

**THE KNOWLEDGE AND PERCEPTION OF
VOCATIONAL COUNSELLORS IN SOUTH
AFRICA WITH RESPECT TO
CHIROPRACTIC.**

by

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counsellors in South Africa with respect to
chiropractic.**

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Dissertation submitted in partial compliance with the requirements for the
Master's Degree in Technology: Chiropractic at Durban Institute of
Technology.

I, Ronald Kenneth van As, do solemnly declare that this dissertation is
representative of my own work in both conception and execution.

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Dedication

To my parents, Joy and the late Ken van As, for their endless love.

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Abstract

If learners are to make a responsible and accountable choice at school of a field of study and occupation, it is imperative that they receive intensive guidance in this regard at school. Appropriate guidance on educational and occupational matters, and orientation of learners with respect to their individual potentials, will enable learners to choose fields of study at school that will correspond to wider occupational fields and that will serve as a meaningful introduction for a reasonable future choice of an occupation.

Thus it was the purpose of this study to determine the current knowledge and perceptions of school guidance counsellors (SGC) with respect to the chiropractic profession in South Africa. This study has thus established a knowledge base to facilitate greater understanding and co-operation between school guidance counsellors (SGC) and chiropractors regarding the referral of learners, who may be interested in a profession in the alternative health care industry, to join the chiropractic field as a learner with the intent to become a practitioner.

A postal survey was distributed to a random, stratified sample of five hundred and ninety-five high schools (n=595), in all nine provinces of South Africa, for completion and return along with a covering letter and business reply envelope. The survey was adapted to the South African context using a focus group (n=8), which established the face validity of the questionnaire used in this study.

The statistical package used to enter and analyse the data was SPSS version 11.5 (SPSS Inc. Chicago, Ill, USA). The study was analysed using descriptive and analytical analysis.

Of the eighty-one questionnaires that were returned, in the allotted eight-week period: twenty were undelivered; one was unanswered due to problems associated with language barriers; sixty were completed and only fifty-nine respondents met the inclusion criteria. Thus, a low response rate of 10.3% was achieved.

Of the 59 respondents, there was an even distribution between male (49.2%) and female (50.8%). Most of the respondents tended to be in the age group of 41-50 years and had been working as a school guidance counsellor for more than twenty-one years. The majority were white (45.8%) or black (37.3%) and very few from other ethnic groupings. Most of the respondents were from KwaZulu Natal (34%), followed by Gauteng (19%) and Limpopo (17%) with scattered responses from other provinces.

Sixty-nine percent (n=36) of the participants responded that they knew something about chiropractic, however the mean knowledge score was non-significantly higher in those who reported that they knew something about chiropractic ($p=0.096$). Knowledge scores were slightly higher in the 27% of respondents who had actually been treated by a chiropractor (mean 70.56), however the highest knowledge scores were associated ($p=0.077$) with a greater number of family members who had been treated previously by a chiropractor. The mean knowledge score for all participants was 64.5% (SD 17.4%).

Relatively few respondents (n=3) had a negative perception of chiropractic and none of the respondents who had a negative perception had actually been treated by a chiropractor. Fifty five percent of those who had been treated by a chiropractor had a positive perception of chiropractic.

Thirty-two percent felt that they were not informed enough to comment on the role of chiropractic in the health care industry in SA. The majority (34%) perceived chiropractors as neuromusculoskeletal (NMS) specialists but chiropractic was still ranked below physiotherapy and the more traditional medical professions.

Although SGC were not well-informed about the duration, qualification, content and legal status of the profession in SA, eighty-three percent of the sample was aware that learners required a matriculation exemption and most respondents were aware that Mathematics, Biology and Science were required at grade 12 level to study chiropractic.

Knowledge and perceptions were related non-significantly to: demographics, use of chiropractors and to each other in terms of trends shown, but the study was underpowered to show these associations as statistically significant.

The low response rate was the main limitation to the external validity of the study. Those who responded may have had different views and knowledge than those who did not respond. The small sample size was a limitation to showing statistical significance in the hypotheses tested.

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Glossary

Attitudes: For the purpose of this research, attitudes refer to a way of thinking, which governs one's behavior towards something. (Oxford Advanced Learner's Dictionary 1997)

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

Chiropractic: The World Federation of Chiropractic (2001) defines the chiropractic profession as: "a health care profession concerned with the 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 as available from the Chiropractic Association of South Africa (<http://www.chiropractic.co.za>).

Vocational counsellors: For the purpose of this research, vocational counsellors refer to the guidance counsellor, principal, vice-principal or school educator who fulfils the role of the career guidance counsellor in helping school learners with career choices.

CHAPTER ONE: INTRODUCTION

1.1 Introduction

Perception is the process by which people select, organize, and interpret information to form a meaningful picture of the world (Chaffe, 1997). One normally assumes that what you perceive is what is actually taking place. Only when you find your perception of the same event differs from the perceptions of others, are you forced to examine the manner in which you select, organize and interpret the events in the world around you (Chaffe, 1997). We see the world not as it is, but as we are. We see it through the lens of our experiences, expectations and beliefs (Kehoe, 2002).

Based on the manner in which each of us views the world around us, most public consumers (in the USA) and other potential consumers view chiropractors as back specialists (Gaumer et.al. 2002). This is because of the fact that chiropractors tend to be regarded by the public as specialist within a narrow range of clinical practice related to musculoskeletal disorders (principally low back pain) (Jamison, 1995).

However, due to the unique nature of the South African context it cannot be assumed that the local status quo reflects that of North America and Europe.

Possible reasons for this could include:

- The socio-economic conditions prevalent in South Africa, with respect to the general population, limiting access to chiropractors for financial reasons, logistical concerns or both (About South Africa > Health, 2004; Hupkes, 1990).
- Consumer preference and demand barriers (Gaumer et.al. 2002).
- The difference in chiropractic history (CASA, 2005).
- Legal barriers (Gaumer et.al. 2002).
- The education of chiropractors in South Africa (CASA, 2005).
- Accessibility barriers (Gaumer et.al. 2002).
- Chiropractors self-imposed barriers to primary care provider roles (Gaumer et.al. 2002).

These factors affect all sectors of the population to a greater or lesser extent dependant on the interaction of the factors within the socio-economic system of the individual person. Thus, it is possible to state that these factors would influence the knowledge and perception that SGC have of the chiropractic profession.

Furthermore in this subgroup of school counsellors, studies have found that 39% of college learners regard their high school teachers as the major influence regarding their occupational choices (Dusek, 1987) – arguably one of the biggest influences on an adolescent's vocational choice(s) is the school they attend and in particular the career guidance counsellor(s) at these schools. Thus, guidance counsellors in schools have the ability to be highly influential when it comes to helping young teens choose a career path (Dusek, 1987).

Thus, it would seem fair to state that the knowledge and perceptions that SGC's have due to their socio-economic situation would greatly influence their direction and guidance of the learner.

Thus in the light of the highly specialized area of career guidance counselling and its impact on future generations of learners, it is therefore imperative to establish their context in order to determine the effect it has on the learner. Thus, it is deemed important that studies of this nature are repeated (Langworthy and Smink, 2000) as this specialized context could deviate from the norm to such an extent that it no longer reflects that norm. In addition to this, South Africa as a country will vary distinctly in its culture, health care delivery scheme, education of health care professionals, and inter-professional relations from more developed countries (Hupkes, 1990).

It is for this reason that a review of the literature reveals a number of studies exploring the relationship between chiropractic, the public, and other health care professions in South Africa (Rubens, 1996; Hunter, 2004; Louw, 2005). However to date, no studies have assessed school guidance counsellors or non medical personnel within the context of South Africa in order to ascertain their knowledge and perception of chiropractic in South Africa.

Therefore, the aim of this study is to assess the knowledge and perception of school guidance counsellors in South Africa with respect to chiropractic.

1.2 The problem statement

To analyze the knowledge and perceptions of vocational counsellors towards the chiropractic profession in the South African context.

1.3 Research Objectives

1.3.1 To establish the level of knowledge about chiropractic amongst vocational counsellors in South African schools.

➤ Hypothesis 1

A low level of knowledge exists about the chiropractic profession amongst vocational counsellors in South Africa.

1.3.2 To determine the perceptions about chiropractic amongst vocational counsellors in South African schools.

➤ Hypothesis 2

A negative perception exists about the chiropractic profession amongst vocational counsellors in South Africa.

1.4 Rationale for this study

- The perception of chiropractic amongst school guidance counsellors in South Africa has not been researched.
- School leavers will be thinking of career options for the future. School guidance counsellors play a pivotal role in assisting these teenagers to make informed decisions that may have an affect on the rest of their lives. This research will endeavour to assess how much school guidance counsellors know about and how they perceive the chiropractic profession.

- To allow for education of school guidance counsellors about the scope of chiropractic in South Africa should the research reveal that there is a lack of knowledge about chiropractic.
- Future collaboration in terms of school guidance counselling with respect to chiropractic in South Africa could be built. Thus, avenues can be explored in order to improve how the relationship between these two professions can be enhanced, explored and improved upon.

1.5 Delimitations

This study was limited to the secondary school educator (per selected school) who performs the vocational counselling function of that school, in South Africa.

Not all schools in South Africa have a qualified school guidance counsellor present. This task is often bestowed upon a staff member with some knowledge of counselling. In order to get a representative sample and have geographical representation throughout South Africa, only secondary school educators who perform the counsellor's role, were selected to participate in this study.

It is assumed that the responses to the questionnaires are open and honest and therefore reflect the current knowledge and perceptions about chiropractic.

CHAPTER TWO: REVIEW OF THE RELATED LITERATURE

If learners are to make a responsible and accountable choice at school of a field of study and occupation, it is imperative that they receive intensive guidance in this regard at school. Appropriate guidance on educational and occupational matters and orientation of learners with respect to their individual potentials will enable them to choose fields of study at school that will correspond with wider occupational fields and that will serve as a meaningful introduction for a reasonable future choice of an occupation (Haasbroek, et.al. 1978).

It is in this respect that the knowledge and perception of the school guidance counsellor becomes vitally important (Haasbroek, et.al. 1978), where perception is the process by which people select, organize, and interpret information to form a meaningful picture of the world (Chaffe, 1997). One normally assumes that what you perceive is what is actually taking place. Only when you find your perception of the same event differs from the perceptions of others, are you forced to examine the manner in which you select, organize and interpret the events in the world around you (Chaffe, 1997).

On the other hand knowledge is defined in the Oxford Paperback Dictionary and Thesaurus (1997) as awareness or familiarity; person's range of information, understanding (of subject); information; and sum of what is known. Knowledge is thus the awareness and understanding of facts, truths or information gained in the form of experience or learning. Both knowledge and information consist of true statements, but knowledge is information that has a purpose or use (<http://encyclopedia.laborlawtalk.com/Knowledge>). A common definition of knowledge is that it consists of justified true belief (<http://encyclopedia.laborlawtalk.com/Knowledge>).

Thus both perceptions and knowledge create a challenge for vocational counsellors who are required to develop focused programmes that meet specific developmental needs of learners (Gerler, 1991). In the practical educational situation, this amounts

to the fact that every learner must receive education in accordance with their specific ability, and every learner should have the right to choose subjects and a field of study suited to their personal ability, skill and interest (Haasbroek, et.al. 1978). Thus much like the learners that they serve, school counsellors must develop their own professional identities, which are expressed in well-defined and responsible school guidance programmes (Gerler, 1991).

In these programmes, the counselling process can be described as those observable skills used in a planned and intentional way, within a certain kind of relationship, for the purpose of helping learners find solutions to their problems (in this respect choice of career). Vocational counselling involves advising learners about career paths and job opportunities (Haverly, 1998). Learners need to know what skills, talents and qualifications are required for the career they wish to pursue (Haverly, 1998). With respect to chiropractic, persons applying must be over the age of seventeen, physically fit and in possession of a senior certificate, with matriculation exemption. Subjects must include Mathematics, Physical Science and/or Biology (Faculty of Health Sciences, Department of Chiropractic Handbook, 2005). Thus counsellors must be self-aware of their values, beliefs, biases, cultural capital, motivation and desire to help others (Manthei, 1997), which could shape or influence their perceptions and knowledge of particular career pathways.

This is especially true in view of the fact that counsellors have an ethical duty to maintain and develop themselves professionally by undergoing supervision and continuing their education (Manthei, 1997). If vocational counsellors have little knowledge of a career pathway (e.g. chiropractic), or they have a negative perception of that same career pathway (e.g. chiropractic) based on their values, beliefs or cultural background (Manthei, 1997), they will be unable to help learners in career path guidance and specifically in informing these learners about the career pathway options open to them (e.g. chiropractic as an alternative to mainstream medicine). Lack of information about the many opportunities available for persons

who have reached a certain level of education is often a limitation of choice (Lindhard, 1987).

School guidance counsellors are in a position to exert an influence on learner enrolment in all education programmes, including chiropractic courses. According to Matulis and Osborne (1990), [cited in Johnson and Newman, 2005] "Guidance counsellors have had, and will continue to have, a vital role in providing the effective and operational support needed by vocational education programmes". Based on the results of their study of Illinois secondary school guidance counsellors, Matulis and Osborne (1990) concluded that guidance practices were substantially influenced by the guidance counsellors' perceptions of programme quality. Carpenter-Huffman *et al.* (1974) and Connelly and Clandinin (1988), [cited in Johnson and Newman, 2005] indicated that understanding the perceptions of influential stakeholders is essential for successful implementation of innovative educational programmes. Connelly and Clandinin (1988) defined a stakeholder as "a person or group of persons with a right to comment on, and have input into, the curriculum programme offered in schools".

This becomes problematic when one realizes that the choice of a vocation is one of the most important choices that the learner has to make (Rice, 2002). Studies have found that 39% of learners regard their high school teachers as the major influence regarding their occupational choices (Dusek, 1987; Rice, 2002). Thus, the guidance counsellors in schools have the ability to be highly influential when it comes to helping these same learners choose a career path (Dusek, 1987). It would therefore stand to reason that guidance counsellors should have an understanding of the careers available, resources to access the information and an understanding of their perception of the career paths in order to make these congruent with and assist in understanding the learner's goals in order to realistically and without bias advise the learner in a positive manner.

The above is however contradicted by a study that has indicated that learners feel they get little or no help from their school guidance counsellors (Dusek, 1987). It would therefore seem that the literature is at best contradictory and this is further complicated by the local circumstances in which both the learner and the SGC find themselves. In South Africa, this may be due to any one or more of the following reasons:

- The socio-economic conditions prevalent in South Africa, with respect to the general population (About South Africa > Health, 2004; Hupkes, 1990);
- Consumer preference and demand barriers (Gaumer et.al. 2002);
- The difference in chiropractic history (CASA, 2005);
- Legal barriers (Gaumer et.al. 2002);
- The education of chiropractors in South Africa (CASA, 2005);
- Accessibility barriers (Gaumer et.al. 2002);
- Chiropractors self-imposed barriers to primary care provider roles (Gaumer et.al. 2002).

These barriers as identified above are supported by Gaumer et.al. (2002), who goes on to classify them according to legal, financial, professional, accessibility related or geographic location, consumer preference, and self-imposed barriers (Gaumer et.al. 2002). These barriers may serve as possible reasons for vocational counsellors' lack of knowledge or misperception about chiropractic.

As these barriers are important in understanding the outcomes of this study, each will be discussed in detail below:

1. The socio-economic circumstances surrounding health care in South Africa

An understanding of this factor is important as the socioeconomic circumstances surrounding health care in South Africa could influence vocational counsellors' knowledge and perceptions of chiropractic. In South Africa, a crisis in the health care delivery system has resulted from confounding factors, which include but are not limited to: a shortage of resources; the high cost of health care; a lack of inter-professional cooperation (due to understaffing and lack of education); 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 but 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 it (About South Africa > Health, 2004). Thus, there is a polarization of the population in respect of their access to either side of the health care scale. The perception of the individual within that population will no doubt be biased or skewed in terms of the experiences associated with their point of entry into the health care system.

