropractors (Curtis and Bove, 1992). Therefore most Chiropractic consumers and other potential consumers view chiropractors as back specialists (Gaumer *et al.*, 2002;

Wardwell, 1994). If chiropractors are to fulfill their roles as primary care practitioners and alter existing care-seeking behaviors of consumers, chiropractors must overcome impressions that they primarily treat low back pain (Gaumer et al., 2002). In this respect Louw (2005), stated that general practitioners felt that less than 15% of their patients and less than 15% of the South African population regularly saw chiropractors for low back pain.

According to Sanchez (1991) differences in the level of education attained, income, reported state of the person's health and misconceptions that Chiropractic treatment is expensive and is not covered by insurances were some of the disparities viewed by the non-users of Chiropractic (Sanchez, 1991). According to Mainous et al., (2002), it was found that family physicians viewed chiropractors more as specialists than primary care practitioners. These disparities about the role of Chiropractic could be one of the reasons for the poor understanding of Chiropractic.

2.2.2 The object/target (i.e. Chiropractic)

2.2.2.1 Age of Chiropractic

Chiropractic has developed from humble and contentious beginnings to its current position at the crossroads of alternate and mainstream medicine (Meeker et al., 2002). It has tended to evolve into a limited medical profession, limited to treating the Neuro-musculoskeletal System (NMS) (Wardwell, 1994). Based on this development, allopathic medicine has a deep suspicion and concern of Chiropractic. The suspicion is based on doubts about the validity of manipulation and the training, particularly the possibility of "missing" a serious disease (Curtis and Bove, 1992). Initially Chiropractic was condemned, particularly because it lacked the scientific evidence to substantiate its claims (Sanchez, 1991). According to Verhoef and Page (1996), Chiropractic is still not recognized as an integral, needed and legitimate part of health care by many members of conventional health care. To complicate this picture the role of a chiropractor is a

contradiction: the chiropractor is simultaneously a primary care provider and a specialist (Sanchez, 1991). Nevertheless, over approximately the last 30 years, Chiropractic has become more accepted, particularly as all aspects of the profession are under continuous social evaluation (Coulter, 1992 and Wardwell, 1994) with particular reference to research.

As one method of remedying the perceived lack of evidence based medicine and reinforcing their niche, chiropractors could increase the number of peer reviewed publications. An increased number of research publications by Medical journals and the reading of such journals may go some way towards increasing the awareness of Chiropractic amongst biokineticists (Langworthy and Smink, 2002). This in turn may influence the health care providers' (including biokineticists) perceptions of Chiropractic. However, negative perceptions may still exist due to scientific publications (Wardwell, 1994; Langworthy and Smink, 2000) not being read by the public at large in South Africa, misinformation, misinterpretation of the information or a limited understanding of the same information (Reubens, 1996; Hunter, 2004; Louw, 2005 and Van As, 2005).

2.2.2.2 Chiropractors self-imposed barriers to primary care roles

Not all chiropractors think of themselves as actual or potential primary care providers (PCPs) as directed within the scope of practice and their training of the AHPCSA Act 63 of 1982 (as amended) (AHPCSA, 2005). Some prefer to limit their scope of their practices to NMS conditions because of the lack of hospital privileges (Gaumer *et al.*, 2002). However, in a South African context this dichotomy (i.e. PCP versus NMS) could result in inconsistent general public perception of chiropractors (AHPCSA, 2005). This is reinforced by differences in opinion which divide the Chiropractic Profession on this issue. As a result marketing the profession is affected (Gaumer *et al.*, 2002 and WFC, 2003).

In New Zealand, the NZ Consumers' Institute (1997) found that consumers most commonly quoted chiropractors as being more knowledgeable about the spine than GPs and felt they helped where the GP/ physiotherapist could not. However, the need for repeated treatment from a chiropractor and the cost of Chiropractic care was considered a disadvantage. When it comes to communicating with the general public to promote the use of Chiropractic services, just over one-half (54%) of chiropractors believe that it is equally as important to represent the chiropractors' view of the profession and the public's view of the profession. There is thus a significant discrepancy in the way chiropractors believe the general public and medical doctors should perceive the profession and the way they think the profession is actually perceived (WFC, 2005). While the vast majority of chiropractors believe the profession should be considered primary health care with focused (55%) or broad (36%) scope, in actuality, most believe that both the general public and medical doctors alike have no clear perception of the profession or perceive the profession as offering specialist care.

Hawk and Dusio (1995) looked at a survey of 492 US chiropractors on primary care and prevention related issues. To the question put forward by Hawk and Dusio (1995), "Do you consider yourself a primary care practitioner?" Ninety percent of the respondents said "Yes." According to this survey most respondents (63.3%) believed chiropractors to be general primary care, portal-of-entry practitioners; 25.7% believed that chiropractors should be portal of entry practitioners for musculoskeletal conditions but not for general primary care; and 4.1% believed chiropractors should be musculoskeletal specialists, not portal-of-entry practitioners (Hawk and Dusio, 1995).

The scope of practice of Chiropractic is set out in legislation resulting in only one baseline. The scope of practice compounds the issues of competition for insurance coverage, patients and research funding demands, if chiropractors cannot clearly define who they are and what they do (Hawk and Dusio, 1995). In contrast, although the majority of South African chiropractors follow this practice, some that were taught overseas, may vary. This would therefore affect the

knowledge and perception of biokineticists because the information on who chiropractors are and what they do is limited or, when available, conflicting.

Thus, and in response to this, the World Federation of Chiropractic (WFC) (2005) conducted an international survey on the Consultation of the Identity of the Chiropractic Profession, which included the perspectives of members of the public and the profession. The purpose of the survey was to understand the attitudes and perceptions towards the profession (WFC, 2005). By carrying out this survey on the identity of Chiropractic it was hoped it would shed some light on what Chiropractic is all about to the public and, in this case, biokineticists (WFC, 2005). The results were that most chiropractors (88%) believe the profession and its services should be perceived as mainstream (or core to the health delivery system), there is agreement that the profession is not viewed this way by the public at large or by medical doctors, instead it is viewed as being complementary and alternative.

Most chiropractors (62%) strongly agree with the policy statement opposing the use of prescription drugs in the practice of chiropractic. In fact, positioning the profession as non-drug, non-surgical health care is viewed as being integral to how the profession should be perceived by the general public. (WFC, 2005).

2.2.3 The environment

2.2.3.1 Legal barriers obstructing access to Chiropractic

A possible reason why different age groups of biokineticists may differ in their perceptions of Chiropractic may be due to the previous legal barriers within or imposed on the profession. In South Africa, in 1971, a bill was promulgated that closed the register to chiropractors, effectively ending any growth that there could have been in the profession in South Africa (Brantingham and Snyder, 1999). As Chiropractic in South Africa was a dying profession since the inception of Act 76 of 1971, better known as the Chiropractors Act (Hupkes, 1990), there was little

'new blood' (Till, 1997) after that date and the profession remained in danger of "withering on the vine" (Brantingham and Snyder, 1999), with the total practitioner numbers dropping from about 176 in 1971 to about 100 when the registers were eventually reopened in 1982 (Till, 1997). In 1982, the Associated Health Service Professions Act No. 63 of 1982 was promulgated (Brantingham and Snyder, 1999; Hupkes, 1990). The 1982 Act established the Allied Health Professions Council of South Africa (AHPCSA, 2005), formerly known as the South African Associated Health Services Professions Board (Brantingham and Snyder, 1999), a statutory body that wrote Chiropractic into law, and with whom all chiropractors are required to register (CASA, 2005). New legislation, the Allied Health Professions Bill, is presently in parliament for consideration and will probably replace Act No. 63 (www.chiroweb.com/worldnews-chiropracticinSouthAfrica, 2005).

Biokineticists may not be aware of the 1982 legislation that opened the registration for licensure of new chiropractors and the establishment of an educational program in South Africa (Brantingham and Snyder, 1999), therefore their knowledge and perception of Chiropractic will be limited as they may have choose not to remain updated about this "dying" profession.

2.2.3.2 The socio-economic circumstances of the Health care system

An understanding of this factor is important as the socio-economic circumstances in South Africa can influence biokineticists knowledge and perceptions of Chiropractic.

In South Africa, a crisis in the health care delivery system has resulted from compounding factors, which include but are not limited to: a shortage of resources, the high cost of health care, a lack of inter-professional co-operation and the under utilization of more cost effective treatment (Hupkes, 1990).

In addition to this, South Africa's health system consists of a large public sector and a smaller, fast growing, private sector. Health care varies from the most basic primary health care, offered free by the State, to highly specialized technological health services available in the private sector for those who can afford them (Van As, 2005). The perception of an individual within the population will no doubt be biased or skewed in terms of their experiences associated with their point of entry into the health care system. In respect to this, Chiropractic would seem to be positioned as follows:

- Even though Chiropractic is covered by medical aid schemes, most chiropractors in South Africa work in the private sector (CASA, 2005), which caters for middle and high-income earners who tend to be members of medical schemes (18% of the population) (Van As, 2005). There are currently about 200 Medical Aid Societies, most of which (about 98%) cover Chiropractic care in part or in whole. If a biokineticist's client does not fall within 18% of the population on medical aid, due to affordability they could possibly not be able to afford Chiropractic treatment/consultation either. If they have not been to a chiropractor before, they have less of a chance according to Louw (2005) of knowing about Chiropractic.
- High levels of poverty (71% in rural areas and 50% overall) and unemployment (at least 38%) make it difficult for most people to belong to a medical aid scheme or pay for health services in South Africa (Van As, 2005).
- Additionally, Chiropractic health care is included in workman's compensation under the Compensation for Occupational Injuries and Disease Act (Act no. 30 of 1993) (www.chiropractic.co.za, 2005). This means that all injured on duty employees may consult a chiropractor without any referral (CASA, 2005).

Therefore it can be concluded that since Chiropractors and biokineticists treat a similar pool of patients irrespective of their socio-economic standing, the converse could be true. This means that the biokineticists clients may not have been aware of the medical aid status of Chiropractic (and the biokineticist is the source of their information) thus influencing their clients (that is the general public) knowledge and perception of the Profession.

2.3 Chiropractic

Chiropractic is a health profession specializing in the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system and the effects of these disorders on the function of the nervous system and general health (Gaumer et al., 2002). Chiropractic practitioners essentially rely upon non-invasive treatment methods and will refer patients to medical practitioners should medication and surgery be indicated (Sweeney, 2005). This approach is further re-enforced by chiropractors in their promotion of a healthy lifestyle, such as the avoidance of smoking and excess stress, proper diet and exercise (World Health Organisation, 2005). Chiropractors are first contact physicians who possess the diagnostic skills to differentiate health conditions (Gaumer et al., 2002). In addition they provide conservative management of neuro-musculoskeletal (NMS) disorders and related functional and clinical conditions, including but not limited to back pain, neck pain and headaches (Gaumer et al., 2002). Chiropractors are registered with the Allied Health Professions Council of South Africa (AHPCSA) and the Chiropractic Association of South Africa (CASA) (The Chiropractic Internship Programme Handbook, 2007/2008).

2.3.1 Scope of practice and academic programme

The scope of practice is fairly wide, although most chiropractors confine their own practices to primarily neuro-musculoskeletal conditions (NMS). The main focus is to promote Chiropractic in those areas such as NMS, in which the strongest evidence for Chiropractic effectiveness exists (Gaumer et al., 2002;

Langworthy and Birkelid, 2001). There is a marked difference in how non-users (someone not treated by a Chiropractor), users and lapsed users (in Canada) view chiropractic. Non-users and users “generally have a positive image of chiropractic”. However, non-users are uninformed about the level of education and treatment procedure (WFC, 2005). Sanchez (1991) had similar findings in New Jersey and reported that the more unclear non-users’ understanding of the profession’s scope of treatment, the more likely they are not to identify a condition as one that can be treated by Chiropractic.

There is a lack of public confidence in the profession that could be changed by “providing information about Chiropractic training” (WFC, 2005). It is necessary to eliminate the confusion that exists within the Chiropractic ranks first as a form of consolidation before moving ahead with amendments. Thus Chiropractic must develop clear boundaries around the number and extent of the conditions it claims to treat (Sanchez, 1991) and the responses to treatment, in order to facilitate an understanding of the precise role of Chiropractic in health care which continues to be disputed (Sanchez, 1991). This would assist health care providers in general (including biokineticists) to form a more grounded and uniform understanding of Chiropractic.

Chiropractic is offered at the Durban University of Technology (DUT) or University of Johannesburg (UJ). The academic programme extends over five years of full time study leading to a Master’s degree followed by an internship. The first three years provides the students with a thorough grounding in traditional medical subjects with special emphasis on diagnostic skills. The final two years of the program emphasize the holistic nature of the profession with particular attention to NMS disorders (Faculty of Health Sciences: Department of Chiropractic, 2006). The public (in Australia) felt that, in general, medical doctors (MD) and physical therapists (PT) were better trained and more effective than chiropractors. The one exception was for back pain, where MDs were seen as ineffective, but PT and chiropractors as equally good (Straton et al., 1990).

2.4 Biokinetics

Biokinetics is a profession that focuses on preventative health care, the maintenance of physical abilities and final phase rehabilitation. As a primary health care professional, biokineticists are specialized exercise therapists that function in professional alliance to health and medicine, and are recognized by and registered with the Health Professions Council of South Africa (HPCSA) (South Africa, 1998). The Biokinetics programme is offered at various institutions, one being the University of Johannesburg. It is likely that the respondents studying at this university might have a greater knowledge and perception of Chiropractic because a Chiropractic programme is also offered at the same university. Being involved in the promotion of physical abilities and prevention of certain ailments, biokineticists record a general history, assess the injured body part of the individual, evaluate the physical work capacity of the individual, determine the functional limitations of the injured part and arrive at a NMS diagnosis of their patients. The biokineticist is then able to prescribe a proper rehabilitation program for that individual with a view to determining the risks of exercise (if any) for the individual and to determine an effective and safe exercise level. Biokineticists are able to communicate, where appropriate, with medical practitioners and other practitioners in the diagnosis and treatment of a patient, especially when the patient's problems and needs are beyond the scope of Biokinetics (South Africa, 1998).

2.4.1 Scope of practice and academic programme

The scope of practice of biokineticists includes assessing the individual in various categories such as health history, previous injury, acute and chronic medical conditions, musculoskeletal status and cardio-respiratory status. The specific applications of rehabilitation in the acute phase include the rehabilitation of presurgical orthopedic impairments and the chronic applications include stress related disorders, low back pain, stroke, arthritis and obesity (South Africa, 1998). The training of biokineticists entails four years of academic education

(degree study) and two years of professional education (internship exposure). In the process, five years of training is required prior to registration as a biokineticist with HPCSA (www.biokinetics.org.za/index, 2006). The academic study comprises a post-graduate (honors) degree obtained from a University accredited to train biokineticists. A first degree (3 years) in human movement science/exercise science serves as admission criteria to the post –graduate specialization in biokinetics. Prospective students are subject to rigorous selection procedures prior to acceptance into the post-graduate biokinetics program of training institutions. During the final year of study the student is obliged to register as a student in training with both the Biokinetics Association of South Africa (BASA) and HPCSA (www.biokinetics.org.za/index, 2006). The individual is exposed to their first year of internship which runs parallel to the honours year of study. After the individual has completed the honours program, the individual has to apply for their second year of internship. Once this occurs the individual can register with BASA to have their internship approved. After the completion of the internship the individual can register with the HPCSA as a biokineticist (www.biokinetics.org.za/index, 2006).

Therefore becoming a biokineticist requires learning about personal health, injury prevention and managing stress and lifestyle changes in order to guide the patient through the rehabilitation program (South Africa, 1998). With this in mind the role of the biokineticist is valuable as biokineticists will be advising patients on various health care disciplines. Biokineticists thus form a link with the public with respect to informing them about Chiropractic. Therefore if biokineticists do not know much about Chiropractic or perceive it in a positive or negative light, this will influence the multi-disciplinary health settings within which the patients find themselves, indicating that the positive or negative perception will affect the action by the perceiver (i.e. biokineticist) (Robbins, 1996).

2.4.2 Areas of mutual interaction between chiropractors and biokineticists

There are many characteristics between chiropractors and biokineticists that overlap, especially with respect to the musculoskeletal health of each one's patients (Seaman, 1999). Thus when professionals of similar sectors 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 professions (Brusee *et al.*, 2001). It would therefore stand to reason that the best prevention and patient treatment strategy would exist in a milieu of co-operation between the two professions.

Summary

Therefore in summary it can be stated that the public's (and by default GP's, physiotherapists and biokineticists) knowledge and perception of the scope of Chiropractic practice would have been influenced by their knowledge, experience, age, legal barriers, socio-economic standing, consumer preference and self-imposed barriers. Thus it can be stated that the knowledge and perception of biokineticists may be limited, biased, incomplete or complete based on each biokineticist's exposure to the various factors that have been discussed.

However, concluding that any one factor is responsible can only be completed in a manner that validates the inferences drawn from the literature. In addition, the review of the literature that does exist, namely a number of studies exploring the relationship between chiropractic, the public, and other health care professions (Reubens, 1996; Hunter, 2004; Louw, 2005; Van As, 2005) reveals that there is a lack of understanding regarding Chiropractic. Thus the current trends identified in the literature would mitigate against the development of an interactive milieu of co-operation between biokineticists and chiropractors, based on the evidence suggesting limited or no understanding of Chiropractic within the health care sector (Reubens, 1996; Hunter, 2004; Louw, 2005; Van As, 2005).

Thus the importance of the question raised by this research, namely an assessment of the knowledge and perception of biokineticists in South Africa with respect to the Chiropractic Profession, becomes clearly evident.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter covers the study design, methodology used, sampling procedures employed, inclusion criteria, exclusion criteria, methods employed and data analysis.

3.2 Study Design

A population-based demographic study on biokineticists' knowledge and perceptions with respect to the Chiropractic Profession in South Africa was conducted. Therefore this study was a knowledge and perception survey (Wisker, 2001), quantitative in nature, which made use of a structured questionnaire (Appendix C) to collect data.

A descriptive design was utilized in a quantitative questionnaire in order to evaluate, in a structured manner, the knowledge and perceptions of biokineticists with respect to Chiropractic (Wisker, 2001 and Dyer, 1997).

Generally questionnaires are considered an appropriate method of research, providing ways of ascertaining attitudes, opinions and perceptions (Booyesen, 2003).

Based on the design and methodology as presented in more detail in this chapter, this research was approved by the Faculty of Health Sciences Research and Ethics Committee, indicating that this research fulfilled the requirements of the Declaration of Helsinki (1975).

Methodology

Survey research is a way of collecting information from a large and dispersed group of people (Dyer, 1997). Thus the primary data for this research was collected by means of a questionnaire developed by the researcher after a

review of the literature (Langworthy and Birkelid, 2001) and dissertations completed at DUT (Reubens, 1996; Hunter, 2004; Louw, 2005; Van As, 2005).

3.4 Advertising/permission

No advertising was used by the researcher. However permission to conduct the research had to be obtained from the Health Professions Council of South Africa (HPCSA) (Appendix E) as biokineticists are registered with this statutory body.

3.5 Sampling Procedure

Participant Sampling

A list of addresses of registered biokineticists was obtained from the HPCSA. The entire list was bought as a text format from this body (Appendix E). Should a full length list be required, contact should be made with the HPCSA.

a) Sample size

The sample in this study was the total population of the biokineticists. Six hundred and sixty one biokineticists were identified in the nine provinces. Four biokineticists in Durban were excluded from the actual study due to their participation in the focus group and pilot study. Therefore the total population size used in the study was 657.

b) Allocation

All respondents were allocated to one group with subgroup analysis being utilized for statistical analysis only (that is the total population of 657).

c) Method

Total population (657) sampling was used by the researcher (Mouton, 1996) based on the respondents returning the questionnaire/agreeing to participate in the study. The type of recruitment was total population selection; however

respondents had an option as to whether they are willing to take part in the research or not – a process referred to as self selection (Dyer, 1997). Therefore this type of recruitment for observation may not fully represent the population group and may lead to error in bias. It is, however inevitable that any sampling process, no matter how carefully carried out, will always result in a sample that is less than perfectly representative of the population (Dyer, 1997).

