Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics

By

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I, Dean Scott Rieder, do declare that this dissertation is representative of my own work in both conception and execution (except where acknowledgements indicate to the contrary)

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DEDICATION

To my Parents, Your hard work and commitment to investing in a better education for me has always been something I truly appreciate. The obstacles that you have faced and overcome are testament to your character and no matter how hard the circumstances have been you have always come out on top. Thank you for all the words of encouragement over the years, I am forever grateful.

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ABSTRACT

Background: All services should use quality assurance mechanisms to evaluate performance. To this end, studies have been completed in various settings including teaching clinics. Little attention has been placed on rural communities and community clinics with regards to satisfaction. This is an important aspect to investigate as these locations are valuable teaching sites. The aim of this study was to determine patient satisfaction levels at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven Centre for the Aged [MHCA] and Narain Jeawon Vedic Centre [NJWC]).

Methods: This cross sectional study (ethical approval IREC 35/15) surveyed patients with regards to their service delivery satisfaction via a researcher developed questionnaire dealing with knowledge of the clinic, environmental questions, reception and waiting area, finance, the student doctor, the assessment, treatment, overall care and future care. The study aimed to recruit the majority of patients that presented at the two clinics. The population at the was 123 files, of which 19 were active and 104 were dormant. The population at the MHCA was 237, of which 78 were active and 159 were dormant. A minimum response rate of 70% of active patients for each clinic was set for this study. This resulted in a minimum sample of 55 MHCA patients and 14 NJVC patients. The minimum response rate was achieved for this study. Data was analysed using IBM SPSS version 23.

Results: The majority of patients at both clinics were satisfied although reservations were expressed regarding disabled facilities. Satisfaction was not influenced by age (p = 0.034), ethnicity (p = 0.773), gender (p = 0.169), type of visit (p = 0.355), pain rating (p = 0.058) or venue (p = 0.361). Satisfaction was influenced by the year of the student doctor (p = 0.011) and the anatomical site of injury. The overriding factor of income levels for this study neutralised the satisfaction of these patients, as the majority of patients came from poor backgrounds and were more than likely to be satisfied with the care provided.

Conclusion: Patients surveyed at both clinics were satisfied. Repeated evaluations in the future would be good indicators to see if the standard of chiropractic care is upheld, and would also aid in improving facilities at both clinics.

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DEFINITIONS

Attitude: The way that a person thinks and feels about somebody or something; the way that a person behaves towards somebody or something that shows how that person thinks and feels (The Concise Oxford Dictionary, 2011).

Beliefs: A strong feeling that something/somebody exists or is true; confidence that something/somebody is good or right (The Concise Oxford Dictionary, 2011).

Bottom-up: "Bottom-up" processes are developed by external stimuli and experiences. An example of this would be the first interaction that a patient had with a practitioner and what the patients' experience of the practitioner's conduct was. This conduct could include the practitioners' communication quality, their perceived empathy towards the patient, their competence in performing their clinical obligations and their humaneness (Sawyer and Kassak, 1993; Jahng *et al.,* 2005; Gaumer and Gemmen, 2006)

Chiropractic Care For the purposes of this study, chiropractic care is that care delivered by a chiropractic student under the licence and supervision of a chiropractor. This is defined by the scope of Chiropractic Practice (Act 63 of 1982 (as amended)).

Clinician: A person who is a qualified chiropractor, registered with the Allied Health Professions Council of South Africa, who has been employed or contracted to the Durban University of Technology for the purpose of supervising student clinical training

Disability: Disability is based on a medical model that equates disability with an impairment of one or more body functions or structures that interferes with activities. In other words, an impairment that impacts performance is equivalent to having a disability (Sharby, Martire and Iversen, 2015). The 1990 Americans with Disabilities Act (ADA) expands this concept by defining someone with a disability as a person who has a physical or mental impairment that substantially limits one or more major life activities (Iezzoni, 2011).

Knowledge: When considering the definition of knowledge, people have increased knowledge due to previous experiences, whether it be a once off experience or many experiences over a certain time period (Brussee, Assendelft and Breen, 2001).

Perception: The neuro-physiological processes, including memory, by which an organism becomes aware of and interprets external stimuli (The Concise Oxford Dictionary, 2011).

Satisfaction: The extent of an individual's experience of the treatment compared with his or her own expectations and patient satisfaction is related to the extent to which the general health needs of the patient are met (Asadi-Lari, Tamburini and Gray, 2004).

Students: Student, in terms of this research, is defined as a person who is enrolled in Chiropractic Programme at the Durban University of Technology, and still completing the requirements of the degree. Chiropractic students who treat patients, do so under the

supervision of a qualified Chiropractor, and may not treat patients without the Chiropractors consent (Talmage, 2007).

Top-Down: "Top-down" processes are developed by the individuals' previous knowledge and expectations (Hayes, N., 1994; Myers, 1996; Atkinson *et al.,* 2000). Examples of "top-down" processes may include the actual treatment experienced by the patient, the techniques used and the approach to the treatment that the practitioner has utilised.

ABBREVIATIONS

A	Agree
ANOVA	Analysis of variance (Campbell and Machin, 1999; Hinton, 2001)
CASA	Chiropractic Association of South Africa
D	Disagree
Df	Differential (Campbell and Machin, 1999; Hinton, 2001)
DM	Diabetes mellitus
DUT	Durban University of Technology
F	Frequency
IREC	Institutional Research and Ethics Committee
KZN	Kwa-Zulu Natal
MHCACA	Marburg Haven Centre for the Aged
N	Neutral
N%	Refers to the to the sample size. Sample in this case is defined as
NIDDM	Non-Insulin Dependant Diabetes Mellitus
NJVC	Narain Jeawon Vedic Centre
NPRS	Numerical Pain Rating Scale
p	Refers to the p-value which indicates the data statistical
SA	Strongly agree
SD	Strongly disagree
Sig.	Significance (Campbell and Machin, 1999; Hinton, 2001)
SPSS	Statistical Package for the Social Sciences
Std.	Standard
T-Tests	A statistical examination of two population means

CHAPTER 1 INTRODUCTION

Introduction

Perception of a clinical service is dictated by congruency between patient expectation (top-down factors) (Hayes, 1994) and the service experienced (bottom-up factors) (Armstrong, Allinson and Hayes, 2004; Meyer, Shanahan and Laugksch, 2007). Incongruence between these elements results in dissatisfaction (Armstrong, Allinson and Hayes, 2004; Meyer, Shanahan and Laugksch 2007) and congruence results in satisfaction (Moore and Bowden-Everson, 2012). Patient satisfaction is an important, indirect measure of quality of care because it directly impacts on the perceived quality of care and outcome of treatment; holding great value for the clinician (Moore and Bowden-Everson, 2012). Satisfied patients i.e. those who perceive their interactions with their clinician to be positive (Sumaedi, Bakti and Metasari, 2011; Danjuma and Rasli, 2012) are more likely to comply with treatment instructions and advice, remain with their service provider and offer referrals (principally by word of mouth) (Al-Alak and Alnaser, 2012; Moore and Bowden-Everson, 2012; Lee, 2013). Dissatisfied patients, i.e. those patients who perceive their interactions with their clinician to be and (Danjuma and Rasli, 2012), are less likely to comply with treatment instructions and advice and bring in referrals and are likely to lay foundations for legal action or complaints to regulatory bodies (McQuoid-Mason and Dada, 2011). Identifying factors causing incongruence between the perceived and expected service quality in service delivery is essential (Heffernan and Megicks, 2008; Stodnick and Rogers, 2008; Gallifa and Batalle, 2010; Shekarchizadeh, Rasli and Hon-Tat, 2011).

The Durban University of Technology Chiropractic Satellite Clinics have delivered a chiropractic service at the Marburg Haven Centre for the Aged(MHCA), Margburg since 2004, and the Narain Jeawon Vedic VC), Avoca Hills, since 2011 (Singh, 2014; Dasappa, 2015). These clinics provide a controlled, rostered and supervised environment in which the chiropractic students complete clinical training. Patients are scheduled according to arrival times (Korporaal, 2014), with a set clinical procedure followed for all patients admitted to the clinic. Treatment and management are in line with the scope of practice (Allied Health Professions Act 63 of 1982 as amended; Haslett *et al.,* 2001).

Positive clinical interactions are likely when a patient walks into a clinic and finds it to be clean, hygienic and conducive to positive healing encounters (Lessing and Schulze, 2003; Murphy, 2010; Park and Lee, 2013). This is facilitated by positive and constructive interactions between the student and the patient, the student and the supervising clinician, and is enhanced by positive treatment outcomes (Murray, 2007). The converse is true if the clinical interactions are negative or where the patient has higher than normal expectation of the clinical encounter (Lessing and Schulze, 2003; Murphy, 2010; Park and Lee, 2013). Thus, factors that may influence a patient's perception are generically divided into:

- Patient related factors (e.g. their medical history, their prior interaction with the medical community, their level of education, their socioeconomic status (Mast*,* 2007);

- The environment in which the patient-doctor interactions occur (e.g. staff, office facilities, finances, practitioner interaction) (Miller and Gemmell, 2004); and
- The service provided by the student (e.g. communication, interaction and patient assessment) (Jahng *et al.,* 2005; Gaumer and Gemmen, 2006).

The interaction of all these factors impact on the outcome experienced, the patient's perception and level of satisfaction (Sitzia and Wood, 1997; May, 2000; Sigrell, 2002). This research study aimed to determine the satisfaction of patients presenting to the Durban University of Technology Chiropractic Satellite Clinics. The study provides information on challenges that need to be addressed in order to ensure future patient satisfaction.

Research question and aim of the study

The research question which directed this study is stated as : "Are patients that attend the Durban University of Technology Chiropractic Satellite Clinics satisfied with the Chiropractic care that they receive at these clinics?"

Thus, the aim of this study was to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven Centre for the Aged and Narain Jeawon Vedic Centre).

Objectives of the study

- The first objective was to determine the demographic profile of the patients at the DUT Satellite Clinics (Marburg Haven Centre for the Aged and Narain Jeawon Vedic Centre).
- The second objective was to determine the level of satisfaction of patients at the DUT Satellite Clinics (Marburg Haven Centre for the Aged and Narain Jeawon Vedic Centre).
- The third objective was to determine the factors affecting the level of satisfaction at the DUT Satellite Clinics (Marburg Haven Centre for the Aged and Narain Jeawon Vedic Centre).
- The fourth objective was to correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

Rationale

The satellite clinics are teaching based clinics where chiropractic students are learning their skill sets. A study of this nature can help students ascertain whether they are perceived as competent and whether their method of treatment brings satisfaction to their patients. if there is any dissatisfaction students can ascertain what it is that the patients are dissatisfied with, and correct this, improving their care.

Levels of patient satisfaction regarding their treatment at the community clinics will allow the Durban University of Technology Chiropractic Programme to refine clinical operations and improve word of mouth regarding chiropractic, which may lead to a

greater awareness and a more positive perception of chiropractic by the general public.

Limitations of the study

The researcher assumed that all questions were answered openly and honestly by those choosing to participate, thus allowing an accurate reflection of the patients' reality when they completed the questionnaire (Brink, 2007).

Although the questionnaire was reviewed and adapted through a focus group and pilot study in order to restrict misinterpretations and understandings in terms of the respondents' response to questions, it cannot be assumed that all respondents interpreted the questions equally (Weber and He, 2010), due to their their command of language (Scollen and Scollen, 1995) their socio-cultural background (Jones, 2014) and their level of education (Tatalias, 2006).

Outline of chapters

Chapter 1 summarised the literature as well as the limitations, rationale, aims and objectives of the research topic. Chapter 2 presents an in-depth review of literature. Chapter 3 discusses what materials and what methods were used in this study. Chapter 4 reports the results obtained and discusses their significance. Chapter 5 concludes the study and presents recommendations.

CHAPTER 2 LITERATURE REVIEW

Introduction

This chapter discusses the relevant and recent literature with regards to this study. It will discuss perception, factors that influence perception and the importance of the factors in health care. This chapter will include a description of the NJVC and the MHCA and discussed specific factors that may influence perception at these facilities.

Satisfaction

In consumerist terms, the concept of satisfaction is described as the level of approval a customer gives a service after they have compared the service's perceived performance with his or her expectations (Angell, Heffernan and Megicks 2008; Stodnick and Rogers 2008; Gallifa and Batalle 2010; Shekarchizadeh, Rasli and Hon-Tat 2011). The review of the literature reveals a lack of agreement on the definition of satisfaction in relation to a service and therefore, there is no generally accepted measurement scale for customer satisfaction (Garcia-Aracil, 2009). Customer satisfaction is therefore easily described but difficult to measure.

The literature on service quality is controversial and many scholars disagree on the theories around service and how it integrates with quality. This is because the quality of the service may be exceptional, but it may still not meet the even higher expectations of the perceiver. Expectations are a subjective collection of all the perceiver's past experiences and accumulated life knowledge; how this then interacts with a given service that is of a standard quality, shows that there may be a variance in the degree to which the perceiver is satisfied. Thus, service quality, is often broken down into the two themes of service quality and customer satisfaction. Although these themes of service delivery and customer satisfaction originated from two different research theories, both share the use of customer perceptions and expectations as the main original thought processes. Some authors believe that it is service quality that leads to customer satisfaction and behavioural intentions (Carrillata, Jaramillob and Mulkic, 2009; Yen and Lu, 2008; Molinari, Russell and Dion, 2008; Ott, 2008). These two theories, although seen as mutually exclusive, do in fact overlap. As such, some researchers propose that customer satisfaction and service quality are actually separate and distinct themes that share a number of similar qualities (Parasuraman, Zeithaml and Berry, 1994). Others, however claim that service quality is in fact an outcome of the service encounter and that customer satisfaction is related to the previous expectations that the customer originally had, and is conceptualised as a response to service quality if the customer has his or her expectations disconfirmed (Oliver, 1980).

Irrespective of the approach, a service quality "gap" is described as the comparison of customer expectations with the observed service delivered (Oliver, 1980; Zeithaml, Berry and Parasuraman, 1993). As previously stated, perceptions of service quality are built on previous expectations of what should be and is expected to occur, compared to the actual service delivery (Boulding *et al*., 1993).

Observational studies have shown that customers' perceptions of service quality and customer satisfaction directly affect the customers' intention to positively favour an organization / business / service and utilise its services on a continuous basis (Shekarchizadeh, Rasli and Hon-Tat 2011).

Using the "gap" analogy, satisfaction and dissatisfaction are two end products when expectations are met (no "gap") or are not met ("gap" exists). Thus satisfaction is the end result of and congruence between what the patients think they know and expect, interaction with the entity and the environment in which this interaction has occurred (Hayes, 1994; Eysenck and Keane, 1996; Bergh and Theron 1999). Many factors can affect perception (thus expectation and resultantly satisfaction), including those which can be directly recognised by the perceiver, the object being assessed and the environment in which assessment will take place (Robbins and Everitt, 1996; Bergh and Theron, 1999).

When addressing the topic of patient treatment satisfaction, it is vital to establish what creates an expectation (viz. perception). As expectations differ from patient to patient, it is of greatest importance to be able to identify perceptions in order to identify areas that need to be addressed in order to more appropriately meet perception, expectation and ultimately satisfaction of patients. This will allow for procedures to be put into place prior to, during or after treatment which will lead to the patient being more satisfied with the treatment procedure process (Labarere *et al.,* 2001).

Various authors have identified personal and demographic factors that they believe can influence a persons' reaction to external stimuli, which will in turn influence "Bottom-up" factors and therefore a person's perception.

These include: age, gender, ethnicity, and education, level of schooling and socioeconomic status.

The patient

In the context of health care, a patient is generally described as a person that is ill or who is undergoing treatment for disease (Dorland, 2011). This means that the person is seeking either in-patient (hospital care) or out-patient or ambulatory care. The degree to which the patient seeks either form of care is usually directly related to the severity of the complaint and the degree to which the patient is able to help them in caring for themselves and the completion of their functions of daily living. The more severe complaints are usually related to increased likelihood of mortality, as compared to the ambulatory care / less severe complaints which generally have a higher morbidity and thus a reduced quality of life. Therefore although the patient may perceive differences in the their ability to cope, it is essential that in either instance that the patient's morbidity and mortality are decreased and their quality of life increased in order ensure a decreased burden on themselves, their family and lastly the greater society. In order to measure the latter – decreased morbidity and increased quality of life – it is incumbent on practitioners to look at feedback from the patients, in order to improve their services and allow for more effective, efficient and patient centred care. In order to do this the practitioner needs to understand the

patient's perception, expectation and levels of satisfaction within the context of their interaction (Bowden and D'Alessando, 2011; Danjuma and Rasli, 2012; Moore and Bowden-Everson, 2012; Lee, 2013).

Perception

Human beings receive information through the sensory organs of the body. This information is then used to build a perceptual experience whereby the information is processed and combined with meaning, leading to a perception being created (Jamison 1998).

Labarere *et al.* (2001) suggest that assessing patient perception is a vital part of identifying, addressing and correcting problems within the system. According to Kassak and Sawyer (1993), the patient is in the best situation to assess the services of medical providers. The sights, smells, noises and textures associated with the waiting room as experienced by a patient waiting for the practitioner may lead to the formation of a perception of the said practitioner and future treatment. If the room is stark, sterile, smells highly of antiseptic cleaner; this is usually less favourably seen than a waiting room that is colourful, bright, inviting and feels more like home than a hospital (Jamison, 1998).

As per the simple definition of perception (in the first paragraph), hypotheses have been developed to explain how perceptions are formed. Several constructive approaches have been researched (Coren and Ward, 1989; Hayes, 1994; Eysenck and Keane, 1996; Atkinson *et al.,* 2000). This has allowed for constructive theorists to establish the "top-down" and "bottom-up" method of perceptual development, in order to understand the processes. (Hayes, 1994; Eysenck and Keane, 1996).

"Bottom-up" processes are developed by external stimuli and experiences. External stimuli may include interactions with practitioners, accessibility and the facilities of the practitioners' room and financial factors. This could include the practitioners' communication quality and their clinical competence (Sawyer and Kassak, 1993; Jahng *et al.,* 2005; Gaumer and Gemmen, 2006). "Bottom-up" factors involving the practitioner can include the convenience of the practitioners' rooms and the ease with which appointments are made (Sawyer and Kassak, 1993; Jahng *et al.,* 2005; Gaumer and Gemmen, 2006). "Bottom-up" factors involving accessibility and the facilities of the practitioners' rooms that can influence perception include hygiene levels, aesthetic appeal and comfort of the waiting room (Talmage, 2007). "Bottom-up" factors involving financial factors that have been identified in influencing perception may include medical costs, medical aid, or the price of initial treatments as opposed to follow up treatments (Talmage, 2007).