In respect of this scale, 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) (About South Africa > Health, 2004). There are currently about 200 Medical Aid Societies, most of which (about 98%) cover chiropractic care in part or in whole.

- However, 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 (About South Africa > Health, 2004).
- In addition, chiropractic health care is included in Workman's Compensation under the Compensation for Occupational Injuries and Diseases Act (Act no. 30 of 1993) (www.chiroweb.com/worldnews-chiropracticinSouthAfrica, 2005). This means that all injured-on-duty employees may consult a chiropractor directly without any referral and have all expenses for treatment including x-rays, reimbursed by Workers Compensation (CASA, 2005).

Therefore, it would be reasonable to conclude that since most chiropractors are in private practice in South Africa, chiropractic care is unaffordable to the majority of the population (which could include a large proportion of school guidance counsellors) in South Africa.

In the USA, De Lew and Weinick (2000) noted that race and ethnicity are associated with consistent patterns of health services use and health outcomes, with minority groups frequently experiencing a substantial disadvantage. Noting the substantial economic differences between various racial and ethnic groups, income and health insurance coverage are frequently cited as potential explanations for these disparities. However, a growing body of research has demonstrated that these racial and ethnic differences persist even when differences in income and health insurance are held constant (De Lew and Weinick, 2000).

2. Consumer preference and demand barriers

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). According to Jamison (1995) and Blydenburgh and Freedman (1988), a significant segment of the public (in Australia and America respectively) prefers chiropractic care to medical care for low back pain. Most chiropractic consumers and other potential consumers view chiropractors as back specialists (Gaumer *et.al.* 2002; Wardwell, 1989; Blydenburgh and Freedman, 1988; Sanchez, 1991; Gallop Organization, 1982). If chiropractors are to serve as primary care practitioners and if they are to alter the existing care-seeking behaviours of consumers, chiropractors must overcome impressions that they primarily treat lower back pain (Gaumer *et.al.* 2002).

The perception of chiropractors as back specialists is evident in research conducted by Hunter (2004) in a survey of perceptions and attitudes of South African Physiotherapists about the chiropractic profession in South Africa. When asked the question “What do you think the potential areas of co-operation are between physiotherapists and chiropractors?”, 97% of respondents answered “spinal problems” and 95% answered “sacro-iliac problems” respectively.

The primary care role of chiropractic may be influenced by the non-drug, non-surgical mandate of chiropractic, which is viewed as being the ‘cornerstone’ to the professions' identity (WFC, 2005). Differences in patient's expectations, preferences, and healthcare-seeking behaviour; differing perceptions about the availability and effectiveness of care; residential segregation; and differential satisfaction overall with the health system, have been cited as disparities in the health care delivery system in the USA (De Lew and Weinick, 2000). These disparities were shown in a research study conducted in twenty-seven paediatric practices around Los Angeles County, to assess the racial/ethnic differences in parents' expectations for the need for antibiotics. It was found that 43% of parents believed that antibiotics were definitely

necessary and 27% believed that they were probably necessary for their child's illness (Mangione-Smith et. al.2004).

This research helped determine what school guidance counsellors, who do not form part of the health care delivery system in our country, perceive or know about the scope of chiropractic practice in South Africa.

3. The history of chiropractic

Since the inception of chiropractic over a century ago, other highly influential groups, most importantly medicine and sociology have questioned various tenets of the profession at length (Wardwell, 1994). Allopathic medicine, in particular has viewed chiropractic with deep suspicion and concern (Curtis and Bove, 1992). Medical practitioners were forbidden to have anything to do with this "false system of teaching" (Hupkes, 1990). Chiropractic was condemned, particularly because it lacked the scientific evidence to substantiate its claims (Sanchez, 1991). Over approximately the last 30 years, however, chiropractic has become more accepted, and as a result, all aspects of the profession are under continuous evaluation (Wardwell, 1994). According to Coulter (1992), chiropractic has gained widespread social acceptance, and it is viewed as an alternative form of health care, or in some cases as a specialty.

Haldeman (2002) refers to the chiropractic profession as having now come to a crossroads between alternative and mainstream medicine. Although the biomedical paradigm, has not fully accepted chiropractic as a mainstream form of health care, the next decade should determine whether chiropractic maintains the trappings of an alternative health care profession or whether it becomes fully integrated into all health care systems.

School guidance counsellors may have a negative perception of the chiropractic profession due to the propaganda of highly influential groups to discredit and destroy

chiropractic (CASA, 2004) and that there was no scientific evidence to substantiate the claims made by the chiropractic profession in the past (Brantingham and Snyder, 1999). This has however changed, as much chiropractic-related research is published in more multidisciplinary / mainstream publications (Langworthy and Smink, 2000) and the reading of such journals may be one way of increasing the awareness of chiropractic amongst SGC's in South Africa. However, the perceptions may still exist due to the scientific publications (Wardwell, 1994; Langworthy and Smink, 2000) not being read by the public at large in South Africa, misinformation or misinterpretation of the information or limited understanding of the same information.

4. Legal Barriers

In South Africa, in 1971, a bill was promulgated that closed the register to chiropractors and chiropractic learners, 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 must 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).

School guidance counsellors may not be aware of the 1982 legislation that opened the registration for licensure of new chiropractors and the establishment of an educational programme in South Africa (Brantingham and Snyder, 1999), therefore their knowledge and perception of chiropractic will be limited as they choose not to remain updated about this “dying” profession.

In contrast to this, most (54% - 71%) osteopaths, manual therapists and physiotherapists were unaware that chiropractic does not have statutory recognition in The Netherlands (Langworthy and Smink, 2000). Thus the SGC's may be confused by the difference in statutory status of the chiropractic profession in different parts of the world.

5. Chiropractic Education in South Africa

The first Chiropractic learners were accepted into Technikon Natal in 1989 (Till, 1997; Brantingham and Snyder, 1999), therefore the profession has had less than twenty years to establish itself against mainstream medicine as an alternative health profession in South Africa. Therefore, before 1989, the public interested in studying chiropractic had to enrol in colleges overseas (Brantingham and Snyder, 1999). Hence, school guidance counsellors may still be of the understanding that this is the status quo and as a result refer students to overseas colleges as opposed to supporting the local institutions. This misinformation of the counsellors would reduce the acceptance of Chiropractic as an option of study within South Africa, as the learners would not be aware of the chiropractic courses available at Durban Institute of Technology (previously known as Technikon Natal) or University of Johannesburg (previously known as Witwatersrand Technikon).

Furthermore, the perception that chiropractic training is not offered in South Africa may contribute towards a lack of knowledge about the profession.

On the other hand those counsellors who know that chiropractic is offered at the Durban Institute of Technology or University of Johannesburg may have limited understanding of the requirements of the chiropractic programmes at these institutions, where the understanding does not reflect that (Career Information Booklet, Master of Technology: Chiropractic. 2004):

- The academic programme extends over five years of full-time study, followed by a year of internship.
- The first three years provide the chiropractic practitioner with a thorough grounding in traditional medical subjects with special emphasis on diagnostic skills.
- The final two years of the programme emphasize the holistic nature of the profession with particular attention to neuromusculoskeletal disorders.
- In addition to the academic component, the fifth year learners receive training in the Chiropractic Day Clinic treating patients and thereby gaining experience.

Furthermore limited knowledge of the entrance requirements may be reflected and not be in congruence with the requirements, which currently include (Faculty of Health Sciences, 2005):

- Applicants must be over 17 years of age,
- Physically fit and
- In possession of a senior certificate with matriculation exemption. Subjects must include Mathematics, Physical Science and/or Biology (Faculty of Health Sciences, 2005).

However in the light of the growth, which has been slow and arduous, in chiropractic since the inception of the training institutions, it is also conceivable that there is increased exposure of chiropractic to the public, in that in theory there are more practitioners available to educate them.

This is however contrasted when one assess and compares the training programme at the Durban Institute of Technology to the University of KwaZulu Natal Medical School:

- The total number of applications for UKZN Medical School has increased steadily in the past six years. The number of applications for MBCHB qualification in 1999 was 1448 and this figure rose to 2868 for the year 2005 (Vawda, 2004). However, only 300 applicants are accepted per year into medical school.
- The total number of applications for chiropractic only achieved around 304 applications in 2003, 374 applications in 2004 and 379 applications in 2005 at DIT (Boshoff, 2005).

Thus, it could be argued that even though there has been an increase in the number of practitioners over the time since the inception of the programme, these increased numbers have not been associated with a significant increase in the number of applicants over the corresponding period. In addition, these statistics also lend credence to the fact that even with increased scientific validation, this information is not being translated into public knowledge.

In this respect it must be seen that Chiropractic could be a good alternative to those learners who would like a career in the health care profession as primary contact practitioners. However, according to the trends discussed above, it would seem that school guidance counsellors are sending more learners in the direction of mainstream medicine for a variety of reasons related to and not related to the Chiropractic Profession as a whole. If vocational counsellors were more aware of the chiropractic profession, then they would be able to give learners other alternatives to mainstream medicine so the use of chiropractic in South Africa could become more widespread.

6. Accessibility barriers

Difficulty in accessing primary care in many rural and inner city locations may stem from shortages of providers in these areas. This limited access to health care providers can be a barrier to expanded roles for chiropractors in places where there may be opportunity created due to poor access to MD (Gaumer et.al. 2002). The Chiropractic Diplomatic Corps (2004) stated that there are 237 practicing chiropractors in South Africa and an estimated 2200 chiropractors are needed in the country. With so few practising chiropractors in a population of over 45 million people (About South Africa > Health, 2004), there is approximately one chiropractor to every 190 000 people in South Africa today. Lack of accessibility will influence school guidance counsellors' knowledge of chiropractic care, especially in the rural areas of South Africa. It is estimated that only 1% of the black population and only 10% of the white population, have any notion of what chiropractic is (www.chiroweb.com/worldnews-chiropracticinSouthAfrica, 2004). In this respect Louw (2005) said that GP's felt that less than 15% of their patients and less than 15% of the South African population regularly saw chiropractors.

In congruence with this and according to the World Health Organization (WHO), an estimated 80% of Africans use traditional medicines - compared to 60% of the world's population in general - and approximately 200 000 traditional healers practise in South Africa (Pretorius, 2004). The Health Minister Mantombazana Tshabalala-Msimang, said there were 200 000 traditional healers in South Africa and they were the first healthcare providers to be consulted in up to 80 percent of cases, especially in rural areas (Dreyer, 2004). This high percentage of use of another, although complementary medical profession, would limit the need of these patients to source another health care professional for care. This would by default not expose these patients to the option of chiropractic care.

7. Chiropractors self-imposed barriers to primary care provider roles

Not all chiropractors think of themselves as actual or potential primary contact practitioners (PCPs) as directed within the scope of practice of the Allied Health Professions Act 63 of 1982 (AHPCSA, 2005). Some obviously prefer to limit the scope of their practices to neuromusculoskeletal (NMS) conditions because of training and possibly due to lack of hospital privileges, which does not allow for access to all aspects of primary care (Gaumer et.al. 2002). This view was also held by Till and Till (2000), who stated that a public hospital or clinic would be a source of patients with a greater variety of pathologies and psychosocial circumstances than what is found in chiropractic teaching clinics. Till and Till (2000) further added that by offering chiropractic services in a hospital setting would be an ideal opportunity to do the following (Till and Till, 2000):

- Expand the experience of the interns;
- Expose people who had never previously even heard of chiropractic care, let alone experienced it, to the benefits of such care;
- Change the attitudes of medical and supplementary staff towards chiropractic care;
- Have a positive public relations benefit.

To ascertain the individual chiropractor's view is not possible as the actual data on how practising chiropractors view themselves is limited (Gaumer et.al. 2002). From an American perspective, 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 respondents said "yes". However, the chiropractors' opinions on their position in the health care system and scope of practice were less clear. According to this survey, most respondents (63.3%) believed that chiropractors should be general primary care, portal-of-entry practitioners; 25.7% believed chiropractors should be portal-of-entry 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).

Thus, it would seem that the scope of practice is a crucial issue for the chiropractic profession. It compounds the issues of competition for insurance coverage, patients, and research funding demands, if we cannot clearly define who we are and what we do (Hawk and Dusio, 1995). In this respect the chiropractic profession and its precise role in health care is still disputed (Jamison, 1995).

All these factors would imply that the access to information by the general public is limited by barriers that the chiropractors impose on themselves. Thus and in response to this, the World Federation of Chiropractic (WFC) (2003) conducted an international survey on the Consultation on 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). Below are some of the findings, which are relevant to this study, taken from abstracts of previous relevant research cited in WFC report (2003):

- Most public perception of chiropractic (in Canada) is based on ignorance, bias and misinformation rather than fact. Chiropractic patients generally know little more about chiropractic than non- patients do. Generally, there is a lack of respect and trust, and this is true of younger as well as older persons (Kenneth Caplan and Associates, 1994).
- The public (in Canada), including patients, understands very little about chiropractic education, qualifications and scope of practice (Kenneth Caplan and Associates, 1994).
- There is a lack of public confidence in the profession that could be changed by “providing information about chiropractic training” (Criterion Research Corporation, 1999).

- There is a marked difference in how non-users, 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 level of education and treatment procedure (Criterion Research Corporation, 1999). 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.
- 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 MD were seen as ineffective, but PT and chiropractors as equally good (Straton, Sweeney and Grandage, 1990).
- 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 cost of chiropractic care was considered a disadvantage.
- In the United States of America (USA), Hurwitz et.al. (1998) found that chiropractic patients tended to be between 30 and 50 years old, with nearly equal distribution of females and males. However, Research Dimensions Inc. (1994) found that rural chiropractic patients (in USA) in medically underserved areas are demographically different from the overall US chiropractic patient population. Such patients are much older, more likely to be married and more predominantly female.
- 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.

Thus it would seem that the principle issue that crystallize out of this picture would be related directly to information being available to users, non-users or lapsed users of chiropractic care.

Thus, the WFC sent out 29 094 e-mail invitations on 4 October 2004, inviting members to participate in the survey on the international consultation on the most appropriate public identity of the chiropractic profession. On 24 October 2004 when the survey closed, 3689 completes were obtained (WFC, 2005). Below is the executive summary of the consultation on the identity of the chiropractic profession:

There is consensus among chiropractors that it is important for a profession to have a clear public identity. That said, most agree that the chiropractic profession suffers from an unclear identity and position within health care today. When it comes to communicating with the public to promote the use of chiropractic services, just over one-half (54%) of chiropractors believe that the chiropractors' view of the profession and the public's view of the profession is equally as important to represent. 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. 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.

Similarly, 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.

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)

Thus if chiropractors wish to expand the scope of chiropractic practice, 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. In this forum, school guidance counsellors may have a lack of knowledge and negative perception of the profession as it exists today. The levels of public (viz. school guidance counsellors) knowledge may be reflecting the presence of unclear boundaries in the scope of practice within the profession itself (Sanchez, 1991).

Summary

Therefore in summary it could be stated that the public's (and therefore by default the SGC) perception and knowledge of the scope of chiropractic practice would have been influenced by the legal, financial, professional, accessibility or geographic location, consumer preference, and self-imposed barriers. Scope of practice is fairly wide, although most chiropractors confine their own practices to primarily musculoskeletal conditions in South Africa.