3.6 Sample characteristics

In order to be accepted for participation in the study, the biokineticists had to comply with the following criteria.

3.6.1 Inclusion criteria

- All subjects had to be registered with the HPCSA; this was to verify that they were qualified biokineticists hence the list obtained from HPCSA (Appendix E).
- All subjects had to be practicing in one of the nine provinces covered i.e. they had to practice in Republic of South Africa; in order to increase the sample homogeneity (Mouton, 1996).
- All questionnaires had to be utilized for data analysis. Missing or incomplete data was noted as such in data capture and analysis.

3.6.2 Exclusion criteria

- Subjects that did not comply with the above inclusion criteria.
- Subjects that participated in the Focus group and Pilot Study were excluded because they were already exposed to the questionnaire and their responses may have been bias.

3.7 Procedure

Once the questionnaire had been developed fully, the questionnaire was posted to all biokineticists who were practicing in South Africa. The questionnaire (Appendix C) was accompanied by the letter of information (Appendix A) to

introduce the research project in general. The information included the title of the study, the objective of the study and reassured all respondents of the confidentiality of the information and the anonymity of their responses. Also enclosed with questionnaire was a consent form (Appendix B) which the respondent had to sign and a letter of thanks (Appendix D). Participation in the study was entirely voluntary.

The respondents had to sign the letter of informed consent and were given six weeks to complete the questionnaire and the informed consent form. Once the informed consent was signed and the questionnaire was completed, the respondent was required to post the questionnaire and informed consent, using the enclosed stamped addressed envelope, to Durban University of Technology (DUT) to a neutral third party in order to ensure anonymity (Appendix L).

3.8 Method of distribution/Method of data collection

A list of registered biokineticists was obtained from the HPCSA. The questionnaires were mailed to the 657 registered biokineticists and they were given six weeks to complete the questionnaire and post it to DUT. With the envelope there were:

- a) A letter of information and introduction (Appendix A).
- b) A letter of informed consent (Appendix B)
- c) The questionnaire (Appendix C)
- d) A letter of thanks (Appendix D)

As with all surveys the information that the respondents furnished was treated with the utmost confidence. The questionnaire was collected by a neutral third party. Thus the researcher never had access to the identities of the respondents. Confidentiality was ensured as individual details were not identifiable due to coding of questionnaires. Data capture, analysis and reporting were based on this coding reinforcing the confidentiality. All returned questionnaires were

separated from the informed consent forms in order to minimize researcher association between these forms. The questionnaires/ informed consent forms and any further paperwork used to analyse the results are stored in the Chiropractic Department for a period of five years and will then be shredded.

3.9.1 Questionnaire Background and Design

Langworthy developed and piloted a questionnaire and used it in studies in Norway and the Netherlands respectively (Langworthy and Smink, 2000; Langworthy and Birkelid, 2001). The researcher received permission from Langworthy to use and modify her questionnaire accordingly (Appendix J).

The questionnaire utilized by Langworthy and Smink (2000) was designed to elicit the opinions about Chiropractic from physiotherapists, manual therapists and osteopaths in the Netherlands. The questionnaire was translated into Dutch and a small (n=10) pilot study undertaken to establish content and face validity (Langworthy and Smink, 2000).

The Langworthy and Birkelid (2001) study was conducted in Norway where the face and the construct validity of the questionnaire were established (Langworthy and Birkelid, 2001). This simply means that Langworthy and Birkelid (2001) developed and piloted the questionnaire for content and face validity (refer to glossary on page x). Thus it had been previously demonstrated that the questionnaire has usefulness and could be utilized in future studies, for example this study. This process is vital in order to ensure that future research utilizing this particular tool is accurate (Bernard, 2000). The instrument was found to be unambiguous, and capture of the data was reliable as defined by Mouton (1996).

The researcher's modified questionnaire (Appendix C) comprised of five sections, covering respondents' demographic details, knowledge of Chiropractic, feedback report regarding Chiropractic treatment, confusing Chiropractic terminology and general information (Langworthy and Birkelid, 2001).

The questionnaire design employed a simple answering system (Booyesen, 2003), using marking boxes and limited open-ended questions (Booyesen, 2003), which also facilitated fluent data collection (Booyesen, 2003). Questionnaires are the tool of choice for a project such as this, as they ensure their bias, on the side of the researcher, is kept to a minimum, and there is less chance of misinterpretation of results (Mouton, 1996).

3.9.2 Focus Group

In order to adapt the questionnaire and ensure that the questionnaire met the minimum requirements as set out by Mouton (1996) and Bernard (2000), a focus group was then set up in order to establish the face validity of the adapted questionnaire. According to these requirements focus groups use homogenous participants, rely on a relatively structured interview and have six to ten participants per group (Mouton, 1996).

The group consisted of seven participants:

- One biokineticist
- One statistician
- Two chiropractors
- Two chiropractic students
- The researcher

These participants were enlisted via word of mouth (Gibbs, 1997; Morgan, 1998), with six participants coming forward and expressing an interest in the focus group. The recommended number of people per focus group is usually six to ten (Morgan, 1998), but some researchers have used as few as four (Morgan, 1998). Further, to obtain face validity (Uys, 2003); the focus group's aim was to develop a questionnaire that limits potential misinterpretation by the respondents in the context of the study (Scollen and Scollen, 1995). Most importantly, it ensured

that the questionnaire would work effectively in the South African context, with the face validity adapted to the South African context (Mouton, 1996).

Before commencing, each participant was required to read the letter of information (Appendix F), and sign the letter of informed consent (Appendix G). A confidentiality statement (Appendix I) and a code of conduct statement (Appendix H) were also signed by the participants. This was to ensure that these members would not disclose this information to the rest of the study sample. In the focus group each participant was given copies of the knowledge and perception questionnaire (Appendix K). Comment was requested on how the questionnaire could be modified in order to accurately assess biokineticists' knowledge and perception of Chiropractic in South Africa.

The questions were discussed in sequential order, following the procedure in Moderate Focus Groups [vol. 4] by Morgan (1998). Following the discussion of each question, minor changes that were unanimously agreed upon were made to the questionnaire to enhance the understanding of a few of the questions. This established the face validity (Bernard, 2000 and Uys, 2003) of the questionnaire, while still ensuring that the content of the questionnaire was not altered. A recording of the focus group proceeding was made (Gibbs, 1997) and is available as evidence (in the form of a CD) of the individuals involved and the content of the discussion (Appendix O).

NOTE: this CD is only available to you the examiners, such that you are able to evaluate the process of questionnaire development. The CD will not be contained in the final bound copies submitted to the DUT library as it will contravene the confidentiality clause agreed to with the focus group members

Based on the focus group recommendations, there were a few major changes in the pre-focus group questionnaire (Appendix K). Question 2.4 about the competence of chiropractors in diagnosis and treatment was changed into two

separate questions; question 2.19 on communication with a chiropractor and in what form communication took place was simplified into two separate questions. Question 2.11 was removed completely and question 3.2 about the style of a feedback report was removed as well. The post-focus group questionnaire with changes can be seen as Appendix M.

3.9.3 Pilot study

After a post-focus group questionnaire was developed (Appendix M), a pre-test evaluation (Appendix N) was conducted on three biokineticists in Durban, giving a chance for any comment on the questionnaire. The purpose of this was to see how long it took to complete the questionnaire and to identify problem areas in the questionnaire. The pilot study participants were excluded from the main study. One question that was analyzed for change in the Department of Chiropractic Research Committee was question 1.6 where there was the addition of the option “other if qualified overseas.” There were changes made to questions 2.5, 2.6 and 2.21 by the Faculty of Health Science Research and Ethics Committee. With questions 2.5 and 2.6 there was the addition of an option “please elaborate” and with question 2.21, clarity was required as to what constituted a negative and a positive experience.

Through this exercise, the final questionnaire was developed and printed for use in this study (Appendix C).

3.9.4 Final questionnaire

The cover page of the questionnaire, which was printed on an official DUT letterhead, consisted of few basic outlines and an introduction to the questionnaire.

The final questionnaire consisted of 39 questions covering the following areas:

- The respondents demographic details (questions 1.1 – 1.6)

- Their level of knowledge of chiropractic (questions 2.1 – 2.2, 2.13 – 2.17, 2.24, 4)
- Their perception of their scope of practice (questions 2.3 – 2.12, 2.18 – 2.23, 3.1 – 3.6)
- General information (questions 5.1 – 5.2)

3.10 Statistical methodology

SPSS version 15.0 was used for data analysis (SPSS inc., Chicago, and Illinois, USA). A p value of <0.05 was considered as statistically significant.

Descriptive objectives were analyzed with frequency tables and bar charts in the case of categorical variables, and using summary statistics such as mean, standard deviation and range in the case of quantitative normally distributed variables, and median, range and inter quartile range in the case of skewed quantitative or ordinal variables.

Correct answers to the 39 questions testing knowledge of chiropractic were summed together and expressed as a percentage out of 39. Perceptions were scored out of a maximum possible score of 17 to the 6 questions assessing perception of chiropractic, and expressed as a percentage, with the higher the score the more positive the perceptions.

Relationships between knowledge and perception were assessed using Spearman's rank correlation coefficient. Comparison of knowledge and perception scores between categorical demographics were done with Mann-Whitney tests (for 2 group comparisons) or Kruskal – Wallis tests (for more than 2 group comparisons) as appropriate.

CHAPTER FOUR: RESULTS

4.1 Introduction

Results of the statistical analysis of the data are presented in this section. Firstly, a descriptive analysis is presented, followed by analytical analysis, which reports proportions and means.

4.1.1 Primary Data

The data collected from the questionnaires/respondents responses and the data obtained once the statistical analysis was complete.

4.1.2 Abbreviations

ANOVA – analysis of variance

CI – confidence interval

n – sample size

SD – standard deviation

p value - the probability of one's results being due to chance or random error. If the p value is very small one can conclude that the results are significant (Hicks, 2004)

Spearman's correlation – correlation co-efficient that indexes the degree of relationship between two variables, each of which is measured on an ordinal scale (Graziano and Raulin, 2004).

Correlation co-efficient/rho - an index of the degree of relationship between variables (Graziano and Raulin, 2004).

4.2 Response Rate

Six hundred and fifty seven questionnaires were mailed to biokineticists in the nine provinces. Eighty-eight questionnaires were returned for analysis; however only seventy-eight could be utilised for purposes of analysis as they fully met the inclusion and exclusion criteria. Thus the overall response rate was 11.87% [95% CI 9.55% to 14.65%].

4.3 Results: Descriptive analysis

4.4 Demographics

4.4.1 Objective 1: To establish the demographics of the responding Biokineticists.

4.4.1.1 Gender

The majority of respondents were female (61% - Table 1).

Table 1: Frequency table of gender distribution of participants

		Frequency	Percent
Valid	Male	30	39.0
	Female	47	61.0
	Total	77	100.0
Missing	System	1	
Total		78	

4.4.1.2 Age

The median age of the sample was 29 years, with a range from 22 to 69 years and an inter quartile range from 26.5 to 33.5 years. This is displayed in Table 2.

Table 2: Summary statistics for age of participants

N	Valid	77
	Missing	1
Minimum		22
Maximum		69
Percentiles	25	26.50
	50 (median)	29.00
	75	33.50

4.4.1.3 Time in practice

The median time in practice was 5 years (range 1 year to 28 years). The inter quartile range was from 2.5 years to 10 years.

4.4.1.4 Type of practice

Type of practice is shown in Figure 1. Almost half of the respondents were in a solo practice (n=37), while 24 were in a group practice. Eight of the respondents were from a fitness sports centre.

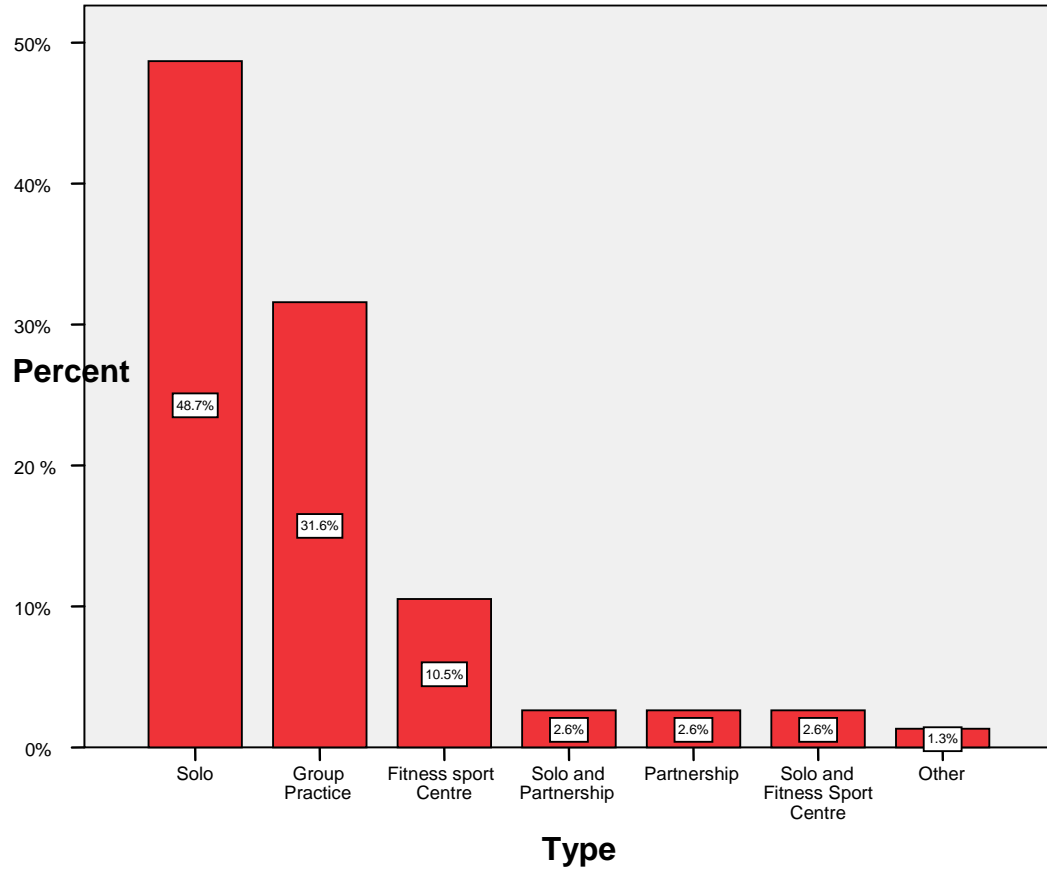


Figure 1: Type of practice in study participants (n=76)

4.4.1.5 Institution Attended

Figure 2 shows that most of the respondents attended the University of Pretoria to qualify (n=19), while 16 participants had studied at the University of Stellenbosch, and 10 at Nelson Mandela Metropolitan University. Nine participants were graduates of UKZN.

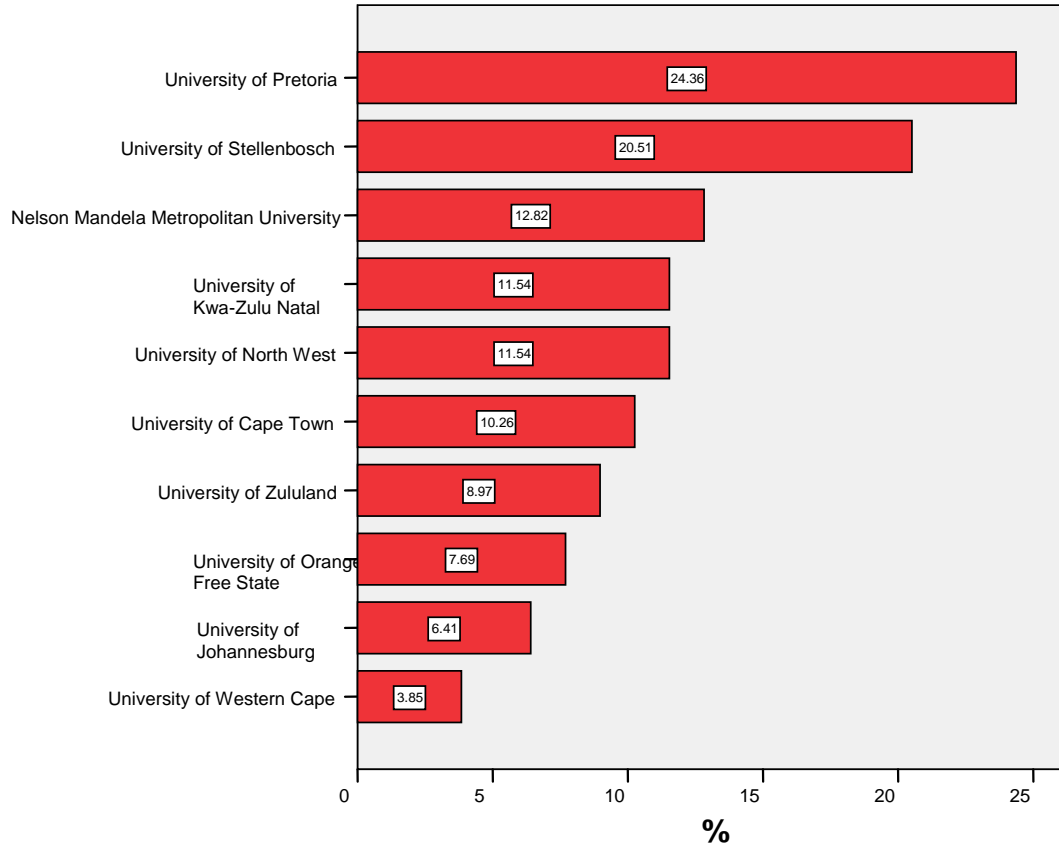


Figure 2: Institution attended (n=54)

4.4.1.6 Province of respondent

The majority of responses were from Gauteng province (42%) while 27% were from the Western Cape and only 15% from KZN. The other provinces' response rate was poor. This is shown in Table 3.

Table 3: Frequency table for Province of respondent

		Frequency	Percent
Valid	Gauteng	31	41.9
	Western Cape	20	27.0
	Kwa-Zulu Natal	11	14.9
	Eastern Cape	8	10.8
	Mpumalanga	3	4.1
	North-west	1	1.4
	Total	74	100.0
Missing	System	4	
Total		78	

4.5 Knowledge

4.5.1 Objective 2: To establish the extent of knowledge of the Chiropractic profession among South African Biokineticists.

4.5.1.1 Self reported knowledge of Chiropractic

Self reported knowledge of Chiropractic is shown in Table 5. The majority of respondents either knew something about Chiropractic (45%) or felt that their knowledge was good (45%). Only 10% reported not knowing a lot about Chiropractic.

4.5.1.2 Most common source of information

Figure 3 shows that the most common source of information about Chiropractic was from their patients (54.5%), followed by from other biokineticists or from other specialists (50.6%). Less than half said they had gained their information from being treated by a chiropractor.