The first interaction that a patient has with the practitioner is an experience that is novel. Although this would have been influenced, to a limited degree by previous similar experiences, this interaction forms the basis for the comparison of subsequent interactions. The first experience forms the basis for developing "top-down" processes.

"Top-down" processes are formed by the individuals' expectations which are formed by previous experiences and past knowledge (Hayes, 1994; Atkinson *et al.,* 2000).

Examples of these “top-down” processes may include the actual treatment experienced by the patient, the techniques used and the approach to the treatment that the practitioner has utilised. This could also include the manner in which the practitioner did or did not educate the patient on their condition, and did or did not help them better understand their problem. These “top-down” processes may also include the manner in which the practitioner educated the patient on correct self-management techniques as part of a treatment process. Proper communication and adequate history taking and diagnostic skills are all important processes to be considered when assessing “Top-down” experiences.

As external stimuli (“bottom-up”) and expectations (“top-down”) may occur at the same time, these two processes ultimately both influence the resultant perception (Eysenck and Keane, 1996). When “top-down” and “bottom-up” processes occur at the same time and come into agreement, the perception will ultimately be positive and the patient usually experiences satisfaction. By contrast when there is no agreement between “top-down” and “bottom-up” processes, dissatisfaction usually results.

Interactions in which perceptions are formed, expectations are developed and satisfaction is experienced are ever changing, active processes (Coren and Ward, 1989; Hayes, 1994; Eysenck and Keane, 1996; Atkinson *et al.,* 2000). Coren and Ward (1989), Hayes (1994), Eysenck and Keane (1996) and Atkinson *et al. (*2000) suggest that “bottom-up” and “top-down” processes are needed in order to develop perceptual frameworks, allowing the patient to develop a comprehensive matrix of options that they may apply in different contexts.

The interaction of these two processes (“bottom-up” and “top down”) is known as the “transactional approach”. If expectations were to change or the analysis of the object or events were to alter, then the perceptual experience could change, resulting in either a positive or a negative perception of the perceived object or perceived environment (Coren and Ward, 1989).

Factors affecting “bottom-up” stimuli

Age

Studies have shown that older patients are generally more satisfied with medical care than younger patients (Pascoe, 1983; Coulter, Hays and Danielson, 1994; Grogan *et al.*, 2000). Possible reasons for this could be due to older patients being treated in a more thorough or responsive manner than younger patients (Harris, Rich and Crowson, 1985; Street and Buller, 1988). Research indicates that some physicians have negative attitudes toward younger patients and a more favourable approach to older patients (Harris, Rich and Crowson, 1985; Street and Buller, 1988). These physicians can be considered to be “ageist”, being less communicatively overriding, more nonverbally responsive as listeners, and more friendly and unbiased in their interactions with middle-aged and older patients when compared to their encounters with younger patients. This positive treatment can result in older patients’ having a greater satisfaction than their younger counterparts (Harris, Rich and Crowson, 1985; Street and Buller, 1988). This could be due to

experiences that older patients have had in health care and that they tend to be less demanding and more realistic with their outcomes.

Gender and ethnicity

Hughes (1991) argues that most studies find no relation between gender and satisfaction. However, Coulter *et al.* (1994) contradict this showing that men have a higher satisfaction when evaluating the service received from the medical profession. Other authors (Sawyer and Kassak 1993; Hughes 1991 citing Lieberman, Sledge and Matthews, 1989) show that higher satisfaction is found in women. Higher levels of satisfaction in relation to female practitioners have been reported, possibly due to females generally having a more caring communicative style of treatment (Mast, Hall and Roter, 2007).

There is limited research in terms of the relationship of ethnicity and levels of satisfaction. Hughes (1991) shows that when considering ethnicity and satisfaction of medical care, the results remain inconclusive. However, Coulter *et al*. (1994) are of the opinion that satisfaction is higher in Whites when compared to other ethnic groups however no conclusive evidence was provided.

Education / Level of schooling

People with a higher education are more likely to be critical of care, ask for second opinions and try conservative alternatives before using invasive options (Hughes, 1991). Hughes (1991) shows that when considering people with different levels of education and their degree of satisfaction with medical care, the results are inconclusive. However, Hughes (1991) also suggests that people from a less advantageous background are generally less satisfied. This may be due to poorer people having less access to tertiary and higher levels of education (Lochner, Kawachi and Kennedy, 1999; McKay and Lawson 2003).

Socioeconomic status

Hughes (1991) cites several studies indicating that “poor people have poorer health, receive poorer health care, have less continuous relations with doctors, and have harder times getting appointments”, ultimately leading to less satisfied patients. Hughes (1991) suggested that doctors treat people from a lower socioeconomic group differently to those that are privately insured, and that poorer individuals tend to be less satisfied. This thought is supported by Sawyer and Kassak (1993) who showed that higher dissatisfaction was found in patients reporting a lower income and education level.

Although, knowledge about health care professionals in high-income countries is more extensive than low-income countries, it is difficult to generalise this knowledge to low-income countries because of the profound economic and social differences. In wealthier countries there is a strong tradition of labour market regulation and the

capacity of the professions themselves to regulate the production of health services (Bloom, Standing and Lloyd, 2008).

When considering the insurance covers and privileges of low-income communities, it is often assumed there is limited or no insurance cover. Often these instances affect the care seeking options for musculoskeletal conditions (Wasiak *et al.,* 2003).

Disability

Individuals with physical disabilities often assume that health care providers do not have the same interest in disabled patients as they do to able patients (Sharby, Martire and Iversen, 2015) and are less interested in providing alternate care or following up with recommendations. According to Sharby, Martire and Iversen (2015) there are certain factors that influence disabled individuals and their approach to health care including poor attitudes of health care providers and the public, physical barriers that are not well understood, failure to communicate with disabled patients, levels of income, ethnic group / minority group status, insurance cover, and lack of information tailored to disabled people.

Persons who are blind, partially blind, deaf or hard of hearing and those with mobility difficulties are considered as persons with special needs (Sharby, Martire and Iversen, 2015). These individuals are not necessarily ill, but they do have a disability. Someone who is deaf since early childhood and speaks sign language, for example, may be in superb physical health, requiring only routine, preventative health care. As the majority of health care provider's cannot converse in sign language, it is imperative to plan an effective way of communicating with patients about their medical conditions

Research conducted by Patrick, Scrivens and Charlton (1983) regarding disability and patient satisfaction found that patients with limited special needs had less dissatisfaction with doctors in general, but tended to be more dissatisfied with their own personal doctor. A possible reason for this could be that patients with disabilities may be more dependent on their own doctor to maintain improvements in their health. If the doctors cannot or do not maintain these improvements, this could lead to dissatisfaction. The main reason for dissatisfaction amongst the special needs patients in Patrick, Scrivens and Charlton's (1983) study was found to be due the information provided in an accessible format or not being provided at all with regards to the patient's health and maintenance thereof. Patients with increased levels of psychosocial disabilities (restrictions in psychological, social and mental activity), were consistently more dissatisfied with their specific doctors.

Factors affecting "top-down" stimuli

Attitude, beliefs, knowledge and past experiences

As explained previously, "top-down" experiences are developed as a result of the individuals' previous knowledge and expectations based on that previous knowledge (Hayes, 1994; Atkinson *et al.,* 2000) resulting in an expectation of service. This expectation may also have been influenced by their beliefs and the way they were brought up (Parasuraman, Zeithaml and Berry, 1985; Danjuma and Rasli, 2012).

Attitude

The significance of attitudes and beliefs of patients formed from past experiences are of major importance in ultimately predicting customer satisfaction. That customer satisfaction is an important predictor of customer attitude, which can influence the behaviour of the person being treated (Woodside *et al.,* 1990).

Research conducted by Olsen (2002) has suggested that a customer's behaviour and feelings of loyalty are influenced by prior attitudes and customer loyalty (Olsen, 2002). This means that assessing patients' prior experiences and attitudes toward service delivery will ultimately lead to an understanding of that which influences the customers' behaviour and loyalty towards the service.

The chiropractic profession has been through a cycle of being favoured initially as the practice that could help heal all ills, before becoming an outcast in the medical fraternity (by not adopting the same approach to health care as main stream medicine) and recently becoming more popular as a complementary alternative musculoskeletal therapy (Ernst, 2000; Meeker and Haldeman, 2002; Graham *et al.,* 2005; Barnes, Bloom and Nahin, 2008). The attitude towards the chiropractic profession is noticeably dynamic and should be explored.

Beliefs, knowledge, and past experience

Another of the "top-down" parameters is that of a patient's beliefs, knowledge and past experiences with regard to health care. These outline the foundation for their expectations of treatment (Williams, Coyle and Healy, 1998; Sigrell, 2002). If a patient has limited knowledge with regarding a profession, or misinformation and/or the 'wrong' knowledge regarding that profession's perceived assessment, diagnosis and treatment; then the perception that this patient will have of the subsequent treatment may be very different to that of a person with adequate and correct knowledge of that profession. This perception of the experience may ultimately lead to satisfaction or dissatisfaction with a profession, depending on the patients' initial perception, which was based on the patients' prior knowledge.

Some authors argue that complex healthcare services, patient satisfaction and the patient's lack of technical knowledge to assess the healthcare services are misleading (Eiriz and Figueiredo, 2005). Eiriz and Figueiredo (2005) suggest that broader healthcare quality measures should be incorporated when considering healthcare analysis and patient satisfaction. These factors may include financial performance, logistics, professional and technical competence (Eiriz and Figueiredo, 2005).

A person's attitude towards an object or service is related to their beliefs and/or knowledge that the object or service has certain expectations and the outcome is based upon their evaluations of those expectations (Linder-Pelz, 1982; Ajzen and Fishbein, 2000). Beliefs represent the past information an individual has about an object or service, and how the individual links an object or service to expectations. People have different belief strengths, that is, the perceived likelihood that an expectation is associated with the object or service (Linder-Pelz, 1982).

Knowledge of chiropractic

Chiropractic is a health profession concerned with the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system, and the effects of these disorders on the function of the nervous system and general health. There is an emphasis on manual treatments including spinal adjustment and other joint and soft-tissue manipulation (World Federation of Chiropractic, 2015).

When considering patients' perception and expectations of chiropractic, if an individual has increased knowledge of a chiropractor or chiropractic, they have facts, information, and skills acquired through experience or education. If a person has had an experience of chiropractic through either being treated by a chiropractor, or has spoken to someone who has been treated by a chiropractor, the perception for the chiropractor, the chiropractic profession and chiropractic treatment will be formed, altered or influenced.

Exposure: finance

Poorer communities may have a reduced exposure to chiropractic treatment due to the fact that chiropractors generally practice within the private sector (Chiropractic Association of South Africa [CASA], 2015) which is expensive. Therefore, financial restrictions can influence the exposure of poorer communities to chiropractic. Less exposure means less experience of chiropractic and ultimately less knowledge of chiropractic within poorer communities. This could lead to these communities having a different perception of the chiropractic profession and chiropractic treatment

Exposure: medical / interdisciplinary communication

Exposure may be limited due to the poor interaction between other healthcare professions and chiropractic and (Myburgh and Mouton, 2007) which may limit referrals of the general public to chiropractors (Jamison, 1998), thereby limiting personal experiences of Chiropractic care.

Exposure: short history of the profession

Chiropractic is a relatively young profession in South Africa and is not generally recognised by the public. The Chiropractic, Homeopaths and Allied Health Services Professions Act (Act 63 of 1982) was only passed in 1982 and the profession is yet to be included into public hospitals and clinics (Myburgh and Mouton, 2007). Thus, the service of chiropractic has only been available within the private sector (Higgs, 2009). The cost of private health care in South Africa is very high for those not covered by medical aid or medical insurance. The result of this is that those with a lower socioeconomic status do not have easy access to chiropractic treatment (Myburgh and Mouton, 2007). This limits the contribution of the chiropractic profession to the general populations' improvement of musculoskeletal disorders and management of chronic lifestyle diseases (Gatterman, 2005).

Two DUT satellite clinics are located in lower socio-economic areas but this is a very small footprint indeed, therefore the perceived knowledge of chiropractic and the past experiences of chiropractic in communities like these may be limited.

The following “bottom-up” factors may influence attitude, belief, knowledge and past experiences, in that they frame the context of the experience of health care and therefore provide the contrast to what the patient actually expects. As such, these “bottom-up” factors may influence “top-down” expectations.

“Bottom-up” factors influencing “top-down” expectations

Paradigm of health care

The biopsychosocial model of healthcare places emphasis on the promotion of health, focusing on what patients do or do not do in order to maintain health (Laverack, 2004). The centre of this focus is on the patient who needs to be educated on how to avoid disease and disability (Beaglehole and Bonita, 2004; Lavarack, 2004; Davies and Macdowall, 2006). This places the responsibility for health care on the patient with the doctor facilitating health management (Beaglehole and Bonita, 2004; Lavarack, 2004; Davies and Macdowall, 2006). The role of the doctor is that of someone who gives the patient access to appropriate information at the appropriate time (Beaglehole and Bonita, 2004; Lavarack, 2004; Davies and Macdowall, 2006).

The paternalistic health care model or medical model focuses on the biology and functional parts of the patient and disease prevention (Tones, 2004). The patient generally presents to the doctor when they have a medical problem, seeking the advice of the doctor in order to get better and attain health (Laverack, 2004). In this paradigm the balance of responsibility lies with the doctor and the patient is a passive recipient of care and often does not actively participate at all (Seedhouse, 1997). In this context there is a dependency on the health care system by the patient, who expects that the system and doctor will deal with his/her ailments and return them to health.

Exposure to and experience of a particular system or paradigm forms attitudes towards that health paradigm and contributes to levels of satisfaction or dissatisfaction with that health paradigm. Exposure to a new paradigm can be interesting or frightening, leading to satisfaction/dissatisfaction. The health paradigm that the doctor adopts can influence satisfaction levels of the patient, either favourably or unfavourably (Seedhouse, 1997; Laverack, 2004; Tones, 2004).

Doctor patient relationship

Hughes (1991) cites several studies indicating the doctor-patient relationship as a strong predictor of satisfaction. Verhoef, Page and Waddell (1997) suggest that the longer the patients have been under the care of a particular practitioner, the more likely they are to be satisfied. The same study further explained that patient satisfaction increased with ongoing treatment (more than six weeks) regardless of pain resolution (Verhoef, Page and Waddell, 1997). The improvement was thought to be credited to the development of an intimate doctor-patient relationship.

Studies have shown that patient satisfaction is increased if the expected consultation time is exceeded by the physician. This could be attributed to the comfort level the patient feels in discussing their concerns (Lin *et al.,* 2001) or potentially because the patient feels the clinician is taking the time to evaluate them thoroughly and is not just rushing them out of the door as another 'number' and as a source of income. This shows that the length of consultation time is an important variable when considering doctor-patient communication and levels of patient satisfaction.

Factors in the environment such as time, work setting and social settings

The way in which people perceive each other and their environment highlights the uniqueness of each individual and the unique expectations they and their environment can create (Hayes, 1994; Pearson and Brew, 2002; Pillay, 2002; Wisker, Robinson and Shacham, 2007; Danjuma and Rasli, 2012). These expectations can be influenced by the individuals' demographic and psychosocial factors. These factors strengthen and shape their personal belief system in their environment and the way in which they interact in it (Mackinnon, 2004; Foster *et al.*, 2010; North, Zewotir and Murray, 2011).

Work setting

The waiting room is a main component in establishing satisfied patients. Certain factors that may influence the satisfaction of patients within the waiting room may be the comfort of the chairs, forms of entertainment, the hygiene of the surroundings and staff members and the interest of the staff towards the patients. Additionally, the treatment room may be also influence the satisfaction of the patient. The treatment room may be uncomfortable for certain individuals, depending on their physical abilities.

Duration of time consultation

According to Hughes (1991) people who have to wait for an appointment and become impatient and tend to be more dissatisfied. This could be the case at the NJVC and MHCA where this study took place as the appointments made there are on a first come first served basis. This means that at these clinics there may be a long queue with numerous patients waiting to be attended to. This could lead to patients waiting for several hours before they are seen to by a chiropractic intern. This would however, be similar to other community or primary care clinics in the South African public health care system. Thus, in contrast to the literature, the patients may actually be familiar and content with waiting for treatment, particularly if they perceive a benefit from the service provided.

When comparing the environment of the private chiropractic clinics and the chiropractic community clinics where this study took place (NJVC and MHCA), the latter clinics provide an environment that facilitates social interaction between the patients. Patients actively participate in other activities at the community centres where the clinics are located while they are waiting for treatment, thus influencing

their “waiting” experience. This interaction platform may provide an additional benefit when considering patient satisfaction (although not inherently linked to the chiropractic service) that may allow patients to perceive a better experience, and therefore be more satisfied with the service provided even though they are having to wait.

Environmental conditions

Heat is the most studied environmental factor that has an influential impact on patients. Experimental studies suggest that people become more impatient as temperatures increase (Lippa, 1990). Heat can lead to aggression, which in turn can lead to a greater percentage of dissatisfaction with regards to a medical clinic, and an altered mindset towards that clinic. Other factors that have been shown to trigger aggressive behaviour are noise, offensive odours, cigarette smoke and air pollution (Hayes, 1994; Robbins and Everitt, 1996; Bergh and Theron, 1999). These factors are important to consider when designing a clinic / practice / workplace (Bergh and Theron, 1999) and are therefore also important when determining the satisfaction of patients in an established clinical setting.

Location of the study

Narain Jeawon Vedic Centre

Patients have been attending NJVC since 2011 and are generally older African or Indian patients with a lower economic status, seeking the most relatively affordable option for care in order to preserve or maintain health and prevent disease. Most of these patients live in the surrounding area, while others live on the NJVC premises where they are being cared for by the Arya Samaj Community (Arya Samaj South Africa 2015).

At the NJVC site there is also a clinic for dentistry, an eye clinic and primary health medical care (Maharaj, 2015, Singh, 2015). This service is provided through the eThekwini municipality as a primary care clinic. This clinic facilitates access to the South African health care system, feeding into primary hospitals as needed. Many of the patients attending this clinic present with chronic lifestyle diseases as well as sequelae of previous health occurrences (infection, trauma, malignancy). Older patients may be considered to have more chronic lifestyle diseases, resulting in an older population presenting with chronic lifestyle injuries to the additional primary care and dentist clinics at NJVC. On attendance to these clinics they may become aware of the availability of the chiropractic clinic and present to it. This in turn may result in an older age demographic in this current study.