Thus, it could be stated that the knowledge and perceptions of school guidance counsellors could be limited, bias, incomplete or complete based on each counsellor's exposure to the various factors that have been discussed in this chapter. However, concluding that any one factor is responsible can only be completed in a manner that validates the inferences drawn from the literature. This by default means that a survey is needed in order to assess the current knowledge and perceptions of SGC in South Africa as a starting point for investigating this complex arena, where the barriers are not isolated and independent factors but codependent, indicating that the mechanisms for educating the SCG are potentially vast.

Nonetheless, an initial assessment with respect to the SCG's knowledge and perceptions will be a good measure of type and number of barriers that need to be overcome and addressed by the Chiropractic profession in South Africa with respect to the following identified barriers:

- The socio-economic circumstances surrounding health care in South Africa
- Consumer preference and demand barriers
- The history of chiropractic
- Legal Barriers
- Chiropractic Education in South Africa
- Accessibility barriers
- Chiropractors self-imposed barriers to primary care provider roles

Thus, the aim of this research was to assess the knowledge and perception of vocational counsellors in South Africa with respect to chiropractic.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

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

3.2 Study Design

A population-based demographical study on school guidance counsellors' perceptions and knowledge with respect to chiropractic in South Africa was conducted at 595 high schools around the country. This study was an attitudinal survey (Wisker, 2001), quantitative in nature, and made use of a structured questionnaire (Appendix B) to collect data. A descriptive type design was used to collect the information. Descriptive surveys are simply used to establish the features of a particular group (Dyer, 1997), i.e. the perception and knowledge of chiropractic. In general, questionnaires are a good source of information, provided that the questionnaire has been proven reliable and valid (Mouton, 1996).

3.3 Methodology

For the purposes of this study, a knowledge and perception questionnaire was utilized to gather the relevant information. Survey research is a way of collecting information from a large and dispersed group of people (Dyer, 1997). The primary data for this research was collected by means of a questionnaire based upon previously published works (Fowler, 1995) and questionnaires (Rubens, 1996; Hunter, 2004; Louw, 2005).

3.3.1. Questionnaire background

Langworthy (M.Phil. Institute for Musculoskeletal Research & Clinical Implementation, Bournemouth, UK) designed a questionnaire and used it in studies in The Netherlands and Norway respectively (Langworthy and Smink, 2000; Langworthy and Birkelid, 2001). Louw (2005) received permission from Langworthy to use the questionnaire and to modify it accordingly to the South African context. The researcher received permission from Louw (2004) to use his version of the questionnaire and modify it accordingly (Appendix H).

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 language and a small (n=10) pilot study undertaken to establish content and face validity (Langworthy and Smink, 2000). Face validity may be lost when a questionnaire is translated, as the questions themselves might not be understood, thus error could be introduced into the results (Hunter, 2004). Construct validity is however retained.

The Langworthy and Birkelid (2001) study was conducted in Norway where the face and 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, thus it has been previously demonstrated that the questionnaire has usefulness and is unambiguous (Mouton, 1996). This process is vital in order to ensure that future research utilizing the particular tool is accurate (Bernard, 2000).

Louw's questionnaire was modified to suit South African conditions. The instrument was found to be unambiguous; and capture of the data was reliable as defined by Mouton (1996). The revised questionnaire used by Louw comprised 32 questions in 7 sections, covering personal data, knowledge about chiropractic, the role of

chiropractic in the health care system of South Africa, confusing chiropractic jargon, inter-professional communication between GP's and chiropractors, the scope of practice of chiropractic and the market share of chiropractors in the South African health care system (Louw, 2005).

The questionnaire used in this study was modified to suit the 'lay-persons' in the South African context. The questionnaire consisted of four sections consisting of the respondents' demographic details, their level of knowledge about chiropractic, their perceptions of chiropractic's role in the health care system, their perceptions of the scope of chiropractic. The seven basic principles offered by Dyer (1997) were employed to organize the contents of the questionnaire to maximum advantage.

In order to adapt the questionnaire to South Africa and ensure that the questionnaire met the minimum requirements as set out by Mouton (1996) and Bernard (2000), a focus group (n=8) was then set up in order to establish the face validity of the adapted questionnaire.

The group consisted of several participants:

1. Three High School Guidance Counsellors.
2. Four Chiropractors.
3. One Statistician.
4. The researcher.

These participants were enlisted via word of mouth (Gibbs, 1997; Morgan, 1998), with eight respondents coming forward and expressing an interest in the focus group. The recommended number of people per focus group is usually six to ten [Macintosh, 1993], but some researchers have used up to fifteen people [Goss & Leinbach, 1996] or as few as four [Kitzinger, 1995] (cited in Gibbs, 1997). Further to the face validity (Bernard, 2000), the focus groups' aim is to develop a questionnaire that limits potential misinterpretation by the respondents according to Scollen and Scollen (1995). Most importantly, it will ensure the questionnaire will work effectively

in the South African context, with the face validity adapted to the South African context and the construct validity unchanged (Mouton 1996).

The focus group was selected in order to cover as broad a spectrum of school guidance counsellors as possible (Morgan [Vol. 1], 1998), however it is not always easy to identify the most appropriate participants for a focus group. If a group is too heterogeneous, whether in terms of gender or class, or in terms of professional and 'lay' perspectives, the differences between participants can make a considerable impact on their contributions (Gibbs, 1997; Morgan [Vol. 2], 1998). Alternatively, if a group is homogenous with regard to specific characteristics, diverse opinions and experiences may not be revealed (Gibbs, 1997; Morgan [Vol. 2], 1998). In this study, this was achieved through the researcher's personal communication with various school guidance counsellors, some of which were then requested to be a part of the focus group.

Before commencing the focus group, each participant was required to read an information letter (Appendix C), and sign an informed consent form (Appendix D), confidentiality statement (Appendix E) and a code of conduct statement (Appendix F). In the focus group, each participant was given copies of the perception questionnaire. Comment was requested on how the questionnaire could be modified in order to accurately assess school guidance counsellors' perception and knowledge of chiropractic in South Africa.

The questions were discussed in sequential order, following the procedure in *Moderating Focus Groups [Vol. 4]* by Morgan (1998). Following the discussion of each question, minor changes were made to the questionnaire to enhance the understanding of a few of the questions. This established the face validity (Bernard, 2000) of the questionnaire, while still ensuring that the content of the questionnaire was not altered. If inconsistencies were found or changes proposed, a unanimous vote was required to institute change. At the end of the discussion, a pre-test evaluation (Appendix G) was conducted and chance was given for any comment on the questionnaire. Suggestions for change were analyzed and these changes made

to the questionnaire, yielding the version used in this study. The final, corrected questionnaire was developed and printed for use in this study (Appendix B).

The cover page of the questionnaire, which was printed on an official DIT letterhead, consisted of an introduction that contained the basic information about the research project in general, and information about the questionnaire (Appendix A). The information included: the title of the research; the purpose of the research; the nature of the sample; the average time to complete the questionnaire and reassure all respondents of the confidentiality of the information.

A video of the focus group proceedings was made (Gibbs, 1997) and is available as evidence of the individuals involved and the content of the discussion.

3.4 Sampling procedure

Five hundred and ninety five high schools were randomly selected by means of stratified random sampling. The sampling procedure was as follows:

	PROVINCE	Population of Schools	Sample of Schools
1	KZN	1401	140
2	Gauteng	693	69
3	Free State	513	51
4	Mpumalanga	383	38
5	Eastern Cape	864	86
6	Western Cape	426	42
7	Northern Cape	133	13
8	North West	460	46
9	Limpopo	1106	110
	Total sample	5979	595

- i) A list of high schools around South Africa was obtained from the Recruitment and Enrolment Management Office (REMO) at the Durban Institute of Technology (DIT).
- ii) The schools were separated into their nine respective provinces. The sample was proportional to the size of the population of high schools in each province
- iii) Ten percent of the schools from each province were randomly chosen and a list of 595 schools was compiled.
- iv) All the schools on the list (n=595) were posted a questionnaire (Appendix B) and an enclosed letter of information (Appendix A). This represented approximately 10% of the total population enabling accurate statistical analysis of the results (Mouton, 1996; Hunter, 2004).

3.5 Inclusion and Exclusion criteria

3.5.1 Inclusion criteria

1. Only school guidance counsellors working at a registered school in South Africa were accepted.
2. Only school guidance counsellors with a valid teaching qualification were accepted.
3. The questionnaire must have been returned completed.

3.5.2 Exclusion criteria

1. Non-responses were excluded after eight weeks from the initial posting of the questionnaire to the schools.
2. Any questionnaire that was incomplete or had been inadequately completed was excluded from this study.
3. Questionnaires that were completed by anyone other than a SGC were excluded from this study.

3.6 Limitations

1. This type of recruitment for observation may not fully represent the population group and may lead to error in results. It is 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).
2. This research will focus on school guidance counsellors in South Africa only.

3.7 Method of distribution

The questionnaire was distributed via mail to the random sample of 595 schools (n=595 out of a population size n=5975), stratified into nine geographic regions, in order to ensure that all parts of South Africa were included (Hawk and Dusio. 1995).

Each selected high school received an envelope containing:

- a. A cover letter of explanation and introduction (Appendix A).
- b. The questionnaire (Appendix B).
- c. A return, self-addressed, business reply envelope.

Making the return of the questionnaire as simple as possible ensured maximum compliance from respondents. The return address was that of a neutral party, a Faculty Health Officer in the Faculty of Health Sciences.

The limited budget only allowed for one contact between the researcher and the sample population in the design of this study. However, surveys that used advance notices had higher response rates than those that did not use advance notices (Russell, et al. 2004). It was therefore requested that no names or any other form of identification was present on the questionnaires (and it was requested that the respondents not place any identifying data on the questionnaire) to maintain the anonymous nature of the questionnaires and confidentiality of the subjects. The questionnaires are stored in the Chiropractic Day Clinic for a period of five years and then shredded.

3.8 Data Analysis

3.8.1 Statistical package used

Data were entered and analyzed using SPSS version 11.5 (SPSS Inc. Chicago, Ill, USA).

3.8.2 Scoring system

Knowledge score was calculated for each subject as the sum of correct responses to selected questions assessing knowledge of chiropractic. These were: Q1.6 – Q1.13 in the questionnaire. Each correct response to these questions was assigned a score of one, except for Q1.10 and Q1.11, which were given higher weighting due to their importance in this study. These questions were given a score of two.

3.8.3. Descriptive analysis

Responses to the categorical questions were tabulated or shown graphically for all respondents. Responses to quantitative questions were summarized using means and standard deviations.

3.8.4. Analytical statistics

Associations between variables and knowledge scores were investigated using independent t-tests or univariate analysis of variance (ANOVA) where appropriate. Pearson's Chi square tests were used to assess associations between categorical variables. A p value of <0.05 was considered as statistically significant and our null hypothesis was rejected.

3.9. Null hypotheses

1. There is no association between self-reported knowledge and knowledge score.
2. There is no association between demographics and knowledge.
3. There is no association between demographics and perceptions.
4. There is no association between knowledge and perceptions.
5. There is no association between having used chiropractors before and knowledge.
6. There is no association between having used chiropractors and perceptions.

3.10. Abbreviations

SD - standard deviation
ANOVA - analysis of variance
N – number
% - Percentage
Df - degrees of freedom

CHAPTER FOUR: THE RESULTS AND DISCUSSION

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, with 95% confidence intervals in order to show how the data were distributed in all study subjects as a whole.

4.2. Response rate

Five hundred and ninety-five questionnaires were mailed to school guidance counsellors in all nine provinces of South Africa. Of these, twenty were returned undelivered and one refusal to participate was received (reason given was language barrier). Of the possible 575 respondents, only sixty questionnaires were returned completed in the eight weeks given. One subject was neither working at present as a SGC, nor had any previous experience as a SGC, thus did not meet the inclusion criteria and was excluded from the study. Thus, the overall response rate was 10.3% (59/575), which was slightly lower than that of other surveys conducted on the chiropractic profession in South Africa (Rubens, 1996; Hunter, 2004; Louw, 2005).

A possible reason for the lower response rate is that this study was the first to look at the laypersons' (SGC) perspective whereas Rubens (1996) looked at neurologists, neurosurgeons and orthopaedic surgeons; Hunter (2004) looked at physiotherapists and Louw (2005) looked at GPs. However, SGC are busy individuals with limited available time and frequent requests to complete questionnaires of this type may have deterred some SGC from responding. Professionals who work in the health care industry may have felt more comfortable with the content of the questionnaire, whereas SGC may not be used to filling in health care surveys and therefore be more reluctant to do so. A slightly shorter questionnaire might have yielded a better response. 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).

According to Russell, et al. (2004), response rates to mail surveys vary depending on the nature of the population studied. There is also evidence that response rates to surveys have declined over time. 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 achieved with our study, having only one contact.

The limited budget only allowed for one contact between the researcher and the sample population in the design of this study. Surveys that used advance notices had higher response rates than those that did not use advance notices (Russell, et al. 2004); therefore if an advance notice was sent to the sample group, followed by the questionnaire, the response rate would have been higher according to the study by Russell et al. (2004). Follow-up sending of additional questionnaires would have increased the response rate even further. A telephonic reminder was another option used in previous studies to remind non-responders (Brussee, et al., 2001). However, due to the anonymity of this study, there was no opportunity to follow-up on non-respondents, even if the budget had allowed for it.

According to Russell, et al. (2004), the key to obtaining good response rates is sound methodology including: the use of personalized questionnaires and letters, advance notices, follow-up contact and the sending of additional questionnaires to non-respondents.

4.3. Descriptive statistics

4.3.1 Demographics

Of the fifty-nine respondents, 50.8% were female (n=30) and 49.2% (n=29) were male. The majority (34%, n=20) were 41-50 years of age. Most respondents were White (n=27, 45.8%) or Black (n=22, 37.3%). There were very few respondents from other races (Table 1).

Table 1: Race distribution of respondents (n=59)

	Frequency	Percent
Asian	4	6.8
Black	22	37.3
Coloured	3	5.1
Indian	3	5.1
White	27	45.8
Total	59	100.0

Most respondents had been working for more than 21 years as a school educator (n=16). However, the median duration as a guidance counsellor was 5 years (range 1-22 years).

Figure 1 below shows that most respondents were from KZN (34%), followed by Gauteng (19%) and Limpopo Province (17%). There were very few respondents (n<10%) from the other provinces. In order to achieve a true representation of the different areas, the researcher aimed to receive a similar returning percentage compared to the percentage of mailed questionnaires from each of the different areas. The mailed questionnaires were returned in a more or less representative fashion as illustrated by the following: The response rate from Limpopo, Mpumalanga, Northern Cape, North West and Western Cape was all within 2 percentage points of the number of questionnaires which were mailed to these regions. However, the response from Eastern Cape, Free State, Gauteng and

KwaZulu Natal was between 6 and 10 percent lower than the number of questionnaires that were sent into these regions respectively.