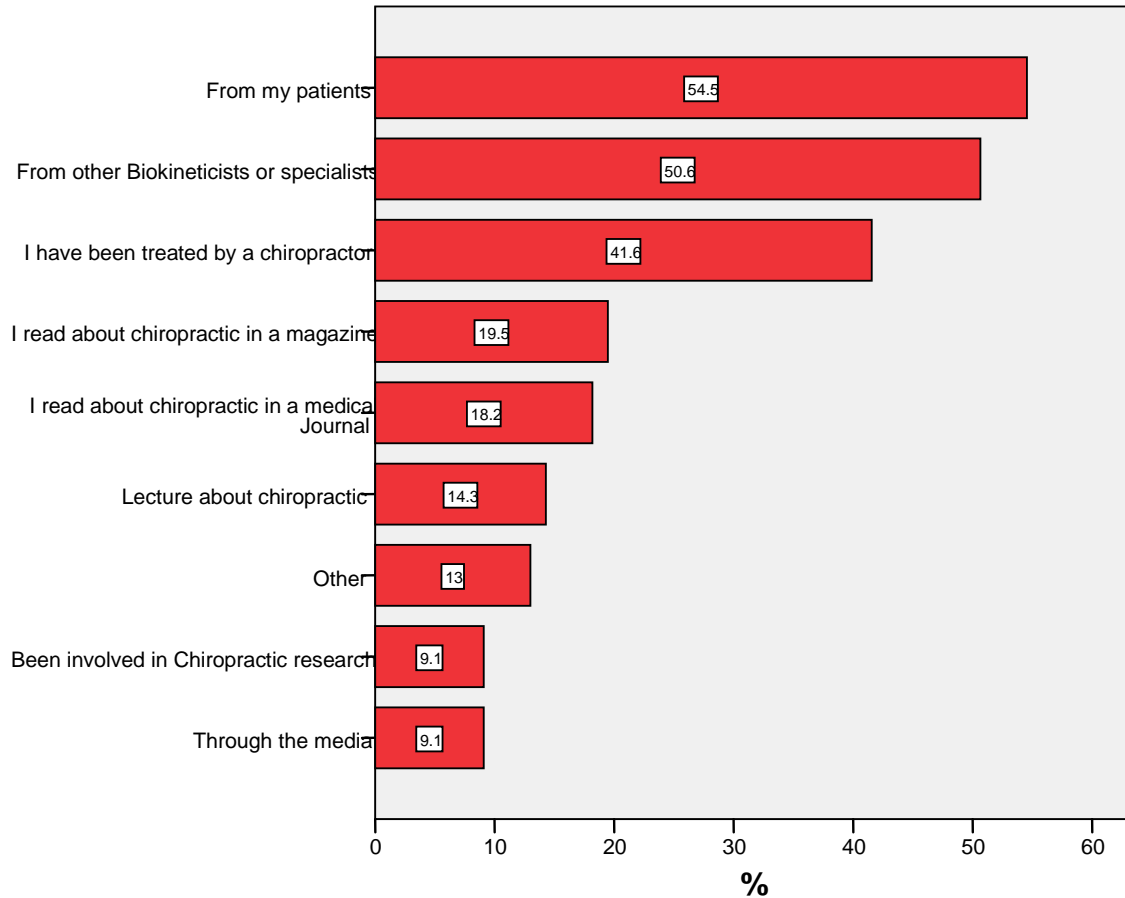


Figure 3: Percentage of responses to the source of their chiropractic information

Tables 4 to 7 display the responses to the individual 39 knowledge questions.

Table 4: Responses to knowledge questions 2.12 to 2.16

The majority of the respondents (85.9%) believed that chiropractors were contracted to medical aids whilst 14.1% believed that they were not contracted to medical aids. The majority of the respondents agreed that the Chiropractic programme was of 5 years duration. More than half (56.5%) believed that there was community service whilst 43.5% thought there was no community service. The majority of the respondents (78.6%) knew there was an internship and 21.4% believed there was no internship.

		Count	%
Medical aid	Yes	61	85.9%
	No	10	14.1%
Duration	2 yrs	1	1.4%
	3 yrs	7	9.7%
	4 yrs	19	26.4%
	5 yrs	45	62.5%
Community Service	Yes	39	56.5%
	No	30	43.5%
Internship	Yes	55	78.6%
	No	15	21.4%
Qualification	Certificate	1	1.4%
	Diploma	5	7.1%
	NHD	7	10.0%
	Bachelors	12	17.1%
	Honours	23	32.9%
	Masters	7	10.0%
	PhD	15	21.4%

4.5.1.3 Subjects in the Chiropractic programme

The majority of the respondents knew that chiropractors studied

- Anatomy (98.6%)
- Physiology (100%), and
- Diagnostics (95.4%) as indicated by their high ratings.

However not many knew that accounting (20.7%), jurisprudence (25%) and psychiatry (30%) were part of the qualification.

Table 5: responses to knowledge questions 2.17

	no		yes	
	Count	%	Count	%
Accounting	46	79.3%	12	20.7%
Anatomy	1	1.4%	70	98.6%
Chemistry	17	26.6%	47	73.4%
Diagnostics	3	4.3%	66	95.7%
Electromodalities	14	22.6%	48	77.4%
Emergency Medical Care	7	10.6%	59	89.4%
Jurisprudence	42	75.0%	14	25.0%
Microbiology	29	46.8%	33	53.2%
Pathology	15	22.7%	51	77.3%
Pharmacy	25	40.3%	37	59.7%
Physics	15	23.1%	50	76.9%
Physiology	0	.0%	70	100.0%
Psychiatry	42	70.0%	18	30.0%
Radiology	23	37.1%	39	62.9%
Surgery	46	79.3%	12	20.7%

4.5.1.4 Conditions that chiropractor can/cannot treat

Eighty one percent agreed that chiropractors can treat headaches, 62.5% agreed on disc problems, 94.5% agreed on low back pain (LBP), 75% agreed on migraines, 80.6% agreed on tension headaches and 78.4% agreed on whiplash. The majority of the respondents had a good idea as to the conditions chiropractors can treat.

Table 6: Responses to knowledge questions 2.24

	Agree		Disagree		Undecided	
	Count	%	Count	%	Count	%
Headaches	59	81.9%	3	4.2%	10	13.9%
Asthma	10	14.1%	34	47.9%	27	38.0%
Chronic Vascular Disease	19	27.1%	23	32.9%	28	40.0%
Disc	45	62.5%	19	26.4%	8	11.1%
Low Back Pain	69	94.5%	3	4.1%	1	1.4%

Migraine	54	75.0%	8	11.1%	10	13.9%
Osteoarthritis	21	29.6%	29	40.8%	21	29.6%
Osteomyelitis	14	19.7%	27	38.0%	30	42.3%
Osteoporosis	15	21.4%	37	52.9%	18	25.7%
Sprains	31	44.3%	28	40.0%	11	15.7%
Temporal Cell Arthritis	10	14.7%	19	27.9%	39	57.4%
Tension Headache	58	80.6%	6	8.3%	8	11.1%
Whiplash	58	78.4%	11	14.9%	5	6.8%

4.5.1.5 Chiropractic terminology

More than half of the respondents (56%) agreed that chiropractors use manipulation in their treatment and 44% strongly agreed upon this. Approximately 49% strongly disagreed that chiropractors looked at referred pain. About 68% strongly disagreed that chiropractors perform minor surgery. The majority of the respondents (66%) agreed that manipulation affects somatic reflexes. More than half (59.2%) agreed that the treatment of trigger points forms part of the treatment. About 41.9% disagreed that chiropractors prescribe medication and 35.1% strongly disagreed with this. More than half of the respondents (55.9%) disagreed that flexion-distraction is an uncommon form of traction used by chiropractors.

Some of the questions were in the negative whilst others were positive and might have confused the respondents. The point was to make sure that they had READ the questions and not simply answered in the affirmative / negative all the time.

Table 7: Responses to knowledge questions 4.0

Terminology	Strongly disagree		Disagree		Agree		Strongly agree	
	n=	%	n=	%	n=	%	n=	%
Chiropractors use manipulation as part of their treatment protocol	0	0%	0	0%	42	56%	33	44%
During patient assessment chiropractors do not look at referred pain	37	49.3%	31	41.3%	4	5.3%	3	4%

Chiropractors perform minor surgery	50	68.5%	19	26.0%	3	4.1%	1	1.4%
The effects of manipulation include viscerosomatic reflexes	1	1.4%	10	13.9%	48	66.7%	13	18.1%
The treatment of trigger points forms part of the treatment provided by chiropractors	2	2.6%	4	5.3%	45	59.2%	25	32.9%
Chiropractors prescribe medication	26	35.1%	31	41.9%	12	16.2%	5	6.8%
Flexion/distraction is an uncommon form of traction used by chiropractors.	9	13.2%	38	55.9%	17	25.0%	4	5.9%

4.5.1.6 Knowledge score

Table 8 shows the summary statistics for the knowledge score for the sample. The median score was 60% and the scores ranged from 5.1% to 82.1%. The interquartile range was from 49% to 64%.

Table 8: Knowledge score percentage in the sample

Minimum		5.1
Maximum		82.1
Percentiles	25	48.718
	50 (median)	58.974
	75	64.103

4.6 Perceptions

4.6.1 Objective 3: To determine the perceptions of the Chiropractic profession among South African Biokineticists.

Perceptions of chiropractic were measured by six questions. The responses to the individual questions are shown in Figures 4 to 6 and Table 11.

4.6.1.1 View of Chiropractic

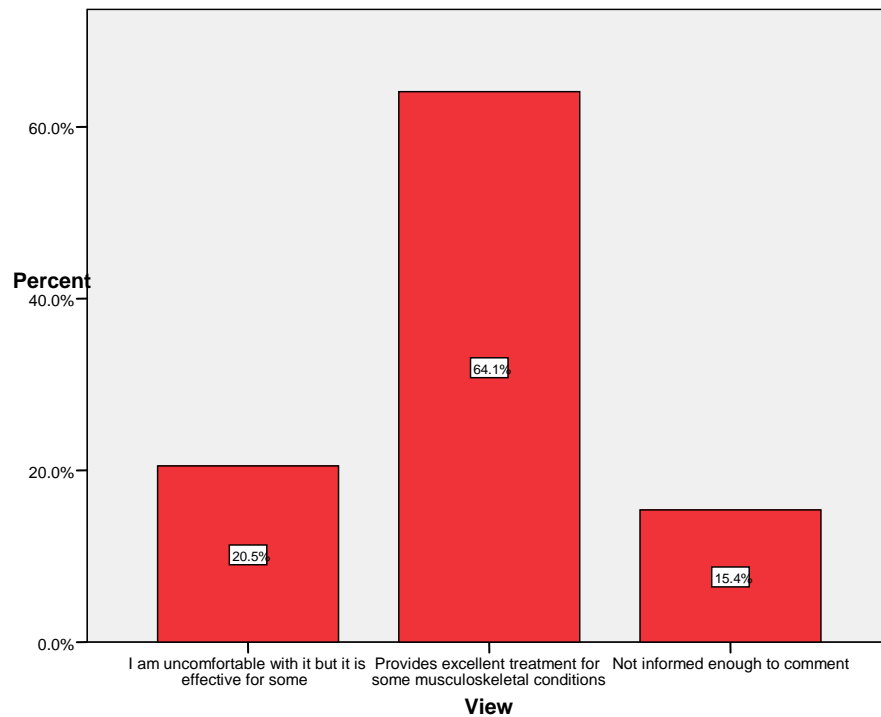


Figure 4: Responses to perception question 2.3

The most frequent view or attitude towards Chiropractic was that it had a valuable role in the health care system (64%). Only 20.5% were uncomfortable with it but believed it could be effective and 15.4% felt they were not informed enough to comment.

4.6.1.2 Competency of chiropractors

Table 9: Responses to perception questions 2.7 to 2.9

To what extent do you believe chiropractors to be competent in neuro-musculoskeletal:	Greatly competent		Moderately competent		Slightly competent		Not at all competent	
	Count	%	Count	%	Count	%	Count	%
Examination	39	51.3%	31	40.8%	6	7.9%	0	.0%
Diagnosis	27	36.0%	33	44.0%	15	20.0%	0	.0%
Treatment	34	44.7%	32	42.1%	10	13.2%	0	.0%

About half of the respondents (51%) believed chiropractors to be greatly competent in examination, 40.8% to be moderately competent and 20% slightly competent. Forty four percent felt that chiropractors are moderately competent in diagnosis, 36% felt they were greatly competent and 20% felt they were slight competent. Approximately 44.7% felt their treatment was greatly competent, 42% felt it was moderately competent and 13.2% felt it was slightly competent.

4.6.1.3 Chiropractic and Physiotherapy

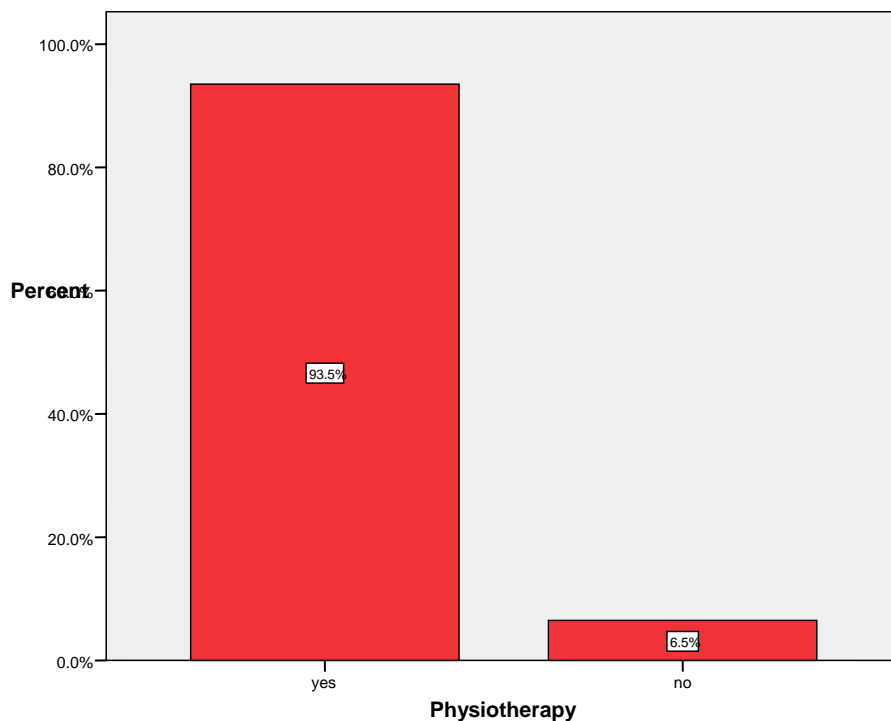


Figure 5: Responses to perception question 2.11

The majority of the respondents (93.5%) believed there is sufficient difference between chiropractors and physiotherapists to warrant two separate professions whilst 6.5% felt there is no need for two different professions.

4.6.1.4 Rating of each profession

Figure 6 shows that the median ranking was highest for biokinetics, nursing, medicine and dentistry, while physiotherapy, dietetics, pharmacy and chiropractic ranked second highest.

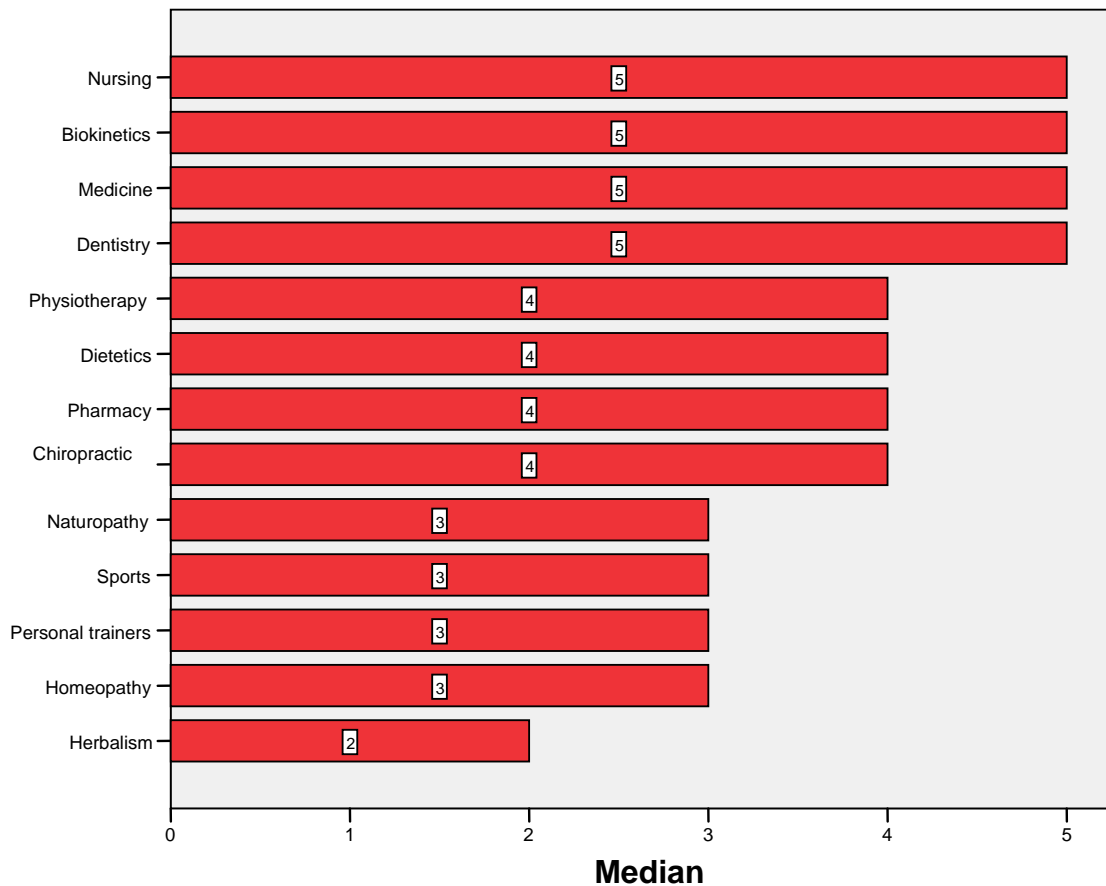


Figure 6: Median rating of professions in terms of their importance in serving in healthcare management

4.6.1.5 Perception score

The perception score was based on the six perception questions (2.3, 2.7-2.9, 2.11 and 2.18). The median perceptions score was 76.5%. Scores ranged from 35% to 100% with an inter quartile range of 65% to 94%. Thus perceptions of Chiropractic were generally high in this sample (Table 10).

Table 10: Perceptions score percentage in the sample (n=75)

N	Valid	75
	Missing	3
Minimum		35
Maximum		100
Percentiles	25	64.71
	50	76.47
	75	94.12

4.7 Communication and referral

4.7.1 Objective 4: To describe the communication and referral between biokineticists and chiropractors.

The rate of communication between chiropractors and biokineticists was quite high in this study. All together, 67% of biokineticists had communicated with chiropractors. The rest were mainly interested in doing so, few said they would not be interested in communicating with chiropractors. This is shown in Table 11.

4.7.1.1 Communication with a chiropractor

Table 11: Frequency table of responses to whether respondents had communicated with a chiropractor about a patient (n=78)

	n	Percent
Yes, often	19	24.4
Yes, but not often	33	42.3
No, but interested in doing so	22	28.2
No, not interested	4	5.1

4.7.1.2 Method of communication

The vast majority of those who had communicated with chiropractors had used a telephonic method of communication. This is shown in Figure 7.

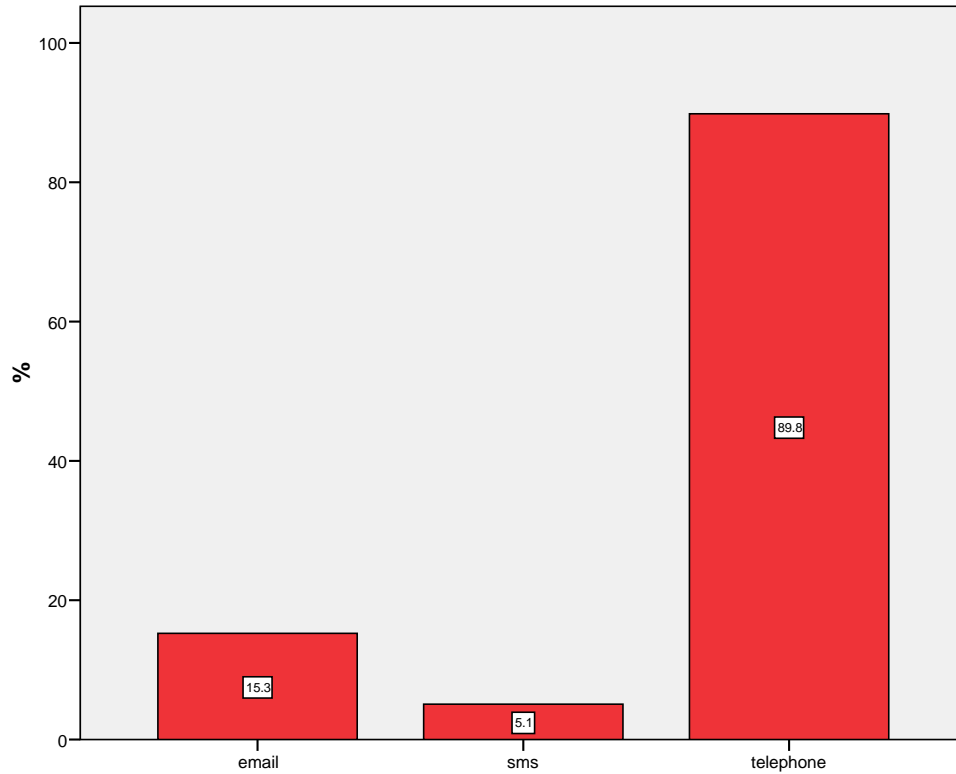


Figure 7: Method of communication

4.7.1.3 Communication experience with a chiropractor

The vast majority of biokineticists rated their communication with chiropractors as positive (94.4%). This is shown in Table 12.