The NJVC also provides a shelter for abused women. This indicates that women may possibly be more aware of the clinic offerings of this centre and potentially be the dominant gender profile at NJVC.

As shown by Elsenburg (2009), KZN has the highest population of Indians in South Africa (80%), and this ethnic population may present predominantly in this current study.

As the NJVC is situated in the heart of an informal settlement, it may be deduced that the patients presenting to this community clinic may have insufficient funds to allow for high levels of education and schooling.

Inadequate disability facilities at NJVC may be due to insufficient funds to provide or maintain the requirements for people with special needs, or it may be that the facility has yet to develop into a fully functional centre that can meet those needs (Singh, 2015; Reginald, 2015).

The patients presenting to the NJVC clinic are mostly of a lower socioeconomic status, seeking the most relatively affordable treatment option in order to preserve or maintain health and prevent disease (Arya Samaj South Africa, 2015). The clinic is free, offering chiropractic care to a community that would otherwise not be able to afford it. Being a free clinic may result in a large percentage of patients from a low socio-economic background presenting to these clinics, which differs from the research shown on the patient profile presenting to private practice (Mohomed, 2007).

The doctor patient relationship is a strong predictor of patient satisfaction (Hughes, 1991). Verhoef, Page and Waddell (1997) suggest that the longer that patients have been under the care of a particular practitioner, the more likely they are to be satisfied. However, the student doctors at NJVC are on a monthly roster and patients may not be treated by the same doctor successively. This may lead to an altered patient doctor relationship and lower levels of satisfaction.

The NJVC attempts to provide reasonable surroundings in terms of shelter from adverse weather and a comfortable waiting area that allows for social interaction. However, the treatment rooms are not exclusively private, which may result in patients feeling unwilling to or are uncomfortable with disclosing personal details that they feel should be confidential. This may lead to patient dissatisfaction with the chiropractic care provided to them (Brantingham *et al.,* 2009, Ndetan *et al.* 2010, Hawk *et al.,* 2012).

Marburg Haven Centre for the Aged

The Marburg Haven Centre for the Aged is a community centre based in Marburg, Port Shepstone, that has provided a variety of services since 1993 for those that are not capable of caring for themselves (Reginald, 2015). Possible reasons for attendance at this community centre may be poor financial situations, homelessness, people recently discharged from hospital and either having no one to provide the correct care for them, or no access to immediate care, as well as age related conditions (Naidoo, 2012). It also offers other services such as a day care centre for children, transport, a 'Meals on Wheels' initiative, encouragement of healthy living, as well as medical and chiropractic treatment services (Naidoo, 2012). Because this community centre cares predominantly for older individuals, the demographic age range of this study maybe older than in other studies.

As presented in Hitge's (2014) study of a demographic and disease profile of patients at MHCA, the majority of patients presenting to this clinic were female (76.1%), and only 23.9% were male. This suggests that the results of this study may indicate a predominance of females. Hitge (2014) also showed that the highest ethnic profile presenting to MHCA were Indians (50.4%). Marburg Haven Centre for the Aged is located closer to an area that is predominantly Indian and so the results of this study may indicate this.

Hitge's (2014) study found that the majority of patients presenting to MHCA were unemployed (49.6%) with 21.4% of the unemployed group being pensioners and 1.7% being scholars. This leads to the assumption that at least a quarter of this population group may have a low level of schooling and education, and hence cannot get a job.

The MHCA sometimes does not have the appropriate facilities for special needs. This could be due to insufficient funding or maintenance issues. Disability may influence patient satisfaction when considering the disabled patient and the clinic settings they are attending (Sharby, Martire and Iversen, 2015).

Naidoo (2012) stated that the vision at MHCA was to care for the "poorest of the poor" and "vulnerable persons'" in the surrounding community. The patients

presenting to MHCA are generally from a low socio-economic background (Hitge, 2014), living in the surrounding urban area of Marburg and are unemployed or on disability grants and pensions (Hitge, 2014). These patients may not have a good understanding of chiropractic which may alter their perception of satisfaction of the treatment they receive at this clinic. Therefore, it is important to explain the paradigm of chiropractic health care to all patients, to ensure adequate education is achieved in order to have an effect on the perception of chiropractic care and thus the level of satisfaction that patients have with the care that the chiropractic students provide.

The student doctor roster setting at MHCA is similar to that of NJVC, so patients may not have the same student doctor successively. This may lead to an altered patient doctor relationship and lower levels of satisfaction (Hughes, 1991; Verhoef, Page and Waddell, 1997).

The patients presenting to MHCA are provided with food and refreshments while they wait (as part of the centres' service). This means that the patients have positive, supportive and healthy interactions with centres staff. These arrangements would tend to support satisfaction. By contrast the manner in which the treatment facilities are arranged may not be optimal. Although every attempt is made to treat patients within the bounds of doctor-patient confidentiality, the operations of the student based service requires that the student interact with the patient, the supervising clinician and at times a translator in an open plan setting. These interactions although necessary from a teaching, training and safety perspective may detract from the doctor-patient relationship.

Conclusion

The patients that present to the DUT satellite clinics will have different demographic, socio-economic and cultural variables compared to patients that present to private practices. These differences may lead to a different understanding, knowledge and perception of chiropractic as compared to patients presenting for treatment in private practice. These differences can lead to different levels of satisfaction depending on the service that is received. Previous studies regarding chiropractic patient satisfaction (Thoresen, 2006; Verhoef, Page and Waddell, 1997; Sawyer and Kassak, 1993) have investigated private practices and their findings cannot be assumed to be similar to the DUT Satellite Chiropractic Clinics.

CHAPTER 3 METHODOLOGY

Introduction

This chapter discusses the research methodology, materials and data collection used in this study.

Study design

The study utilised a descriptive questionnaire based survey, based in a quantitative paradigm.

Sample

This sample population was at the DUT Chiropractic Satellite Clinics (Marburg Haven Centre for the Aged [MHCA] and Narain Jeawon Vedic Centre [NJVC]). Permission to conduct the study was granted by both satellite clinics (Appendix A1 and Appendix B1) and the DUT Chiropractic Clinic Director (Appendix C1).

The population consisted of all willing patients that had utilised the satellite clinics. Total population sample selection (as defined by Mouton, 2006) was utilised. The largest percentage possible of the active population at the clinics would be recruited to achieve a maximum sample size.

The number of patients used for the study population and sample size would be based on the number of files at both satellite clinics on the date of DUT Institute for Research and Consultation (IREC) approval to commence this study (Section C).

Sample size

The acceptable minimum response rate in order to achieve accurate results as to whether or not patient satisfaction was achieved was 70% (Mouton, 1996; Esterhuizen, 2014). Total population of NJVC was 123 files with 19 active and 104 dormant (reference) and of MHCA was 237 patient files with 159 dormant and 78 active patients. To obtain an accurate reflection of patient perception a minimum response rate of 70% (active patients) at both satellite clinics was utilised, calculated for NJVC as 19 (active patients) multiplied by 70% (minimum response rate) = 13.3 (14) patients and for MHCA as 78 (active patients) multiplied by 70% (minimum response rate) = 54.6 (55) patients.

Advertising

The study did not require any advertising however an advertisement was displayed (Appendix D) at each of the Satellite Clinics informing the patients of the study.

Criteria for participation in the study

Inclusion criteria

- Signing an informed consent form (Appendix G2) for participation in this study.
- Patients that presented either as new patients or as follow patients were included.
- Any age (if the participant is a minor, participant assent (Appendix G3) and parental consent (Appendix G4) is required).

Exclusion criteria

- Patients not present at the clinic on the days of data collection.
- Any patient that participated as a member of the expert group, as they would have had prior exposure to the nature of the study and the intention of the questions in the questionnaire, therefore possibly introducing a biased response which this study wished to exclude.
- Any patient that participated as a member of the pilot study, as they would have had prior exposure to the nature of the study and the intention of the questions in the questionnaire, therefore possibly introducing a biased response which this study wished to exclude.

Selection procedure

The researcher attended the satellite clinics on Tuesdays and Thursdays at MHCA and NJVC respectively. The patients were approached by the researcher and invited to participate in the study. They were informed that participation was voluntary and non-participation would not affect their treatment at the relevant satellite clinics.

An initial face-to-face interview was completed with all potential respondents in order to screen the patients and their eligibility for participation (Table 3.1).

Table 3.1: Questions for screening the patients for inclusion

	Question	Answer required to participate
1	Are you willing to take some time to answer my research questionnaire?	Yes
2	Is your home language English?	Yes
3	If your home language is not English, would you like an interpreter?	Yes
4	If you would like an interpreter would you be happy for the interpreter to know your responses?	Yes

If the patients answered appropriately, they were included in the study. They were then handed a Letter of Information and Informed Consent (Appendix G2) which was discussed and any questions from respondents were answered.

Data collection procedure

- Eligible patients were issued a Letter of Information and Informed Consent (Appendix G2).
- Once the patient was found to be eligible for inclusion into this study, based on the initial screening questions they were accepted as respondents in the study.

- Patients who were unable to read as a result of requiring aids (e.g. glasses) or who were illiterate were guided via a literate English speaking person or an isiZulu (translator).
- If the patient could not sign the relevant documents, the use of a photocopier to photocopy the patient's identity document and a witness (signing this document) were utilised as a proxy.
- The Letters of Information and Informed Consent were then placed in ballot Box A, and a tick was placed next to the number on the list on top of the box corresponding to the number on their Letter of Information and Informed Consent. For example, patient 10 completed the Letter of Information and Informed Consent number 10, then 10 was ticked off on the ballot box (Appendix I2). This control mechanism was in place because the questionnaires were not coded or linked to the Letters of Information and Informed Consent, so as to retain the patient's anonymity and confidentiality.
- The patient was issued with and asked to complete the questionnaire (Appendix G1).
- The completed questionnaire was then placed in ballot Box B. The questionnaire number was then ticked off (as per the Ballot Box A procedure (Appendix I1), with the exception that the questionnaire did not have the corresponding number appearing on it.
- The use of the ballot boxes maintained anonymity (Mouton, 2001) (i.e. the questionnaire could not be associated with its corresponding Letter of Information and Informed Consent).
- Both ballot boxes remained sealed until the required number of questionnaires were completed. This ensured confidentiality (Mouton, 2001).
- Each clinic had two boxes (one Letter of Information and Informed Consent box and one questionnaire box) and the numbers on top were different for the two clinics.
- Once the data collection for the study was completed, the boxes were opened by the researcher and the research supervisor(s).
- Data was filed and locked in a cabinet for safe keeping and only removed for the purpose of data capture.
- The questionnaires were coded and captured in SPSS in order to facilitate data analysis.
- Upon completion the sheets were returned to the DUT Chiropractic Day Clinics to ensure safe keeping.

Development of the questionnaire

Introduction

Questionnaires have the advantage of obtaining confidential information from a large number of people about their knowledge, attitudes, opinions and perceptions (Foster *et al.*, 2010). An added benefit of questionnaires is that bias is reduced because all respondents are given the same ordinal scale (Strongly Agree / Strongly Disagree) or Yes / No options to answer, and therefore the possibility of misinterpreting the results are reduced (Mouton 2001; Brink 2007).

The questionnaire pre-expert group (Appendix E1) for this study was developed by the researcher utilising suggestions regarding expectations, perceptions and

satisfaction (Bergh and Theron, 1999; Eysenck and Keane, 1995; Hayes, 1994; Parasuraman, Zeithaml and Berry, 1985; Yeoman, 2000; Ford, Schofield and Hope, 2002; Sigrell, 2002; Evans, Maiers and Bronfort, 2003; Faldon, 2004, Thoresen, 2006).

In order to adequately address these parameters, the questionnaire consisted mostly of closed questions with finite answers (either yes / no or in Likert scale format) as suggested by Dyer (1997), Brink (2007) and Mouton (2001) as this facilitates a decrease in terms of researcher bias affecting the outcome of the study.

Expert group

The pre-expert group questionnaire developed by the researcher was subjected to an expert group.

An expert group is held to stimulate individuals' thinking about the research topic and to encourage them to develop ideas and suggestions for inclusion into the questionnaire (Salant and Dillman, 1994). In this way, expert groups support the research process by increasing the relevance of the research (Salant and Dillman, 1994) with respect to face validity and construct validity (Mouton, 2006; Rubio et al., 2003; Bernard, 2000; Hardesty et al., 2004), whilst also contextualising the questionnaire in time, place (environment) and people (people's expectations) around the concept of service (treatment) (Salant and Dillman, 1994).

According to a study by Salant and Dillman (1994), a group of at least 8-11 people are required for a constructive expert group to yield the best results. For this study, the expert group consisted of 12 people (two chiropractors, one homeopath, five chiropractic students, and three patients). The group consisted of people with expertise in particular aspects of the research being discussed.

Process of the expert group

Relevant stakeholders were identified for inclusion into the expert group. Inclusion was based on the following:

- At least one person that has completed a previous questionnaire study.
- At least one person that is currently busy completing a questionnaire study.
- At least one person that has previously supervised a questionnaire based study.
- At least one patient that is familiar with chiropractic care.
- At least one patient / person that is familiar with English
- At least one chiropractor.
- At least one non-chiropractic patient.

The procedure followed by expert group process included the following steps:

- A time and date were identified.
- A venue was secured at the basic medical sciences boardroom.
- Stakeholders were invited.
- The relevant documents were duplicated, refreshments organised and the meeting started by a short welcome during which the respondents were introduced to the researcher, the research study and the reason for the expert

group. Attention was drawn to the parameters of the expert group and purpose of the meeting.

- The respondents were given a Letter of Information and Informed Consent (Appendix E2) along with a code of conduct (Appendix E3), which they were required to read, ask questions about and then sign if they were willing to participate.
- If at that point a participant did not wish to continue to participate in the expert group, they were thanked for their time and escorted out of the venue in order for the expert group to be a closed meeting.
- The meeting was recorded and the recording and paper work from that meeting is available in storage.
- Once all documentation was completed (Appendix E1; Appendix E2; Appendix E3) and returned to the researcher, the respondents were asked to turn their attention to the pre-expert questionnaire (Appendix) provided to them.
- The researcher led the expert group by sequentially reading out the questions. In this way, each question was put forward to the Expert Group to determine if it was:
    - relevant to the research process;
    - understandable and unambiguous; and
    - clear in assisting the researcher in attaining the objectives of the study.
- Each question was debated by the group. Changes suggested by the participants were made to the questionnaire once unanimous agreement was reached. The changes to the pre-expert group questionnaire and the rationale for the changes are listed in Appendix F1.
- The changes suggested by the expert group to the pre expert group questionnaire lead to the development of the post-expert group questionnaire (Appendix G1).

Pilot study

The post-expert group questionnaire was subjected to a pilot study. The researcher and the respondents were required to follow the same procedure as would be followed for the main study. Respondents for the pilot study were required to meet the same inclusion and exclusion criteria as the main study. They were then issued with a Letter of Information and Informed consent (Appendix F2).

The respondents were asked to review the questionnaire as though they were a participant and then complete a questionnaire review form (Appendix F3), which outlined problems, errors and other possible omissions that they came across and how they recommended that these could be addressed. Any changes recommended by the pilot respondents were reviewed and appropriate amendments would have been made before final IREC approval was attained, but no changes or amendments were suggested therefore the post-expert group questionnaire became the research questionnaire (Appendix G1) where it was used for data collection for this study.

Research questionnaire final tool (Appendix G1)

Based on the outcomes of the expert group and pilot study, the questionnaire consisted of the following sections:

- ***Demographics*** – Questions about age, gender, ethnicity, visit, previous treatment, the student doctor, area of complaint, pain rating scale, treatment being treated for and source of income.
- ***Knowledge of the Clinic***– Questions about whether the patient attended the clinic via another health professional or via word of mouth.
- ***Environmental Questions***– Questions about clinic location, travel, hygiene, appropriate toilet facilities and facilities for disabled patients.
- ***Reception and Waiting Area***– Questions about friendliness of staff, comfort of the waiting area, scheduling of appointments, efficiency and convenience of office hours for patients.
- ***Finance***– Questions about clinic fees, reduction in fees and if cost of treatment is expensive.
- ***The Student Doctor***– Questions about if the doctor introduced themselves, if he/she was appropriately dressed, language barriers and if the doctor was prompt and on time.
- ***The Assessment***– Questions about respect and concern for the patient.
- ***Treatment***– Questions about time spent during the treatment session and respect and concern for the patient during treatment.
- ***Overall Care*** – Questions about care, appropriate treatment; risk factors associated with chiropractic and complete understanding of what the student doctor had to say during the consult.
- ***And Future Care*** – Questions about whether the patient was satisfied with the student doctor in terms of treatment and also if the patient is happy with the clinic he/she attended.

Measurement frequency

Each patient had one opportunity to complete the questionnaire.

Ethical considerations

- The questionnaire (Appendix G1) was distributed to respondents in the stipulated time frame at the relevant clinics by the researcher himself, with the aid of a reliable interpreter. The questionnaires were collected the same day and stored securely at the clinic reception storage area at the DUT Chiropractic Day clinic.
- The data was collected and analysed with the help of a statistician, whereby the results were analysed in the forms of graphs, tables and charts.
- Anonymity was maintained throughout the whole questionnaire survey by use of a decoding system
- Upon completion the sheets were returned to the DUT Chiropractic Day Clinic to ensure safe keeping for 15 years whereafter documentation will be shredded.

Statistical analysis

For statistical analysis the sample was split and allocated into groups per Satellite Clinic – Group A (Narain Jeawon Vedic Centre) and Group B (Marburg Haven Centre for the Aged).

IBM SPSS version 23 was used for data analysis. Descriptive categorical variables were described using frequency tables, while continuous variables were summarised using mean, standard deviation and range, or median and inter-quartile range as appropriate.

This research aimed to determine the satisfaction of both the satellite clinics, to compare and contrast the two clinics, to determine what affects the patients' satisfaction and to provide information on challenges that need to be addressed to ensure future patient satisfaction.

Patient satisfaction was measured using a series of Likert scale statements, some of which were negatively phrased and some of which were positively phrased. The negatively phrased statements had their scoring reversed so that all items were positively phrased after data collection. The negatively phrased items were: Q7 Q8 Q10 Q12 Q14 Q15 Q16 Q21 Q27 Q29 Q31 Q34 Q35 Q36 Q38 Q41 Q42 Q46 Q50 Q51 Q53 Q63 Q67. Satisfaction scores were calculated by summing up all the items from Q3 to Q67. On the original scale of the items, the lower the score the higher the level of satisfaction. This score was treated as a continuous variable and tested for normality of distribution.