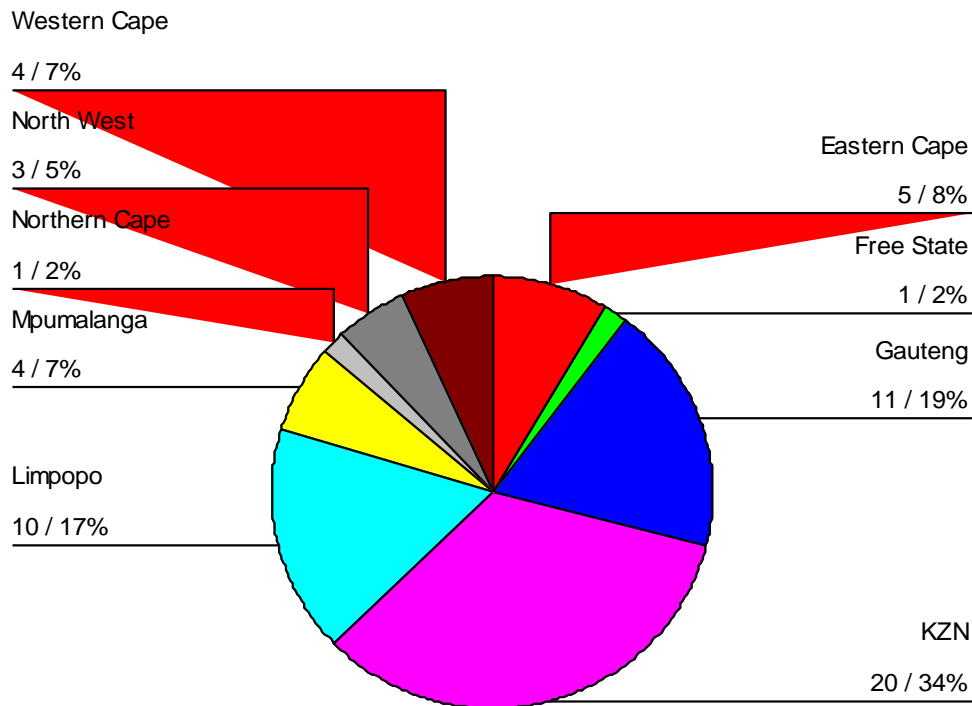


Figure 1: Provincial distribution of respondents (n/%; n=59)

Eighty-five percent of respondents were from Government schools (n=50) and only one was semi-private. Most schools were co-ed (n=51) and situated in suburbs (n=29). Table 2 shows the characteristics of the respondents' schools. The majority (n=53, 89.8%) were currently working as a school guidance counsellor, while the remaining six respondents had worked as a school guidance counsellor in the past.

Table 2: School characteristics of respondents (n=59)

		Frequency	Percent
Type of school	Government	50	84.7
	Private	8	13.6
	Semi Private	1	1.7
	Total	59	100.0
School gender make up	Boys only	6	10.2
	Girls only	2	3.4
	Co-Ed	51	86.4
	Total	59	100.0
School situation	CBD	3	5.1
	Suburb	29	49.2
	Rural	22	37.3
	Township	5	8.5
	Total	59	100.0
How many learners in school	1-199	4	6.8
	200-399	7	11.9
	400-599	10	16.9
	600-799	15	25.4
	800-999	12	20.3
	1000+	11	18.6
	Total	59	100.0

The questionnaire was of medium length in order to obtain greater insight into SGC knowledge and perceptions.

4.3.2 Knowledge of Chiropractic

The mean knowledge score of the sampled SGC was 64.5%. This meant that out of a total score of 100, the average SGC scored 64.5 out of 100 for his/her knowledge about chiropractic. The minimum score was 0% and the maximum score was 93.5%. The majority of SGC (61%) reported that they have some knowledge of chiropractic; however mean knowledge score was non-significantly higher in those who reported that they knew something about chiropractic ($p = 0.096$).

SGC knowledge of the duration, qualification and content of the chiropractic course in South Africa was very limited. Responses for the individual components of the knowledge score were as follows:

- Most respondents thought that the duration of the course was 4 years. Only 20.3% knew that the correct duration of the course was 6 years (Table 3).

Table 3: Respondents' knowledge on duration of chiropractic course in SA

		Frequency	Percent
Valid	3yrs	12	20.3
	4yrs	14	23.7
	5yrs	10	16.9
	6yrs	12	20.3
	7yrs	6	10.2
	8yrs	1	1.7
	Total	55	93.2
Missing	System	4	6.8
Total		59	100.0

- Only 20.3% knew that a Master degree was the qualification with which a chiropractor qualifies. Most thought it was a diploma (23.7%) (Table 4).

Table 4: Respondents' knowledge on qualification

		Frequency	Percent
Valid	Diploma	14	23.7
	National Higher Diploma	11	18.6
	Bachelor's degree	9	15.3
	Master's degree	12	20.3
	PhD	9	15.3
	Other	2	3.4
	Total	57	96.6
Missing	System	2	3.4
Total		59	100.0

- SGC mostly thought that anatomy, physiology and physiotherapy were included in the course. A low percentage of respondents knew that chemistry, microbiology, pharmacology and psychiatry were part of the course. Twenty-one percent incorrectly thought that surgery was part of the course (Figure 2).

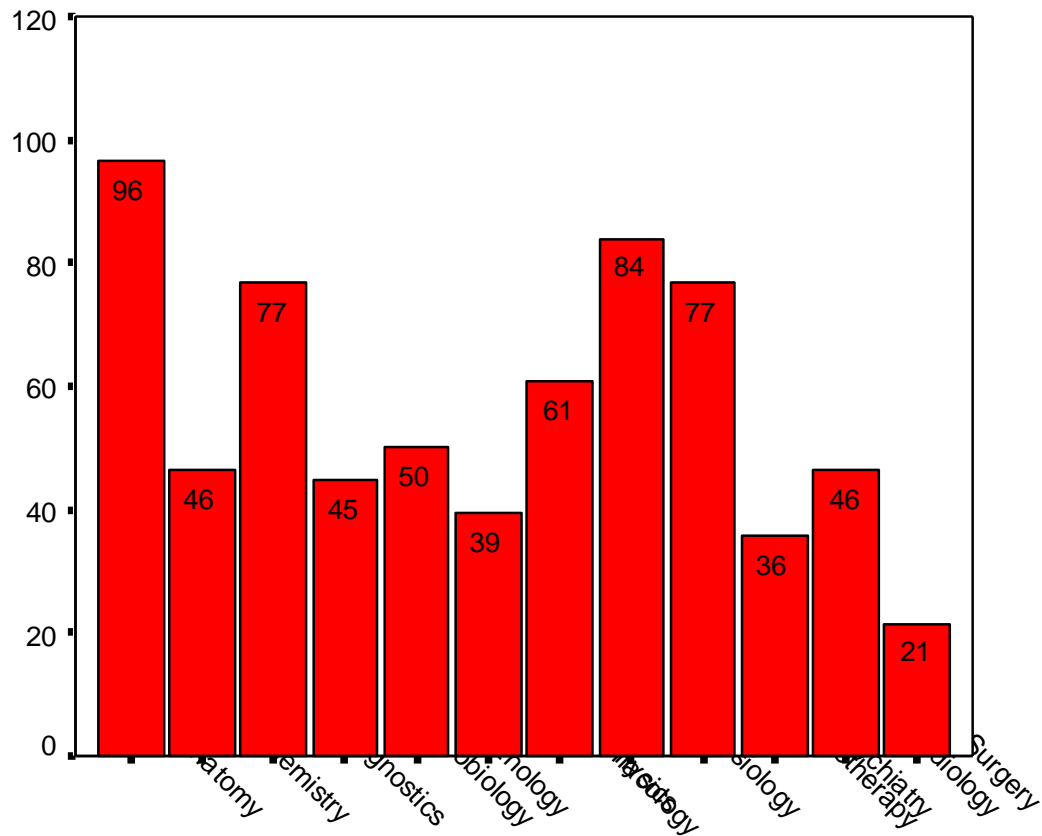


Figure 2: Respondents' knowledge of contents of chiropractic course

- Most respondents knew that chiropractors could specialize in NMS system, extremities, rehabilitation and sports injuries. Very few knew that paediatrics and radiology were also specialties. Twenty-six percent incorrectly thought that chiropractors could specialize in surgery (Figure 3).

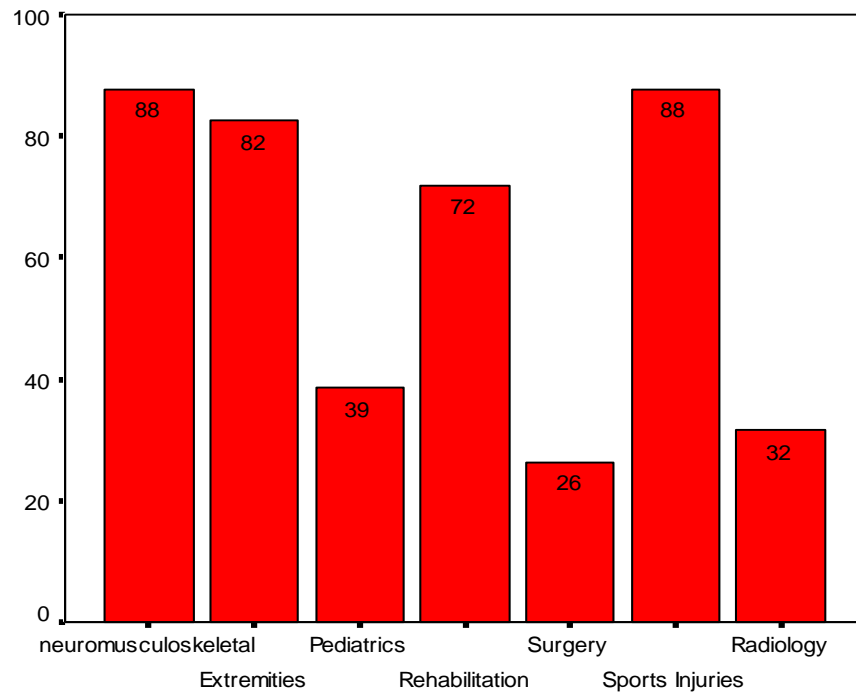


Figure 3: Respondents' knowledge of chiropractic specialization

The majority of SGC were well informed about the entrance requirements to study chiropractic in SA:

- Eighty-three percent knew that a matriculation exemption is required.
- Most respondents knew that Biology, Mathematics and Science were required at matriculation level to be able to study chiropractic (figure 4).

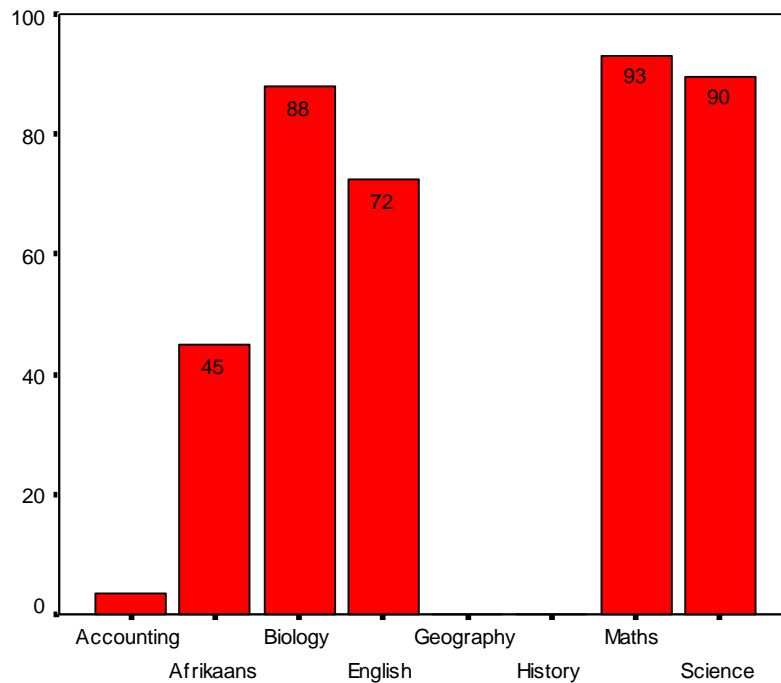


Figure 4: Respondents' knowledge of compulsory matric subjects to study chiropractic

Knowledge of the entrance requirements is very important to SGC. Appropriate guidance on educational and occupational matters, and orientation of learners with respect to their individual potentials, will enable them to choose fields of study at school that will link up with wider occupational fields and that will serve as a meaningful introduction for a reasonable future choice of an occupation (Haasbroek, et.al. 1978).

Almost half the SGC who responded to the questionnaire were not well informed about the legal status of the profession in SA. 47% of SGC are not aware of the 1982 the Associated Health Service Professions Act No. 63 of 1982 which established the Allied Health Professions Council of South Africa (AHPCSA, 2005), a statutory body that wrote chiropractic into law, and with whom all chiropractors must register (CASA, 2005).

- Only 53% of respondents knew that a statutory body regulates the chiropractic profession in SA.
- Fifty-one percent of respondents knew that the chiropractic profession in SA has an organizational professional body.

In contrast to this, most (54% - 71%) osteopaths, manual therapists and physiotherapists were unaware that chiropractic does not have statutory recognition in The Netherlands (Langworthy and Smink, 2000). SGC may have been confused by the difference in statutory status of the chiropractic profession in different parts of the world.

The respondents were asked where they acquired their knowledge of chiropractic.

- Figure five shows that the most common sources of knowledge were reading (35%) and being treated by a chiropractor (27%). Other sources of knowledge include the media, colleagues, and friends. Only 6% had heard about chiropractic from their GP.

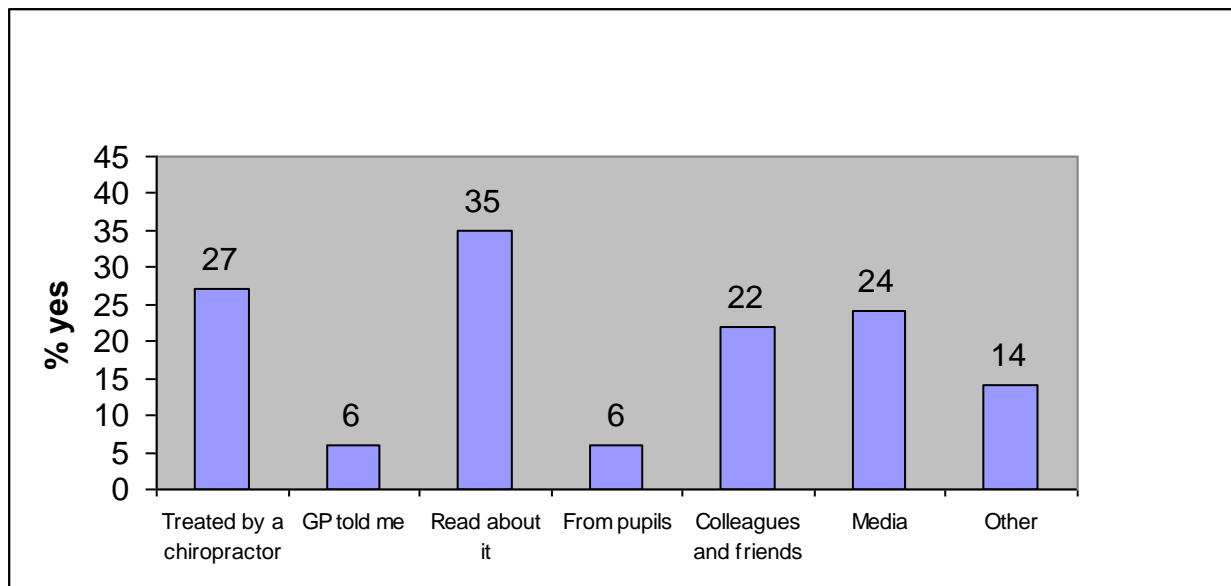


Figure 5: Respondents' source of knowledge of chiropractic

The majority of SGC are not well informed about the chiropractic course in SA, which is similar to that of neurologists, neurosurgeons and orthopaedic surgeons (Rubens, 1966). This was analogous to the findings of the WFC consultation of identity of chiropractic where it was concluded that there is a limited public awareness regarding the education of chiropractors (WFC, 2005).

4.3.3 The role of chiropractic in health care

The precise role of chiropractic in health care continues to be disputed (Jamison, 1995). In recent years, it has largely been the impression of government, private industry policymakers, many health care professions, the general public, and some within the chiropractic profession itself that chiropractic practice is not primary care and should be utilized for the treatment of neuromusculoskeletal or musculoskeletal conditions only (Duenas et.al. 2003). To find out what SGC in SA think, the participants were asked to rate the role of chiropractic in the health care system in SA.