Table 12: Overall rating of communication experience

		Frequency	Percent
Valid	Negative	3	5.6
	Positive	51	94.4
	Total	54	100.0
Missing	System	24	
Total		78	

4.7.1.4 Can communication be improved or not?

Of those who had communicated with chiropractors, 59.6% (n=34) said the communication could be improved. This is shown in Table 13.

Table 13: Responses to whether communication could be improved

	Frequency	Percent
Yes	34	59.6
No	23	40.4
Total	57	100.0

4.7.1.5 Ways of improving communication

The suggested ways of improving the communication are listed below (Table 14).

Table 14: Suggested methods to improve communication between biokineticists and Chiropractors

	Frequency	Percent
By including chiropractors in their list of referrals and sending feedback reports	1	2.9
Chiropractors should be open to suggestions with regards to a patient	2	5.9
Communicate more often to increase interaction between the professions	1	2.9
Try to establish clinics together where chiropractors and biokineticists can work together	1	2.9
Getting to know each field specifically so that one can refer frequently	1	2.9
There should be lectures held about the chiropractic profession and treatment methods used	1	2.9
There should be more willingness to refer by older chiropractors	1	2.9
Sharing of more knowledge between disciplines and sharing patient reports	1	2.9
Workshops to learn more about the different types of treatment for different conditions	1	2.9

4.7.1.6 Recommendation of patients to a chiropractor

Figure 8 shows that most biokineticists were willing to refer patients to chiropractors but that this did not happen often.

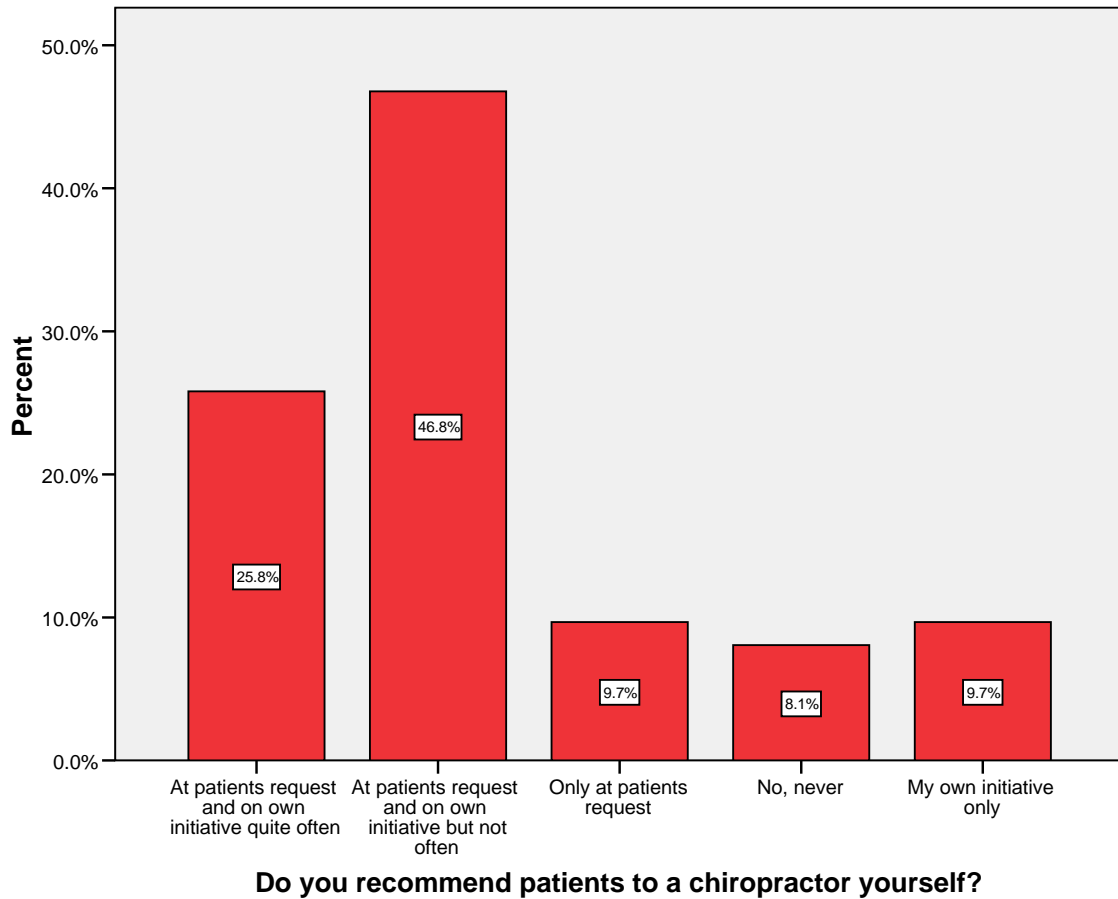


Figure 8: Participants' response to question 2.23

4.7.1.7 Treatment feedback reports

Of those who had referred patients to chiropractors, 41.8% had received treatment feedback reports. This is shown in Table 15.

Table 15: Responses to question 3.1

		Frequency	Percent
Valid	Yes	28	41.8
	No	39	58.2
	Total	67	100.0
Missing	System	11	
Total		78	

4.7.1.8 Response to the reports

Of those who had received feedback reports, 68.8% said they were concise and valuable (Table 16), and all (100%) stated that they would like to continue to receive feedback reports (not shown).

Table 16: Responses to whether the report was concise and valuable (n=32)

	Frequency	Percent
No	10	31.3
Yes	22	68.8

4.7.1.9 Specifications of the reports

The specifications of the feedback that participants would like to receive are summarized in Figure 9.

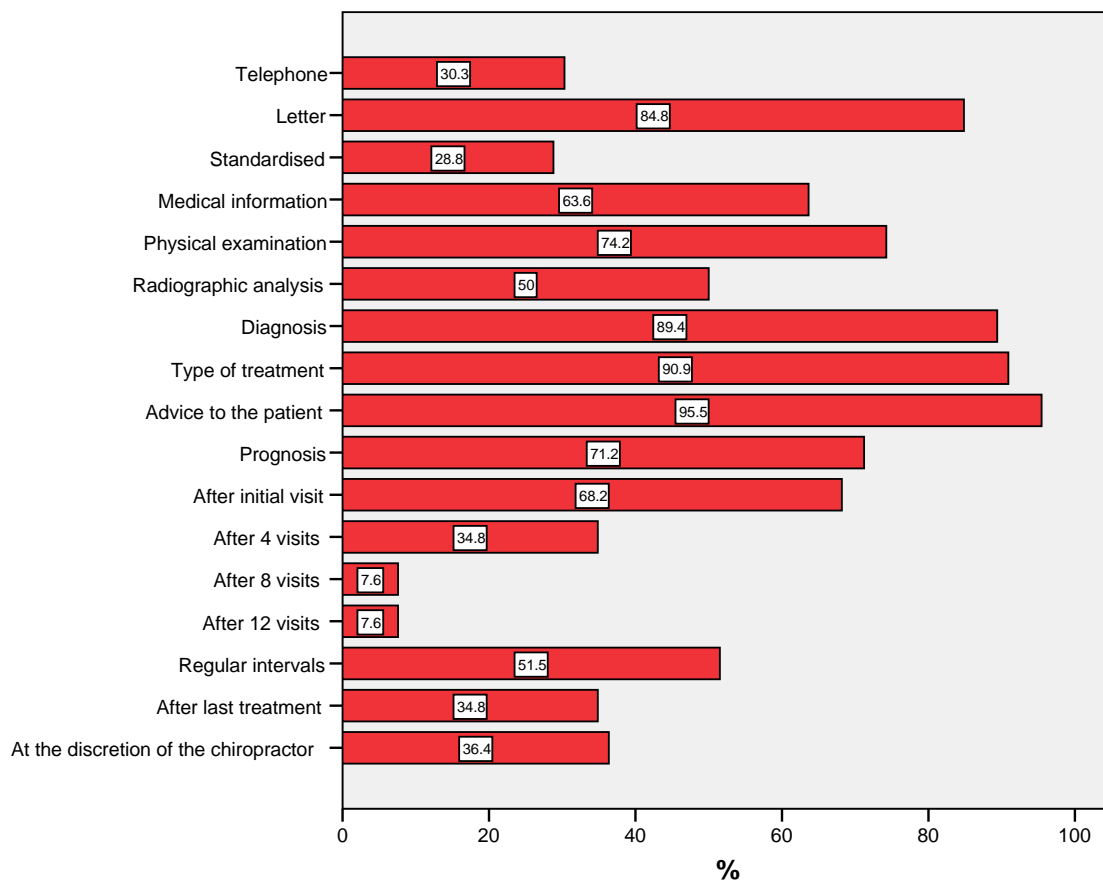


Figure 9: Percentage positive responses to questions 3.4 to 3.6

4.8 Correlation between knowledge, perceptions and demographics

4.8.1 Objective 5: To assess any correlation between knowledge, perceptions and demographics of the responding Biokineticists.

4.8.1.1 Knowledge and perceptions:

There was a weak, although statistically significant positive correlation between knowledge and perceptions ($\rho = 0.432, p < 0.001$).

4.8.1.2 Table 17: Spearman's correlation between knowledge and perceptions scores

			Perceptions score percent
Spearman's rho	Knowledge score percent	Correlation Coefficient	0.432(**)
		Sig. (2-tailed)	<0.001
		N	75

** Correlation is significant at the 0.01 level (2-tailed).

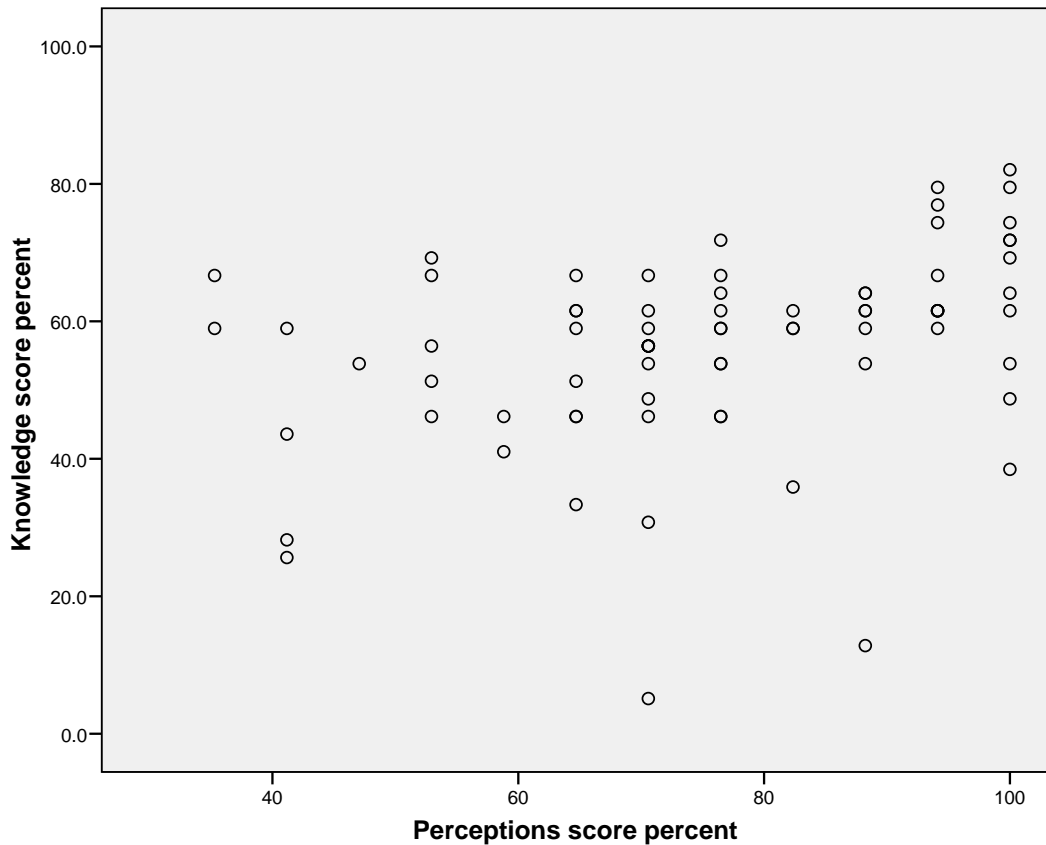


Figure 10: Scatter plot of knowledge score vs. perceptions score.

When knowledge and perceptions scores were compared in a paired Wilcoxon signed ranks test, there was a highly significant difference between knowledge and perceptions ($p < 0.001$). Perceptions scores were significantly higher than knowledge scores. This is shown in Table 18.

4.8.1.3 Table 18: Wilcoxon signed ranks test (paired) comparing knowledge and perception scores

Perceptions score percent - Knowledge score percent		N	Mean Rank	Sum of Ranks	p value
	Negative Ranks	9(a)	22.67	204.00	<0.001
	Positive Ranks	66(b)	40.09	2646.00	
	Ties	0(c)			
	Total	75			

a Perceptions score percent < Knowledge score percent

b Perceptions score percent > Knowledge score percent

c Perceptions score percent = Knowledge score percent

4.8.1.4 Knowledge and demographics

There was no correlation between age and knowledge ($\rho = 0.090$, $p=0.438$), or between length of time in practice and knowledge ($\rho = 0.108$, $p=0.355$). This is shown in Table 19.

Table 19: Correlation between knowledge, and age and years practicing

			age	Years practicing
Spearman's rho	Knowledge score percent	Correlation Coefficient	0.090	0.108
		Sig. (2-tailed)	0.438	0.355
		N	77	75

There was also no difference in median knowledge score between any of the demographic groups (Table 20). The only factor that significantly influenced participants' knowledge was their self reported knowledge of chiropractic ($p=0.006$). The knowledge scores increased as their self reported knowledge category increased.

4.8.1.5 Table 20: Comparison of knowledge by demographic group

		Knowledge score	p values
		percent	
		Median	
Gender	Male	59.0	0.842
	Female	59.0	
Type	Solo	56.4	0.699
	Partnership	69.2	
	Group practice	59.0	
	Fitness sport centre	61.5	
	Other	59.0	
	Solo and partnership	55.1	
	Solo and fitness sport centre	61.5	0.210
Province	Gauteng	59.0	0.210
	Western Cape	61.5	
	Kwa-Zulu Natal	48.7	
	Eastern Cape	56.4	
	Mpumalanga	53.8	
	North-west	74.4	
University	University of Johannesburg	64.1	0.828
	University of Pretoria	59.0	0.341
	University of North West	61.5	0.937
	University of Orange Free State	50.0	0.332
	University of Kwa-Zulu Natal	53.8	0.230
	University of Zululand	61.5	0.425
	University of Cape Town	60.3	0.673
	Nelson Mandela Metropolitan University	59.0	0.392
	University of Stellenbosch	57.7	0.464
	University of Western Cape	61.5	0.807
Self reported knowledge of Chiropractic	I have heard of it but do not know a lot about it	46.15	0.006
	I know something about it	56.41	
	My knowledge about chiropractic is good	61.54	

4.8.1.6 Perceptions and demographics

There was no correlation between age and perceptions ($\rho = 0.214$, $p=0.067$), or between length of time in practice and perceptions ($\rho = 0.209$, $p=0.078$). This is shown in Table 21.

Table 21: Correlation between perceptions, and age and years practicing

			age	Years practicing
Spearman's rho	Perceptions score percent	Correlation Coefficient	0.214	0.209
		Sig. (2-tailed)	0.067	0.078
		N	74	72

There was also no difference in median perceptions score between any of the demographic groups (Table 22) except for those attending University of Johannesburg ($p=0.018$) whose perceptions were significantly higher than the other participants. Participants self reported knowledge of chiropractic also significantly influenced their perceptions ($p<0.001$). The perception scores increased as their self reported knowledge category increased.

4.8.1.7 Table 22: Comparison of perceptions score by demographic group

		Perceptions score percent	p value
		Median	
Gender	Male	71	0.591
	Female	76	
Type	Solo	79	0.772
	Partnership	82	
	Group practice	76	
	Fitness sport centre	71	
	Other	76	
	Solo and partnership	82	
	Solo and fitness sport centre	82	
Province	Gauteng	76	0.294
	Western Cape	71	

	KZN	74	
	Eastern Cape	85	
	Mpumalanga	71	
	North-west	94	
University	University of Johannesburg	94	0.018
	University of Pretoria	76	0.336
	University of North West	74	0.870
	University of Orange Free State	79	0.914
	University of Kwa-Zulu Natal	71	0.142
	University of Zululand	79	0.937
	University of Cape Town	88	0.533
	Nelson Mandela Metropolitan University	91	0.063
	University of Stellenbosch	71	0.123
	University of Western Cape	59	0.051
Self reported knowledge of chiropractic	I have heard of it but do not know a lot about it	53	<0.001
	I know something about it	71	
	My knowledge about chiropractic is good	85	

4.9 Other factors that may have influenced knowledge and perception

4.9.1 Objective 6: to assess if there were any other factors which influenced knowledge and perceptions of chiropractic.

Table 23 shows that being treated by a chiropractor previously did not significantly influence knowledge or perceptions scores. However, having prior expectations about the treatment was associated with significantly higher perceptions scores ($p=0.01$). Also, if the treatment met their expectations, the perceptions scores were significantly higher ($p=0.001$). Knowledge of chiropractic improved significantly if there was a chiropractor working in the area ($p=0.01$).

4.9.1.1 Table 23: Comparison of median knowledge and perceptions scores between responses to other factors

	Knowledge score percent		p value	Perceptions score percent		p value
	yes	no		yes	no	
	Median	Median		Median	Median	
Have you ever been treated by a chiropractor before?	59.0	59.0	0.908	76	71	0.084
Were there any expectations before the treatment?	59.0	59.0	0.835	91	71	0.010
If yes, did the treatment meet your expectations?	59.0	51.3	0.805	82	59	0.001
Do you have any chiropractors working in your area?	59.0	46.2	0.010	76	65	0.103

4.10 Summary of the analytical results

There was a weak, although statistically significant positive correlation between knowledge and perception. This meant that as one score increased so did the other. There was also an indication that some respondents with high knowledge scores had low perception scores and vice versa. The majority of the respondents either knew something about Chiropractic (45%) or felt their knowledge was good (45%).

There was a highly significant difference between knowledge and perception. Perceptions score were significantly higher than knowledge scores. There was no correlation between age and knowledge or between length of time in practice and knowledge. The only factor that significantly affected respondents' knowledge was their self reported knowledge of Chiropractic. The knowledge score increased as their self reported knowledge of Chiropractic increased.

There was no correlation between age and perceptions or between length of time in practice and perceptions and perceptions scores were higher in those attending Johannesburg University. Participants self reported knowledge of Chiropractic significantly influenced their perceptions. The perception score increased as their self reported knowledge category increased. Being treated by a chiropractor previously did not significantly influence knowledge and perception scores. However having prior expectations about the treatment was associated with higher perception scores. Also, if the treatment met their expectations, the perception scores were higher.