The scores were normally distributed, thus parametric statistical tests were used to determine associations. T-tests were used to compare scores between two independent groups, and one-way ANOVA was used when more than two groups were compared. Pearson's correlation analysis was used to assess linear relationships between two continuous variables (Esterhuizen, 2015).

CHAPTER 4 RESULTS AND DISCUSSION

Introduction

Results of the statistical analysis are represented in this chapter. The demographic profile is presented followed by the clinical presentation of the patients at the satellite clinics. Thereafter associations and predictors of patient satisfaction are discussed. This is followed by factors affecting the level of satisfaction at the MHCA and NJVC DUT Satellite Clinics and an investigation to determine if any relationship between the level of satisfaction is influenced by the presenting patients age, gender, ethnicity, income, visit type, student doctor, area of complaint, pain rating, previous treatment outcome.

For continuity of flow and to ease cross referencing between chapters, the researcher decided to combine Chapter 4 (reporting of results) with Chapter 5 (discussion of results) into this chapter. Thus, each question from the questionnaire will be reported and discussed sequentially.

Data sources

Primary data

The primary data for this study was obtained from the questionnaire (Appendix G1) that was developed through an expert group and pilot study, for use in this study. The questionnaire covered knowledge of the clinic, environmental factors, reception and waiting area, finance, student doctor, assessment, treatment and overall care at both clinics.

Secondary data

The secondary data for this study was obtained from journals and books. The secondary data was used to compare the primary data of this study to the known literature.

Response rates

The study aimed to recruit the majority of patients that presented at the two clinics (MHCA and NJVC). The population at NJVC was 123 files where 104 were dormant and 19 were active. The population at MHCA was 237 files of which 159 were dormant and 78 were active. A minimum response rate of 70% (Lapane *et al.,* 2007) of active patients for each clinic (MHCA and NJVC) was set for this study (as defined by Mouton, 2011). This resulted in a minimum sample of 55 MHCA patients and 14 NJVC patients. The minimum response rate was achieved for this study. The calculation of the minimum response rate from the respective clinic populations is described the flow diagram below (Figure 4.1).

Figure 4.1: Consort diagram

The minimum required responses from MHCA = 55 and NJVC = 14. For data processing MHCA= 58 and NJVC = 14. Therefore in cases where patients did not answer a particular question, this may result in the outcomes / totals for tables varying.

Section 1 – Demographics

Age

The following reports the findings of the age demographic of MHCA and NJVC.

Report of findings for age

The average age at MHCA was 61 years with a standard deviation of 11 years. The average age at NJVC was 56 with a standard deviation of 15 years. The results are described in Table 4.1.

Table 4.2: Age

Age

	Venue			
	MHCA		NJVC	
	Mean	Standard Deviation	Mean	Standard Deviation
Age (years)	61	11	56	15

Discussion of findings for age

The findings in this current study show an older population of respondents. When compared to local and international studies conducted in chiropractic private practices (Rubinstein, Leboeuf-Yde Pfeifle, 2008; Mahomed, 2007; Sorensen *et al.,* 2006; Mootz *et al.,* 2005; Coulter and Shekelle, 2005; Haas *et al.,* 2004; Hartvigsen *et al.,* 2002; Nyiendo *et al.,* 1989; Rubinstein *et al.,* 2000), the results differ, with the relative age of patients in the private sector being younger. However, when compared to the study conducted by Hitge (2014) at MHCA, and other studies at community based public clinics (Higgs, 2009; Till and Till, 2000), the age comparisons are similar, with an older population presenting most often.

Patients presenting at both clinics receive appointments based on the sequence of their arrival at the clinic, therefore patients could be required to wait if multiple patients arrive at once. This scheduling system may not be opportune for patients that are working or have other time bound family commitments. Therefore, it is reasonable to expect that pensioners or elderly people would be more represented in the patient profile, as they are more inclined to be present and available at both clinics on days that the satellite clinics are open for treatment, as well as have more availability of time to wait for their assessment and care.

In addition to the schedule parameters, both satellite clinics operate at community centres and are free of charge. As pensioners generally have restricted income sources, this may result in a high number of older people seeking alternative/cheaper means of health care that are congruent with providing pain relief / improved quality of life within their financial means.

Gender

The following findings indicate the results for the gender demographics at MHCA and NJVC.

Report of findings for gender

The findings showed that the majority of respondents were female (MHCA: 76.4%) (NJVC: 71.4%) compared to male (MHCA: 23.6%) (NJVC: 28.6%). The results are described in Table 4.2.

Table 4.3: Gender

Gender					
		Venue			
		MHCA		NJVC	
		Count	Column N %	Count	Column N %
Gender	Female	42	76.4%	10	71.4%
	Male	13	23.6%	4	28.6%

Discussion of findings for gender

Cunningham, Boult and Popenoe (1997) indicated that females show a higher prevalence of injuries and health related problems, and are more likely to identify signs of illness, seek treatment and utilise health services as compared to their male counterparts. This concurs with a study by French *et al.* (2013) determining the demographics of patients utilising Australian chiropractic services which found that more females (67%) presented to the chiropractic clinics than males (33%). Similarly, Mahomed (2007) showed that the typical patient presenting to a chiropractic private practice in South Africa is a 41.8 year old, white (75.66%) female (62.8%). These findings collectively, correlate with Crowther's (2014) study, in which he compared the quality and satisfaction of patients presenting to chiropractic and physician offices. Most of the respondents in his study patients were female (62%).

Ethnicity

The following indicates the findings of the ethnic demographics of the respondents at MHCA and NJVC.

Report of findings for ethnicity

Both clinics showed that the majority of respondents were Indian (MHCA, 68.4%; NJVC, 57.1%), Black (14.0%, MHCA; 35.7%, NJVC), Coloured (14.0%, MHCA; 0%, NJVC) and White (3.5%, MHCA; 7.1%, NJVC). The results are described in Table 4.3.

Table 4.4: Ethnicity

Ethnicity					
		Venue			
		MHCA		NJVC	
		Count	Column N%	Count	Column N%
Ethnicity	Black	8	14.0%	5	35.7%
	Coloured	8	14.0%	0	0.0%
	Indian	39	68.4%	8	57.1%
	White	2	3.5%	1	7.1%

Discussion of findings for ethnicity.

It has been shown that areas of poverty and unemployment are prevalent in African countries (Onywera *et al.,* 2006; Onywera, 2009), which are traditionally populated by Blacks, Indians and Coloureds. As these community service satellite clinics are aimed at addressing the needs of impoverished communities (Korporaal, 2016), it stands to reason that greater numbers of Blacks, Indians and Coloureds were present at the two satellite clinics in this study. These results are however different to the demographic profile of persons in Kwa Zulu Natal, where a large Black African population (84.9%) is followed by Indian/Asian (8.5%), White (5.1%) and Coloured (1.5%) populations (Statistics South Africa, 2015). The difference in the relative proportions of Black and Indian respondents may be as a result of their familiarity with manual therapy professions (viz. Indian patients have a greater cultural and religious link to manual therapies as compared to Black patients [Korporaal and Talmage, 2008]) and thus their understanding of the benefits of receiving such care (Manga, 2000).

However, a larger representation of Black and Indian patients' in this study is not unexpected. Both clinics are located in areas inhabited mainly by the Indian and Black ethnic groups (Reginald 2015; Korporaal, 2016). Notwithstanding the above discussion, it is interesting to note that literature indicates that ethnic minorities are less likely to utilise chiropractic services (Manga, 2000; Korporaal, 2008).

The current literature shows contradictory findings regarding ethnicity and patient satisfaction (Hughes, 1991; Coulter, Hays and Danielson, 1994). Hughes (1991) shows that there are inconclusive findings when considering the association between ethnic groups and patient satisfaction. However, the complete opposite was established by Coulter, Hays and Danielson (1994), whose findings showed that Whites had a higher satisfaction of care in relation to any other ethnic group. However, as this current study has a higher representation of Indians and Blacks it is possible that the satisfaction levels investigated in this study may differ from the findings of Coulter, Hays and Danielson (1994) as the ethnic representations are different.

Initial/ Follow up consultation

The following findings indicate the percentage of respondents' initial or follow up consultations at MHCA and NJVC.

Reports of findings for initial/follow up consultation

Both clinics showed that the majority of visits were follow-up consultations (MHCA, 79.3%; NJVC: 85.7%) compared to initial consultations (MHCA, 20.7%; 14.3%, NJVC). The results are described in Table 4.4.

Table 4.5: Initial/Follow up consultation

Initial/Follow up consultation					
		Venue			
		MHCA		NJVC	
		Count	Column N%	Count	Column N%
Visit	Follow up	46	79.3%	12	85.7%
	New patient	12	20.7%	2	14.3%

Discussion of findings for initial/follow up consultation

Given the older profile of the patients attending the clinics (see Section 4.4.1, the mean age of patients presenting to both clinics was MHCA 61 and NJVC 56), it must be considered that elderly patients suffer more from chronic injuries than acute injuries (Suleman, 2001). Chronic injuries have longer treatment and management needs (Ashburn and Staats, 1999; Laker *et al.,* 2015). Because the treatment plans are longer, follow-ups will be scheduled more often, creating a large percentage of follow-up treatments.

The cost of private practice based chiropractic treatment is often too expensive and can restrict the number of follow up consultations (Mahomed, 2007). This would further impact patients with a lower socioeconomic status and reduce on-going follow-up chiropractic treatments (Myburgh and Mouton, 2007). Both clinics in the study (MHCA and NJVC) do not charge (although they accept donations). This may increase the follow up consultations and possibly increase referral of patients to these clinics and ultimately increase the patients' satisfaction of the clinics and the profession, and create an increased awareness and knowledge of chiropractic (Reginald and Singh, 2015).

Thus, these results seem to suggest that the patients presenting to these satellite clinics are likely to have been to the clinics before. This is a strong indicator that these patients were satisfied with the care received at a previous consultation and have returned for additional care. In addition, the fact that new patients constitute more than 10% of the total consultations indicates that both sites also have a healthy referral rate of patients. As these sites are not advertised in the media, the majority of the referrals would come from a word-of-mouth source. This is important as it indicates that the existing patient base is referring patients to the clinics, indicating that they are not only satisfied with the service, but have taken the next step in referring friends or family to assist them in improving their health care status. As a result, it is expected that the patients who responded to this study are likely to be patients that are satisfied with the care that they receive.

Outcome of previous treatment

The following findings indicate the outcomes of previous treatment respondents have had at MHCA and NJVC.

Reporting of findings for outcome of previous treatment

As the majority of respondents were follow up patients (MHCA, 81.0%; NJVC, 85.7%) Therefore, the majority of respondents answering this question reported that they had for the most part had prior treatment for the condition for which they had sought treatment on the day the questionnaire was administered. Irrespective of the region of complaint the majority of respondents reported that they experienced a good outcome as a result of their clinical interaction with the student doctors (MHCA, 63.8%; 64.3%, NJVC).

Table 4.6: Outcomes of previous treatment

Outcomes of previous treatment					
		Venue			
		MHCA		NJVC	
		Count	Column N%	Count	Column N%
Previous Treatment for the condition on the day the questionnaire was answered	Yes	47	81.0%	12	85.7%
	No	11	19.0%	2	14.3%
Previous Outcome for treatment of any previous condition	Unknown	7	12.0%	0	0.0%
	Good	37	63.8%	9	64.3%
	Worse	2	3.4%	0	0.0%
	No change	12	20.7%	5	35.7%

Discussion of findings for Outcome of previous treatment

These findings show that the majority of the respondents had good experience previously with the chiropractic students when treated for their same condition, and had a positive outcome. Possible reasons for ongoing treatment therefore may be due to the points made in Section 4.4.4.2 as well as the respondents' age (Section 4.4.1 and gender (Section 4.4.2).

Level of qualification of student doctor

The following findings indicate the level of qualification of student doctors at MHCA and NJVC.

Reports of findings for level of qualification of student doctor

Results showed that a larger number of respondents sought treatment by senior (6th year) students at MHCA (82.1%) compared to junior (5th year) students (8.9%). Results also showed that 8.9% had no idea which year the student treating them was in. Results showed that all (100%) the respondents reported being treated by 5th year students at NJVC (100%). The results are shown in Table 4.6.

Table 4.7: Level of qualification of student doctor

Level of qualification of student doctor					
		Venue			
		MHCA		NJVC	
		Count	Column N%	Count	Column N%
Student doctor	5th year	5	8.9%	14	100.0%
	6th year	46	82.1%	0	0.0%
	Don't know	5	8.9%	0	0.0%

Discussions of findings for level of qualification of student doctor

The majority of respondents correctly identified that the seniors (6th years) were treating at MHCA and the juniors (5th years) were treating at NJVC. Only a small number (8.9%) did not know the year of the student doctor. This shows a good level of engagement between the doctor/patient leading to a good doctor patient relationship, as the respondent knew and had asked/been told about the student doctors' year of study. If a good doctor patient relationship exists (Hughes, 1991;

Verhoef, Page and Waddell, 1997), this could favourably affect satisfaction levels at the clinic.

Area of complaint

The following findings indicate the anatomical area of the main complaint of the respondents at MHCA and NJVC.

Report of findings for area of complaint

Shoulder pain presented most commonly (MHCA, 41.4%; NJVC, 50.0%) followed by low back pain (MHCA, 39.7%; NJVC, 42.9%) and neck pain MHCA, 31.0%, NJVC, 21.4%). It is interesting to note that patients at NJVC complained equally of neck pain, mid-back pain and hip pain (21.4%). The lowest percentages were toes representing 0% at both clinics. Fingers represented 1.7% at MHCA and 0% at NJVC. Forearm pain represented 1.7% at MHCA and 0% at NJVC. The results of area of complaints are shown in Table 4.7.

Table 4.8: Area of complaint

Area of complaint

		Venue			
		MHCA		NJVC	
		Count	Column N %	Count	Column N %
Area of complaint	Headache	4	6.9%	0	0.0%
	Neck	18	**31.0%**	3	**21.4%**
	Mid Back	15	**25.9%**	3	**21.4%**
	Low back	23	**39.7%**	6	**42.9%**
	Shoulder	24	**41.4%**	7	**50.0%**
	Arm	6	10.3%	2	14.3%
	Elbow	3	5.2%	0	0.0%
	Forearm	1	1.7%	0	0.0%
	Wrist	2	3.4%	0	0.0%
	Hand	3	5.2%	1	7.1%
	Fingers	1	1.7%	0	0.0%
	Hip	5	8.6%	3	21.4%
	Thigh	7	12.1%	1	7.1%
	Knee	12	20.7%	2	14.3%
	Leg	12	20.7%	0	0.0%
	Ankle	3	5.2%	0	0.0%
	Foot	2	3.4%	1	7.1%
	Toes	0	0.0%	0	0.0%
	Other	0	0.0%	0	0.0%

Note: some patients reported more than one area of complaint

Discussion of findings for area of complaint

This study showed a high number of individuals complaining of shoulder pain (MHCA, 41%; NJVC, 50%). These results differ from the local literature (Hitge, 2014; Higgs, 2009; Mahomed, 2007). Hitge's (2014) study at MHCA showed that lumbar pain was the most common anatomical area of complaint (21.2%), followed by neck pain (11.9%) and knee pain (10.9%). Shoulder pain was the fifth most common anatomical location of complaint and was found in 9.8% of respondents at MHCA. The results of this study also differ slightly from Higgs' (2009) study of the demographics of chiropractic patients at a chiropractic clinic in Kimberly, South Africa, which shows that lumbar pain was the most common anatomical location of complaint (35%), followed by sacro-iliac pain (31.2%) and then shoulder pain (26.8%). Mahomed (2007) conducted a study on the demographic profile of patients within the South African chiropractic private sector and found headache and neck pain (25.6%) to be the most common presenting complaint, followed by low back pain (18.5%) and neck pain (11.9%). Shoulder pain was rated at the ninth most common area of complaint at 3.1%. The differences in these studies may be directly related to the reporting mechanisms, where Higgs (2009), Mahomed (2007) and Hitge (2014) either extracted their information from clinical records available on site or received information from the practitioners running the practices. By contrast, in this study the information was completed by patients themselves. As patients have a limited understanding of anatomical nomenclature, their association of the area of complaint with the correct anatomical site is often not correct (e.g. hip may refer to

the region of the iliac crest and shoulder to the angle of the neck region) (Bloom, Standing and Lloyd, 2008).

Other international studies show that the most common anatomical region of complaint of chiropractic patients presenting to private practices or clinic settings are low back and head or neck areas (Pederson, 1994; Leboeuf-Yde *et al.,* 1997; Rubinstein *et al.,* 2000; Suleman, 2001; Hartvigsen *et al.,* 2002; Mootz *et al.,* 2005; Coulter and Shekelle, 2005). These studies were taken from clinical records or were reported by practitioners, resulting in the same limitation of comparability to this study where the information was received directly from patients (Bloom, Standing and Lloyd, 2008).

In addition to the above, the higher age and the predominance of female respondents completing the questionnaire for this study may also have influenced the outcome of "area of complaint" as this group of patients may not be congruent with the patient cohorts reported in both local South African and international studies. To this end, studies have shown that chronic neck and shoulder pain are more prevalent in older females (Skillgate *et al.,* 2012; Tsang *et al.,* 2008; Cassou *et al.,* 2002). As this current study's demographics show that the majority of respondents at both MHCA and NJVC were older (61±11 yoa at MHCA and 56±15 yoa at NJVC [Table 4.1]) and more likely to be female (76.4% at MHCA and 71.4% at NJVC [Table 4.2]), it is not unexpected that chronic neck pain and shoulder pain are most prevalent in this study.

Neck pain is common in older females due to its chronicity (Tsang *et al.,* 2008) and degenerative changes in the cervical spine with age (Skillgate *et al.,* 2012). Neck and shoulder pain may be related to one another (Travell and Simons, 1999). As neck pain is more common in the older generation (Skillgate *et al.,* 2012; Tsang *et al.,* 2008, Cassou *et al.,* 2002), and the majority of patients presenting to the two clinics in this study were older (Table 4.1), it not unexpected to find a high prevalence of shoulder injuries related to neck injuries.