This trend was demonstrated by asking SGC to rate, on a scale of 1 to 5, sixteen professions in terms of their importance in serving in a primary health care capacity in South Africa. Medicine, nursing, pharmacy, optometry, dentistry, emergency care and fracture care were rated as most important with a rating of five. Physiotherapy scored a median rating of four while chiropractic scored a median of three along with other complementary therapies of foot care, homeopathy and herbalism. Acupuncture and traditional healing scored a mean of two whilst Ayurvedic medicine and Chinese medicine scored the lowest. The median rating of chiropractic, by SGC in SA, in the health care system is similar to that of GP's (Louw, 2005) and neurologists, neurosurgeons and orthopaedic surgeons (Rubens, 1996) who also placed chiropractic higher than traditional healing, Ayurvedic medicine and Chinese medicine, but lower than physiotherapy and the more traditional medical professions. This study contrasts with results found in Canada where chiropractic,

relative to other complementary therapies, enjoyed the widest acceptance among the medical community (Verhoef and Page, 1996).

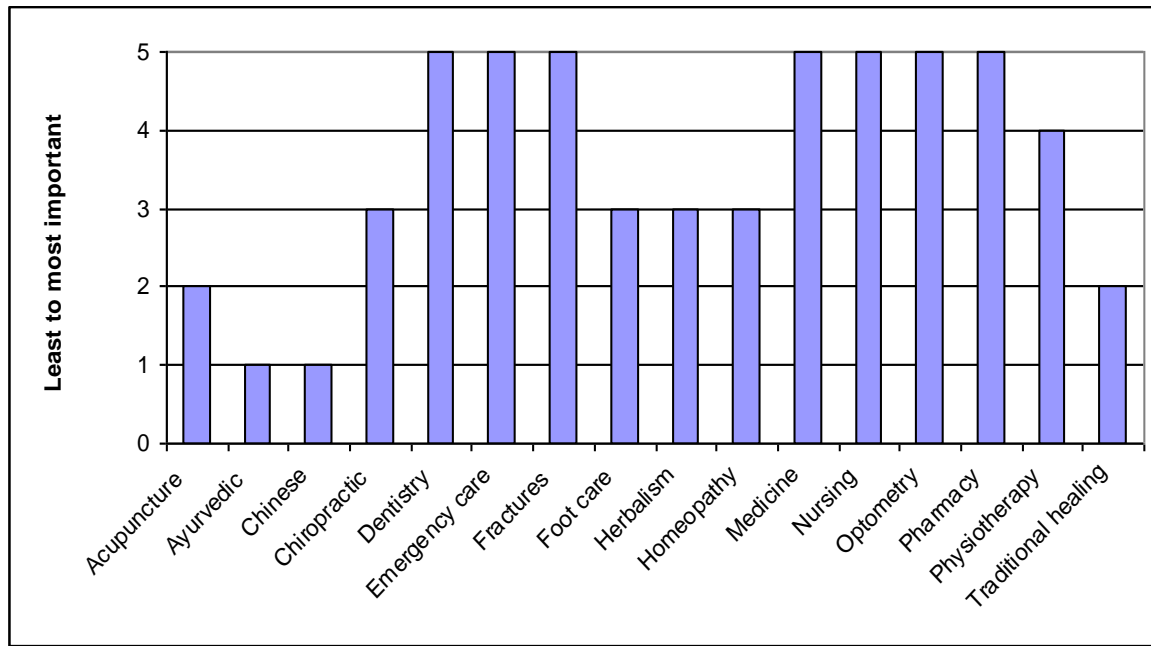


Figure 6: Participants' rating of professions

	Frequency	Percent
Not informed enough to comment	19	32.2
Does more harm than good	2	3.4
Uncomfortable with it	1	1.7
May be effective for some patients	11	18.6
Effective for back conditions only	3	5.1
Chiro=bones, Physio = muscles	3	5.1
Specialists in nerve, muscle and bone disorders	20	33.9
Total	59	100.0

Table 5: Respondents' perceptions of chiropractic

- Thirty-four percent of respondents perceived chiropractors to be specialists in nerve, muscle and bone disorders. Thirty-two percent felt they were not informed enough to comment. Relatively few participants had negative perceptions of chiropractic (Table 5).

SGC perception of chiropractic in SA is similar to the findings of the WFC consultation of identity report (2005), where many believe that chiropractic health care is more commonly perceived by the general public as the management of neck and back pain and to a lesser extent the management of spinal problems (WFC, 2005).

		Frequency	Percent
Valid	Great extent	22	37.3
	Moderate extent	28	47.5
	Slight extent	5	8.5
	No active role	3	5.1
	Total	58	98.3
Missing	System	1	1.7
Total		59	100.0

Table 6: Perceptions on the extent to which chiropractic should be integrated into SA health care system

- Most participants felt that chiropractic should be integrated to a moderate extent (47.5%) or a great extent (37.3%). Few (n=3) thought that there was no active role (5.1%) (Table 6).
- Forty-five percent of participants incorrectly thought that chiropractors were trained in medication, which was a higher percentage than those who thought chiropractors were trained in acupuncture, laser therapy and ultrasound (42%) respectively. Only 81% correctly thought that chiropractors are trained in manipulation and massage respectively whereas 87% correctly thought that chiropractors are trained in stretching. The vast majority (91%) of SGC perceived chiropractors to use exercise therapy as a form of treatment

Twenty-five percent incorrectly thought they were trained in minor surgery. (Figure 7).

The above findings show the lack of knowledge of the chiropractic profession in SA as the non-drug, non-surgical mandate of chiropractic is viewed as being the 'cornerstone' to the profession's identity (WFC, 2005).

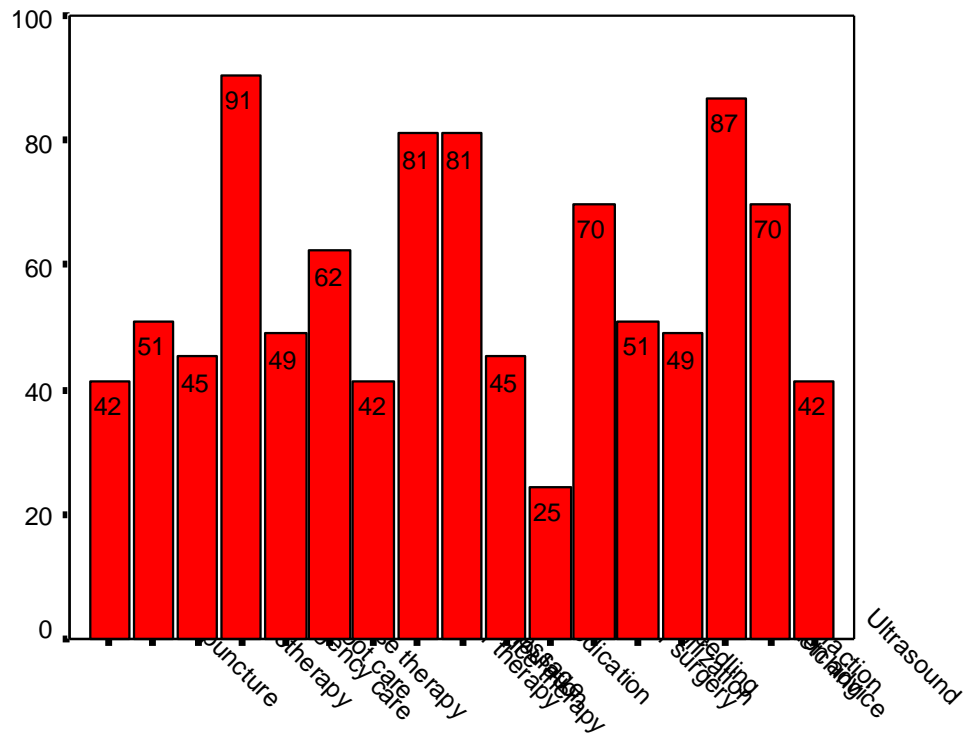


Figure 7: Perceptions on treatment methods included in the chiropractic training course

4.3.4 Scope of the practice

Scope of practice is a crucial issue for the chiropractic profession (Hawk and Dusio, 1995). The level of SGC (viz. public) knowledge reflects the presence of unclear boundaries in the scope of practice within the profession itself. Fewer SGC perceive chiropractic as a primary contact profession than that of a neuromusculoskeletal specialist. These results are analogous to WFC consultation of identity findings (2005), where most chiropractors (91%) think the profession should be perceived by the general public as a form of primary health care with focused (55%) or broad (36%) scope. However, only four-in-ten (44%) believe this is how the profession is actually perceived by the general public (WFC, 2005).

	Frequency	Percent
Very competent	36	61.0
Moderately competent	11	18.6
Slightly competent	4	6.8
Unable to comment	8	13.6
Total	59	100.0

Table 7: Extent to which participants believed chiropractors are competent in NMS diagnosis and treatment

Sixty-one percent of SGC (n=36) thought that chiropractors were very competent to diagnose and treat NMS disorders. None said incompetent or very incompetent. In a study in New Zealand (NZ), 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. 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 being for back pain, where MD were seen as ineffective, but physical therapists and chiropractors as equally good ([Straton, Sweeney and Grandage, 1990] cited in WFC,2003).

	Frequency	Percent
Very competent	26	44.1
Moderately competent	18	30.5
Slightly competent	5	8.5
Incompetent	1	1.7
Unable to comment	9	15.3
Total	59	100.0

Table 8: Extent to which participants believe chiropractors to be competent in general medical management

In contrast to the above, only twenty-six participants (n=26) believed chiropractors to be very competent in general medical management (44%) followed by moderately competent (n=18, 31%). Only one respondent answered incompetent. This is the same view as the majority of South African GP's, which felt that chiropractors were incompetent in the general medical management of patients (Louw, 2005). Preventative and primary contact roles were seen as less important by the participating GP's (Louw, 2005). This contradicted results found in the Netherlands and Norway where chiropractors were perceived as primary health care professionals (Langworthy and Smink, 2000; Langworthy and Birkelid, 2001).

Sixty-six percent of SGC felt that it could be useful for patients to see chiropractors on a regular basis to prevent the onset of recurrent conditions, compared to only 44% of GP's (Louw, 2005). The most important roles for chiropractic, according to South African GP's, were those of referral and rehabilitation (Louw, 2005) and according to South African neurologists, neurosurgeons and orthopaedic surgeons, supportive and rehabilitative roles (Rubens, 1996). Differences in opinion could result from allopathic medicine's deep suspicion and concern (Curtis and Bove, 1992) because chiropractic lacked the scientific evidence to substantiate its claims (Sanchez, 1991). Further, medical practitioners may have a lack of knowledge as

they were forbidden to have anything to do with this “false system of teaching” (Hupkes, 1990).

Sixty-four percent of respondents thought that there was sufficient difference between chiropractic and physiotherapy to warrant separate professions. GP's were more comfortable referring to physiotherapists because they had a greater understanding of the treatment involved (Breen, et al. 2000). Physiotherapists seem to enjoy more favour than chiropractors for the treatment of musculoskeletal conditions. One of the reasons may be the fact that GP's are aware of their scope of practice and not sufficiently informed about chiropractic (Louw, 2005).

- Only 17% of participants knew of someone who had been injured by chiropractic treatment.
- Sixty-six percent of respondents knew of someone who had suffered side effects from medication.
- Most participants did not know whether chiropractors worked in a multidisciplinary setting. Only 20% answered yes.

School guidance counsellors were asked to choose their primary contact provider for a list of twenty-one conditions, thirteen for which chiropractic treatment would be effective.

- Figure eight shows that chiropractors were considered as the provider of choice for joint pain, numbness and low back pain. These were also the three most frequent conditions for which participants would seek chiropractic treatment. Figures 9 a-k shows the frequency of choice of the SGC for the selected conditions.