4.11 Summary of the key points

Of the respondents who replied to the survey, 44.9% knew something about Chiropractic and 44.9% felt that their knowledge of Chiropractic was good. More than half (54.5%) of those respondents obtained their information from their patients who were treated by a chiropractor. The majority of the sample thought

Chiropractic could help selected patients of conditions mainly neuro-musculoskeletal. As expected, the professions of nursing, medicine and dentistry received a higher rating than Chiropractic. However, biokineticists also received a higher rating than Chiropractic.

The rate of communication between chiropractors and biokineticists was quite high in this survey. Together, 67% of biokineticists had communicated with chiropractors and the rest were mainly interested in doing so. About 89% of the sampled biokineticists communicated with a chiropractor via telephone and 42.3% did so, on a regular basis. Of the biokineticists who had communicated with chiropractors, 94.4% found it positive and 5.6% wanted the communication to be improved. About 9.7% referred patients to chiropractors and 46.8% of these referring biokineticists did so on both the patient's own request and on their own judgment. Of those who had referred patients to chiropractors, 41.8% had received treatment feedback reports. Of those who had received feedback reports, 68.8% said they were concise and valuable.

These results indicate that more interaction between the two professions would be valuable in increasing referrals between the two professions and increasing what biokineticists know and perceive about chiropractic.

CHAPTER FIVE: DISCUSSION

5.1 Response rate

Six hundred and fifty seven questionnaires were mailed to biokineticists in the nine provinces. Eighty-eight questionnaires were returned, but only seventy-eight was used for analysis. Thus the overall response rate was 11.87%, which was slightly lower than that of other surveys conducted by the Chiropractic Profession in South Africa (Rubens, 1996; Hunter, 2004; Louw, 2005). According to Russell et al., (2004), response rates to mail surveys vary depending on the nature of the population studied.

Mailed questionnaires should be as short as possible, focusing on relevant questions and reminder questionnaires should be sent to the non-respondents after an initial 2-3 week period (Russell et al., 2004). Numerous telephonic calls could personally be made to check up on and encourage respondents, who could not complete the questionnaire on time; to complete it (Brusee et al., 2001). However, due to the anonymity of this study, this could not be done. This was a possible additional reason for the low response rate. In this survey certain questions were poorly answered, possibly due to ambiguous or unclear explanations (Russell et al., 2004). Another detracting aspect with respect to the questionnaire was the fact that the blocks (for some questions eg 2.24 and 4) were very close together, causing the respondent possible visual confusion and possibly resulting in a block being erroneously marked (Russell et al., 2004).

Russell et al., (2004), 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%" (Russell et al., 2004:46). This could explain the low response rate in this study. According to Russell et al., (2004), the key to obtaining good response rates is to include in the methodology the use of personalised questionnaires and letters, advance notices, follow up contact and the sending of additional questionnaires to non-

respondents. The results may therefore be subject to respondent bias as when the response rate is very low, the responses received may only be the opinions of the very highly motivated section of the sample; people with strong opinions that take the time and trouble to complete and return the questionnaire (Sociology Central, 2003).

5.2 Demographics

Demographics were divided into factors in the perceiver (gender and age) and factors in the environment (time in practice, type of practice and geographical location) (Robbins, 1996). A larger proportion of the respondents were female (61%) than male (39%). All participants were in the range of 22-69 years. The median time in practice was 5 years and the range was 1-28 years.

The biggest proportion of the respondents worked in a solo practice (48.7%) while the next most common setting was in a group practice (31.6%) and only 10.5% were in a fitness sport centre (Figure 1). Although the majority of the respondents were from a solo practice the other portion of the respondents may be in another environment. Respondents in a solo practice have to refer to other practitioners if need be, whereas those in a group practice may not have the need. The majority of the respondents were from Gauteng province (42%), while 27% were from Western Cape and 15% were from Kwa-zulu Natal. Most of the respondents attended University of Pretoria, 20.51% studied at Stellenbosch and 12.8% studied at Nelson Mandela Metropolitan University (Figure 2). This may have influenced respondent's knowledge because of the geographical location of these Universities to a Chiropractic University.

Based on the above results, such as area of study, solo practice, being in practice for five years and proximity would indicate from an environmental point of view, the exposure to Chiropractic is relatively high and therefore a higher level of knowledge and perception could be expected.

5.3 Biokineticist's knowledge of chiropractic

The majority of respondents either knew something about Chiropractic (45%) or felt that their knowledge was good (45%). Only 10% reported not knowing a lot about it (Table 5). The most common source of information about Chiropractic was from their patients (54.5%), followed by from other biokineticists or from other specialists (50.6%) (Figure 3).

In this respect GP's seemed to gain their knowledge of the profession in a similar manner. Almost 60% obtained their information from patients who were treated by a chiropractor and more than 30% from being treated by a chiropractor themselves and thus experiencing being a patient (Louw, 2005). In contrast, school guidance counselors seemed to gain their knowledge primarily from reading (35%) and then from being treated by a chiropractor at 27% (as opposed to the 41.6% of biokineticists) (Van As, 2005). This information is valuable as it guides chiropractors that are interested in educating other professionals (particularly biokineticists) about the Chiropractic Profession as well as the manner of ensuring information transfer (Langworthy and Smink, 2000). This is very important in improving and correcting any errant perceptions about the Chiropractic Profession (Langworthy and Smink, 2000).

Another 18.2% of the respondents gained their knowledge about Chiropractic by reading medical journals. Langworthy and Smink (2000) suggested that one way to increase awareness between professions would be through the use of journals. Only 10% of the response was correct to the question on qualification, the majority of the responses were incorrect. Similar studies have found the same lack of knowledge (Van As, 2005; Reubens, 1995), where the majority of school guidance counselors, neurologists, neurosurgeons and orthopedic surgeons were not well informed enough about the chiropractic course in South Africa to reliably identify the correct qualification. This was analogous to the findings of the WFC consultation of the identity of Chiropractic where it was

concluded that there is a limited public awareness regarding the education of chiropractors (WFC, 2005).

The mean knowledge score was 60% and the scores ranged from 5.1% to 82.1%. This meant that out of total score of 100, the average biokineticist scored 60 out of 100 for his/her knowledge. With previous studies based on the knowledge Personal Trainers (46.3%) (Kew, 2006) the knowledge score was low, so in comparison the overall knowledge of Chiropractic amongst biokineticists was high in this study because biokineticists work in close contact with NMS disorders.

5.4 The Role of Chiropractic in the South African Health Care System

The most frequent view or attitude towards Chiropractic was that it has a valuable role to play in the health care system (64%). A possible reason for this is that chiropractors work closely with NMS disorders as do biokineticists. Only 20.5% were uncomfortable with it but believed it could be effective and 15.4% felt they were not informed enough to comment. About 44% of the respondents felt that Chiropractic was greatly competent in the treatment of NMS conditions and 13.2% felt they were slightly competent. Thus, the majority thought that Chiropractic could help selected conditions or patients. This is supported by the literature, where Chiropractic is accepted as a legitimate treatment, mainly for NMS conditions (Verhoef and Page, 1996).

The majority of the respondents (93.5%) believed there was sufficient difference between Chiropractic and Physiotherapy to warrant two separate professions. The chiropractor is seen as a biomechanical specialist, whereas the physiotherapist seems to be more a palliative pain control agent along with the GP's role of analgesia in mild conditions, or as a gateway for referral for more specialist care in more severe conditions (Langworthy and Smink, 2000).

Biokineticists were asked to rate 13 professions in terms of their importance in serving in health care capacity in South Africa. The ranking was highest for biokineticists, nursing, Medicine and Dentistry while Physiotherapy, Dietetics, Pharmacy and Chiropractic ranked second highest. There was some discrepancy as to how this question and question 2.1 was answered. Biokineticists felt that Chiropractic had a valuable role in the health care system, yet ranked Chiropractic second highest and biokineticists ranked highest. This could be a result of the Hawthorne Effect which is the behavioural effect on a subject participating in and being observed in the study (Berg and Latin, 2004). It would have been better to present a patient case and then ask the respondents to rank the professions. This would have prevented any discrepancies with this question. Of the complementary therapies listed, including Naturopathy, Herbalism and Homeopathy, Chiropractic received the highest ranking. 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).

5.5 Inter-professional communication between biokineticists and chiropractors

The rate of communication between chiropractors and biokineticists was quite high in this study. In total, 67% of biokineticists had communicated with chiropractors. The vast majority of those who had communicated with chiropractors had used a telephonic method of communication.

In a study done in the Netherlands (Brusee et al., 2001), more than half of the sampled GP's had communicated with chiropractors. In this same study a high percentage of GP's (65%) who had not communicated with a chiropractor before said they were willing to communicate with a chiropractor in the future. A study by Louw (2005) found a significant percentage of the sample (43%) had communicated with a chiropractor via a letter or telephone. With this study 94% of the sample found communication to be positive. The study performed by

Louw (2005), showed just over half the respondents found communication to be positive.

Of those who had communicated with chiropractors, 60% said the communication could be improved. The suggested ways to improve communication were as follows:

By including biokineticists in their list of referrals and sending feedback reports
Chiropractors should be open to suggestions with regards to a patient
Communicate more often to increase interaction between the professions
Try to establish clinics together where chiropractors and biokineticists can work together
Getting to know each field specifically so that one can refer frequently
There should be lectures held about the chiropractic profession and treatment methods used
There should be more willingness to refer by older chiropractors
Sharing of more knowledge between disciplines and sharing patient reports
Workshops to learn more about the different types of treatment for different conditions

Biokineticists reported that chiropractors need to be aware of their limitations and not over treat patients, but refer them to the correct health care professionals when the need arises. By increasing the awareness about the scope of practice of Chiropractic there should be more referrals between these two professions. However it is their perceptions or understanding which is based on patients, and not on the acts on what we can treat.

5.6 Correlation between knowledge, perception and demographics

There was a weak although statistically significant correlation between knowledge and perceptions ($p < 0.001$). This meant that in general if one score increased, so did the other. There was a highly significant difference between knowledge and perception scores ($p < 0.001$) where perceptions scores were higher than knowledge scores. There was no correlation between age and knowledge ($p = 0.438$) or length of time in practice and knowledge ($p = 0.355$). The only factor that significantly influenced respondents knowledge was their self reported knowledge of Chiropractic ($p = 0.006$). Those respondents that worked

in a group practice with a chiropractor being one of the practitioners seemed to have a higher self reported knowledge.

There was no correlation between age and perception ($p=0.067$) or between length of time in practice and perception ($p=0.078$). There was no difference in perception score between any of the demographic groups except those attending University of Johannesburg ($p=0.018$) where perceptions were higher. The fact that these respondents had a higher perception score might be linked to a higher exposure to Chiropractic due to the presence of a chiropractic program in the same university, as well as a high density of chiropractors in this area. Respondents self reported knowledge of Chiropractic also influenced their perceptions ($p<0.001$).

Being treated by a chiropractor previously did not significantly influence knowledge or perceptions scores. However, having prior expectations about the treatment was associated with significantly higher perceptions scores ($p=0.01$). Also, if the treatment met their expectations, the perceptions scores were significantly higher ($p=0.001$). These respondents had the opportunity of gaining first hand experience of what chiropractic treatment is all about. Knowledge of chiropractic improved significantly if there was a chiropractor living in the area ($p=0.010$) due to the exposure and accessibility of Chiropractic.

The studies performed by Louw (2005) and Van As (2005) also showed that there was no correlation between demographics and knowledge and demographics and perceptions. The study performed by Van As (2005) also showed that being treated by a chiropractor was associated with higher perceptions.

5.7 Discussion of the Hypotheses

Therefore, with respect to the hypotheses made in Chapter One the following is applicable.

Hypotheses 1

- The biokineticists level of knowledge with respect to Chiropractic will not be comparable to similar literature in different population groups.

Hypotheses one can be accepted based on the evidence presented in the study. Possible reasons for this include: the majority of respondents are in solo practice and they have more contact with chiropractors, saturation levels of chiropractic in some areas such as Johannesburg, Durban and Cape Town resulted in a higher knowledge as compared to areas where chiropractic saturation is not great such as Limpopo.

However, this must be taken with caution due to the low response rate of this study.

Hypotheses 2

- The biokineticists perception of Chiropractic is not congruent with similar literature in different population groups.

Hypotheses two must be accepted as there is a high perception of Chiropractic amongst biokineticists in South Africa. Biokineticists that studied in University of Johannesburg had higher perceptions towards Chiropractic due to the presence of a chiropractic program in the same university, as well as a high density of chiropractors in this area.

However, this must be taken with caution due to the low response rate of this study.

Hypotheses 3

- No correlations will be evident between the various factors

Hypotheses three must be rejected as there were correlations between various factors. There was a weak although statistically significant correlation between knowledge and perceptions. There was a highly significant difference between knowledge and perception scores where perceptions scores were higher than knowledge scores.

However, this must be taken with caution due to the low response rate of this study.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

The knowledge and perceptions of Chiropractic amongst biokineticists in SA has been described in this study. The low response rate (11.87%) was the main limitation of the study.

This study has shed light on the limitation of knowledge and perception amongst biokineticists with respect to the Chiropractic Profession in South Africa. Chiropractors would be wise to improve public awareness by expounding upon what conditions they can treat. Gaps in the public knowledge have translated into non-utilization. It follows that the more unclear the respondents' understanding of the professions' scope of treatment, the more likely they are not to identify a condition as one that can be treated by Chiropractic. Although Chiropractic is considered to be a viable means of treating certain disorders, there is still much confusion among biokineticists about the exact role of Chiropractic in the health care system.

Nevertheless there is evidence to suggest that biokineticists' knowledge of Chiropractic improves if they have been treated by a chiropractor before, and this corresponds to the number of referrals between biokineticists and chiropractors.

This study provided useful information which could influence referrals and collaboration between biokineticists and chiropractors in the South African health care system and indicates that although a milieu of co-operation exists, it can be enhanced by further communication and education of biokineticists regarding the role and function of a Chiropractic practitioner.

6.1.1 Limitations of the 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 have been more likely to participate. Those with neutral views may not have participated. Thus one cannot extrapolate the results to the entire profession.

6.1.2 Strengths of the study

Different areas were represented. This study tried to get representation from different provinces, thus it is more generalisable to South Africa than just a study in Kwa-Zulu Natal. Intervention programmes to educate and increase awareness of Chiropractic amongst biokineticists should take place.

Future studies: this study provides useful information which could influence future referral and collaboration between biokineticists and chiropractors.

6.2 Recommendations

- The response rate to this mailed survey was low. Mailed questionnaires should be as short as possible, focusing on the important questions. The results from this study may not be a representative of biokineticists country wide. Factors such as geographical location and presence and absence of Chiropractic training programmes would be the two potential modifiers for a regional difference in the understanding of Chiropractic.
- In the survey certain questions were poorly answered possibly due to ambiguous or unclear explanations. In question 4 terminologies were listed for which the biokineticists had to indicate whether they agreed or disagreed. Some of the statements were in the negative, whilst others were positive, these were there to ensure that the respondent read the question and this might have confused the respondent.

This may have caused an incorrect response to this question, since some biokineticists followed the instructions, while others appeared not to. This was the perception conveyed to the researcher from the manner in which the responses were noted.

- Another detracting aspect with respect to the questionnaire was the fact that the blocks (for some questions eg 2.24 and 4) were very close together, causing the respondent possible visual confusion and possibly resulting in a block being erroneously marked. In a future study, revision of this question would be beneficial to gain the most accurate response.
- With question 2.18 it would be better to present a patient case and then ask the respondent to rank the different professions. This would have prevented any discrepancies with this question and question 2.1.

- Intervention programmes to educate and increase awareness of chiropractic amongst biokineticists should take place. Talks on chiropractic could also be delivered to fitness sport centres. More articles should be published in educational journals, magazines and newspapers as these seem to be a common source of information to a wide variety of people.

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APPENDICES

Appendix A

Dear Participant,

I am a student currently pursuing a qualification at the Durban University of Technology.

Study Title:

A survey to determine the knowledge and perceptions of Biokineticists with respect to the Chiropractic Profession.

Background to study:

The health care system in South Africa is undergoing changes at the present. Some of the important issues under the spotlight at the moment include a shortage of resources, the high costs of health care, and a lack of inter-professional cooperation.

At present, very little quantifiable evidence on biokineticists perceptions of and knowledge towards the chiropractic profession exists, and as yet, no studies have been carried out in South Africa.

It is therefore the intention of the researcher to determine the current perceptions and knowledge of biokineticists with respect to the chiropractic profession.

Objective of Study:

The data obtained from the attached questionnaire will allow for further assessment of the role of the inter-professional relationship between chiropractors and biokineticists in the South African health care system. 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 you furnish will be treated in the utmost confidence. Please return the questionnaire in the stamped addressed envelope included for your convenience. A neutral party at the Durban University of Technology will receive the questionnaire. Thus the researcher will never have access to the identities of the recipients.

Also the results of the study will be sent to you, as soon as they are available, for your perusal and comments. Also you are free to withdraw from the study at any stage.

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

Yours sincerely,

Magashri Naidoo
Research Student

Charmaine Korporaal
Supervisor

Appendix B

INFORMED CONSENT FORM

(TO BE COMPLETED BY THE PARTICIPANTS)

DATE:

TITLE OF RESEARCH PROJECT:

A survey to determine the knowledge and perceptions of biokineticists in South Africa towards chiropractic.

NAME OF SUPERVISOR:

Dr C. Korporaal 083 2463562 (w): 031 2042611

NAME OF RESEARCH STUDENT:

Magashri Naidoo 0826651879 DUT 031-2042205

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 University 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:

Participant's Name: _____ Signature: _____

APPENDIX C

Biokineticist Questionnaire

Dear Sir/Madam

This should not take more than 10 minutes to complete.

Please answer all questions honestly and to the best of YOUR ability.

This is not a test. There is no right or wrong answers.

I am looking for trends and NOT individual cases. You will remain anonymous throughout

1.0 Personal Data

1.1 **Gender:** Male Female

1.2 **Age:** _____ years

1.3 **How long have you been practising as a biokineticist?** _____ years

1.4 **In what type of practice do you work:**

- Solo practice
- Partnership
- Group practice (three or more practitioners, or multi-disciplinary practice)
- Fitness Sport Centre

1.5 **In which city is your practice located?** _____

1.6 **Which one of the following Institutions did you obtain your qualification from?**

- University of Johannesburg
- University of Pretoria
- University of North West
- University of Orange Free State
- University of Kwa-zulu Natal
- University of Zululand
- University of Cape Town
- Nelson Mandela Metropolitan University
- University of Stellenbosch
- University of Western Cape
- Other if qualified overseas _____

2.0 General Questions about Chiropractic

2.1 How would you describe your knowledge about chiropractic?

- Never heard of (*continue with Question 5.1*)
- I have heard of it but I do not know a lot about it
- I know something about it
- My knowledge about chiropractic is good

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

- Lecture about chiropractic
- I have been treated by a chiropractor
- I have read about chiropractic in a medical journal
- I have read about chiropractic in a magazine
- From my patient(s) who has (have) been treated by a chiropractor
- From other biokineticists, specialists, physiotherapists, etc.
- Through the media
- Been involved as a participant/supervisor in Chiropractic research
- Other(*pleasespecify*).....
-

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

- I am uncomfortable with it but it is effective for some patients.
- Chiropractic provides excellent treatment for some musculoskeletal conditions.
- Not informed enough to comment.

2.4 Have you ever been treated by a Chiropractor?

- Yes
- No

2.5 Were there any expectations before the treatment?

- No
 Yes

If Yes, Please elaborate _____

2.6 If yes, did the treatment meet with your expectations?

- Yes
 No

If No, please elaborate _____

For the next 3 questions please note that competent is defined as the Chiropractor's ability to appropriately and thoroughly assess / diagnose/treat the clinical problem at hand.

2.7 To what extent do you believe chiropractors to be competent in neuro-musculoskeletal examination? (Please tick one box only.)