Furthermore, the majority of patients in this study were Indians (Table 4.3). It has been shown by Omar *et al.* (1994) that South African Indians have a high prevalence of non-insulin-dependent diabetes mellitus. Hitge (2014) also shows that DM is a common co-morbidity at MHCA. Non-insulin-dependent diabetes mellitus has been shown to have a high correlation with shoulder pain and stiffness, periarthritis and adhesive capsulitis (Cole *et al.,* 2009; Thomas *et al.,* 2007; Balci, Balci and Tüzüner 1999; Bridgman, 1972). This correlation between South African Indians, DM and shoulder injuries may be a possible reason for the high percentage (MHCA, 41.4%; NJVC, 50% at) of shoulder complaints.

Knowledge about health care professionals in high-income countries is more extensive than low-income countries (Bloom, Standing and Lloyd, 2008). The two DUT satellite clinics serve the poorer communities, and are located in lower socio-economic areas where the perceived knowledge of chiropractic and the past experiences of chiropractic may be limited. In private practice the majority of patients present with spinal complaints (Mahomed, 2007), indicating their knowledge of the chiropractic profession is as spinal specialists. The patients presenting to the two clinics in this current study may have no or an altered perception of chiropractic due

to their lack of knowledge, and therefore may present with conditions that are not necessarily amenable to chiropractic care.

Notwithstanding the presenting area of complaint, the top three at the satellite clinics (viz. neck pain and back pain) are extremely common areas for symptoms that can be very incapacitating. They are also the main reason why patients seek chiropractic care (CASA 2015). Low back pain is extremely prevalent in our current day and age and studies have revealed that up to 90% of all people will suffer from back pain at least once in their lives (CASA 2015). This may be a reason for the result of low back and neck pain being the second and third most common anatomical regions of complaint (Table 4.7).

Pain rating

The following findings indicate the score that respondents reported on their Numerical Pain Rating Scale (Appendix H). The 0 on this scale indicates the patient is experiencing no pain, and 10 indicates the most severe pain. Respondents were asked to record a number from 0-10 in relation to the amount of pain they were experiencing.

Report of findings for pain rating

Pain rating scales for the patients were a mean of 7/10 at MHCA and a 6/10 at NJVC with both clinics having a standard deviation of 2/10, as seen in Table 4.8.

Table 4.9: Pain Rating

Pain Rating				
	Venue			
	MHCA		NJVC	
	Mean	Standard Deviation	Mean	Standard Deviation
Pain Rating	7/10	2/10	6/10	2/10

Discussion of findings for pain rating

Respondents presenting to both clinics reported conditions that were significantly debilitating in terms of their presenting pain as well as the regions involved. The majority of respondents presented to both clinics with shoulder pain (Table 4.7). Shoulder pain is an extremely debilitating disease and obstructs individuals' everyday lives as activities of daily living can usually not be achieved without the use of the shoulder complex (Côté *et al.,* 2005). When chronicity is present, the nervous system learns to use movements to avoid pain in the muscles and tendons of the injured part (Côté *et al.,* 2005). This may mean certain movements such as dressing oneself or hanging washing on the line cannot be achieved. This leads to shoulder conditions failing to heal as quickly as other conditions in which the anatomical region of complaint can be rested. Mitchell *et al.* (2005) found that older females with recurrent shoulder conditions and associated neck pain have a poorer prognosis. Vecchio *et al.* (1995) found that elderly patients are more susceptible to chronic shoulder injuries, and as a result 21% had persistent increased pain in their shoulder which affected their personal care and 27% had trouble performing household tasks. This is in agreement with the findings of this study, as the majority of respondents were older (Table 4.1) females (Table 4.2) with chronic pain and increased follow ups (Table 4.4). This chronicity and the findings in this study may be a reason for the higher rating of pain illustrated in Table 4.8.

Another possible reason for the higher than usual pain rating scale could be respondents' perception that their pain was increased while they were being assessed. Turk and Melzack (2011) indicate that pain intensity is the most important dimension of pain, and is influenced by the meaning of the pain to the patient and its expected duration. Environment, expectations, attitudes and beliefs all have in impact on pain (Williamson and Hoggart, 2004). This might mean that the patient may actually indeed feel more pain when being assessed as this irritates that region of complaint and thus the perceived pain level increases.

Conditions being treated for

The following results indicate the conditions that the respondents knew they were being treated for. The results are recorded for both clinics.

Report of findings for condition being treated for

As can be seen from Table 4.6, a large majority of respondents indicated they had no other known pre-identified/pre-diagnosed conditions other than the pain in the area of complaint [Table 4.4] they were being treated for.

Table 4.10: Conditions being treated for

Conditions being treated for						
			Venue			
			MHCA		NJVC	
			Count	Column N %	Count	Column N %
Condition / Diagnosis		Unknown	57	98.3%	14	100.0%
		Scleroderma	1	1.7%	0	0.0%

Discussion of findings for condition being treated for

Possible reasons for respondents not knowing what conditions they were being treated for may be that although the student chiropractors may have described the patients' diagnosis and condition to them adequately, the patient may not have known or understood the medical terminology of the condition they were diagnosed with, and therefore answered the question by stating that their diagnosis was unknown (Bloom, Standing and Lloyd, 2008). This supports the outcomes in Sections 4.4.7.1. and 4.4.7.2 where the respondents limited knowledge may have affected their understanding of their diagnosis. This lack of knowledge by the patients indicates that the patients presenting at these satellite clinics come from communities that have limited understanding of their condition(s), the implications for care, as well as the prognosis and related morbidity and mortality should the conditions not be managed appropriately. This conundrum is fundamentally based on the lack of education in these impoverished communities (Myburgh and Mouton, 2007).

Source of income

The following findings indicate the source of income for the patients at MHCA and NJVC.

Reports of findings for source of income

Most of the patients in this study presenting to MHCA reported that they received their income from pension (46.6%), followed by salary (19.0%) and then grant funds (13.8%). Interestingly, 10.3% of respondents reported income from disability grants. Respondents at NJVC reported their main source of income as 'other' (35.7%), followed by pension (28.6%) then grant funds (14.3%). None of the NJVC patients reported disability grant as a source of income as compared to MHCA (10.3%).

Table 4.11: Source of income

Source of income					
		Venue			
		MHCA		NJVC	
		Count	Column N%	Count	Column N%
Income	Business	4	6.9%	1	7.1%
	Disability	6	10.3%	0	0.0%

Extended family	0	0.0%	1	7.1%
Grant	8	13.8%	2	14.3%
Other	1	1.7%	5	35.7%
Pension	27	46.6%	4	28.6%
Salary	11	19.0%	1	7.1%
Unemployed	1	1.7%	0	0.0%

Discussions of findings for source of income

At MHCA the main source of income was pension. This correlates with the demographic findings of this study as the mean average age of patients at MHCA was 61 with a standard deviation of 11 years. The MHCA is a community centre for the aged, and so these results are to be expected. This average age is very close to the pension age in South Africa of 63 years. These clinics are situated in areas of low economic income (Singh 2015; Reginald, 2015) and so grant funding and disability grants are sources of income that are expected. The MHCA is also a partially government funded community centre; therefore, applying for disability grants through this centre may provide an easy link to acquire these grants. This may result in the difference of MHCA having 10.3% of its respondents on a disability grant and 0% of patients at NJVC.

The NJVC had a slightly younger age population of 56 with a standard deviation of 15 years. This mean age has respondents that are of working age, younger than retirement age which can account for the high percentage receiving income from other sources. The fact that 0% of respondents at the NJVC were on a disability grant is interesting to note. The NJVC also offers accommodation, possibly allowing for patients with disabilities to not feel the need to apply for a disability grant.

These findings correlate with Hitge's (2014) study in which of the 72.6% of patients specified they received an income; 26.5% were unemployed and 21.4% were pensioners and 20.5% were employed. The remaining patients were either self-employed, worked part time or were students. This is also similar to the literature in which it was shown that 53.2% in the Higgs (2009) study and 42.4% in the Till and Till (2000) study of the population were unemployed or pensioners. However, 42.9% of patients in the Higgs (2009) study were employed, which differs from the findings of this study.

Possible reasons for the high percentage of pensioners and unemployed respondents at these satellite clinics may be due to the fact that these clinics offer treatment to a population of low employment rates and low socio-economic status.

Summary regarding demographic information

The average demographic profile of respondents presenting to both clinics was an older Indian female pensioner with chronic shoulder conditions, who was more likely to be having follow up care, being treated for a condition the medical term of which she was unfamiliar with. The majority of respondents were pensioners in their early sixties at MHCA and late fifties at NJVC.

Based on the demographic findings it was expected that the respondents would be satisfied with the chiropractic service that was provided at the satellite clinics.

Section 2 – Objective Two

Objective Two was to determine patient satisfaction at MHCA and NJVC Clinics.

For the following analysis the individual questions were not reversed – but rather stated as they were reflected in the questionnaire.

Knowledge of the clinic (Questions 1 and 2)

How the respondents came to know about both clinics was ascertained in Question 1 and Question 2 where the respondents were asked if they were referred to the clinic or if they had heard about the clinic via work of mouth. These results will be discussed together here and shown in Table 4.11.

Report of findings for knowledge of clinic

Question 1: *I was referred to this clinic via another health professional.*

The majority of respondents at MHCA (53.7%) showed that they strongly disagreed that they were referred to the clinic via another health professional, with 38.9% strongly agreeing. Results at NJVC showed a larger percentage of respondents strongly disagreeing (42.9%), with 35.7% strongly agreeing.

Question 2: *I heard about this clinic via word of mouth and friends.*

The majority of respondents at MHCA (70.7%) strongly agreed. Respondents that did not agree with the statement (12.1%) showed that they did not hear about the clinic via word of mouth. The majority of respondents at NJVC strongly agreed (57.1%) with the above statement. Results showed that 21.4 % agreed and 21.4.% strongly disagreed with the above statement.

Table 4.12: Knowledge of the clinic

Knowledge of the clinic												
		Venue										
		MHCA					NJVC					
		SA	A	N	D	SD	SA	A	N	D	SD	
Q1	Count	21	1		1	2	29	5	2	0	1	6
	Row N %	38.9%	1.9%		1.9%	3.7%	53.7%	35.7%	14.3%	0.0%	7.1%	42.9%
Q2	Count	41	7		0	3	7	8	3	0	0	3
	Row N %	70.7%	12.1%		0.0%	5.2%	12.1%	57.1%	21.4%	0.0%	0.0%	21.4%

Discussion of findings for knowledge of the clinics

The two DUT satellite clinics serve the poorer communities, and are located in lower socio-economic areas (Singh 2015; Reginald 2015) resulting in the perceived knowledge of chiropractic being limited (Myburgh and Mouton, 2007; Rattan, 2007) and the past experiences of chiropractic being non-existent (Myburgh and Mouton, 2007; Rattan, 2007). The presence of the clinics at the two sites over 11 and 5 years respectively for MHCA and NJVC seems to have increased awareness, in that the respondents in this study reported that the principle manner of being informed was through word of mouth (family or friends). The results also suggest that the interaction with the medical community is limited (Maharaj, 2010; Meyer, 2009; Heslop, 2008; Rattan 2007) bearing in mind that the NJVC has a medical community clinic on its premises. This suggests that increased focus must be placed on educating the medical community in terms of the possible support that chiropractic can provide for their patients.

Environmental questions (Questions 3 to 12)

These questions explore the clinic settings and the environment that the respondents perceive the clinic to be in. These questions deal with factors such as safety and hygiene, comfort, accessibility and affordability. The results are shown in Table 4.12.

Report of findings for environmental questions

Question 3: *The clinic is located in a safe area.*

The majority of respondents at MHCA (87.9%) strongly agreed, with the rest of the patients agreeing (12.1%), that the clinic is located in a safe area. Respondents at NJVC strongly agreed (42.9%), agreed (28.6%) and a few disagreed (14.3%), with 7.1% strongly disagreeing that the venue was in a safe area.

Question 4: *The waiting area at the clinic is comfortable*.

The majority of respondents at MHCA (86.2%) strongly agreed and 10.3% agreed that the clinic provided a comfortable atmosphere. This concurs with the majority of respondents at NJVC who strongly agreed (85.7%) or simply agreed (14.3%).

Question 5: *The people at the clinic are generally friendly and helpful.*

The majority of respondents at MHCA strongly agreed (89.7%) and 8.6% agreed, as did the majority of respondents at NJVC who strongly agreed (85.7%), 7.1% agreed and 7.1% disagreed with the statement.

Question 6: *Travel to the clinic is easy.*

The majority of respondents at MHCA strongly agreed (79.3%), 6.9% agreed, 6.9% disagreed and 6.9% strongly disagreed with the statement. By contrast, the majority of respondents at NJVC strongly agreed (64.3%), 21.4% agreed, 7.1% disagreed and 7.1% strongly disagreed.

Question 7: *The clinic did not meet my hygiene expectations.*

After accounting for the negative phrasing of this question, it was noted that the majority of respondents at the MHCA agreed that the clinic met their hygiene expectations (53.8%). This outcome was less clear for the NJVC, where 38.5% showed strong disagreement and 30.8% showed strong agreement regarding their hygiene expectations of the clinic.

Question 8: *I did not feel comfortable in the consultation room.*

When assessing the responses, the respondents at MHCA strongly disagreed (37.9%), 20.7% disagreed, 3.4% were neutral, 12.1% agreed and 25.9% strongly agreed with the statement. These responses indicated that the majority of the

respondents felt comfortable in the treatment room. By contrast the responses where more favourable at the NJVC, where the respondents strongly agreed (53.8%), 15.4% agreed, 7.7% agreed and 23.1% strongly agreed.

Question 9: *I think the clinic has everything that is needed to provide good treatment.*

The responses indicated that the majority of respondents at MHCA strongly agreed (78.6%), 7.1% agreed, 7.1% were neutral, 3.6% disagreed and 3.6% strongly disagreed with the statement. This was slightly lower for the NJVC, where the majority of respondents strongly agreed (64.3%), 14.3% agreed, 14.3% disagreed and 7.1% strongly disagreed.

Question 10: *It was expensive for me to get to the clinic.*

As can be seen from the results, the majority of respondents at MHCA strongly agreed (40.4%), 5.3% agreed, 3.5% were neutral, 17.5% disagreed and 33.3% strongly disagreed, indicating that about equal numbers agreed and disagreed. This contrasts with the respondents at NJVC where 7.1% strongly agreed, 7.1% agreed, 14.3% were neutral, 28.6% disagreed and 42.9% strongly disagreed; indicating that the majority found it inexpensive to attend the clinic.

Question 11: *The clinic had appropriate toilet facilities.*

The majority of respondents at MHCA strongly agreed (81.0%), 13.8% agreed, 1.7% were neutral, 1.7% disagreed and 1.7% strongly disagreed with the statement. This agreement was not mirrored as strongly at the NJVC clinic in that the majority of respondents (64.3%) strongly agreed, 21.4% agreed, and 14.3% were neutral.

Question 12: *The clinic did not have facilities for disabled patients.*

After accounting for the negatively phrased question, it was noted that the majority of respondents at MHCA strongly agreed (58.6%), 3.4% agreed, 15.5% were neutral, 12.1% disagreed and 10.3% strongly disagreed that the MHCA was equipped to deal with disabled patients. This trend was also seen at the NJVC where the majority of respondents strongly agreed (46.2%), 15.4% agreed, 23.1% were neutral and 15.4% strongly disagreed.

Table 4.13: Environmental – Questions 3-12

Environmental – Questions 3-12											
		Venue									
		MHCA	NJVC								
		SA	A	N	D	SD	SA	A	N	D	SD
Q3	Count	51	7	0	0	0	6	4	1	2	1
	Row N %	87.9%	12.1%	0.0%	0.0%	0.0%	42.9%	28.6%	7.1%	14.3%	7.1%
Q4	Count	50	6	1	0	1	12	2	0	0	0
	Row N %	86.2%	10.3%	1.7%	0.0%	1.7%	85.7%	14.3%	0.0%	0.0%	0.0%
Q5	Count	52	5	1	0	0	12	1	0	1	0
	Row N %	89.7%	8.6%	1.7%	0.0%	0.0%	85.7%	7.1%	0.0%	7.1%	0.0%
Q6	Count	46	4	0	4	4	9	3	0	1	1
	Row N %	79.3%	6.9%	0.0%	6.9%	6.9%	64.3%	21.4%	0.0%	7.1%	7.1%
Q7	Count	10	2	2	13	31	4	0	1	3	5
	Row N %	17.2%	3.4%	3.4%	22.4%	53.4%	30.8%	0.0%	7.7%	23.1%	38.5%
Q8	Count	15	7	2	12	22	3	1	0	2	7
	Row N %	25.9%	12.1%	3.4%	20.7%	37.9%	23.1%	7.7%	0.0%	15.4%	53.8%
Q9	Count	44	4	4	2	2	9	2	0	2	1
	Row N %	78.6%	7.1%	7.1%	3.6%	3.6%	64.3%	14.3%	0.0%	14.3%	7.1%
Q10	Count	23	3	2	10	19	1	1	2	4	6
	Row N %	40.4%	5.3%	3.5%	17.5%	33.3%	7.1%	7.1%	14.3%	28.6%	42.9%
Q11	Count	47	8	1	1	1	9	3	2	0	0
	Row N %	81.0%	13.8%	1.7%	1.7%	1.7%	64.3%	21.4%	14.3%	0.0%	0.0%
Q12	Count	34	2	9	7	6	6	2	3	0	2
	Row N %	58.6%	3.4%	15.5%	12.1	10.3%	46.2%	15.4%	23.1%	0.0%	15.4%

Discussion of findings for environmental questions

As indicated in Table 7.12, the majority of respondents from both clinics strongly agreed that both clinics had a clinic waiting room that is comfortable, that clinic staff were generally friendly and courteous, that the clinic was easy to travel to and located in a safe area. Regarding access to the clinics, it seemed that a majority of patients strongly agreed that it was expensive to get to MHCA, which contrasted with the NJVC where only 7.1% felt this was the case. The majority of respondents at the MHCA agreed that the clinic met their hygiene expectations. This outcome was less clear for respondents at the NJVC, who showed strong disagreement and regarding their hygiene expectations of the clinic. This trend was also seen with regards to appropriate toilet facilities at both clinics. These outcomes contrast with the results showing strong disagreement with respondents feeling uncomfortable in the consultation rooms in MHCA and NJVC. This means that respondents' comfort was not related to the perceived level of hygiene of the clinic but rather to the manner in which the clinic was structured – viz. at the MHCA, the rooms are structured such that the female and male patients are treated in an open plan area (in separate areas) whereas at the NJVC each patient is treated in a separate cubicle.