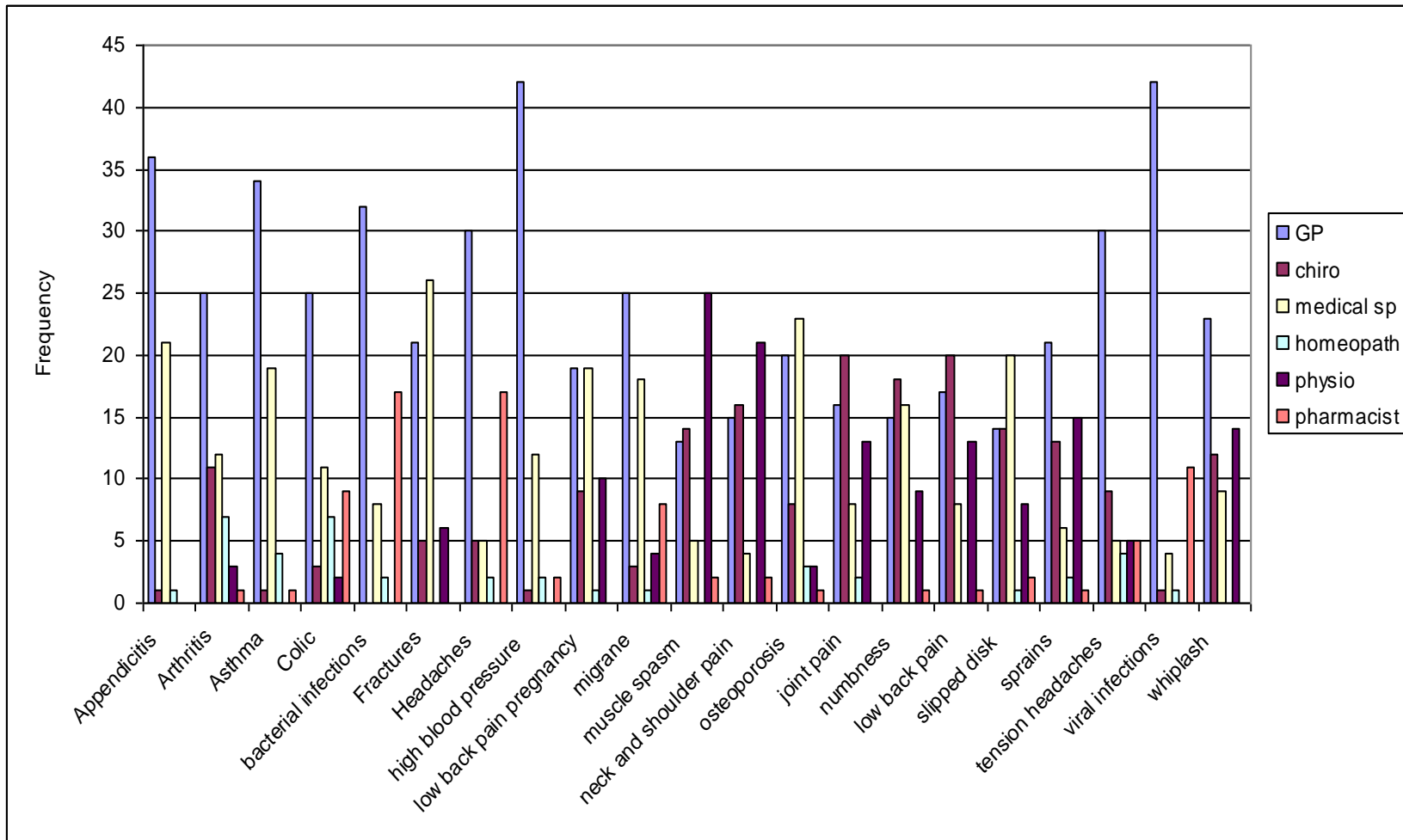


Figure 8: Frequency of choice of health care provider for selected conditions

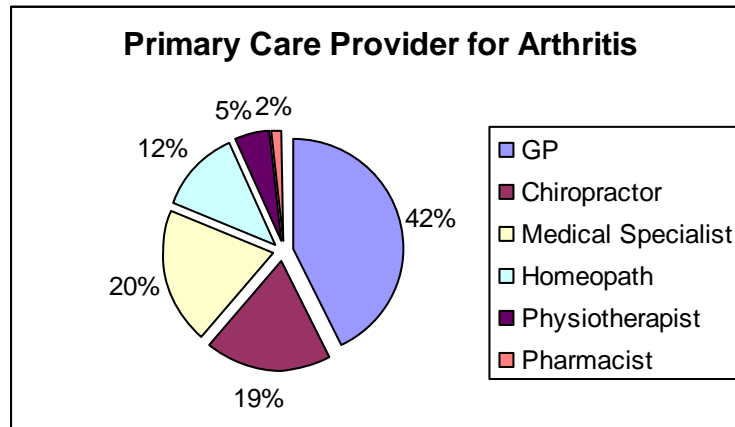


Figure 9a: Primary care provider of choice for Arthritis

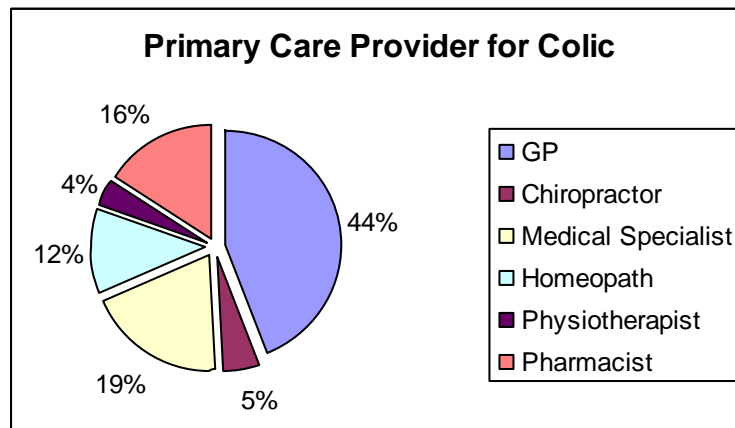


Figure 9b: Primary care provider of choice for Colic

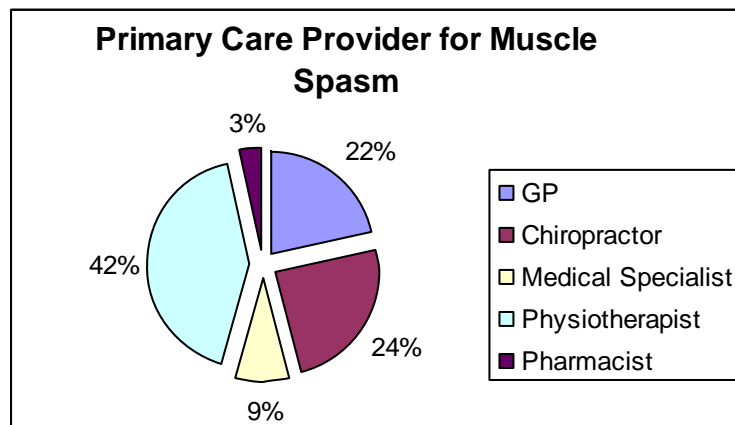


Figure 9c: Primary care provider of choice for Muscle Spasm

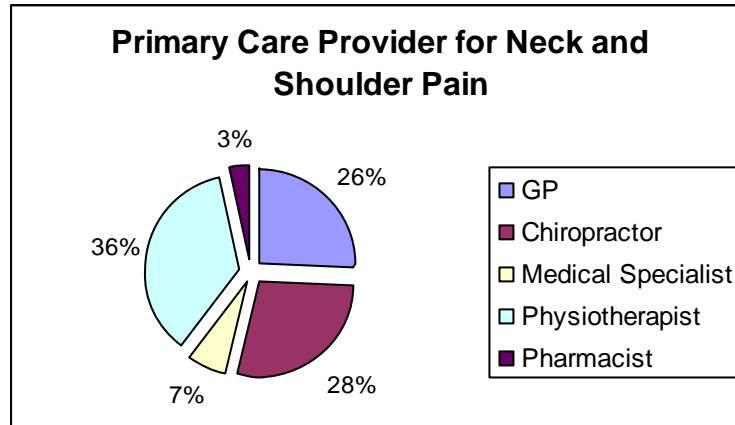


Figure 9d: Primary care provider of choice for Neck and Shoulder Pain

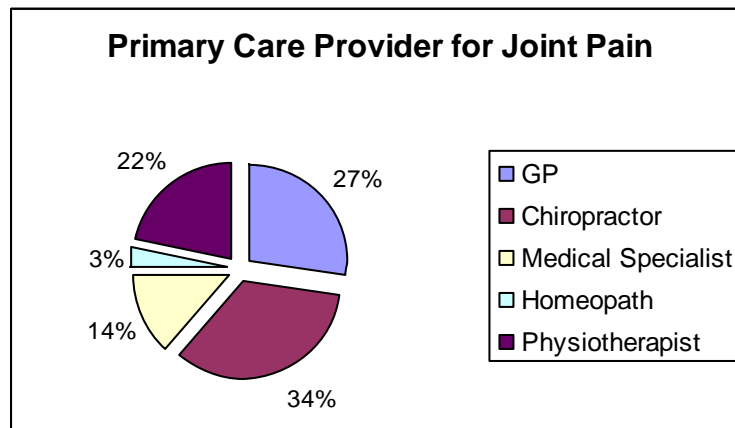


Figure 9e: Primary care provider of choice for Joint Pain

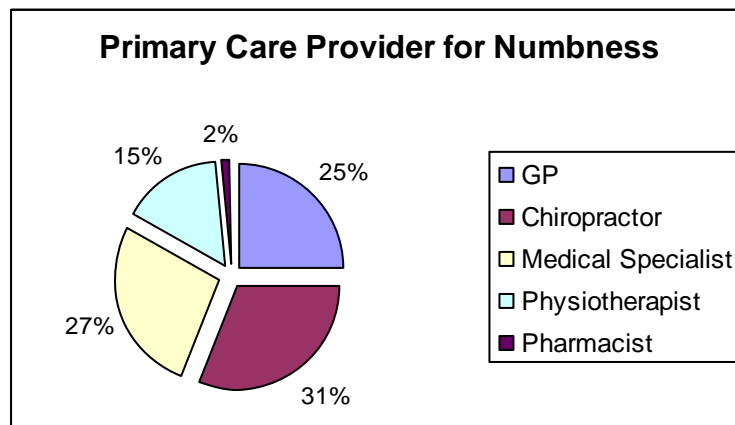


Figure 9f: Primary care provider of choice for Numbness

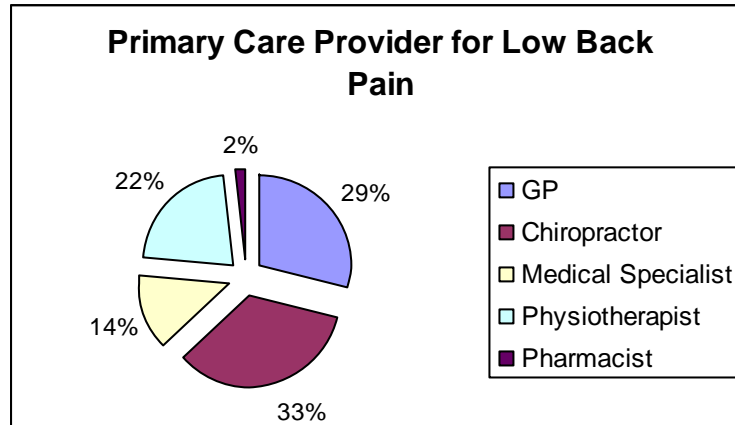


Figure 9g: Primary care provider of choice for Low Back Pain

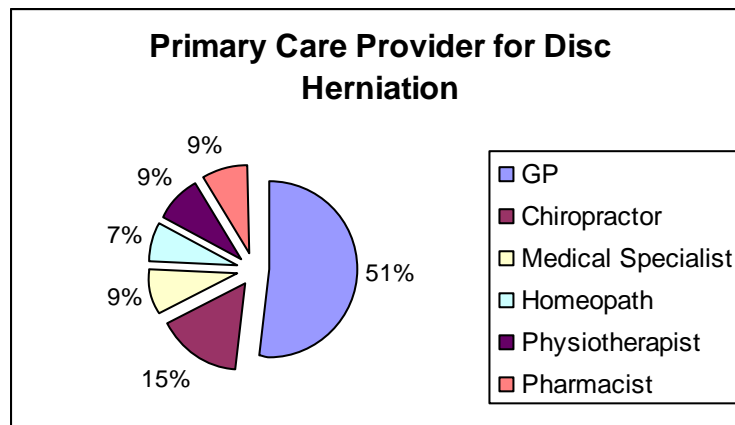


Figure 9h: Primary care provider of choice for Disc Herniation

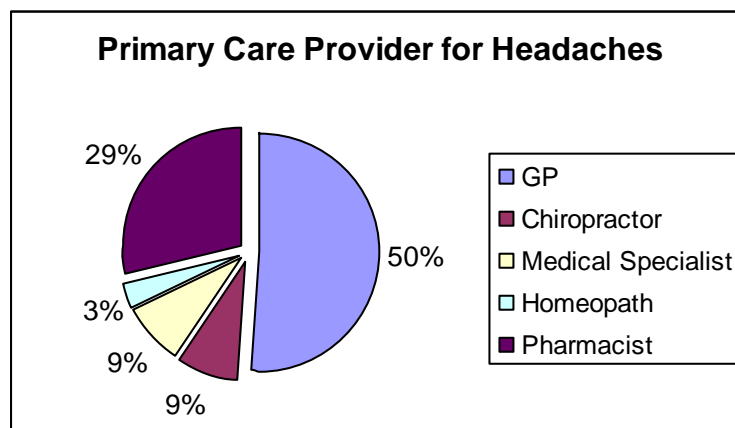


Figure 9i: Primary care provider of choice for Headaches

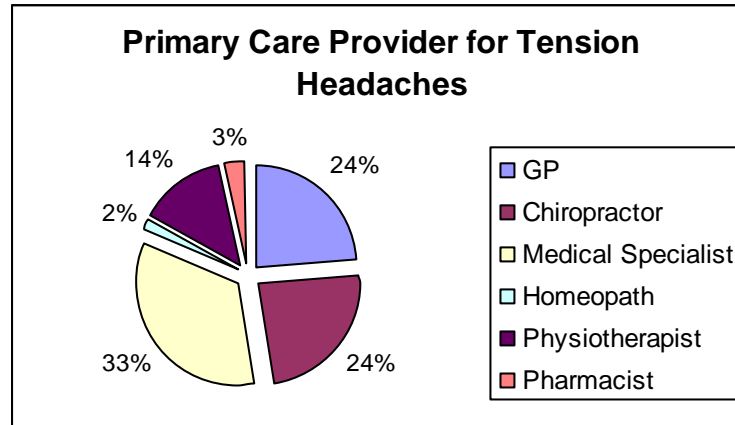


Figure 9j: Primary care provider of choice for Tension Headaches

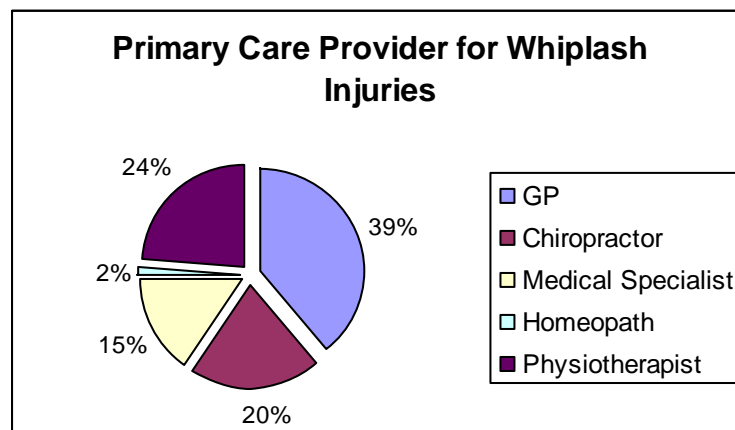


Figure 9k: Primary care provider of choice for Whiplash Injuries

These results send a clear signal that something may be lacking in what SGC know about chiropractic and about how chiropractic has been reported to them by members of the profession. 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-utilization (Sanchez, 1991). This 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 (Sanchez, 1991). The results of this study confirm that of Teitelbaums' (2000) study, that community studies suggested that consumers might prefer that chiropractors not be PCPs in a conventional way.

4.4 Analytical statistics

4.4.1. Self-reported knowledge and knowledge score

In Table 9 the mean knowledge score was non-significantly higher in those who reported that they knew something about chiropractic ($p = 0.096$). Thus, although null hypothesis 1 was not rejected, a trend towards a positive association between self-reported and actual knowledge was shown.

Do you know anything about chiropractic?	N	Mean	Std. Deviation	Std. Error Mean	p
No	12	60.2151	21.89289	6.31993	0.096
Yes	36	69.0860	13.07205	2.17868	

Table 9: Comparison of self-reported knowledge and knowledge score

4.4.2. Demographics and knowledge

Table 10 below shows the mean knowledge scores by demographic variables. There was no significant difference between knowledge score in any demographic variable.

		Knowledge score percent		
		Mean	Standard Deviation	Count
Gender	Female	62.80	19.97	30
	Male	66.18	14.34	29
Age group	21-30	71.55	13.05	11
	31-40	65.59	18.28	15
	41-50	60.65	18.09	20
	51-60	66.28	17.51	11
	61+	45.16	13.69	2
RACE	Asian	80.65	9.50	4
	Black	58.80	19.71	22
	Coloured	55.91	9.31	3
	Indian	55.91	19.44	3
	White	68.58	14.53	27
Duration as school educator	1-5 yrs	67.47	17.59	12
	6-10 yrs	66.25	17.35	13
	11-15 yrs	54.84	28.02	8
	16-20 yrs	62.58	13.36	10
	21 + yrs	66.73	12.56	16
Type of school	Government	63.10	17.90	50
	Private	71.77	12.99	8
	Semi Private	74.19	.	1
School gender make up	Boys only	62.37	11.84	6
	Girls only	72.58	6.84	2
	Co-Ed	64.39	18.21	51
School situation	CBD	66.67	9.86	3
	Suburb	71.19	13.04	29
	Rural	58.36	20.16	22
	Township	50.97	15.37	5
PROVINCE	Eastern Cape	47.74	12.98	5
	Free State	54.84	.	1
	Gauteng	66.57	11.92	11
	KZN	65.32	21.75	20
	Limpopo	65.81	12.56	10
	Mpumalanga	63.71	21.78	4
	Northern Cape	83.87	.	1
	North West	60.22	22.89	3
	Western Cape	73.39	8.06	4
How many students in school	1-199	72.58	11.02	4
	200-399	64.52	17.86	7
	400-599	58.39	17.83	10
	600-799	61.08	22.73	15
	800-999	66.40	14.59	12
	1000+	69.50	12.85	11

Table 10: Mean knowledge score by demographic variables

The results of the statistical model are shown in Table 11 below. Thus, demographics did not predict knowledge of chiropractic significantly. Null hypothesis 2 was not rejected.