- Greatly competent
 Moderately competent
 Slightly competent
 Not at all competent

2.8 To what extent do you believe chiropractors to be competent in neuro-musculoskeletal diagnosis? (Please tick one box only.)

- Greatly competent
 Moderately competent
 Slightly competent
 Not at all competent

2.9 To what extent do you believe Chiropractors to be competent in the treatment of neuro-musculoskeletal disorders

- Greatly competent
 Moderately competent
 Slightly competent
 Not at all competent

2.10 Do you have any Chiropractors working in your area?

- Yes
- No

2.11 Do you believe that there is sufficient difference between Chiropractic and Physiotherapy to warrant two separate professions?

- Yes
- No

2.12 Do Medical Aids cover Chiropractic treatment?

- Yes
- No

2.13 What is the duration of the chiropractic course in South Africa?

- 1 year
- 2 years
- 3 years
- 4 years
- 5 years

2.14 Are Chiropractic students involved in community engagements?

- Yes
- No

2.15 Are Chiropractors required to complete an internship prior to registration?

- Yes
- No

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

- Certificate
- Diploma
- National higher diploma
- Bachelor's degree
- Honors
- Master's degree
- PhD
- Other: _____

2.17 Which one of the following subjects are included in the Chiropractic programme at DUT? Please circle to indicate "TRUE" or "FALSE"

- | | | |
|---|---|------------------------|
| T | F | Accounting |
| T | F | Anatomy |
| T | F | Chemistry |
| T | F | Diagnostics |
| T | F | Electro-modalities |
| T | F | Emergency Medical Care |
| T | F | Jurisprudence |
| T | F | Microbiology |
| T | F | Pathology |
| T | F | Pharmacology |
| T | F | Physics |
| T | F | Physiology |
| T | F | Psychiatry |
| T | F | Radiology |
| T | F | Surgery |

2.18 Please rate each of the following professions in terms of their importance in serving in healthcare management. *(Please circle a number for each profession, with (1) indicating least important and (5) indicating most important.)*

1. Biokinetics	1	2	3	4	5
2. Chiropractic	1	2	3	4	5
3. Dentistry	1	2	3	4	5
4. Dieticians	1	2	3	4	5
5. Herbalism	1	2	3	4	5
6. Homeopathy	1	2	3	4	5
7. Medicine	1	2	3	4	5
8. Naturopathy	1	2	3	4	5
9. Nursing	1	2	3	4	5
10. Personal Trainers	1	2	3	4	5
11. Pharmacy	1	2	3	4	5
12. Physiotherapy	1	2	3	4	5
13. Sport Coaches	1	2	3	4	5

2.19 Have you ever communicated with a chiropractor about a patient?

- Yes, I often communicate with a chiropractor about a patient.
- Yes, I have communicated with a chiropractor but not often.
- No, I have never communicated with a chiropractor, but I am interested in doing so. (continue with question 2.24)
- No, but I am not interested anyway. (continue with question 5.2)

2.20 If yes, how?

- E-mail
- SMS
- Telephone

2.21 How would you rate the overall communication experience about a patient between you and a chiropractor?

- Negative
- Positive
- | |
|--------------------------------------|
| Negative: non-informative/unfriendly |
| Positive: informative/friendly |

2.22 Do you think this communication could be improved?

- Yes
- No
- If Yes how could it be improved _____

2.23 Do you recommend patients to a chiropractor yourself?

- At the patients' request and on my own initiative reasonably often
- At the patients' request and on my own initiative but not often
- Only at the patients' request
- No, never (*continue with Question 2.24*)
- My own initiative only.

2.24 Chiropractic referral is an option for patients with:

	Agree	Disagree	undecided
Cervicogenic headache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic Asthma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic visceral disorders (responding poorly to medical intervention)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disc herniations/protrusions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low Back Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Migraine headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoarthritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteomyelitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoporosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sprains/strains (eg. ankle, wrist)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporal Cell Arteritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tension headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whiplash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3 Feedback Report re Chiropractic Treatment
--

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

- Yes (*continue with Question 3.2*)
- No, never (*continue with Question 3.3*)

3.2 Was the report concise and valuable?

- No
- Yes

If Yes, please elaborate _____

3.3 Would you like to (continue to)/ receive a feedback report from a chiropractor when referring patients?

- Yes
- No, I do not think that is advisable. (Please specify reason):

(continue with Question 4.)

3.4 In what format would you like to receive this report? (More than one answer possible)

- By telephone
- By letter/E-mail
- Standardised form with relevant categories ticked off

3.5 What would you like to see in this feedback report? (More than one answer possible)

- Appropriate medical information
- Physical examination
- Chiropractic radiographic analysis
- Diagnosis of the patient from the Chiropractor
- Type of treatment(s)
- Advice of the chiropractor to the patient (eg. work/sports advice)
- Prognosis

3.6 As a standard rule when do you wish to receive a feedback report? (More than answer one answer possible)

- After the initial chiropractic visit
- After 4 treatments
- After 8 treatments
- After 12 treatments
- After Treatment(s) (*Please fill in the appropriate number*)
- On regular intervals during long-term treatment
- After the patient has received his/hers last treatment
- At the discretion of the chiropractor (eg. change in the patient's situation)

Other_____

4.0 Terminology

	Strongly Disagree	Disagree	Strongly Agree	Agree
Chiropractors use manipulation as part of their treatment protocol.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During patient assessment chiropractors do not look at referred pain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chiropractors perform minor surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The effects of manipulation include viscerosomatic reflexes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The treatment of trigger points forms part of the treatment provided by chiropractors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chiropractors prescribe medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flexion/distraction is an uncommon form of traction used by chiropractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.0 Information

5.1 Would you be interested in further information about chiropractic?

- Yes
- No

5.2 If yes, please

specify: _____

Thank you very much for taking time to complete this questionnaire
Please return the questionnaire in the enclosed stamped addressed

APPENDIX D

Letter of thanks to the participant

Dear Participant,

I would like to take this opportunity to thank you most sincerely for your willingness and assistance for your participation in my survey on the knowledge and perceptions of biokineticists in South Africa towards Chiropractic.

The published results of the survey will be available to you in the library of the Durban University of Technology before the end of 2007.

Yours faithfully

Magashri Naidoo
Research student

Charmaine Korporaal
Department of Chiropractic

<u>For Internal Office Use:</u>	Collected By: _____
Payment Date: _____ Cashier: _____	Signature: _____
Receipt No: _____ Amount: _____	Date: _____

E&OE

The Order will be processed on receipt of signed Order and/or Payment Confirmation.


Mrs Yvette Daffue
IT Helpdesk & Statistics

APPENDIX F

Letter of information – focus group (15/9/06)

Dear Participant

I would like to welcome you into the focus group of my study.

Study Title:

A survey to determine the knowledge and perceptions of biokineticists with respect to chiropractic.

Background to study:

Chiropractic is a health profession specializing in the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system and the effects of these disorders on the function of the nervous system and general health.

The health care system in South Africa is undergoing changes at the present. Some of the important issues under the spotlight at the moment include a shortage of resources, the high costs of health care, and a lack of inter-professional cooperation.

At present, very little quantifiable evidence on biokineticists perceptions of and knowledge towards the chiropractic profession exists, and as yet, no studies have been carried out in South Africa.

It is therefore the intention of the researcher to determine the current perceptions and knowledge of South African biokineticists on the chiropractic profession.

Objective of Study:

The data obtained from the attached questionnaire will allow for further assessment of the role of the inter-professional relationship between chiropractors and biokineticists in the South African health care system. The questions will be concerned with your views of chiropractic, as well as the effectiveness of inter-professional relations and how they can be improved. 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. As a focus group member you can discuss the questionnaire with the group, ruling out any ambiguity.

As a participant in this study 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.

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

.....
Magashri Naidoo
Research Student

.....
Charmaine Korporaal
Supervisor

APPENDIX G
INFORMED CONSENT FORM

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

DATE: 15 SEPTEMBER 2006

TITLE OF RESEARCH PROJECT:

A survey to determine the knowledge and perceptions of biokineticists with respect to chiropractic.

NAME OF SUPERVISOR:

C. Korporaal 083 2463562 (w): 031 2042611

NAME OF RESEARCH STUDENT:

Magashri Naidoo 0826651879 DUT 031-2042205

Please circle the appropriate answer

YES /NO

- | | | |
|--|-----|----|
| 10. Have you read the research information sheet? | Yes | No |
| 11. Have you had an opportunity to ask questions regarding this study? | Yes | No |
| 12. Have you received satisfactory answers to your questions? | Yes | No |
| 13. Have you had an opportunity to discuss this study? | Yes | No |
| 14. Have you received enough information about this study? | Yes | No |
| 15. Do you understand the implications of your involvement in this study? | Yes | No |
| 16. 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 |
| 17. Do you agree to voluntarily participate in this study | Yes | No |
| 18. 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 Name: _____ Signature: _____

APPENDIX H

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.

Member represents	Member's Name	Signature	Contact Details

APPENDIX I
CONFIDENTIALITY STATEMENT – FOCUS GROUP
DECLARATION

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.

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: _____

Researchers Name: _____ Signature: _____

Supervisors Name: _____ Signature: _____

Appendix J

Dear Magashri

Thank you for contacting me regarding the use and modification of the questionnaire. I assume it is the one that developed in relation to GPs in Norway.

I am happy for you to use this and would be interested in seeing how it is modified and learning of your results.

Good luck with your study!

Jenny

Appendix K

Biokineticist Questionnaire (Pre-focus group)

Dear Sir/Madam

This should not take more than 10 minutes to complete.

Please answer all questions honestly and to the best of YOUR ability.

This is not a test. There are no right or wrong answers.

I am looking for trends and NOT individual cases. You will remain anonymous throughout

1.0 Personal Data

1.1 **Gender:** Male Female

1.2 **Age:** _____ years

1.3 **How long have you been practising as a biokineticist?** _____ years

1.4 **In what type of practice do you work:**

- Solo practice
- Partnership
- Group practice (three or more GP's)
- Fitness Sport Centre

2.0 General Questions about Chiropractic

2.1 **How would you describe your knowledge about chiropractic?**

- Never heard of (*continue with Question 5.1*)
- I have heard of it but I do not know a lot about it
- I know something about it
- My knowledge about chiropractic is good

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

- Lay lecture about chiropractic
- I have been treated by a chiropractor
- I have read about chiropractic in a medical journal
- I have read about chiropractic in a (lay) journal
- From my patient(s) who has (have) been treated by a chiropractor
- Through the media

- Other (*pleasespecify*).....
.....

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

- I am uncomfortable with it but it is effective for some patients.
- Chiropractic provides excellent treatment for some musculoskeletal conditions.
- Chiropractic is quakery and does more than good

2.4 To what extent do you believe chiropractors to be competent in neuro-musculoskeletal examination and diagnosis? (Please tick one box only.)

- Greatly competent
- Moderately competent
- Slightly competent
- Not at all competent

2.5 What is the duration of the chiropractic course in South Africa?

- 3 years
- 4 years
- 5 years
- 6 years
- 7 years

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

- Diploma
- National higher diploma
- Bachelor's degree
- Master's degree
- PHd
- Other: _____

2.7 The chiropractic course requires grounding in which one of the following subjects? Please circle to indicate “TRUE” or “FALSE”

- | | | |
|---|---|---------------|
| T | F | Anatomy |
| T | F | Chemistry |
| T | F | Diagnostics |
| T | F | Microbiology |
| T | F | Pathology |
| T | F | Pharmacology |
| T | F | Physics |
| T | F | Physiology |
| T | F | Physiotherapy |
| T | F | Psychiatry |
| T | F | Radiology |
| T | F | Surgery |

2.8 Please rate each of the following professions in terms of their importance in serving in a primary healthcare capacity. (Please circle a number for each profession, with (1) indicating least important and (5) indicating most important.)

- | | | | | | |
|--------------------------|-------|---|---|---|---|
| 1. Chiropractic | 1 | 2 | 3 | 4 | 5 |
| 2. Dentistry | 1 | 2 | 3 | 4 | 5 |
| 3. Herbalism | 1 | 2 | 3 | 4 | 5 |
| 4. Homeopathy | 1 | 2 | 3 | 4 | 5 |
| 5. Medicine | 1 | 2 | 3 | 4 | 5 |
| 6. Naturopathy | 1 | 2 | 3 | 4 | 5 |
| 7. Nursing | 1 | 2 | 3 | 4 | 5 |
| 8. Optometry | 1 | 2 | 3 | 4 | 5 |
| 9. Pharmacy | 1 | 2 | 3 | 4 | 5 |
| 10. Physiotherapy | 1 | 2 | 3 | 4 | 5 |
| 11. Traditional healing | 1 | 2 | 3 | 4 | 5 |
| 12. Other (please state) | _____ | | | | |

2.9 Have you ever communicated with a chiropractor about a patient by telephone?

- Yes, I often communicate with a chiropractor about a patient by telephone
- Yes, I have communicated with a chiropractor by telephone but not often.
- No, I have never communicated with a chiropractor by telephone, but I am interested in doing so.
- No, but I am not interested anyway.

2.10 Have you ever communicated with a chiropractor about a patient by letter?

- Yes, I often communicate with a chiropractor about a patient by letter
- Yes, I have communicated with a chiropractor by letter but not often.
- No, I have never communicated with a chiropractor by letter, but I am interested in doing so (*continue with question 2.15*)
- No, but I am not interested anyway (*continue with question 5.2*)

2.11 How would you rate the communication experience about a patient between you and a chiropractor?

Telephone	Letter	
<input type="checkbox"/>	<input type="checkbox"/>	Very negative
<input type="checkbox"/>	<input type="checkbox"/>	Negative
<input type="checkbox"/>	<input type="checkbox"/>	Neutral
<input type="checkbox"/>	<input type="checkbox"/>	Positive
<input type="checkbox"/>	<input type="checkbox"/>	Very positive
<input type="checkbox"/>	<input type="checkbox"/>	No opinion

2.12 Do you think this communication could be improved?

- Yes
- No
- No opinion

If yes, how could it be improved? _____

2.13 Do you refer patients to a chiropractor yourself?

- At the patients' request and on my own initiative reasonably often
- At the patients' request and on my own initiative but not often
- Only at the patients' request
- No, never (*continue with Question 2.15*)

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

- Immediately
- 2 weeks
- 4 weeks
- 6 weeks
- 12 weeks
- More than 12 weeks

2.15 Chiropractic referral is an option for patients with:

	Agree	Disagree	undecided
Low Back Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whiplash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Avascular Necrosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic Visceral Disorders (Responding poorly to medical intervention)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Neck and Shoulder Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tension headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Non-organic/functional/migraine headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteomyelitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cervicogenic Headache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sprains/strains (eg. ankle, wrist)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoarthritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoporosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Colic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3 Feedback Report re Chiropractic Treatment

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

- Yes (*continue with Question 3.2*)
- No, never (*continue with Question 3.3*)

3.2 What is your opinion about the style and content of this feedback report?

- Uses terminology which I as a biokineticist do not understand
- Contains non-relevant information
- Is too extensive
- Is too short
- Is written by hand and difficult to read
- Is not written in correct English
- No comment, I am positive regarding this feedback report
- Other _____

3.3 Would you like to (continue to) receive a feedback report from a chiropractor when referring patients?

- Yes, all
- Yes, but only in essential cases
- No opinion
- No, I don't think that it is advisable

3.4 In what format would you like to receive this report? (more than one answer possible)

- By telephone
- By letter
- Standardised form with relevant categories ticked off

3.5 What would you like to see in this feedback report? (*More than one answer possible*)

- Appropriate medical information
- Physical examination
- Chiropractic radiographic analysis

- Diagnosis of the patient from the Chiropractor
- Frequency and total number of treatments
- Advice of the chiropractor to the patient (eg. work/sports advice)
- Prognosis
- If applicable, the explanation as to why the patient is being

referred back (eg specific pathology, unsatisfactory results)

3.6 As a standard rule when do you wish to receive a feedback report? (More than answer one answer possible)

- After the initial chiropractic visit
- After 4 treatments
- After 8 treatments
- After 12 treatments
- After Treatment(s) *(Please fill in the appropriate number)*
- On regular intervals during long-term treatment
- After the patient has received his/hers last treatment
- At the discretion of the chiropractor (eg. change in the patient's situation)

Other information for example _____

4.0 Terminology

	Strongly Disagree	Disagree	Strongly Agree	Agree
Chiropractors use manipulation as part of their treatment protocol.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chiropractors do not treat fixations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During patient assessment chiropractors do not look at referred pain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chiropractors perform minor surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| The effects of manipulation include viscerosomatic reflexes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The treatment of trigger points forms part of the treatment provided by chiropractors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Chiropractors prescribe medication | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Flexion/distraction is an uncommon form of traction used by chiropractors | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

5.0 Information

5.1 Would you be interested in further information about chiropractic?

- Yes
- No further information required
- No
- Don't know

5.2 What other information would you like to have about a chiropractor?

- | Yes | No | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Education |
| <input type="checkbox"/> | <input type="checkbox"/> | Scientific research |
| <input type="checkbox"/> | <input type="checkbox"/> | Indications for chiropractic treatment |
| <input type="checkbox"/> | <input type="checkbox"/> | Different chiropractic techniques |
| <input type="checkbox"/> | <input type="checkbox"/> | Terminology |
| | | Other_____ |

Thank you very much for taking time to complete this questionnaire
Please return the questionnaire in the enclosed stamped addressed

Appendix L

To Magashri

As the research administrator of the Chiropractic Department I will be willing to collect the questionnaires for you and serve as the neutral third party to ensure anonymity in your research.

Mrs Ireland

Appendix M

Biokineticist Questionnaire (Post- Focus group questionnaire)

Dear Sir/Madam

This should not take more than 10 minutes to complete.

Please answer all questions honestly and to the best of YOUR ability.

This is not a test. There are no right or wrong answers.

I am looking for trends and NOT individual cases. You will remain anonymous throughout

2.0 Personal Data

1.1 **Gender:** Male Female

1.2 **Age:** _____ years

1.3 **How long have you been practising as a biokineticist?** _____ years

1.4 **In what type of practice do you work:**

- Solo practice
- Partnership
- Group practice (three or more practitioners, or multi-disciplinary practice)
- Fitness Sport Centre

1.5 **In which city is your practice located?** _____

1.6 **Which one of the following Institutions did you obtain your qualification from?**

- University of Johannesburg
- University of Pretoria
- University of North West
- University of Orange Free State
- University of Kwa-zulu Natal
- University of Zululand
- University of Cape Town
- Nelson Mandela Metropolitan University
- University of Stellenbosch
- University of Western Cape

2.0 General Questions about Chiropractic

2.1 How would you describe your knowledge about chiropractic?

- Never heard of (*continue with Question 5.1*)
- I have heard of it but I do not know a lot about it
- I know something about it
- My knowledge about chiropractic is good

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

- Lecture about chiropractic
- I have been treated by a chiropractor
- I have read about chiropractic in a medical journal
- I have read about chiropractic in a magazine
- From my patient(s) who has (have) been treated by a chiropractor
- From other biokineticists, specialists, physiotherapists, etc.
- Through the media
- Been involved as a participant/supervisor in Chiropractic research
- Other(*pleasespecify*).....
-

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

- I am uncomfortable with it but it is effective for some patients.
- Chiropractic provides excellent treatment for some musculoskeletal conditions.
- Not informed enough to comment.

2.4 Have you ever been treated by a Chiropractor?

- Yes
- No

2.5 Were there any expectations before the treatment?

- No
- Yes

2.6 If yes, did the treatment meet with your expectations?

- Yes
- No

For the next 3 questions please note that competent is defined as the Chiropractor's ability to appropriately and thoroughly assess / diagnose/treat the clinical problem at hand.

2.7 To what extent do you believe chiropractors to be competent in neuro-musculoskeletal examination? (Please tick one box only.)

- Greatly competent
- Moderately competent
- Slightly competent
- Not at all competent

2.8 To what extent do you believe chiropractors to be competent in neuro-musculoskeletal diagnosis? (Please tick one box only.)