Outside of the hygiene and patient arrangements, it would seem that respondents perceived that the clinics had everything that was needed to provide good treatment in both clinics.

Generally, the majority of respondents felt that the clinics did not have facilities for disabled patients. This outcome is interesting as the MHCA has a facility that is for the most part without steps and very even, making it easier for the patients to get around the facility. This contrasts with the NJVC where the clinic is located on the second floor and does not have a lift. It is unclear whether the respondents misinterpreted the question or whether the type of perceived disability at the two clinics was different or that the transport to the MHCA (via a bus service that the MHCA offers) was seen as an obstacle for disabled patients.

In terms of the outcomes for the environmental questions, it was noted that the following factors are enablers of higher satisfaction outcomes as indicated by the literature:

- The waiting room and consultation room are comfortable and hygienic (Jamison 1998; Sawyer and Kassak, 1993; Talmage, 2007),
- Appropriate ablution facilities,
- Perception that the clinic is adequately provisioned (Talmage, 2007),
- Staff re generally friendly and courteous (Baker *et al.,* 2013)
- Clinics are in a safe area (Hughes, 1991); and
- Clinics are easy to travel to (even though the travel may be seen to be expensive).

A generally positive response to the questions indicated a higher likelihood of general satisfaction even though there were was general dissatisfaction regarding no facilities for disabled patients, which would concur with the assertions of Sharby, Martire and Iversen (2015).

Reception and waiting area (Questions 13 to 20)

Questions 13 to 20 dealt with the clinic reception and waiting area and will be discussed together. The results are shown in Table 4.13.

Report of findings for reception and waiting area

Question 13: *I was able to schedule appointments that were convenient for me.*

At MHCA 66% of respondents strongly agreed to being able to schedule appointments that were convenient for themselves, notwithstanding the fact that the patients are scheduled in a sequential manner and may have resulted in waiting times for some patients (refer to Section 4.4.1.2 and 4.5.3.3). This contrasts with 8.8% that agreed, 7.0% were neutral, 10.5% disagreed and 7.0% strongly disagreed. At NJVC only 50.0% strongly agreed, 28.6% agreed, 14.3% were neutral, 7.1% disagreed and 10.3% strongly disagreed that they were able to schedule appointments that were convenient.

Question 14: *It was difficult for me to obtain an appointment in the clinic.*

There were 23.2% of respondents at MHCA that strongly agreed, 5.4% agreed, 14.3% were neutral, 26.8% disagreed with this statement and 30.4% strongly disagreed. Similarly, respondents at NJVC strongly agreed (15.4%), 7.7% agreed, 7.7% were neutral, the biggest group disagreed (46.2%) and 23.1% strongly disagreed.

Question 15: *The clinic staff were not efficient in scheduling appointments.*

After accounting for the negatively phrased statement, it was seen that respondents at MHCA strongly agreed (26.3%), 5.3% agreed, 19.3% were neutral, 21.1% disagreed and the majority (28.1%) strongly disagreed. Respondents at NJVC (30.8%) strongly agreed, 0% agreed, 0% were neutral, the majority (46.2%) disagreed and 23.1% strongly disagreed. This shows that respondents mostly disagreed or strongly disagreed (49.2%) at MHCA and NJVC (69.3%). This means that these respondents did not agree that the clinic staff were not efficient, meaning that they were indeed efficient in scheduling appointments.

Question 16: *The clinic staff did not inform me of potential delays in my appointment.*

This negatively phrased question resulted in the majority of respondents at MHCA strongly agreeing (29.8%) with the statement, 12.3% agreeing, 21.1% being neutral, 15.8% disagreeing and 21.1% strongly disagreeing. At NJVC respondents strongly agreed (30.8%) and a similar number disagreed (30.8%) 7.7% agreeing, 15.4% being neutral and 15.4% strongly disagreeing.

Question 17: *The clinic staff were able to talk to me in my home language.*

The majority of respondents at MHCA strongly agreed (75.4%) with the statement, while 12.3% agreed, 5.3% were neutral, 3.5% disagreed and 3.5% strongly disagreed. This trend was also reflected by the majority of respondents at NJVC who

strongly agreed (61.5%), with 15.4% agreeing, 7.7% being neutral, 7.7% disagreeing and 0% strongly disagreeing.

Question 18: *The clinics' office hours were convenient for me.*

Collectively the majority of respondents at MHCA either strongly agreed (84.5%) or agreed (8.6%), with only 3.4% responding in a neutral manner, 3.4% disagreeing and no one strongly disagreeing. A smaller proportion of respondents at NJVC strongly agreed (57.1%), 28.6% agreed, 7.1% were neutral and 7.1% disagreed. No respondents strongly disagreed.

Question 19: *The clinics' staff were helpful and courteous and polite.*

This positively worded statement resulted in the majority of respondents at MHCA strongly agreeing (91.4%), with only 8.6% agreeing and no one reporting a neutral response or disagreeing in any way. This result was mirrored at the NJVC, with 85.7% strongly agreeing (85.7%) and 14.3% agreeing, with no response in any other field

Question 20: *In an emergency, it is easy for me to see my student doctor.*

The majority of respondents at MHCA strongly agreed (67.3%) with this statement, 3.6% agreed, 5.5% were neutral, 7.3% disagreed and 16.4% strongly disagreed. The majority of respondents at NJVC strongly agreed (57.1%), 21.4% agreed, 14.3% were neutral, 0% disagreed and 7.1% strongly disagreed.

Table 4.14: Reception and waiting area

Reception and waiting area											
		Venue									
		MHCA					NJVC				
		SA	A	N	D	SD	SA	A	N	D	SD
Q13	Count	38	5	4	6	4	7	4	2	1	0
	Row N %	66.7%	8.8%	7.0%	10.5%	7.0%	50.0%	28.6%	14.3%	7.1%	0.0%
Q14	Count	13	3	8	15	17	2	1	1	6	3
	Row N %	23.2%	5.4%	14.3%	26.8%	30.4%	15.4%	7.7%	7.7%	46.2%	23.1%
Q15	Count	15	3	11	12	16	4	0	0	6	3
	Row N %	26.3%	5.3%	19.3%	21.1%	28.1%	30.8%	0.0%	0.0%	46.2%	23.1%
Q16	Count	17	7	12	9	12	4	1	2	4	2
	Row N %	29.8%	12.3%	21.1%	15.8%	21.1%	30.8%	7.7%	15.4%	30.8%	15.4%
Q17	Count	43	7	3	2	2	8	2	1	1	1
	Row N %	75.4%	12.3%	5.3%	3.5%	3.5%	61.5%	15.4%	7.7%	7.7%	7.7%
Q18	Count	49	5	2	2	0	8	4	1	1	0
	Row N %	84.5%	8.6%	3.4%	3.4%	0.0%	57.1%	28.6%	7.1%	7.1%	0.0%
Q19	Count	53	5	0	0	0	12	2	0	0	0
	Row N %	91.4%	8.6%	0.0%	0.0%	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%
Q20	Count	37	2	3	4	9	8	3	2	0	1
	Row N %	67.3%	3.6%	5.5%	7.3%	16.4%	57.1%	21.4%	14.3%	0.0%	7.1%

Summary of report of findings for reception and waiting area

Respondents from both clinics strongly agreed they were able to schedule appointments easily and without difficulty, securing appointments that were convenient for them. However, there was an ambiguity in the results with regards to efficiency in scheduling appointments. Respondents at MHCA both strongly agreed (26.3%) and strongly disagreed (28.1%) that the clinic staff were not efficient in scheduling appointments. Similar results were found at NJVC, where 30.8% of respondents strongly agreed that the clinic staff were inefficient at scheduling appointments, and 46.2% disagreed with the statement on efficiency.

Discussion of findings for reception and waiting area

These results may be due to the fact that each centre operates on a slightly different system. The MHCA has a sequential list (developed as patients arrive and are scheduled), whereas at the NJVC all patients arrive at the start of the clinic and are expected to wait for treatment as the students become available. This split in both agreeing and disagreeing with this statement could indicate that the respondents who arrived early at MHCA received treatment earlier. Therefore, their experience of booking and scheduling their appointments may differ completely to those respondents arriving slightly later (but not by much), however having to wait for a lot longer for their treatment. The patients at NJVC all arrive at the same time, and are seen as soon as chiropractic students become available. Certain patients may be selected to be assessed first more often, and therefore have a different view of the scheduling system compared to the other patients.

When considering if the staff informs patients of potential delays in their appointments, the majority of the respondents at MHCA agreed with this statement. The respondents at NJVC both strongly agreed (30.8%) and strongly disagreed (30.8%). This ambivalent response is not unexpected as the administration staff at each clinic is not primarily responsible for the management of patients, therefore it often falls to the students to inform patients of delays. Occasionally the students are extremely busy with assessments and treatments, and may possibly be unaware of the potential patient delays, or they may overlook informing patients of problems or delays. Both systems require patients to wait for their treatment. If the same patients come early enough each time the satellite clinic operates, they will most likely have a shorter waiting period, and feel that their appointment was not delayed. The same patients that arrive later during the clinic day could result in them having to wait longer periods. The difference in the results between both the clinics may be due to MHCA treating more patients on clinic days as compared to NJVC, and so often the patients at MHCA will have to wait longer for their treatment than the patients presenting at NJVC because of more patient numbers. There is a higher risk of patients at MHCA experiencing delay compared to patients at NJVC.

The respondents from both clinics strongly agreed that they were spoken to in their home language, that the office hours were convenient and that in case of emergency it was easy for the patient to see the student doctor.

Hughes (1991) identified that waiting for appointments (including the time it took to schedule and the waiting room period prior to the scheduled appointment), affected the perception of

the clinic and subsequently the levels of satisfaction. If either scheduling or waiting for an appointment took too long, this could lead to dissatisfaction, with the converse leading to satisfaction. The results of this study therefore support Hughes' (1991) assertions, even in face of the fact that the scheduling system at the two clinics are not as per normal convention (as would be seen in a private practice) and may actually incur longer waiting times prior to the actual appointment. This latter "waiting" period may be negated in that the patients attending these clinics often spend this time socialising with other members of the community present at the clinics, who may or may not be seeking care at that time and therefore their perception of time waited may not be distressing, perhaps even improving the satisfaction scores of these patients. This assertion however requires further investigation.

Finance (Questions 21 to 24)

Questions 21 to 24 dealt with finances and medical aid, and will be discussed in this section together. The findings are shown in Table 4.14.

Report of findings for finance

Question 21: *The cost of treatment is expensive.*

With regard to costs, 10.2% of respondents at MHCA strongly agreed, 0% agreed, 2.0% were neutral, 6.1% disagreed and the majority of patients (81.6%) strongly disagreed that the costs were expensive. This trend was also seen at NJVC, where 7.7% of respondents strongly agreed (7.7%), 0% agreed, 0% were neutral, 23.1% disagreed and the majority (69.2%) strongly disagreed.

Question 22: *My Medical aid/insurance provided full coverage for the cost of my care.*

Respondents at MHCA strongly agreed (8.6%), 2.9% agreed, 11.4% were neutral, 8.6% disagreed and the majority (68.6%) strongly disagreed that their medical aid covered their costs in full. At the NJVC none of the respondents strongly agreed (0%), 0% agreed, 0% were neutral. All respondents either responded with disagreement (20.0%) or strong disagreement (80.0%).

Question 23: *The clinics fees were reasonable.*

In contrast to the previous question, the majority of respondents at MHCA strongly agreed (80.5%), followed by only 2.4% that agreed, 4.9% were neutral, 2.4% disagreed and 9.8% strongly disagreed that the fees charged were reasonable. The response was similar at NJVC, where 76.9% of respondents strongly agreed, 15.4% agreed, 0% were neutral, 7.7% disagreed and 0% strongly disagreed with the statement.

Question 24: *A fee reduction option was offered to me, provided it met certain requirements.*

Fee reductions are not routinely applied at the MHCA and NJVC, however nominal fees and / or a donation basis (Singh, 2015; Reginald, 2015) may be seen to be reduced fees. This is particularly possible in that the majority of respondents at MHCA strongly agreed (41.0%), 0% agreed, 30.8% were neutral, 2.6% disagreed and 25.6% strongly disagreed. At NJVC where the appointments are paid for on a donation basis the majority of patients strongly agreed (66.6%), 11.1% agreed, 22.2% were neutral, 0% disagreed and 0% strongly disagreed.

Table 4.15: Finances

Finances											
Q21	Count	5	0	1	3	40	1	0	0	3	9
	Row N %	10.2%	0.0%	2.0%	6.1%	81.6%	7.7%	0.0%	0.0%	23.1%	69.2%
Q22	Count	3	1	4	3	24	0	0	0	1	4
	Row N %	8.6%	2.9%	11.4%	8.6%	68.6%	0.0%	0.0%	0.0%	20.0%	80.0%
Q23	Count	33	1	2	1	4	10	2	0	1	0
	Row N %	80.5%	2.4%	4.9%	2.4%	9.8%	76.9%	15.4%	0.0%	7.7%	0.0%
Q24	Count	16	0	12	1	10	6	1	2	0	0
	Row N %	41.0%	0.0%	30.8%	2.6%	25.6%	66.7%	11.1%	22.2%	0.0%	0.0%

Discussion of findings for finance

Respondents from both clinics strongly disagreed that the cost of treatment was expensive and that medical aid full cover was provided. Most felt that the clinic fees were reasonable and that a fee reduction was offered. Each of the clinic centres request a donation contribution by the patients (as both operate as non-governmental organisations) for the day that they spend at the centre as they also receive transport to the venue, a meal at the venue, a comfortable waiting area and the ability to interact socially with peers at these venues whilst waiting for their treatment. Therefore, the perceived affordability of the treatment may have been perceived by respondents in terms of the overall package provided by the centre and hence being affordable or being at a reduced rate.

The clinics operate on the basis of the Batho Pele Principles (KwaZulu-Natal Department of Health, 2001). Batho Pele is a national government initiative and means “People First”, and in context relates to putting people first before your own needs. Batho Pele is based on 11 principles intended to provide opportunities for the community to access health care, schooling, social interaction and other community engagement opportunities. One of the 11 principles of the Batho Pele projects is value for money. The initiative strives to make wise use of resources, eliminating waste, fraud and corruption and providing services with little or no cost to the citizens.

This could lead to the results found in this research; that respondents found the treatment costs inexpensive (even though they were for the most part elderly patients receiving their income through a pension [Table 4.2], and therefore have a restricted income and may perceive most things as expensive). This is likely to have created a positive perception of the assessment and treatment they received (Berg and Theron, 1999), potentially matching an expectation that a reduced fee would apply due to the principles of Batho Pele or exceeded an expectation of reduced fee, as there were no costs (Coren and Ward, 1989; Hayes, N., 1994; Eysenck and Keane, 1996; Atkinson *et al.,* 2000) and therefore created a satisfied patient (Bowden and D’Alessando, 2011; Danjuma and Rasli, 2012; Moore and Bowden-Everson, 2012; Lee, 2013).

Student doctor (Questions 25 to 28)

The following questions (25 to 28) relate to the interaction of the chiropractic student doctor and the respondent. The results can be found in Table 4.15.

Report of findings for student doctor

Question 25: *The student doctor introduced themselves to me.*

The majority of respondents at MHCA (87.9%) strongly agreed, 8.6% agreed, 0% were neutral, 1.7% disagreed and 1.7% strongly disagreed that student doctors introduced themselves. This trend was more strongly observed at the NJVC where 78.6% strongly agreed, 14.3% agreed, 0% were neutral, 0% disagreed and 7.1% strongly disagreed, that the student introduced themselves to the respondent.

Question 26: *The student doctor was appropriately dressed to meet my expectations.*

The trends between the two clinics were very similar, with the majority of respondents at MHCA strongly agreeing (87.9%) and only 6.9% agreeing, 1.7% being neutral, 0% disagreeing and 3.4% strongly disagreeing with the statement. This was similar to respondents at NJVC, who strongly agreed (85.7%), agreed (14.3%), were neutral (0%), disagreed (0%) and strongly disagreed 0%.

Question 27: *I was not able to understand my student doctor fully due to language barriers.*

This negatively phrased resulted in 7.1% of respondents at MHCA strongly agreeing, 1.8% agreeing, 3.6% being neutral, 19.6% disagreeing and 67.9% strongly disagreeing. This was similar to the response found at the NJVC where 7.1% strongly agreed, 0% agreed, 0% were neutral, 28.6% disagreed and the majority (64.3%) strongly disagreed with the statement that the doctor was not able to understand them.

Question 28: *The student doctor was prompt and on time.*

With reference to the punctuality of the student doctor, the majority of respondents at MHCA strongly agreed (81.0%), 8.6% agreed, 0% were neutral, 5.2% disagreed and 5.2% strongly disagreed that the student doctor was punctual. This was also seen at the NJVC where 71.4% strongly agreed, 14.3% agreed, 0% were neutral, 14.3% disagreed and 0% strongly disagreed with the statement.

Table 4.16: Student doctor

Student doctor											
		Venue									
		MHCA					NJVC				
		SA	A	N	D	SD	SA	A	N	D	SD
Q25	Count	51	5	0	1	1	11	2	0	0	1
	Row N %	87.9%	8.6%	0.0%	1.7%	1.7%	78.6%	14.3%	0.0%	0.0%	7.1%
Q26	Count	51	4	1	0	2	12	2	0	0	0
	Row N %	87.9%	6.9%	1.7%	0.0%	3.4%	85.7%	14.3%	0.0%	0.0%	0.0%

Q27	Count	4	1	2	11	38	1	0	0	4	9
	Row N %	7.1%	1.8%	3.6%	19.6%	67.9%	7.1%	0.0%	0.0%	28.6%	64.3%
Q28	Count	47	5	0	3	3	10	2	0	2	0
	Row N %	81.0%	8.6%	0.0%	5.2%	5.2%	71.4%	14.3%	0.0%	14.3%	0.0%

Discussion of findings for student doctor

The majority of respondents at both clinics indicated that they strongly agreed that the student doctor arrived promptly, introduced themselves, was appropriately dressed and met the respondents' expectations. In addition, no language barriers were identified by the respondents. This latter assertion can be validated in that this research made allowance for an interpreter to be present for anyone not proficient in English (enabling them to complete the questionnaire). However, no respondent requested an interpreter through the data collection phase of this research.

In their study, Lill and Wilkinson's (2005) found that patients' preferences regarding doctors' appearance and the manner in which they address patients and introduce themselves are important in developing good relationships with patients. This indicates that student doctors introducing themselves appropriately are more likely to develop stronger doctor-patient relationships, thereby increasing patient satisfaction.