Source	Type III Sum of Squares	Df	Mean Square	F	P value
Corrected Model	10844.508(a)	35	309.843	1.072	.438
Intercept	3644.417	1	3644.417	12.609	.002
SEX	391.183	1	391.183	1.353	.257
AGE GROUP	1944.226	4	486.056	1.682	.188
RACE	431.913	4	107.978	.374	.825
DURATION	1054.007	4	263.502	.912	.474
TYPE	147.577	2	73.789	.255	.777
SCHOOL GENDER	708.362	2	354.181	1.225	.312
SCHOOL SITUATION	1681.205	3	560.402	1.939	.151
PROVINCE	1863.220	8	232.902	.806	.604
NO. OF STUDENTS	1142.052	5	228.410	.790	.567
PRESENT SGC	34.671	1	34.671	.120	.732
YRS WORKING AS SGC	101.619	1	101.619	.352	.559
Error	6647.511	23	289.022		
Total	262653.486	59			
Corrected Total	17492.019	58			

a R Squared = .620 (Adjusted R Squared = .042)

Dependent Variable: knowledge score percent

Table 11: Tests of Between-Subjects Effects for Univariate ANOVA

When the mean knowledge scores of each SGC were compared by demographic variables, there was no significant difference of SGC knowledge of chiropractic.

There was a slight decline in mean knowledge score with increase in age, however this trend was reversed in the 51-60 age group, which scored slightly higher than the 31-40 age group. The Asians followed by Whites scored highest in knowledge, with very little difference between Blacks', Indians' and Coloureds' knowledge of chiropractic. Most respondents were white (45.8%) or black (37.3%) with very few responses from the other races therefore these results may be subject to bias and therefore cannot be extrapolated to the whole population.

There was 14% difference in mean knowledge score between urban and rural areas. SGC who worked in schools situated in urban areas were more knowledgeable about chiropractic (mean 68.93%) than those who worked in rural areas (mean 54.67%). Since most chiropractors in South Africa work in urban areas (CASA, 2005) lack of accessibility in the rural parts of the country will influence the rural knowledge of chiropractic. SGC in the rural Eastern Cape had the lowest (47.74%) mean knowledge score with the Northern Cape scoring highest (83.87%). However, Research Dimensions Inc. (1994) found that rural chiropractic patients (in USA) in medically underserved areas are demographically different from the overall US chiropractic patient population. However, in the current study, there was no significant difference between knowledge score in any demographic variable.

4.4.3. Perception of Chiropractic

In the questionnaire, the participants were asked to pick a statement that best reflected their perception on chiropractic. Participants were classified as having negative, neutral, limited and positive perceptions of chiropractic. Thirty-four percent of respondents perceived chiropractors to be specialists in nerve, muscle and bone disorders. Thirty-two percent felt they were not informed enough to comment. Relatively few participants had negative perceptions of chiropractic and of these 33.4% felt that chiropractic did more harm than good and 1.7% said they were uncomfortable with it. In Canada, Kenneth Caplan and Associates (1994) said that most public perception of chiropractic is based on ignorance, bias and misinformation rather than fact. Chiropractic patients generally know little more about chiropractic than non- patients do. Generally, there is a lack of respect and trust, and this is true of younger as well as older persons.

4.4.4 Demographics and perceptions

Participants were classified as having negative, neutral, limited and positive perceptions of chiropractics based on their response to question 2.1 in the questionnaire (Appendix B). This was cross-tabulated with certain demographic variables in Table 12 to show percentages with each category. There were some differences in perception according to demographics, e.g. females were more likely to have positive perceptions and males negative perceptions.

Demographic variable		Perception category							
		Negative		Neutral		Limited		Positive	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Gender	Female	1	33.3%	14	46.7%	4	66.7%	11	55.0%
	Male	2	66.7%	16	53.3%	2	33.3%	9	45.0%
Age group	21-30	1	33.3%	4	13.3%	2	33.3%	4	20.0%
	31-40	1	33.3%	8	26.7%	2	33.3%	4	20.0%
	41-50	1	33.3%	10	33.3%	1	16.7%	8	40.0%
	51-60	0	.0%	7	23.3%	1	16.7%	3	15.0%
	61+	0	.0%	1	3.3%	0	.0%	1	5.0%
RACE	Asian	0	.0%	1	3.3%	1	16.7%	2	10.0%
	Black	2	66.7%	13	43.3%	1	16.7%	6	30.0%
	Coloured	0	.0%	3	10.0%	0	.0%	0	.0%
	Indian	0	.0%	1	3.3%	1	16.7%	1	5.0%
	White	1	33.3%	12	40.0%	3	50.0%	11	55.0%
	Other	0	.0%	0	.0%	0	.0%	0	.0%
Duration as school educator	1-5 yrs	1	33.3%	6	20.0%	2	33.3%	3	15.0%
	6-10 yrs	1	33.3%	5	16.7%	2	33.3%	5	25.0%
	11-15 yrs	0	.0%	5	16.7%	0	.0%	3	15.0%
	16-20 yrs	0	.0%	3	10.0%	1	16.7%	6	30.0%
	21 + yrs	1	33.3%	11	36.7%	1	16.7%	3	15.0%
Type of school	Government	3	100.0%	26	86.7%	5	83.3%	16	80.0%
	Private	0	.0%	4	13.3%	0	.0%	4	20.0%
	Semi Private	0	.0%	0	.0%	1	16.7%	0	.0%
School gender make up	Boys only	0	.0%	5	16.7%	0	.0%	1	5.0%
	Girls only	0	.0%	1	3.3%	0	.0%	1	5.0%
	Co-Ed	3	100.0%	24	80.0%	6	100.0%	18	90.0%
Rural/Urban province	Eastern Cape urban	0	.0%	1	3.3%	0	.0%	0	.0%
	Free State urban	0	.0%	0	.0%	0	.0%	1	5.0%
	Gauteng urban	1	33.3%	6	20.0%	0	.0%	3	15.0%
	KZN urban	0	.0%	4	13.3%	3	50.0%	5	25.0%
	Limpopo urban	0	.0%	0	.0%	0	.0%	1	5.0%
	Mpumalanga urban	0	.0%	2	6.7%	0	.0%	1	5.0%
	Northern Cape urban	0	.0%	0	.0%	0	.0%	0	.0%
	North West urban	0	.0%	0	.0%	0	.0%	0	.0%
	Western Cape urban	0	.0%	2	6.7%	0	.0%	2	10.0%
	Eastern Cape rural	1	33.3%	2	6.7%	1	16.7%	0	.0%
	Free State rural	0	.0%	0	.0%	0	.0%	0	.0%
	Gauteng rural	0	.0%	0	.0%	0	.0%	1	5.0%
	KZN rural	1	33.3%	4	13.3%	0	.0%	3	15.0%
	Limpopo rural	0	.0%	6	20.0%	0	.0%	3	15.0%
	Mpumalanga rural	0	.0%	1	3.3%	0	.0%	0	.0%
	Northern Cape rural	0	.0%	0	.0%	1	16.7%	0	.0%
	North West rural	0	.0%	2	6.7%	1	16.7%	0	.0%
	Western Cape rural	0	.0%	0	.0%	0	.0%	0	.0%

Table 12: Cross-tabulation of perception and demographics

Chi-square tests were done to assess associations between the variables and perceptions (Table 13), but with the low sample size and large numbers of categories, these tests were mostly invalid (see footnote to Table 13). There were no significant associations between perceptions and demographic variables. Thus, null hypothesis 3 was not rejected.

		Perception category
Gender	Chi-square	1.317
	df	3
	Sig.	.725(a)
Age group	Chi-square	4.261
	df	12
	Sig.	.978(a,b)
RACE	Chi-square	9.390
	df	12
	Sig.	.669(a,b)
Duration as school educator	Chi-square	9.237
	df	12
	Sig.	.683(a,b)
Type of school	Chi-square	10.817
	df	6
	Sig.	.094(a,b)
school gender make up	Chi-square	3.509
	df	6
	Sig.	.743(a,b)
rural/urban province	Chi-square	35.752
	df	39
	Sig.	.619(a,b)

Results are based on nonempty rows and columns in each innermost sub table.

a More than 20% of cells in this sub table have expected cell counts less than five. Chi-square results may be invalid.

b The minimum expected cell count in this sub table is less than one. Chi-square results may be invalid.

Table 13: Pearson Chi-Square Tests

4.4.5 Knowledge and perception

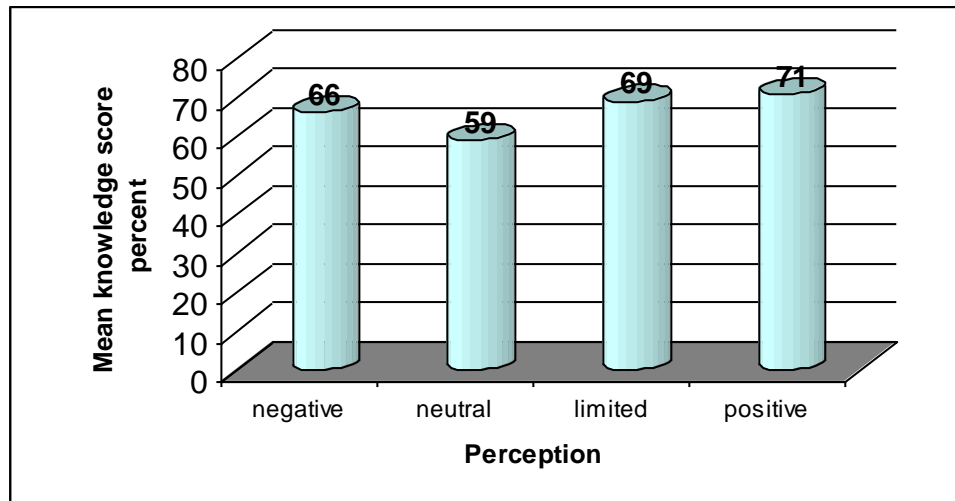


Figure 10: Mean knowledge score by perception category

Figure 10 shows that those participants who had a positive view of chiropractic scored the highest in terms of knowledge (mean = 71), while those who had a limited perception scored second highest (mean = 69). Participants with a negative perception scored the third highest in knowledge (mean = 66) while those with a neutral perception scored the lowest (mean = 59). However, this association was not statistically significant ($p=0.136$). Thus although a trend of higher knowledge being associated with more positive perceptions was shown, null hypothesis 4 cannot be rejected. A trend of higher knowledge being associated with perceptions that are more positive was shown.

4.4.6. Use and knowledge

		Knowledge score percent			P value
		Standard Deviation (SD)			
		Mean		Count	
Have you been treated by a chiropractor?	No	62.19	18.31	43	0.100
	Yes	70.56	13.16	16	
No. of family members treated	None	62.06	16.51	21	0.077
	1-3	68.39	12.59	20	
	4-9	65.59	4.93	3	
	10+	81.45	9.63	4	
	Not sure	55.43	24.94	11	

Table 14: Comparison between mean knowledge scores in participants or their family members who had been treated previously by a chiropractor and those who had not.

Table 14 shows that there was no significant association between having been previously treated by a chiropractor and knowledge score ($p = 0.100$), although the knowledge scores were higher in those who had been previously treated. There was a borderline significant association between the number of family members treated and knowledge score ($p = 0.077$). Those with the greatest number of family members treated had the highest knowledge scores. Thus although null hypothesis 5 was not rejected, a trend was demonstrated towards higher levels of knowledge in those who had, or whose family members had, been treated by a chiropractor.

4.4.7. Use and perceptions

Table 15 shows a trend that those who had not been treated by a chiropractor had a more negative perception whilst those who had been treated by a chiropractor had a positive perception. There is also a slight trend in the number of family members treated and perceptions, in that no participants who had more than three family members treated had negative perceptions. Also positive perceptions increase from 20% to 45% as the number of family members treated goes from 0 to 1-3. The numbers were too small for this variable to make any meaningful statistical comparison, but there was a significant association between being treated by a chiropractor and perception category ($p = 0.004$). However, the results should be interpreted with caution as cell counts were low and the chi square may be invalid (Table 16 and footnotes). Thus, once again trends were demonstrated but could not be backed up statistically, and null hypothesis 6 could not be rejected.

		Perception category							
		Negative		Neutral		Limited		Positive	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Been treated by a chiropractor	No	3	100.0%	27	90.0%	4	66.7%	9	45.0%
	Yes	0	.0%	3	10.0%	2	33.3%	11	55.0%
No. of family members treated	None	2	66.7%	13	43.3%	2	33.3%	4	20.0%
	1-3	1	33.3%	8	26.7%	2	33.3%	9	45.0%
	4-9	0	.0%	1	3.3%	1	16.7%	1	5.0%
	10+	0	.0%	1	3.3%	0	.0%	3	15.0%
	Not sure	0	.0%	7	23.3%	1	16.7%	3	15.0%

Table 15: Perceptions in participants or their family members who had been treated previously by a chiropractor and those who had not.

		Perception category
Been treated by a chiropractor	Chi-square	13.548
	df	3
	Sig.	.004(*, a, b)
No. of family members treated	Chi-square	9.998
	df	12
	Sig.	.616(a,b)

Results are based on nonempty rows and columns in each innermost subtable.

* The Chi-square statistic is significant at the 0.05 level.

a More than 20% of cells in this subtable have expected cell counts less than 5. Chi-square results may be invalid.

b The minimum expected cell count in this subtable is less than one. Chi-square results may be invalid.

Table 16: Pearson Chi-Square Tests

4.5 Conclusion

Therefore, with respect to the hypotheses made in chapter one the following is applicable:

Hypothesis 1

A low level of knowledge exists about the chiropractic profession amongst vocational counsellors in South Africa.

Hypothesis one can be accepted based on evidence presented in the study. However this must be taken with caution due to the low response rate of the study and lack of statistical significance of the results.

➤ Hypothesis 2

A negative perception exists about the chiropractic profession amongst vocational counsellors in South Africa.

Hypothesis two must be rejected as this study did not significantly prove that a negative perception exists amongst SGC in South Africa. However, this must be taken with caution due to the low response rate of the study and lack of statistical significance of the results.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The knowledge and perceptions of chiropractic in school guidance counsellors in SA has been described in this study. Knowledge and perceptions were related non-significantly to: demographics, use of chiropractors and to each other in terms of trends shown, but the study was underpowered to show these associations as statistically significant.

The low response rate (10.3%) was the main limitation to the external validity of the study. Those who responded may have had different views and knowledge than those who did not respond. These results cannot be assumed representative and should not be extrapolated to the whole population of SGC in South Africa.

This study has shed light on limitation of knowledge and perception amongst SGC about the chiropractic profession in South Africa. There is still a lack of awareness amongst SGC about the scope of practice of the chiropractic profession and there is a limited perception that chiropractors are back pain specialists. 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-utilization. This 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 prospective and existing patients about the exact role of chiropractic in the health care system.

There is evidence to suggest that their knowledge of chiropractic improves as individuals and family members are treated by chiropractors, thus as the profession gradually expands into wider areas of the country over time, more people will be exposed to chiropractic and this will encourage wider acceptance and respect, both amongst individuals and other health care professionals. For those individuals who lack access to chiropractic care, their knowledge and awareness can be improved upon through advertising in the media. This study provides useful information which

could influence future referral and collaboration between SGC and chiropractors in the South African health care system.

5.2. Recommendations

1. The small sample size was a limitation to showing statistical significance in the hypotheses tested. The demonstration of trends suggests that this study should be repeated in a larger more representative sample. Perhaps a different method of questionnaire administration could be used to increase the response rate, such as face-to-face or telephonic interviews.
2. The response rate to this mailed survey was low. In order to get an improved response rate, it may be useful to change the design slightly. Mailed questionnaires should be as short as possible, obviously focusing on pertinent questions. These questionnaires should not be anonymous, as this decreases the response rate. Sensitive or controversial issues should be avoided if possible.
3. If at all possible, numerous contacts between the researcher and the participants must take place. This can be done by sending an advance letter introducing the study. After an initial 2-3 week period, reminder questionnaires should be sent to the non-respondents. Another set of reminders can be sent 3 weeks later. A telephone call can be made to the non-responders as a final ploy to increase the response rate.
4. Intervention programmes to educate and increase awareness of chiropractic amongst SGC should take place. Talks on chiropractic could also be delivered to high schools at career day functions. 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.