- Greatly competent
- Moderately competent
- Slightly competent
- Not at all competent

2.9 To what extent do you believe Chiropractors to be competent in the treatment of neuro-musculoskeletal disorders

- Greatly competent
- Moderately competent
- Slightly competent
- Not at all competent

2.10 Do you have any Chiropractors working in your area?

- Yes

- No
- 2.11 Do you believe that there is sufficient difference between Chiropractic and Physiotherapy to warrant two separate professions?**
- Yes
- No
- 2.12 Do Medical Aids cover Chiropractic treatment?**
- Yes
- No
- 2.13 What is the duration of the chiropractic course in South Africa?**
- 1 year
- 2 years
- 3 years
- 4 years
- 5 years
- 2.14 Are Chiropractic students involved in community engagements?**
- Yes
- No
- 2.15 Are Chiropractors required to complete an internship prior to registration?**
- Yes
- No
- 2.16 A chiropractor that qualifies from his/her studies in South Africa does so with which one of the following qualifications?**
- Certificate
- Diploma
- National higher diploma
- Bachelor's degree
- Honors
- Master's degree

- PhD
Other: _____

2.17 Which one of the following subjects are included in the Chiropractic programme at DUT? Please circle to indicate “TRUE” or “FALSE”

- | | | |
|---|---|------------------------|
| T | F | Accounting |
| T | F | Anatomy |
| T | F | Chemistry |
| T | F | Diagnostics |
| T | F | Electro-modalities |
| T | F | Emergency Medical Care |
| T | F | Jurisprudence |
| T | F | Microbiology |
| T | F | Pathology |
| T | F | Pharmacology |
| T | F | Physics |
| T | F | Physiology |
| T | F | Psychiatry |
| T | F | Radiology |
| T | F | Surgery |

2.18 Please rate each of the following professions in terms of their importance in serving in healthcare management. (Please circle a number for each profession, with (1) indicating least important and (5) indicating most important.)

- | | | | | | |
|-----------------------|---|---|---|---|---|
| 1. Biokinetics | 1 | 2 | 3 | 4 | 5 |
| 2. Chiropractic | 1 | 2 | 3 | 4 | 5 |
| 3. Dentistry | 1 | 2 | 3 | 4 | 5 |
| 4. Dieticians | 1 | 2 | 3 | 4 | 5 |
| 5. Herbalism | 1 | 2 | 3 | 4 | 5 |
| 6. Homeopathy | 1 | 2 | 3 | 4 | 5 |
| 7. Medicine | 1 | 2 | 3 | 4 | 5 |
| 8. Naturopathy | 1 | 2 | 3 | 4 | 5 |
| 9. Nursing | 1 | 2 | 3 | 4 | 5 |
| 10. Personal Trainers | 1 | 2 | 3 | 4 | 5 |

11. Pharmacy	1	2	3	4	5
12. Physiotherapy	1	2	3	4	5
13. Sport Coaches	1	2	3	4	5

2.19 Have you ever communicated with a chiropractor about a patient?

- Yes, I often communicate with a chiropractor about a patient.
- Yes, I have communicated with a chiropractor but not often.
- No, I have never communicated with a chiropractor, but I am interested in doing so. (continue with question 2.24)
- No, but I am not interested anyway. (continue with question 5.2)

2.20 If yes, how?

- E-mail
- SMS
- Telephone

2.21 How would you rate the overall communication experience about a patient between you and a chiropractor?

- Negative
- Positive

2.22 Do you think this communication could be improved?

- Yes
 - No
- If Yes how could it be improved _____

2.23 Do you recommend patients to a chiropractor yourself?

- At the patients' request and on my own initiative reasonably often
- At the patients' request and on my own initiative but not often
- Only at the patients' request
- No, never (continue with Question 2.24)
- My own initiative only.

2.24 Chiropractic referral is an option for patients with:

	Agree	Disagree	undecided
Cervicogenic headache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic Asthma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic visceral disorders (responding poorly to medical intervention)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disc herniations/protrusions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low Back Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Migraine headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoarthritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteomyelitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoporosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sprains/strains (eg. ankle, wrist)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporal Cell Arteritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tension headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whiplash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.0 Feedback Report re Chiropractic Treatment
--

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

- Yes (*continue with Question 3.2*)
- No, never (*continue with Question 3.3*)

3.2 Was the report concise and valuable?

- No
- Yes

If Yes, please elaborate _____

3.3 Would you like to (continue to)/ receive a feedback report from a chiropractor when referring patients?

- Yes
- No, I do not think that is advisable. (Please specify reason):

(continue with Question 4.)

3.4 In what format would you like to receive this report? (More than one answer possible)

- By telephone
- By letter/E-mail
- Standardised form with relevant categories ticked off

3.5 What would you like to see in this feedback report? (More than one answer possible)

- Appropriate medical information
- Physical examination
- Chiropractic radiographic analysis
- Diagnosis of the patient from the Chiropractor
- Type of treatment(s)
- Advice of the chiropractor to the patient (eg. work/sports advice)
- Prognosis

3.6 As a standard rule when do you wish to receive a feedback report? (More than answer one answer possible)

- After the initial chiropractic visit
- After 4 treatments
- After 8 treatments
- After 12 treatments
- After Treatment(s) *(Please fill in the appropriate number)*
- On regular intervals during long-term treatment
- After the patient has received his/hers last treatment
- At the discretion of the chiropractor (eg. change in the patient's situation)

Other _____

4.0 Terminology

	Strongly Disagree	Disagree	Strongly Agree	Agree
Chiropractors use manipulation as part of their treatment protocol.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During patient assessment chiropractors do not look at referred pain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chiropractors perform minor surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The effects of manipulation include viscerosomatic reflexes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The treatment of trigger points forms part of the treatment provided by chiropractors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chiropractors prescribe medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flexion/distraction is an uncommon form of traction used by chiropractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.0 Information

5.1 Would you be interested in further information about chiropractic?

- Yes
- No

5.2 If yes, please

specify: _____

Thank you very much for taking time to complete this questionnaire
Please return the questionnaire in the enclosed stamped addressed

Appendix N

Biokineticist Questionnaire (Post-Pilot study)

Dear Sir/Madam

This should not take more than 10 minutes to complete.

Please answer all questions honestly and to the best of YOUR ability.

This is not a test. There are no right or wrong answers.

I am looking for trends and NOT individual cases. You will remain anonymous throughout

4.0 Personal Data

1.1 **Gender:** Male Female

1.2 **Age:** _____ years

1.3 **How long have you been practising as a biokineticist?** _____ years

1.4 **In what type of practice do you work:**

- Solo practice
- Partnership
- Group practice (three or more practitioners, or multi-disciplinary practice)
- Fitness Sport Centre

1.5 **In which city is your practice located?** _____

1.6 **Which one of the following Institutions did you obtain your qualification from?**

- University of Johannesburg
- University of Pretoria
- University of North West
- University of Orange Free State
- University of Kwa-zulu Natal
- University of Zululand
- University of Cape Town
- Nelson Mandela Metropolitan University
- University of Stellenbosch
- University of Western Cape
- Other if qualified overseas _____

2.0 General Questions about Chiropractic

2.1 How would you describe your knowledge about chiropractic?

- Never heard of (*continue with Question 5.1*)
- I have heard of it but I do not know a lot about it
- I know something about it
- My knowledge about chiropractic is good

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

- Lecture about chiropractic
- I have been treated by a chiropractor
- I have read about chiropractic in a medical journal
- I have read about chiropractic in a magazine
- From my patient(s) who has (have) been treated by a chiropractor
- From other biokineticists, specialists, physiotherapists, etc.
- Through the media
- Been involved as a participant/supervisor in Chiropractic research
- Other(*pleasespecify*).....
-

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

- I am uncomfortable with it but it is effective for some patients.
- Chiropractic provides excellent treatment for some musculoskeletal conditions.
- Not informed enough to comment.

2.4 Have you ever been treated by a Chiropractor?

- Yes
- No

2.5 Were there any expectations before the treatment?

- No
 Yes

If Yes, Please elaborate _____

2.6 If yes, did the treatment meet with your expectations?

- Yes
 No

If No, please elaborate _____

For the next 3 questions please note that competent is defined as the Chiropractor's ability to appropriately and thoroughly assess / diagnose/treat the clinical problem at hand.

2.7 To what extent do you believe chiropractors to be competent in neuro-musculoskeletal examination? (Please tick one box only.)

- Greatly competent
 Moderately competent
 Slightly competent
 Not at all competent

2.8 To what extent do you believe chiropractors to be competent in neuro-musculoskeletal diagnosis? (Please tick one box only.)

- Greatly competent
 Moderately competent
 Slightly competent
 Not at all competent

2.9 To what extent do you believe Chiropractors to be competent in the treatment of neuro-musculoskeletal disorders

- Greatly competent
 Moderately competent
 Slightly competent
 Not at all competent

2.10 Do you have any Chiropractors working in your area?

- Yes
- No

2.11 Do you believe that there is sufficient difference between Chiropractic and Physiotherapy to warrant two separate professions?

- Yes
- No

2.12 Do Medical Aids cover Chiropractic treatment?

- Yes
- No

2.13 What is the duration of the chiropractic course in South Africa?

- 1 year
- 2 years
- 3 years
- 4 years
- 5 years

2.14 Are Chiropractic students involved in community engagements?

- Yes
- No

2.15 Are Chiropractors required to complete an internship prior to registration?

- Yes
- No

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

- Certificate
- Diploma
- National higher diploma
- Bachelor's degree
- Honors
- Master's degree
- PhD
- Other: _____

2.17 Which one of the following subjects are included in the Chiropractic programme at DUT? Please circle to indicate "TRUE" or "FALSE"

- | | | |
|---|---|------------------------|
| T | F | Accounting |
| T | F | Anatomy |
| T | F | Chemistry |
| T | F | Diagnostics |
| T | F | Electro-modalities |
| T | F | Emergency Medical Care |
| T | F | Jurisprudence |
| T | F | Microbiology |
| T | F | Pathology |
| T | F | Pharmacology |
| T | F | Physics |
| T | F | Physiology |
| T | F | Psychiatry |
| T | F | Radiology |
| T | F | Surgery |

2.18 Please rate each of the following professions in terms of their importance in serving in healthcare management. (Please circle a number for each profession, with (1) indicating least important and (5) indicating most important.)

1. Biokinetics	1	2	3	4	5
2. Chiropractic	1	2	3	4	5
3. Dentistry	1	2	3	4	5
4. Dieticians	1	2	3	4	5
5. Herbalism	1	2	3	4	5
6. Homeopathy	1	2	3	4	5
7. Medicine	1	2	3	4	5
8. Naturopathy	1	2	3	4	5
9. Nursing	1	2	3	4	5
10. Personal Trainers	1	2	3	4	5
11. Pharmacy	1	2	3	4	5
12. Physiotherapy	1	2	3	4	5
13. Sport Coaches	1	2	3	4	5

2.19 Have you ever communicated with a chiropractor about a patient?

- Yes, I often communicate with a chiropractor about a patient.
- Yes, I have communicated with a chiropractor but not often.
- No, I have never communicated with a chiropractor, but I am interested in doing so. (continue with question 2.24)
- No, but I am not interested anyway. (continue with question 5.2)

2.25 If yes, how?

- E-mail
- SMS
- Telephone

2.26 How would you rate the overall communication experience about a patient between you and a chiropractor?

- Negative
- Positive
- | |
|--------------------------------------|
| Negative: non-informative/unfriendly |
| Positive: informative/friendly |

2.27 Do you think this communication could be improved?

- Yes
- No
- If Yes how could it be improved _____

2.28 Do you recommend patients to a chiropractor yourself?

- At the patients' request and on my own initiative reasonably often
- At the patients' request and on my own initiative but not often
- Only at the patients' request
- No, never (*continue with Question 2.24*)
- My own initiative only.

2.29 Chiropractic referral is an option for patients with:

	Agree	Disagree	undecided
Cervicogenic headache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic Asthma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic visceral disorders (responding poorly to medical intervention)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disc herniations/protrusions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low Back Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Migraine headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoarthritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteomyelitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Osteoporosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sprains/strains (eg. ankle, wrist)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporal Cell Arteritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tension headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whiplash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 Feedback Report re Chiropractic Treatment
--

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

- Yes (*continue with Question 3.2*)
- No, never (*continue with Question 3.3*)

4.2 Was the report concise and valuable?

- No
- Yes

If Yes, please elaborate _____

3.4 Would you like to (continue to)/ receive a feedback report from a chiropractor when referring patients?

- Yes
- No, I do not think that is advisable. (Please specify reason):

(continue with Question 4.)

3.4 In what format would you like to receive this report? (More than one answer possible)

- By telephone
- By letter/E-mail
- Standardised form with relevant categories ticked off

3.5 What would you like to see in this feedback report? (More than one answer possible)

- Appropriate medical information
- Physical examination
- Chiropractic radiographic analysis
- Diagnosis of the patient from the Chiropractor
- Type of treatment(s)
- Advice of the chiropractor to the patient (eg. work/sports advice)
- Prognosis

3.6 As a standard rule when do you wish to receive a feedback report? (More than answer one answer possible)

- After the initial chiropractic visit
- After 4 treatments
- After 8 treatments
- After 12 treatments
- After Treatment(s) (*Please fill in the appropriate number*)
- On regular intervals during long-term treatment
- After the patient has received his/hers last treatment
- At the discretion of the chiropractor (eg. change in the patient's situation)

Other_____

4.0 Terminology

	Strongly Disagree	Disagree	Strongly Agree	Agree
Chiropractors use manipulation as part of their treatment protocol.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During patient assessment chiropractors do not look at referred pain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chiropractors perform minor surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The effects of manipulation include viscerosomatic reflexes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The treatment of trigger points forms part of the treatment provided by chiropractors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chiropractors prescribe medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flexion/distraction is an uncommon form of traction used by chiropractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.0 Information

5.1 Would you be interested in further information about chiropractic?

- Yes
- No

5.2 If yes, please

specify: _____

Thank you very much for taking time to complete this questionnaire
Please return the questionnaire in the enclosed stamped addressed

Appendix O

Transcript of the tape recordings (Focus group discussion)

Date: 15 September 2006

Welcome to my focus group,

I just want to introduce everyone: Dr Korporaal (my supervisor), Ravi (the biokineticist), Tonya (the statistician), Keseri (Chiropractor), Vilash (chiropractor) and Amashnee and David (chiropractic students).

Please fill in the informed consent form, read the letter of information and confidentiality statement and please sign them. When you have done with that then we can start.

If anyone has any problems with the questionnaire please feel free to comment.

The first question on personal data, are there any queries? Yes with question 1.4 would it be a better option to add 3 or more practitioners instead of GP's. Are you going to have three or more of the same practitioners or different practitioners? I meant 3 or more different practitioners, so in that case I think I would change it to multi-disciplinary practice instead of GP's.

Wouldn't it be better to ask the biokineticist to rate their knowledge before they start to answer the knowledge questions, just to see what their knowledge is like? Okay, so I will bring that question to the beginning of the knowledge questions.

With question 2.2 on how biokineticist got their information about chiropractic, it would be better to include the following options as well: lecture about chiropractic; from other biokineticists, specialists and physiotherapists and being involved as a participant/supervisor in chiropractic research. Yes I would add those.

With question 2.3 one of the options is “chiropractic is quackery and does more harm than good.” Maybe you should take that out because it is leading. It is very unlikely that anyone of the biokineticists would say they don’t know what chiropractic is, or never heard of it. So you should rather go with the option: Not informed enough to comment.” Yes I agree with that.

Questions 2.7 are you referring to diagnosis, examination and treatment? Yes, the question refers to all of that. Wouldn’t it be better to separate this question into diagnosis, examination and treatment, because it does not mean that a chiropractor that is good at examination can arrive at the correct diagnosis. Okay I will separate it into three questions.

A good question to ask would be “do you believe there is sufficient difference between a chiropractor and physiotherapist to warrant two separate professions?” I think that would be a good question to add.

With question 2.13 on the duration of the chiropractic course, the maximum number of years would be five because no qualification goes beyond that. So it should be from 1 year going to 5 years and there should be a separate question on internship.

The question on qualifications you should add the option “certificate” first. Is diploma and certificate the same thing. No, certificate is the lowest qualification.

You should also take out question 2.14. With question 2.17 don’t use the word “grounding” then maybe I should use the word “included” instead. Also in this question you should add some false options and also some options that are borderline e.g. Emergency Medical Care so the respondents either know the programme well or not.

Question 2.18 on rating of the professions take out primary health care and replace it with health care management instead. Also it would be a good idea to add in the option “ Biokinetics” to see how they rate themselves. But you should take out “traditional healers” and the option “other” and add personal trainers, sport coaches and dieticians because they work close with biokineticists. Okay I will add those.

Question 2.20 “how did the respondent communicate with a chiropractor” how is very open-ended. Rather state the options example: email, telephone and sms. Take the question on letter out.

With question 2.22 take the option “no opinion” out, because that will mean that they won’t want to commit themselves.

Question 2.23 maybe you should add the option “my own initiative only”

With question 2.24 why don’t you just have headaches instead of cervicogenic, tension and non-organic headaches. Some respondents may not know that chiropractors can treat all the headaches that are mentioned so that is the reason I included the different headaches. Also maybe you should change “non-organic” to “migraine” instead. Okay that will be better. Should you have an undecided column? Yes because it gives the biokineticist who doesn’t know what Avascular necrosis mean and option.

You should add in a question “was the report concise and valuable” in the feedback report section.

Question 3.3 says continue with 4.1 rather replace it with 4. Also you use the term “essential case”. You have to define it if you want to use it. Actually I think I would remove it.

In question 3.5 you should add the option type of treatment.

With question 5.1 add the options “yes” or “no” and “if yes, please specify” are you really going to respond to their questions. Yes I would like to, I can probably submit it to their association.

Questions that should be included:

You should ask if they have treated by a chiropractor specifically, and how was the treatment, did they have any expectations before the treatment and did the treatment meet with their expectations. This should give an idea of their perception.

The questions “are there any chiropractors working in your area?” should be added.

Also add in “do medical aids cover chiropractors?”

Okay I think we are done here. Thank you very much for coming.

Journal Article

A survey to determine the knowledge and perceptions of biokineticists with respect to the Chiropractic Profession.

Objective: to determine the current knowledge and perceptions of biokineticists with respect to the chiropractic profession in South Africa.

Design: A descriptive design was utilized in a qualitative questionnaire in order to evaluate, in a structured manner, the knowledge and perceptions of biokineticists with respect to Chiropractic.

Subjects: the total sample size used in the study was 657 (response rate 11.87%).

Outcome Measures: biokineticists knowledge of Chiropractic, feedback report regarding Chiropractic treatment, confusing Chiropractic terminology and Scope of Chiropractic practice.

Results: of the 657 questionnaires that were mailed, only 78 questionnaires were returned and this gave a response rate of 11.87%. The most frequent view or attitude towards chiropractic was that it had a valuable role in the health care system (64%). About 50% of the respondents believed chiropractors to be greatly competent in examination and diagnosis whilst 40% felt that chiropractors were moderately competent in examination and diagnosis. Nevertheless, the rate of communication between biokineticists and chiropractors was found to be quite high, in this study. All together, 67% of biokineticists had communicated with chiropractors. Of those that had communicated, the communication was rated as positive (94.4%). Of those who had referred patients to chiropractors, 41.8% had received treatment feedback reports and of those who had received reports, 68.8% said they were concise and valuable.

Conclusion: the results of this study show that the mean knowledge score was 60%. Thus the overall knowledge of chiropractic was high. The only factor that significantly affected respondents' knowledge was their self reported knowledge of chiropractic. In congruence with this, the most common attitude towards chiropractic was that it had a valuable role to play in the health care system (64%).