Lill and Wilkinson (2005) noted that patients preferred doctors to wear semi-formal conservative attire. The next most preferred styles of dress were a white coat, formal suit, jeans and then casual dress. A smiling doctor was preferred. Most patients also preferred to see the doctors' name badge on their breast pocket. In accordance to the DUT Chiropractic Clinic Manual (2015), it is noted that a white clinic jacket with a name badge must be worn at all times and long navy or black pants or long skirts (past the knees) are to be worn with closed shoes. This may correlate to the findings that patients at both clinics were satisfied with the student doctors' dress code. Lill and Wilkinson (2005) also note that older patients have a more conservative preference – considering that the respondents in the current study could be regarded as an older population, it is not unexpected to observe these results.

In their study Ferguson and Candib (2002) found that patients not proficient in English are less likely to prompt empathic responses from physicians as well as less likely to establish a rapport with them. The physicians are also less likely to receive adequate information and there is limited patient participation in medical decision making. These factors all affect the doctor-patient relationship (Ferguson and Candib, 2002), thereby affecting patient satisfaction. However, in this study no respondents reported the need for an interpreter, and therefore it can be assumed that all patients were able to understand English proficiently enough to communicate with the student doctor and develop a relationship with them, based on mutual understanding.

Wolosin and Leddy (2005) stated that waiting for a physician for any reason decreases satisfaction. The organisers of MHCA provide transport for the student doctors by means of a bus that picks them up at DUT. This means that all the student doctors generally arrive at the clinic at the same time. The student doctors travel in convoy from DUT to NJVC, and are required to depart DUT at a set time. This ensures all student doctors arrive on time, and are prompt and ready for their

patients. This may lead to the results found here in this study, that patients were satisfied with the promptness of the student doctors.

The above outcomes definitely correlate with Hughes (1991) and Talmage's (2007) statements that the doctor-patient relationship is a strong predictor of satisfaction. Due to there being several respondents returning to the clinics (Table 4.2) this could be as a result of increased satisfaction arising from the doctor-patient relationships developed at the two clinics. In addition, due to the student doctors having to go through a very thorough clinical evaluation with their patients because this is part of their training process, it stands to reason that the patients perceive this as increased "attention" which improves satisfaction. This is in line with Lin *et al.* (2001) who attributed improved satisfaction to the perceived comfort level of patients as well as perceived "attention" from the doctor.

The assessment (Question 29 to 34)

The following questions (29 to 34) deal with the assessment the student doctor performed on the respondent and the findings of how the respondent perceived their assessment. The results can be found in Table 4.16.

Report of findings for the assessment

Question 29: *My student doctor did not examine me as well as I expected.*

The response from MHCA respondents to this negatively phrased question was that 22.8% strongly agreed, 0% agreed, 1.8% were neutral, 17.5% disagreed and the majority (57.9%) strongly disagreed with the statement. These responses indicated positive perceptions which were stronger than the perceptions of respondents at NJVC, where 35.7% strongly agreed, 0% agreed, 0% were neutral, 14.3% disagreed and the majority (50.0%) strongly disagreed.

Question 30: *My student doctor examined me with respect and concern.*

In terms of this question, the majority of respondents at MHCA (86.2%) and NJVC (85.7%) strongly agreed with the statement. Sequentially lesser responses were found for agreement (8.6%), neutral responses (1.7%), disagreement (0%) and strong disagreement (3.4%) at the MHCA. These latter outcomes compare with NJVC having 14.3% agreeing, 0% being neutral, 0% disagreeing and 0% strongly disagreeing.

Question 31: *My student doctor made me feel uncomfortable during the assessment.*

Most of the respondents at both clinics did not feel uncomfortable, indicating this by disagreeing with the above statement. The respondents at MHCA indicated that they strongly agreed (13.8%), agreed (1.7%), were neutral (3.4%), disagreed (15.5%) and the majority (65.5%) strongly disagreed; whereas the respondents at NJVC strongly agreed (0%), agreed (0%), were neutral (0%), disagreed (21.4%) and the majority (78.6%) strongly disagreed.

Question 32: *My student doctor was good and exceeded what was expected to help me.*

In line with questions 29, 30 and 31, the majority (82.8%) of respondents at MHCA strongly agreed that the student doctor was good and exceeded their expectations, with only 12.1% agreeing, 3.4% being neutral, 0% disagreeing and 1.7% strongly disagreeing with this statement. These results were not unlike those obtained at the NJVC where 71.4% strongly agreed, 21.4% agreed, 0% were neutral, 0% disagreed and 7.1% strongly disagreed with the statement.

Question 33: *I am happy that the student doctors have the ability to consult with a qualified supervisor.*

The presence of a supervising clinician who was qualified (which seemed to suggest experience), also instilled confidence in the respondents in that the majority (86.2%) of respondents at MHCA strongly agreed, 12.1% agreed, 0% were neutral, 0% disagreed and 1.7% strongly disagreed; that this was something that they were happy about. This outcome was equally reflected in the majority (85.7%) of respondents at NJVC who strongly agreed, 7.1% who agreed, 0% who were neutral, 0% who disagreed and a small percentage (7.1%) that strongly disagreed.

Question 34: *My student doctor rushed my assessment and did not give me the time I deserved.*

This negatively phrased sentence acted as a control for this group of questions, requiring that the respondent respond inversely. This resulted in 42.1% of respondents at MHCA strongly agreeing and 42.1% strongly disagreeing that the student doctor rushed the appointment. The remaining patients agreed (0%), 1.8% were neutral and 14.0% disagreed. Thus, slightly more respondents disagreed with the statement, therefore favouring the outcome of not having been rushed. The outcome is a lot clearer for the respondents at NJVC, where 21.4% strongly agreed, 0% agreed, 0% were neutral, 14.3% disagreed and the majority of respondents (64.3%) strongly disagreed.

Table 4.17: The assessment

The assessment											
		Venue									
		MHCA	NJVC								
		SA	A	N	D	SD	SA	A	N	D	SD
Q29	Count	13	0	1	10	33	5	0	0	2	7
	Row N %	22.8%	0.0%	1.8%	17.5 %	57.9%	35.7%	0.0%	0.0%	14.3%	50.0%
Q30	Count	50	5	1	0	2	12	2	0	0	0
	Row N %	86.2%	8.6%	1.7%	0.0%	3.4%	85.7%	14.3%	0.0%	0.0%	0.0%
Q31	Count	8	1	2	9	38	0	0	0	3	11
	Row N %	13.8%	1.7%	3.4%	15.5 %	65.5%	0.0%	0.0%	0.0%	21.4%	78.6%
Q32	Count	48	7	2	0	1	10	3	0	0	1
	Row N %	82.8%	12.1%	3.4%	0.0%	1.7%	71.4%	21.4%	0.0%	0.0%	7.1%
Q33	Count	50	7	0	0	1	12	1	0	0	1
	Row N %	86.2%	12.1%	0.0%	0.0%	1.7%	85.7%	7.1%	0.0%	0.0%	7.1%
Q34	Count	24	0	1	8	24	3	0	0	2	9
	Row N %	42.1%	0.0%	1.8%	14.0 %	42.1%	21.4%	0.0%	0.0%	14.3%	64.3%

Discussion of findings for assessment

Both clinics' respondents agreed that the student doctor examined the participant well and as expected and also strongly agreed that the student doctor made the participant feel comfortable during the assessment session. The respondents at NJVC strongly disagreed that the student doctor seemed to rush the patient's assessment and/or not give the patient the time he/she deserved. However, at MHCA, the results were split; with 42.1% strongly agreeing and 42.1% strongly disagreeing that the student doctor rushed his/her assessment and/or did not give him/her the time he/she deserved.

There were 57.9% of respondents at MHCA and 50% of respondents at NJVC that strongly disagreed that the student doctor did not examine them as well as expected, meaning that the respondents experienced better than expected examinations. It is interesting to note that only 57.9% and 50% of respondents thought they were examined well, however when combined with the 'disagree' category, the majority of respondents felt that they were well examined. This is supported by the succeeding questions, regarding the student doctor treating the respondent with respect and concern (Question 30), being good and exceeding their expectations (Question 32), where the respondents rated their response to agreeing with these statements between 705 - 80%. This could indicate that the respondents may have had a slightly difficult time in understanding how to answer the negative question with the given responses or that they rated the assessment using different criteria as compared to the actual characteristics of the student doctor. This lack of agreement between responses requires future qualitative research

Respondents from both clinics strongly agreed that the student doctor examined the patient with respect and concern, and that the student doctor was good and exceeded what was expected to help him/her. This may be due to the fact that the patients presenting to these satellite clinics are generally older patients from a low socio-economic background (Reginald, 2015; Singh, 2015). This means that these patients may only have access to public clinics in which doctors are rushing appointments, not conducting full physicals, and prescribing medication without advising on lifestyle factors. As much as access to public hospitals poses limitations, the fact that the student doctors are still students may also have been a natural limitation of this study. The status of 'student' may have lowered initial expectations by patients, decreasing the likelihood of dissatisfaction or increasing the likelihood of satisfaction with the student doctor's skills and techniques. This may be why the results show that the respondents' expectations of the student doctors were exceeded. Respondents from both clinics were also happy that the student doctor had the ability to consult with a qualified supervisor with regards to the assessment and diagnosis/diagnoses. This may be due to the fact that the student doctors are still students, and the fact that the student doctors had the ability to consult with a qualified supervisor before conducting treatment, reassured the respondents that they were being diagnosed and treated for their condition with the aid of a 'qualified second opinion'. This could ultimately lead to a greater level of satisfaction in patients.

The results of Question 34 indicate that 42.1% of respondents at MHCA strongly agreed that their assessments were rushed, and 42.1% strongly disagreed that the

student doctor rushed his/her assessment and/or did not give him/her the time he/she deserved. These findings may correlate with the findings in Question 16, Section 4.5.3.1 in which respondents at MHCA did not feel that they were informed adequately if there was going to be a delay in their appointment time. Students may have felt rushed and under pressure to accommodate the number of patients presenting to MHCA for treatment and the students, considering these patients may have to endure a longer waiting period, could have worked through their current patient's assessment quicker than usual.

Student doctors are required to assess patients thoroughly through an extensive history and physical examination because of the educational process they are engaged in, which may also have led to the respondents' expectation of being assessed being surpassed compared to previous medical encounters (Heszen-Klemens and Lapińska, 1984; Greenfield, Kaplan and Ware, 1985). This results in expectations being met or surpassed and thus satisfaction. These assertions concur with Lin *et al.* (2001), who indicated that the perception created of significant attention being paid to the patient results in increased trust of the student doctor as the student doctor surpasses the level of expectation that the patient has. In addition to this, it should also be noted that the patients at the clinics are made aware of the fact that the student doctors have clinical supervisors to whom they have to report, and from whom they can get guidance. This has been shown by Wetmore *et al.* (2014) to be of significance in patient satisfaction as they perceive that they are receiving additional input regarding their health concerns and thus optimal care.

Treatment (Questions 35 to 41)

Questions 35 to 41 address the treatment received by the respondents from the student doctors, respondents' perception of their treatment and treatment time and the interaction of the student doctor with the respondent. The results are shown in Table 4.17.

Report of findings for treatment

Question 35: *I think that my student doctor should have spent more time with me during my treatment session.*

As this was a negatively phrased question, it can be seen that the majority (46.6%) of respondents at MHCA strongly disagreed, 19.0% disagreed, with only a collective total of 25.8% either agreeing or strongly agreeing with the statement. This trend was also seen in the respondents at NJVC where 14.3% strongly agreed, 7.1% agreed, 0% were neutral, 14.3% disagreed and the majority (64.3%) strongly disagreed.

Question 36: *My student doctor treated me with respect and concern.*

This positively presented statement showed that the majority of respondents at MHCA (82.8%) strongly agreed, 12.1% agreed, 0% were neutral, 0% disagreed and 5.2% strongly disagreed. This trend was even more strongly presented in the results from respondents at NJVC, where 92.9% strongly agreed, 7.1% agreed, with no one being neutral, disagreeing or strongly disagreeing.

Question 37: *My student doctor made me feel uncomfortable during the treatment physically.*

Collectively 13.8% of respondents at MHCA agreed / strongly agreed, while 1.7% were neutral, 27.6% disagreed and the majority (56.9%) strongly disagreed. Respondents at NJVC (7.1%) strongly agreed, 0% agreed, 0% were neutral, 28.6% disagreed and the majority (64.3%) strongly disagreed.

Question 38: *My student doctor was very good with the treatment.*

The majority of patients at MHCA (86.2%) strongly agreed, 10.3% agreed, 0% were neutral, 0% disagreed and 1.7% strongly disagreed with this statement. The majority of patients at NJVC (85.7%) strongly agreed, 14.3% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 39: *I am happy that the student doctors have the ability to consult with a qualified supervisor when treating me.*

The majority of patients at MHCA (86.2%) strongly agreed, 10.3% agreed, 0% were neutral, 1.7% disagreed and 1.7% strongly disagreed with this statement. The majority of patients at NJVC (92.9%) strongly agreed, 7.1% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 40: *My student doctor seemed to rush my treatment and did not give me the time I deserved.*

Respondents at MHCA (29.3%) strongly agreed, 1.7% agreed, 8.6% were neutral, 10.3% disagreed and the majority (50.0%) strongly disagreed with this statement. Respondents at NJVC (14.3%) strongly agreed, 0% agreed, 7.1% were neutral, 21.4% disagreed and the majority (57.1%) strongly disagreed.

Question 41: *My student doctor took too long to run through basic procedures.*

Respondents at MHCA (33.3%) strongly agreed, 1.8% agreed, 7.0% were neutral, 19.3% disagreed and the majority (38.6%) strongly disagreed with this statement. Respondents at NJVC (7.1%) strongly agreed, 0% agreed, 7.1% were neutral, 14.3% disagreed and the majority (71.4%) strongly disagreed.

Table 4.18: Treatment

Treatment											
		Venue									
		MHCA					NJVC				
		SA	A	N	D	SD	SA	A	N	D	SD
Q35	Count	10	5	5	11	27	2	1	0	2	9
	Row N %	17.2%	8.6%	8.6%	19.0%	46.6 %	14.3%	7.1%	0.0%	14.3%	64.3%
Q36	Count	48	7	0	0	3	13	1	0	0	0
	Row N %	82.8%	12.1%	0.0%	0.0%	5.2%	92.9%	7.1%	0.0%	0.0%	0.0%
Q37	Count	7	1	1	16	33	1	0	0	4	9
	Row N %	12.1%	1.7%	1.7%	27.6%	56.9 %	7.1%	0.0%	0.0%	28.6%	64.3%
Q38	Count	50	6	1	0	1	12	2	0	0	0
	Row N %	86.2%	10.3%	1.7%	0.0%	1.7%	85.7%	14.3%	0.0%	0.0%	0.0%
Q39	Count	50	6	0	1	1	13	1	0	0	0
	Row N %	86.2%	10.3%	0.0%	1.7%	1.7%	92.9%	7.1%	0.0%	0.0%	0.0%
Q40	Count	17	1	5	6	29	2	0	1	3	8
	Row N %	29.3%	1.7%	8.6%	10.3%	50.0 %	14.3%	0.0%	7.1%	21.4%	57.1%
Q41	Count	19	1	4	11	22	1	0	1	2	10
	Row N %	33.3%	1.8%	7.0%	19.3%	38.6 %	7.1%	0.0%	7.1%	14.3%	71.4%

Discussion of findings for treatment

The results were similar from both clinics. Respondents strongly disagreed that the student doctor should have spent more time with them during the treatment session. The respondents also strongly disagreed with the statement that the student doctor made the patient feel physically uncomfortable during the treatment. Respondents from both clinics strongly agreed that the student treated him/her with respect and concern and was very good with the treatment. The respondents strongly disagreed that the student doctor seemed to rush their treatment and/or not giving the them the time he/she deserved. Respondents from both clinics were also happy that the student doctor had the ability to consult with a qualified supervisor with regards to the treatment options available for the respondent, and disagreed that the student doctor took too long to run through basic treatment procedures.

The treatment section is very similar to the assessment section as it incorporates similar questions, but allows for establishing satisfaction or dissatisfaction with treatment only. It is interesting to note that at MHCA, when considering Question 34, 42.1% of the respondents strongly agreed with the statement that the student doctor rushed his/her assessment and did not give him/her the time he/she deserved, and 42.1% strongly disagreed. However, when considering Question 40 at MHCA. 50% of the respondents strongly disagreed with the statement that the student doctor rushed his/her treatment and did not give him/her the time he/she deserved, and only 29.3% agreed. This indicates that the respondents at MHCA may have been more satisfied with the treatment they received, but less satisfied with the assessment the received from the students. Possible reasons for dissatisfaction with the student doctors' assessment of the patient could be due to the fact that 42.1% of the respondents at MHCA thought that the student doctor rushed their assessment and did not give them the time they thought they deserved. Only 31% of respondents (29.3% strongly agreeing and 1.7% agreeing) at MHCA and 14.3% of respondents at NJVC thought their treatments were rushed. This may have led to dissatisfaction with the assessment of the respondent as explained in Section 4.5.7.2, but satisfaction with the treatment provided by the student doctor.

The literature concurs with the findings that an increase in assessment and consultation time results in increased satisfaction (Cape, 2002; Hughes, 1991). Studies also show that a decreased consultation time results in patient dissatisfaction (Cape, 2002). Patients prefer it when doctors listen to them, ask a lot of questions and explain things in a simple way (Bertakis, Roter and Putnam, 1991; Hughes, 1991). The results of this study show that respondents were generally happy with their consultation time, so they were more likely to be satisfied.

Overall care (Questions 42 to 64)

The following section deals with Questions 42 to 64 and the perception of overall care the respondent experienced. The results are shown in Table 4.18.