5. One must take into account that the respondents who took part in the study may have only done so because they were interested in the topic at hand and had already formulated opinions on the subject. This could lead to respondent bias and therefore future studies should try to take steps to ensure a better response rate.

6. The survey should be repeated to get other non-medical or "lay persons'" perceptions and knowledge of chiropractic in South Africa. A comparative study, between SGC and high school teachers' perceptions and knowledge of the chiropractic profession in SA, could be performed.

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Appendix A COVER LETTER

Dear Principal, Guidance Counsellor, Teacher

Welcome to my research study. Thank you for your interest.

Title: The knowledge and perception of vocational counsellors in South Africa with respect to Chiropractic.

Name of researcher: Ron van As (082 900 8787 or 031-204 2244 (DIT)

Name of supervisor: **Dr. C Korporaal; M.Tech:Chiropractic, CCFC, CCSP, ICSSD.**

Name of Institution: Durban Institute of Technology

Introduction:

Chiropractors are primary contact health physicians who can diagnose and treat patients for a range of conditions, but still a lot of confusion exists in society about what chiropractic really entails. The purpose of my study is to determine what vocational counsellors know about the chiropractic profession in South Africa. My aim for this study is to determine the knowledge and perception of chiropractic amongst vocational counsellors in South Africa.

This information is important to career guidance counsellors because school leavers will be thinking of career options for the future. School educators play a pivotal role in helping these teenagers make informed decisions that may have an affect on the rest of their life. This research will endeavour to prove how much school educators know or perceive about the chiropractic profession. This research may help chiropractic professionals in the field in educating their patients about any misconceptions they may have about chiropractic.

Procedure:

You are requested to complete the accompanying survey, which should take an average of **fifteen minutes**. The school educator who performs the career counselling function (principal, vice-principal, teacher) **or a guidance counsellor** may complete the survey. The vocational counsellor who completes the questionnaire must be **21 years of age** or older. My research will not focus on individual cases but aims at exposing **general trends**. Please note that this is NOT a test. You are requested to answer ALL questions to the best of your ability and knowledge.

Please note that all questions are in multiple-choice format. Place an 'X' in the box which you think is most correct. Once you have completed all **four sections** of the survey, place the survey in the accompanying, addressed, stamped business envelope and return the envelope to the researcher at Durban Institute of Technology. **This will not cost you anything other than fifteen minutes of your time.**

Please be assured that your **personal particulars will remain anonymous.**

Benefits: The results of this study will be published in an article in a journal and a manuscript will be available in the Durban Institute of Technology library. Your participation will help in identifying what school educators really perceive about chiropractic and ultimately in giving pupils a more informed perception of chiropractic. Your participation will help chiropractors in the field in eliminating any misconceptions the people may have about chiropractic and may also increase your personal awareness of what chiropractic is about.

Remuneration: None. Participation in this study is voluntary.

Persons to contact for problems or questions:

Researcher: Ron van As: 083 796 1035 or 031-204 2205

Supervisor: Dr. C Korporaal; M.Tech:Chiropractic, CCFC, CCSP, ICSSD.

Thank you for your most valuable time and participating in this survey.

Appendix B

QUESTIONNAIRE USED IN THIS STUDY

Appendix C

LETTER OF INFORMATION – FOCUS GROUP

Dear Participant,

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

The title of my research project is:

The knowledge and perception of secondary school educators with respect to chiropractic in South Africa, as an indicator of career path guidance for school leavers.

Background to the study:

Chiropractic is a health profession specializing in the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system and the affects of these disorders on the function of the nervous system and general health. Chiropractic practitioners essentially rely upon non-invasive treatment methods and will refer patients to medical practitioners should medication or surgery be indicated. This approach is further reinforced by chiropractors in their promotion of healthy lifestyles such as the avoidance of smoking and excess stress, proper diet and exercise.

Chiropractors are primary contact health physicians who can diagnose and treat patients for a range of conditions, but still a lot of confusion exists in society about what chiropractic really entails. The purpose of my study is to determine what secondary school educators know about the chiropractic profession in South Africa. My aim for this study is to determine the knowledge and perception of chiropractic amongst teachers in South Africa as an indicator of career path guidance for school leavers.

This information is important to career guidance counsellors because school leavers will be thinking of career options for the future. School educators play a pivotal role in helping these teenagers make informed decisions that may have an affect on the rest of their life. This research will endeavour to prove how much school educators know or perceive about the chiropractic profession. This research may help chiropractic professionals in the field in educating their patients about any misconceptions they may have about chiropractic.

Objective of the study:

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

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

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

Ron van As

**Appendix D
INFORMED CONSENT FORM**

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

DATE: _____

TITLE OF RESEARCH PROJECT: The knowledge and perception of secondary school educators with respect to chiropractic in South Africa, as an indicator of career path guidance for school leavers.

NAME OF SUPERVISOR: Dr. C Korporaal; M.Tech:Chiropractic, CCFC, CCSP, ICSSD.

NAME OF RESEARCH LEARNER: Ronald van As

Please circle the appropriate answer

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

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

Please Print in block letters:

Focus Group Member: _____ Signature: _____
Witness Name: _____ Signature: _____
Researcher's Name: _____ Signature: _____
Supervisor's Name: _____ Signature: _____

Appendix E

CONFIDENTIALITY STATEMENT – FOCUS GROUP

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.

DECLARATION

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

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

Please Print in block letters:

Focus Group Member: _____ Signature: _____
Witness Name: _____ Signature: _____
Researcher's Name: _____ Signature: _____
Supervisor's / Co-supervisor's Name: _____
Signature: _____

Appendix F

CODE OF CONDUCT

This form needs to be completed by every member of the Focus Group before 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 organization 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 G

PRE-TEST QUESTIONNAIRE

Appendix H

LETTER FROM J. LOUW

3 Colenmore
30 Youngs Ave
Berea
Durban
4001
29 August 2004

To Whom It May Concern:

I hereby give Ron Van As permission to use my questionnaire as a base from which to design his own to be used in his relevant study. I adapted and developed this questionnaire from one originally designed by Dr. Jennifer Langworthy of Bournemouth, UK.

Regards

J.D. Louw
Master's Learner (Chiropractic)



Appendix B

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 at general trends and NOT individual cases. You will remain anonymous throughout.
A summary of my findings will be published in a health journal at the completion of the study.

Thank you for your time!

1.0 Your level of knowledge about chiropractic

1.1 Have you ever been treated by a chiropractor?
 Yes No

1.2 How many of your friends/ family members have had chiropractic treatment in the past?
 None
 1 to 3
 4 to 9
 10+
 Not sure

1.3 Do you have any chiropractors working in your area?
 Yes No
 I do not know

1.4 Do you know something about chiropractic?
 Yes No
 Not sure

1.5 If you answered "YES" to 1.4 above, how did you get this information about chiropractic?
(More than one answer possible)
 I have been treated by a chiropractor
 My GP told me about chiropractic
 I have read about chiropractic in a magazine/newspaper
 From my pupil's who has (have) been treated by a chiropractor
 From other teachers, principals, friends etc. etc.
 Through the media
 Other (please specify) _____

1.6 What is the duration of the chiropractic course in South Africa?
 3 Years 6 Years
 4 Years 7 Years
 5 Years 8 Years

1.7 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: _____

1.8 The chiropractic course includes grounding in the following subjects ? Please place an "X" in the correct box 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

1.9 Chiropractors can specialize in the following areas in South Africa? Please place an "X" in the correct box to indicate "TRUE" or "FALSE".

T	F	Neuromusculoskeletal (nerves, muscles and bones) system
T	F	Extremities (e.g.. Knee, elbow, wrist)
T	F	Paediatrics
T	F	Rehabilitation
T	F	Surgery
T	F	Sports injuries
T	F	Radiology

1.10 Do learners require a matric exemption to study chiropractic in South Africa?
 Yes No

1.11 The following subjects are compulsory, as part of the learners matric subjects, to be accepted into the chiropractic course in South Africa? Please place an "X" in the correct box to indicate "TRUE" or "FALSE".

T	F	Accountancy
T	F	Afrikaans
T	F	Biology
T	F	English
T	F	Geography
T	F	History
T	F	Maths
T	F	Science

1.12 Is the chiropractic profession, in South Africa, regulated by a statutory body?
 Yes No
 I do not know

1.13 Does the chiropractic profession in South Africa have an organizational professional body?
 Yes No
 I do not know

2.0 The role of chiropractic in the health care system of South Africa

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

<input type="checkbox"/>	Not informed enough to comment
<input type="checkbox"/>	Chiropractic does more harm than good
<input type="checkbox"/>	I am uncomfortable with it
<input type="checkbox"/>	It may be effective for some patients
<input type="checkbox"/>	Chiropractic is effective for back conditions only
<input type="checkbox"/>	Chiropractic is effective for sore bones and physiotherapists treat sore muscles
<input type="checkbox"/>	Chiropractors are specialists in the field of nerve, muscle and bone disorders.

2.2 Please rate each of the following professions in terms of their importance in serving in the South African health care system. (Please mark a number for each profession, with: (1) indicating 'least important' role and a (5) indicating the "most important" role (Please leave out any profession/s which you are unsure of)

Acupuncture	Least	1	2	3	4	5	Most
Ayurvedic Medicine	Important	1	2	3	4	5	Important
Chinese medicine	Role	1	2	3	4	5	Role
Chiropractic		1	2	3	4	5	
Dentistry		1	2	3	4	5	
Emergency care		1	2	3	4	5	
Fracture care		1	2	3	4	5	
Foot care		1	2	3	4	5	
Herbalism		1	2	3	4	5	
Homeopathy		1	2	3	4	5	
Medicine		1	2	3	4	5	
Nursing		1	2	3	4	5	
Optometry		1	2	3	4	5	
Pharmacy	Least	1	2	3	4	5	Most
Physiotherapy	Important	1	2	3	4	5	Important
Traditional healing	Role	1	2	3	4	5	Role

2.3 To what extent should chiropractic be integrated into the South African health care system?

(Please mark one box only)

- | | |
|--------------------------|--------------------|
| <input type="checkbox"/> | 1. Great extent |
| <input type="checkbox"/> | 2. Moderate extent |
| <input type="checkbox"/> | 3. Slight extent |
| <input type="checkbox"/> | 4. No active role |

24 The chiropractic course in South Africa includes training in the following treatment methods:

Place an "x" in the correct box to indicate "TRUE" or "FALSE".

<input type="checkbox"/>	<input type="checkbox"/>	Acupuncture
<input type="checkbox"/>	<input type="checkbox"/>	Electrotherapy (IFC, TENS)
<input type="checkbox"/>	<input type="checkbox"/>	Emergency Care
<input type="checkbox"/>	<input type="checkbox"/>	Exercise therapy
<input type="checkbox"/>	<input type="checkbox"/>	Foot Care
<input type="checkbox"/>	<input type="checkbox"/>	Heat & Ice therapy
<input type="checkbox"/>	<input type="checkbox"/>	Laser therapy
<input type="checkbox"/>	<input type="checkbox"/>	Manipulation/ Adjustment
<input type="checkbox"/>	<input type="checkbox"/>	Massage
<input type="checkbox"/>	<input type="checkbox"/>	Medication
<input type="checkbox"/>	<input type="checkbox"/>	Minor surgery
<input type="checkbox"/>	<input type="checkbox"/>	Mobilization
<input type="checkbox"/>	<input type="checkbox"/>	Needling tender points
<input type="checkbox"/>	<input type="checkbox"/>	Nutrition advice
<input type="checkbox"/>	<input type="checkbox"/>	Stretching
<input type="checkbox"/>	<input type="checkbox"/>	Traction
<input type="checkbox"/>	<input type="checkbox"/>	Ultrasound

30 The scope of practice of chiropractic

3.1 To what extent do you believe chiropractors to be competent in neuromusculoskeletal (nerves, muscles & bones) examination and diagnosis? (Please tick one box only)

- | | |
|--------------------------|----------------------|
| <input type="checkbox"/> | Very competent |
| <input type="checkbox"/> | Moderately competent |
| <input type="checkbox"/> | Slightly competent |
| <input type="checkbox"/> | Incompetent |
| <input type="checkbox"/> | Very incompetent |
| <input type="checkbox"/> | Unable to comment |

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

- | | |
|--------------------------|----------------------|
| <input type="checkbox"/> | Very competent |
| <input type="checkbox"/> | Moderately competent |
| <input type="checkbox"/> | Slightly competent |
| <input type="checkbox"/> | Incompetent |
| <input type="checkbox"/> | Very incompetent |
| <input type="checkbox"/> | Unable to comment |

3.3 Do you think it could be useful for patients to see chiropractors on a regular basis?

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

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

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

3.5 Do you know or have you heard of anyone who has been injured by chiropractic treatment?

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

3.6 Do you know or have you heard of anyone who has suffered serious side effects from medication prescribed by a GP?

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

Appendix G Pre-test Evaluation

- 1 What is your opinion of the subject presented in this questionnaire?
(Please mark the most appropriate box)
- | | |
|---------------------------|--------------------------|
| 1.1 Extremely interesting | <input type="checkbox"/> |
| 1.2 Interesting | <input type="checkbox"/> |
| 1.3 Average | <input type="checkbox"/> |
| 1.4 Boring | <input type="checkbox"/> |
| 1.5 Very boring | <input type="checkbox"/> |
- 2 Do you think the topics raised in this questionnaire were adequately covered?
- | | |
|---------|--------------------------|
| 2.1 Yes | <input type="checkbox"/> |
| 2.2 No | <input type="checkbox"/> |
- 3 What is your opinion about the covering letter?
(Please mark one box only)
- | | |
|--------------------|--------------------------|
| 3.1 Very clear | <input type="checkbox"/> |
| 3.2 Clear | <input type="checkbox"/> |
| 3.3 Adequate | <input type="checkbox"/> |
| 3.4 Unclear | <input type="checkbox"/> |
| 3.5 Needs revising | <input type="checkbox"/> |
- 4 How would you describe the instructions accompanying each of the questions?
(Please mark one box only)
- | | |
|--------------------|--------------------------|
| 4.1 Very clear | <input type="checkbox"/> |
| 4.2 Clear | <input type="checkbox"/> |
| 4.3 Adequate | <input type="checkbox"/> |
| 4.4 Unclear | <input type="checkbox"/> |
| 4.5 Needs revising | <input type="checkbox"/> |
- 5 Do you think the questionnaire is too long?
- | | |
|---------|--------------------------|
| 5.1 Yes | <input type="checkbox"/> |
| 5.2 No | <input type="checkbox"/> |
- 6 What is your opinion of the wording of the questionnaire?
(Please mark the appropriate box/es)
- | | |
|---|--------------------------|
| 6.1 The meaning of all questions is absolutely clear | <input type="checkbox"/> |
| 6.2 The meaning of most questions is clear | <input type="checkbox"/> |
| 6.3 There is too much chiropractic/ medical jargon | <input type="checkbox"/> |
| 6.4 The questions will not be understood by lay persons | <input type="checkbox"/> |
| 6.5 The questionnaire needs to be revised because it is unclear | <input type="checkbox"/> |

If you had any difficulty answering any question/s, please write the number/s of the question/s in the space below with a suggestion on how the question/s can be improved?

Thank you for your most valuable time in helping me with my research project.
Please be reminded that the topics discussed above are strictly confidential.