Key words: Chiropractic, Biokineticists, Perception

Introduction and Setting

Chiropractors are primary contact physicians who possess diagnostic skills to differentiate health conditions¹. They provide conservative management of neuro-musculoskeletal disorders (NMS) and related clinical conditions². Furthermore chiropractors promote health care through proper nutrition, exercise and lifestyle modifications. In addition some within the medical establishment believe that the education and training of chiropractors is grounded in orthodox medicine and that health care professions share a common language allowing for close dialogue³.

Notwithstanding the above, chiropractors have been on the fringe of mainstream healthcare with levels of communication and collaboration often remaining low compared to those enjoyed by others members of the health care profession⁴.

This may be because most potential consumers view chiropractors as back specialists. This is because of the fact that chiropractors tend to be regarded by the public (e.g. biokineticists) as specialists within a narrow range of clinical practice related to musculoskeletal disorders (principally low back pain)⁵.

Thus it stands to reason that other health care providers dealing with patients that present with low back pain would refer these to a chiropractor. As health care professionals, biokineticists may be one such provider. Biokineticists' perceptions of various health care disciplines are important as they might affect the manner in which they advise, assist, train or refer their clients. This is especially important when one notes that clients heed the advice of their biokineticist); and therefore biokineticists' perceptions of the health care industry will directly or indirectly influence the perceptions of the client⁶. Furthermore, this is important as biokineticists play an important role as a first contact for many of their clients with respect to an injury. Biokineticists therefore act as a portal of entry into the health care system for their respective clients for their referral to other health care providers.

Objectives

The aim of this study was to determine the knowledge and perceptions of biokineticists with respect to the chiropractic profession. Before the study was undertaken it was hypothesized that the level of knowledge will not be comparable to the literature. The first objective was to establish the demographics of the responding biokineticists. The second objective was to establish the extent of knowledge of the Chiropractic Profession amongst biokineticists in South Africa. The third objective was to determine the perceptions of the Chiropractic Profession amongst biokineticists in South Africa and the fourth objective was to assess any correlation between knowledge, perception and demographics of the responding biokineticists.

Design

A population-based demographic study on biokineticists' perceptions and knowledge with respect to the Chiropractic Profession in South Africa was conducted. Therefore this study was a knowledge and perception survey, quantitative in nature, which made use of a structured questionnaire to collect data⁷. A descriptive design was utilized in a qualitative questionnaire in order to evaluate, in a structured manner, the knowledge and perceptions of biokineticists with respect to Chiropractic⁸. The questionnaire was adapted from an instrument developed for studies in Norway and the Netherlands respectively. This questionnaire was modified to suit South African conditions. The new questionnaire comprised of five sections, covering respondents' demographic details, knowledge of chiropractic, feedback report regarding chiropractic treatment, confusing chiropractic terminology and general information.

In order to adapt the questionnaire, a focus group was then set up. The group consisted of 1 Biokineticist, 1 statistician, 2 chiropractors and 2 chiropractic students. The focus group's aim was to develop a questionnaire that limits potential misinterpretation by the respondents. Comment was requested on how the questionnaire could be modified in order to accurately assess biokineticists' knowledge and perception of chiropractic in South Africa. The changes to the questionnaire were implemented and 3 biokineticists in Durban was approached to fill out the new questionnaire. The pilot subjects were excluded from the main study. The questionnaires were mailed to the 657 registered biokineticists and they were given six weeks to complete the questionnaire and post it to

DUT. With the envelope there was a letter of information, a letter of informed consent, the questionnaire and a letter of thanks.

As with all surveys the information that the respondents furnished was treated in the utmost confidence. The questionnaire was collected by a neutral third party and a coding system was used. Thus the researcher never had access to the identities of the respondents.

SPSS version 15.0 was used for data analysis (SPSS inc., Chicago, and Illinois, USA).

Subjects

The sample in this study was the total population of the biokineticists. Six hundred and sixty one biokineticists were identified in the nine provinces. Four biokineticists in Durban were excluded from the actual study due to their participation in the focus group and pilot study. Therefore the total sample size used in the study was 657.

The type of recruitment was total population selection; however respondents had an option as to whether they are willing to take part in the research or not. The list of registered biokineticists was obtained from the Health Professions Council of South Africa (HPCSA). In order to be accepted for participation in the study, the biokineticists had to be registered with the HPCSA, they had to be practicing in one of the nine provinces covered and all questionnaires had to be utilized for data analysis. Missing or incomplete data was noted as such in data capture and analysis. Participants were excluded from the study if they did not comply with the inclusion criteria.

Results

Six hundred and fifty seven questionnaires were mailed to biokineticists in the nine provinces. Seventy-eight questionnaires were returned for analysis. Thus the overall response rate was 11.87%.

Demographic information showed that a larger percentage (61%) of participants were female than male (39%). Most of the participants tended to be in the range of 22-69 years. The median time in practice was 5 years and the range was 1-28 years. Almost

half of the respondents were in a solo practice (48.7%), 31.6% were in a group practice and 10.5% were in a fitness sport centre.

Type of practice

Type of practice is shown in Figure 1.

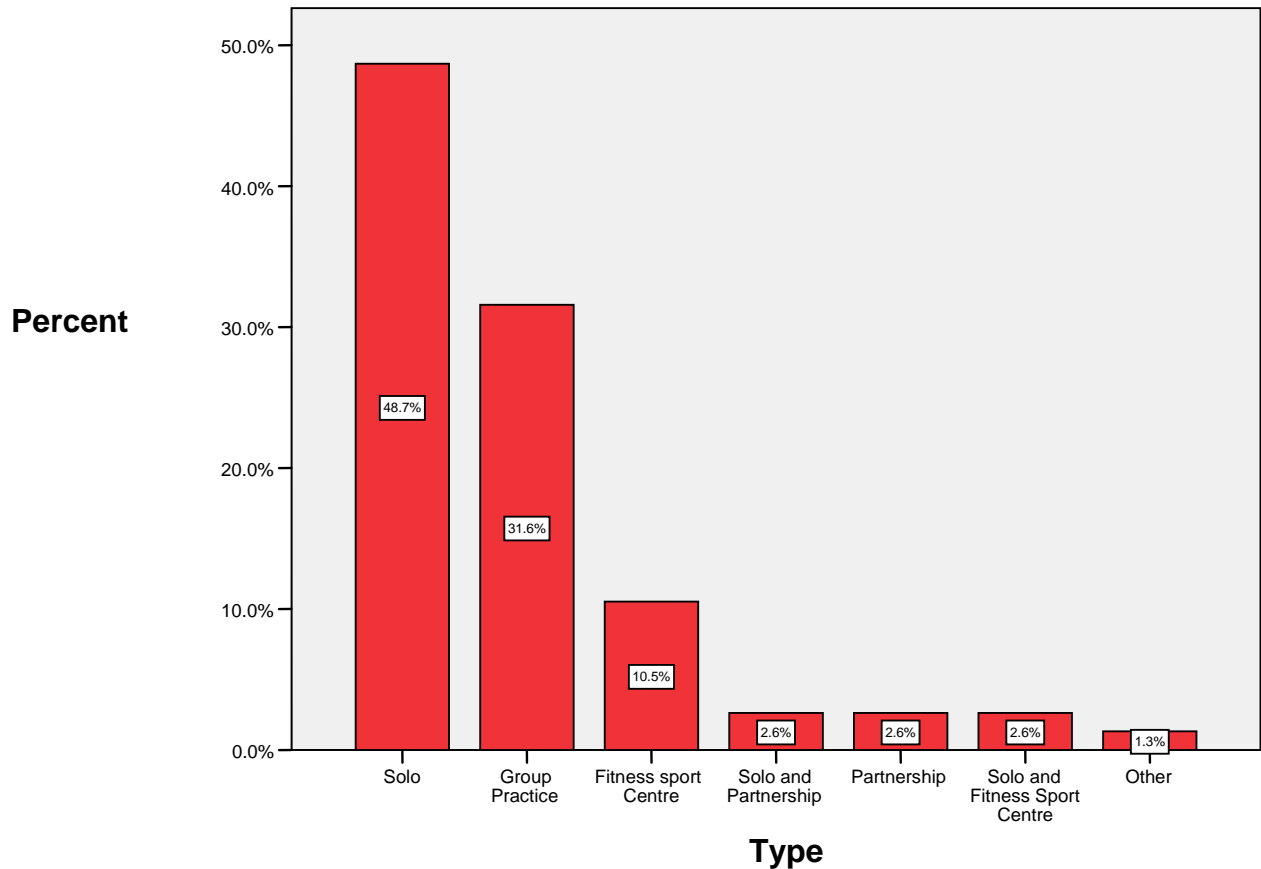


Figure 1: Type of practice in study participants (n=76)

The majority of the respondents were from Gauteng province (42%), while 27% were from Western Cape and 15% were from Kwa-Zulu Natal. Most of the respondents attended University of Pretoria, 20.51% studied at Stellenbosch and 12.8% studied at Nelson Mandela Metropolitan University.

Table 1: Province of respondent

		Frequency	Percent
Valid	Gauteng	31	41.9
	Western Cape	20	27.0

	Kwa-Zulu Natal	11	14.9
	Eastern Cape	8	10.8
	Mpumalanga	3	4.1
	North-west	1	1.4
	Total	74	100.0
Missing	System	4	
Total		78	

Of the respondents who replied to the survey, 44.9% knew something about Chiropractic and 44.9% felt that their knowledge of Chiropractic was good. More than half (54.5%) of those respondents obtained their information from their patients who were treated by a chiropractor. The majority of the sample thought Chiropractic could help selected patients of conditions mainly neuro-musculoskeletal. The mean knowledge score was 60% and the scores ranged from 5.1% to 82.1%. This meant that out of total score of 100, the average biokineticist scored 60 out of 100 for his/her knowledge.

Table 2: Knowledge score percentage in the sample

N	Valid	78
	Missing	0
Minimum		5.1
Maximum		82.1
Percentiles	25	48.718
	50 (median)	58.974
	75	64.103

As expected, the professions of nursing, medicine and dentistry received a higher rating than Chiropractic. However, biokineticists also received a higher rating than Chiropractic.

The rate of communication between chiropractors and biokineticists was quite high in this survey. Together, 67% of biokineticists had communicated with chiropractors and the rest were mainly interested in doing so. About 89% of the sampled biokineticists communicated with a chiropractor via telephone and 42.3% did so, on a regular basis. Of the biokineticists who had communicated with chiropractors, 94.4% found it positive and 5.6% wanted the communication to be improved. About 9.7% referred patients to

chiropractors and 46.8% of these referring biokineticists did so on both the patient's own request and on their own judgment. Of those who had referred patients to chiropractors, 41.8% had received treatment feedback reports. Of those who had received feedback reports, 68.8% said they were concise and valuable.

The specifications of the feedback that participants would like to receive are summarized.

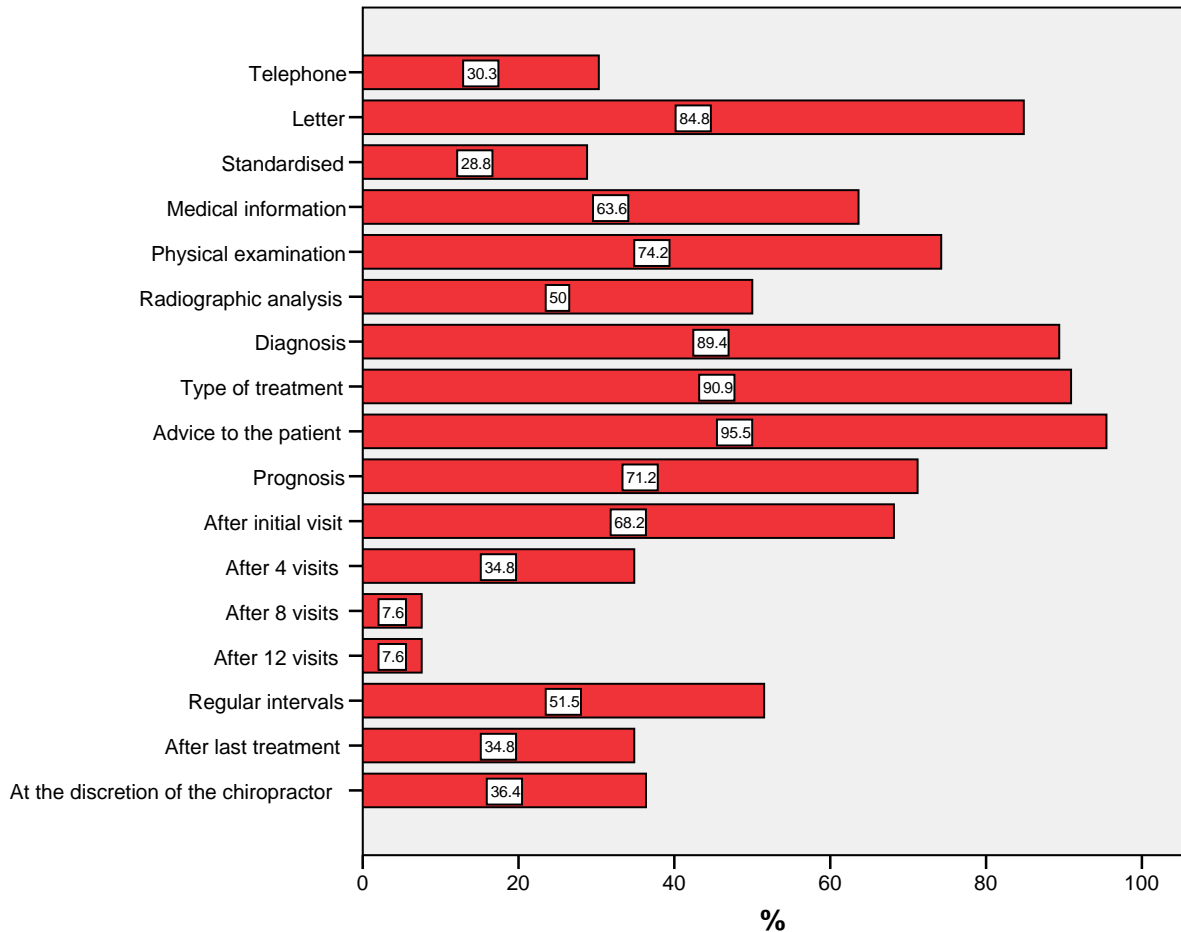


Figure 2

The most frequent view or attitude towards Chiropractic was that it has a valuable role to play in the health care system (64%). A possible reason for this is that chiropractors work closely with NMS disorders as do biokineticists. Only 20.5% were uncomfortable with it but believed it could be effective and 15.4% felt they were not informed enough to comment. About 44% of the respondents felt that Chiropractic was greatly competent in

the treatment of NMS conditions and 13.2% felt they were slightly competent. Thus, the majority thought that Chiropractic could help selected conditions or patients.

Table 3: Perceptions score percentage in the sample (n=75)

N	Valid	75
	Missing	3
Minimum		35
Maximum		100
Percentiles	25	64.71
	50	76.47
	75	94.12

There was a weak although statistically significant correlation between knowledge and perceptions ($p < 0.001$). This meant that in general if one score increased, so did the other. There was a highly significant difference between knowledge and perception scores ($p < 0.001$) where perceptions scores were higher than knowledge scores.

Table 4: Spearman's correlation between knowledge and perceptions scores

			Perceptions score percent
Spearman's rho	Knowledge score percent	Correlation Coefficient	0.432(**)
		Sig. (2-tailed)	<0.001
		N	75

** Correlation is significant at the 0.01 level (2-tailed).

There was no correlation between age and knowledge ($p = 0.438$) or length of time in practice and knowledge ($p = 0.355$). The only factor that significantly influenced respondents knowledge was their self reported knowledge of Chiropractic ($p = 0.006$). Those respondents that worked in a group practice with a chiropractor being one of the practitioners seemed to have a higher self reported knowledge.

Table 5: Comparison of knowledge by demographic group

		Knowledge score percent	p values
		Median	
Gender	Male	59.0	0.842
	Female	59.0	
Type	Solo	56.4	0.699
	Partnership	69.2	
	Group practice	59.0	
	Fitness sport centre	61.5	
	Other	59.0	
	Solo and partnership	55.1	
	Solo and fitness sport centre	61.5	
Province	Gauteng	59.0	0.210
	Western Cape	61.5	
	Kwa-Zulu Natal	48.7	
	Eastern Cape	56.4	
	Mpumalanga	53.8	
	North-west	74.4	
University	University of Johannesburg	64.1	0.828
	University of Pretoria	59.0	0.341
	University of North West	61.5	0.937
	University of Orange Free State	50.0	0.332
	University of Kwa-Zulu Natal	53.8	0.230
	University of Zululand	61.5	0.425
	University of Cape Town	60.3	0.673
	Nelson Mandela Metropolitan University	59.0	0.392
	University of Stellenbosch	57.7	0.464
	University of Western Cape	61.5	0.807
Self reported knowledge of Chiropractic	I have heard of it but do not know a lot about it	46.15	0.006
	I know something about it	56.41	
	My knowledge about chiropractic is good	61.54	

There was no correlation between age and perception ($p=0.067$) or between length of time in practice and perception ($p=0.078$). There was no difference in perception score between any of the demographic groups except those attending University of

Johannesburg ($p=0.018$) where perceptions were higher. The fact that these respondents had a higher perception score might be linked to a higher exposure to Chiropractic due to the presence of a chiropractic program in the same university, as well as a high density of chiropractors in this area. Respondents self reported knowledge of Chiropractic also influenced their perceptions ($p<0.001$).

Being treated by a chiropractor previously did not significantly influence knowledge or perceptions scores. However, having prior expectations about the treatment was associated with significantly higher perceptions scores ($p=0.010$). Also, if the treatment met their expectations, the perceptions scores were significantly higher ($p=0.001$). These respondents had the opportunity of gaining first hand experience of what chiropractic treatment is all about. Knowledge of chiropractic improved significantly if there was a chiropractor living in the area ($p=0.010$) due to the exposure and accessibility of Chiropractic.

Table 6: Comparison of perceptions score by demographic group

		Perceptions score percent	p value
		Median	
Gender	Male	71	0.591
	Female	76	
Type	Solo	79	0.772
	Partnership	82	
	Group practice	76	
	Fitness sport centre	71	
	Other	76	
	Solo and partnership	82	
	Solo and fitness sport centre	82	
Province	Gauteng	76	0.294
	Western Cape	71	
	KZN	74	
	Eastern Cape	85	
	Mpumalanga	71	
	North-west	94	
	University of Johannesburg	94	0.018

University	University of Pretoria	76	0.336
	University of North West	74	0.870
	University of Orange Free State	79	0.914
	University of Kwa-Zulu Natal	71	0.142
	University of Zululand	79	0.937
	University of Cape Town	88	0.533
	Nelson Mandela Metropolitan University	91	0.063
	University of Stellenbosch	71	0.123
	University of Western Cape	59	0.051
Self reported knowledge of chiropractic	I have heard of it but do not know a lot about it	53	<0.001
	I know something about it	71	
	My knowledge about chiropractic is good	85	

Conclusions

The knowledge and perceptions of Chiropractic amongst biokineticists in SA has been described in this study. The low response rate (11.87%) was the main limitation of the study.

This study has shed light on the limitation of knowledge and perception amongst biokineticists about the chiropractic profession in South Africa. Chiropractic would be wise to improve public awareness by expounding upon what conditions it can treat. Gaps in the public knowledge have translated into non-utilization⁹. It follows that the more unclear the respondents' understanding of the professions' scope of treatment, the more likely they are not to identify a condition as one that can be treated by Chiropractic. Although Chiropractic is considered to be a viable means of treating certain disorders, there is still much confusion among biokineticists about the exact role of Chiropractic in the health care system.

Nevertheless there is evidence to suggest that biokineticists' knowledge of Chiropractic improves if they have been treated by a chiropractor before, and this corresponds to the number of referrals between biokineticists and chiropractors.

This study provides useful information which could influence referrals and collaboration between biokineticists and chiropractors in the South African health care system and indicates that although a milieu of co-operation exists, it can be enhanced by further communication and education of biokineticists regarding the role and function of a Chiropractic practitioner.

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