Report of findings for overall care

Question 42: *I am satisfied with the care I have received.*

The majority of respondents at MHCA strongly agreed (79.3%), 17.2% agreed, 1.7% were neutral, 0% disagreed and 1.7% strongly disagreed. The majority of respondents at NJVC strongly agreed (92.9%), 7.1% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 43: *All of my questions were answered by my student doctor.*

The majority of respondents at MHCA strongly agreed (79.3%), 17.2% agreed, 1.7% were neutral, 1.7% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 14.3% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 44: *My student doctor did his/her best to keep me from worrying about my complaint/condition.*

The majority of respondents at MHCA strongly agreed (74.1%), 20.7% agreed, 1.7% were neutral, 3.4% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (92.9%), 7.1% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 45: *My student doctor gave me suggestions on what I could do to help me with my condition.*

The majority of respondents at MHCA strongly agreed (79.3%), 17.2% agreed, 3.4% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 14.3% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 46: *My student doctor was interested in all my health problems.*

The majority of respondents at MHCA strongly agreed (77.6%), 17.2% agreed, 5.2% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 14.3% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 47: *I would recommend this student doctor to a friend or relative.*

The majority of respondents at MHCA strongly agreed (84.5%), 15.5% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (92.9%), 7.1% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 48: *My student doctor gave me advice on how to prevent future complaints from occurring.*

The majority of respondents at MHCA strongly agreed (77.6%), 20.7% agreed, 1.7% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 14.3% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 49: *The care I received could have been better.*

Only a small percentage (5.3%) of respondents at MHCA strongly agreed 1.8% agreed, 5.3% were neutral, 26.3% disagreed and the majority of patients (61.4%) strongly disagreed. Respondents at NJVC strongly agreed (7.1%), 0% agreed, 14.3% were neutral, 14.3% disagreed and the majority (64.3%) strongly disagreed.

Question 50*: Improvements in my conditions took longer than I expected.*

This is a negative question so the desired answer would be negative – disagreeing/strongly disagreeing. The desired answers are switched.

Respondents at MHCA strongly agreed (17.5%), 7.0% agreed, 22.8% were neutral, 22.8% disagreed and the majority (29.8%) strongly disagreed. Respondents at NJVC strongly agreed (14.3%), 0% agreed, 14.3% were neutral, 28.6% disagreed and the majority (42.9%) strongly disagreed.

Question 51: *My student doctor made me feel important at all times.*

The majority of respondents at MHCA strongly agreed (86.2%), 12.1% agreed, 1.7% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (78.6%), 14.3% agreed, 7.1% were neutral, 0% disagreed and 0% strongly disagreed.

Question 52*: I feel I had to see my student doctor more than I should have.*

This is a negative question and so the desired answer would be negative – disagreeing/strongly disagreeing. The desired answers are switched.

The majority of respondents at MHCA strongly agreed (46.6%), 10.3% agreed, 17.2% were neutral, 19.0% disagreed and 6.9% strongly disagreed. Respondents at NJVC strongly agreed (28.6%), 14.3% agreed, the majority (42.9%) were neutral, 7.1% disagreed and 7.1% strongly disagreed.

Question 53: *I would recommend chiropractic treatment to others.*

The majority of respondents at MHCA strongly agreed (82.8%), 17.2% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 7.1% agreed, 7.1% were neutral, 0% disagreed and 0% strongly disagreed.

Question 54: *My student doctor provided information regarding my health concerns without me asking.*

The majority of respondents at MHCA strongly agreed (74.1%), 13.8% agreed, 10.3% were neutral, 0% disagreed and 1.7% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 14.3% agreed, 7.1% were neutral, 0% disagreed and 0% strongly disagreed.

Question 55: *My student doctor explained to me about the different treatment options.*

The majority of respondents at MHCA strongly agreed (70.7%), 20.7% agreed, 8.6% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 14.3% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 56*: I understand the term 'Chiropractic' and the treatment it includes.*

The majority of respondents at MHCA strongly agreed (79.3%), 15.5% agreed, 3.4% were neutral, 1.7% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 14.3% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 57: *The treatment I expected was the same as the treatment I received.*

The majority of respondents at MHCA strongly agreed (69.0%), 17.2% agreed, 8.6% were neutral, 5.2% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 7.1% agreed, 7.1% were neutral, 0% disagreed and 0% strongly disagreed.

Question 58: *My student doctor took the time to explain to me about the benefits of chiropractic treatment.*

The majority of respondents at MHCA strongly agreed (77.2%), 17.5% agreed, 5.3% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 7.1% agreed, 7.1% were neutral, 0% disagreed and 0% strongly disagreed.

Question 59: *My student doctor explained to me about the risk factors of Chiropractic treatment.*

The majority of respondents at MHCA strongly agreed (68.4%), 10.5% agreed, 8.8% were neutral, 10.5% disagreed and 1.8% strongly disagreed. The majority of respondents at NJVC strongly agreed (84.6%), 7.7% agreed, 7.7% were neutral, 0% disagreed and 0% strongly disagreed.

Question 60: *My student doctor ensured I made an informed decision when agreeing to my Chiropractic treatment*.

The majority of respondents at MHCA (79.3%) strongly agreed, 13.8% agreed, 5.2% were neutral, 0% disagreed and 1.7% strongly disagreed. The majority of respondents at NJVC (85.7%) strongly agreed, 7.1% agreed, 7.1% were neutral, 0% disagreed and 0% strongly disagreed.

Question 61: *Improvements in my condition took the amount of time that I expected.*

The majority of respondents at MHCA strongly agreed (66.1%), 3.6% agreed, 21.4% were neutral, 7.1% disagreed and 1.8% strongly disagreed. The majority of respondents at NJVC strongly agreed (64.3%), 0% agreed, 21.4% were neutral, 7.1% disagreed and 7.1% strongly disagreed.

Question 62: *I feel like my student doctor stopped treatment sessions before I was completely healed.*

This is a negative question and so the desired answer would be negative – disagreeing/strongly disagreeing. The desired answers are switched.

The majority of respondents at MHCA strongly agreed (40.0%), 5.5% agreed, 14.5% were neutral, 14.5% disagreed and 25.5% strongly disagreed. Respondents at NJVC strongly agreed (23.1%), 0% agreed, an equal amount of 38.5% were neutral and 38.5% strongly disagreed, with 0% disagreeing.

Question 63: *I felt that my student doctor did everything possible to try and help me.*

The majority of respondents at MHCA (84.2%) strongly agreed, 12.3% agreed, 1.8% were neutral, 1.8% disagreed and 0% strongly disagreed. The majority of respondents at NJVC (92.9%) strongly agreed, 7.1% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Question 64: *My student doctor ensured that I understood everything being discussed.*

The majority of respondents at MHCA strongly agreed (82.8%), 15.5% agreed, 1.7% were neutral, 0% disagreed and 0% strongly disagreed. The majority of respondents at NJVC strongly agreed (85.7%), 14.3% agreed, 0% were neutral, 0% disagreed and 0% strongly disagreed.

Table 4.19: Overall care

Overall care										
		Venue								
		MHCA				NJVC				
		SA	N	D	SD	SA	A	N	D	SD
Q42	Count	46	1	0	1	13	1	0	0	0
	Row N %	79.3%	1.7%	0.0%	1.7%	92.9%	7.1%	0.0%	0.0%	0.0%
Q43	Count	46	1	1	0	12	2	0	0	0
	Row N %	79.3%	1.7%	1.7%	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%
Q44	Count	43	1	2	0	13	1	0	0	0
	Row N %	74.1%	1.7%	3.4%	0.0%	92.9%	7.1%	0.0%	0.0%	0.0%
Q45	Count	46	2	0	0	12	2	0	0	0
	Row N %	79.3%	3.4%	0.0%	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%
Q46	Count	45	3	0	0	12	2	0	0	0
	Row N %	77.6%	5.2%	0.0%	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%
Q47	Count	49	0	0	0	13	1	0	0	0
	Row N %	84.5%	0.0%	0.0%	0.0%	92.9%	7.1%	0.0%	0.0%	0.0%
Q48	Count	45	1	0	0	12	2	0	0	0
	Row N %	77.6%	1.7%	0.0%	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%
Q49	Count	3	3	15	35	1	0	2	2	9
	Row N %	5.3%	5.3%	26.3%	61.4%	7.1%	0.0%	14.3%	14.3%	64.3%

Q50	Count	10	13	13	17	2	0	2	4	6
	Row N %	17.5%	22.8%	22.8%	29.8%	14.3%	0.0%	14.3%	28.6%	42.9%
Q51	Count	50	1	0	0	11	2	1	0	0
	Row N %	86.2%	1.7%	0.0%	0.0%	78.6%	14.3%	7.1%	0.0%	0.0%
Q52	Count	27	10	11	4	4	2	6	1	1
	Row N %	46.6%	17.2%	19.0%	6.9%	28.6%	14.3%	42.9%	7.1%	7.1%

Table 4.18 Overall care continued

		Venue								
		MHCA				NJVC				
		SA	N	D	SD	SA	A	N	D	SD
Q53	Count	48	0	0	0	12	1	1	0	0
	Row N %	82.8%	0.0%	0.0%	0.0%	85.7%	7.1%	7.1%	0.0%	0.0%
Q54	Count	43	6	0	1	12	2	0	0	0
	Row N %	74.1%	10.3%	0.0%	1.7%	85.7%	14.3%	0.0%	0.0%	0.0%
Q55	Count	41	5	0	0	12	2	0	0	0
	Row N %	70.7%	8.6%	0.0%	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%
Q56	Count	46	2	1	0	12	2	0	0	0
	Row N %	79.3%	3.4%	1.7%	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%
Q57	Count	40	5	3	0	12	1	1	0	0
	Row N %	69.0%	8.6%	5.2%	0.0%	85.7%	7.1%	7.1%	0.0%	0.0%
Q58	Count	44	3	0	0	12	1	1	0	0
	Row N %	77.2%	5.3%	0.0%	0.0%	85.7%	7.1%	7.1%	0.0%	0.0%
Q59	Count	39	5	6	1	11	1	1	0	0
	Row N %	68.4%	8.8%	10.5%	1.8%	84.6%	7.7%	7.7%	0.0%	0.0%
Q60	Count	46	3	0	1	12	1	1	0	0
	Row N %	79.3%	5.2%	0.0%	1.7%	85.7%	7.1%	7.1%	0.0%	0.0%
Q61	Count	37	12	4	1	9	0	3	1	1
	Row N %	66.1%	21.4%	7.1%	1.8%	64.3%	0.0%	21.4%	7.1%	7.1%
Q62	Count	22	8	8	14	3	0	5	0	5
	Row N %	40.0%	14.5%	14.5%	25.5%	23.1%	0.0%	38.5%	0.0%	38.5%
Q63	Count	48	1	1	0	13	1	0	0	0
	Row N %	84.2%	1.8%	1.8%	0.0%	92.9%	7.1%	0.0%	0.0%	0.0%

Q64	Count	48	1	0	0	12	2	0	0	0
	Row N %	82.8%	1.7%	0.0%	0.0%	85.7%	14.3%	0.0%	0.0%	0.0%

Discussion of finding for overall care

A large number of respondents from both clinics strongly agreed with Questions 42 to 48; 51; 53 to 61; 63 and 64.

In terms of the respondent's condition the respondents were satisfied with the care they received (Question 42). This overall satisfaction of care ultimately indicates that the respondents experienced an overall satisfaction regarding the assessment and treatment that they received.

Questions 43 and 44 indicate that all the respondents' questions were answered by the student doctor and that the student doctor did their best to keep the respondent from worrying about their condition. This is interesting as it contradicts an earlier response illustrated in Table 4.9 where one can see that the majority of respondents were not aware of the condition with which they were diagnosed. The student doctor gave the respondents suggestions on what they could do to help with their conditions. This is interesting as it assumes that the respondent has an understanding of their condition in order to ensure that the recommendations for self-care are understood and appropriately applied. This therefore would concur with the previous point in that a contradiction seems to exist with answers provided in Table 4.9 and these satisfaction questions. This discrepancy may arise from the fact that the respondent did not actually know the medical term for their condition and therefore felt that they "did not know" and responded accordingly to the question as indicated in Table 4.9. This would then explain that the respondent had a lay understanding of their condition and knew enough to be able to allow for the student doctor to communicate recommendations for self-care, but they did not feel confident in themselves being able to articulate their condition in medical terms (hence the "unknown" responses in Table 4.9). It is recommended that future studies clarify this point more accurately with respondents in order to validate the assertion that the respondents did not respond because of their lack of familiarity with medical terms.

In terms of the student doctor-patient relationship the majority of respondents answered the questions positively. The results indicated that the student doctors gave the respondents suggestions on what the patient could do to help with his/her condition (Question 45). The student doctor was interested in respondents' health problems (Question 46). The student doctor did give the respondent advice on how to prevent future complaints from occurring (Question 48). The student doctor did make the patient feel important at all times (Question 51). The student doctor did provide information regarding the patient's health concerns without him/her asking (Question 54). The student doctor explained to the respondent the different treatment options (Question 55). The student doctor took the time to explain to the respondent the benefits of chiropractic treatment (Question 58) and the risk factors (Question 59). The student doctor ensured that the respondent made an informed decision when agreeing to the chiropractic treatment (Question 60). The student doctor did everything possible to try and help the respondent (Question 63). The student doctor ensured that the respondents understood everything being discussed (Question 64). From the collective responses received from the respondents, it would seem that the interpersonal communication between the student doctor and the respondents was effective in achieving outcomes and provided a point of comfort and satisfaction for the respondents. There are many studies indicating a higher satisfaction level with a

positive doctor patient relationship (Hughes, 1991; Verhoef, Page and Waddell, 1997).

The results of the impact of the total experience indicate that the respondents would recommend the student doctor to friends or relatives (Question 47), and that respondents would recommend chiropractic treatment to others (Question 53). Respondents disagreed that the care they received could have been better, indicating that their care was good (Question 49). Improvements in the respondent's condition took the amount of time he/she expected (Question 50 and 61). The respondents understood the term 'chiropractic' and the treatment it includes (Question 56). Question 57 indicates that the treatment the respondents expected was the same as the treatment he/she received. From the collective responses received from the respondents in terms of the total experience with the student doctor, it would seem that the service provided by the student doctor was effective, efficient and of sufficient quality.

As described above, the majority of respondents from both clinics strongly disagreed with Question 49, which stated that the care the respondents received could have been better. By contrast ambivalent results were obtained for Questions 52 and 62, which stated that the respondent felt that she/he had to see their student doctor more than he/she should have, and that student doctors stopped treatment sessions before the patient was completely healed, respectively. When considering the response to both these questions (52 and 62) it is consistent with the discussion (Section 4.4.4 and 4.4.7) on the clinical picture presented by the respondents, in that the majority were older, with chronic conditions that presented with an above average pain rating. It is thus reasonable to expect that such conditions would not respond quickly to care. This is therefore a point that needs to be raised in the education of student doctors that they need to educate their patients more specifically on the extent of their condition and the likelihood that they are not going to respond in the same way as they did when they were younger. This mismatch in the perception that the patient would improve quickly versus the actual rate of change are important to address in patient education, which in turn could lead to altered satisfaction levels.

When considering the respondents' perception that they had to see the student doctor more than expected (Question 52), the discussion above is informative; the patient may have had an unrealistic expectation of a quicker response to treatment interventions therefore expecting fewer treatments. This further underlines the need for student doctors to educate their patients regarding the impact of the stage of their condition and the expected rate of recovery / healing based on the provided treatment.

Many respondents felt that their student doctor stopped treatment sessions before they were completely healed (Question 62). This statement seems to be in contrast to the preceding two statements. This again would seem to suggest that respondents were confused by their actual response to care, their perceived expected response to care and the lack of a bridge in terms of patient education. The chronicity of the respondents' conditions (Section 4.4.4) indicates that the respondents may have felt that the student chiropractor saw them for longer than they expected, but that due to the chronic nature of the condition, or possibly due to underlying pathologies and

diabetes (Hitge, 2014), the respondents felt that their treatments stopped before they were completely healed. The fact that respondents felt that treatments stopped before the healing of their condition, indicates that there may be some levels of dissatisfaction.

Impact factor of student doctor on future care (Questions 65 to 67)

The following questions (65 to 67) address the impact of the student doctor on future chiropractic care. The results are shown in Table 4.19.

Report of findings for impact factor of student doctor on future care

Question 65: *I prefer a female student doctor treating me.*

The majority of respondents at MHCA (58.6%) strongly agreed, 8.6% agreed, 19.0% were neutral, 5.2% disagreed and 8.6% strongly disagreed. The majority of respondents at NJVC (78.6%) strongly agreed, 0% agreed, 7.1% were neutral, 14.3% disagreed and 0% strongly disagreed.

Question 66: *I prefer a male student doctor treating me.*

The majority of respondents at MHCA (40.4%) strongly agreed, 12.3% agreed, 22.8% were neutral, 8.8% disagreed and 15.8% strongly disagreed. The majority of respondents at NJVC (57.1%) strongly agreed, 0% agreed, 14.3% were neutral, 21.4% disagreed and 7.1% strongly disagreed.

Question 67: *I am not happy with this clinic.*

Respondents at MHCA (7.0%) strongly agreed, 0% agreed, 1.8% were neutral, 21.1% disagreed and the majority (70.2%) strongly disagreed. Respondents at NJVC (0%) strongly agreed, 0% agreed, 0% were neutral, 7.1% disagreed and the majority (92.9%) strongly disagreed.

Table 4.20: Impact factor of student doctor on future care

Impact factor of student doctor on future care

		Venue									
		MHCA					NJVC				
		SA	A	N	D	SD	SA	A	N	D	SD
Q65	Count	34	5	11	3	5	11	0	1	2	0
	Row N	58.6%	8.6%	19.0%	5.2%	8.6%	78.6%	0.0%	7.1%	14.3%	0.0%
Q66	Count	23	7	13	5	9	8	0	2	3	1
	Row N	40.4%	12.3%	22.8%	8.8%	15.8%	57.1%	0.0%	14.3%	21.4%	7.1%
Q67	Count	4	0	1	12	40	0	0	0	1	13
	Row N	7.0%	0.0%	1.8%	21.1%	70.2%	0.0%	0.0%	0.0%	7.1%	92.9%

Discussion of findings for student doctor on future care

It seems that a larger proportion of respondents felt that they preferred female student doctors, with 58.6% of respondents preferring female student doctors and 40.4% preferring male student doctors at MHCA, and 78.6% of patients preferring

female student doctors and 57.1% preferring male doctors at NJVC. Possible influencers in this outcome may be related to previous experience of the respondent with health care, the patient's religious convictions, culturally accepted practices within their community, the patient's personal preferences or a combination of these factors (Bloomer and Al-Mutair, 2013; Mast, N., 2007; Mast, Hall and Roter, 2007). The results also show that there were more female respondents presenting to both these clinics than males (Table 4.2). This may lead to the outcome of female student chiropractors being preferred as usually genders prefer their own sex as physicians (Fennema, Meyer and Owen, 1990). Further reasons for the preference of a female student chiropractor may be because of religion. The majority of participants in this study were Indian (Table 4.3). Some Indian religious affiliations do not allow unmarried women to expose their body in front of males. This may be one of the reasons why females were preferred as the student chiropractor, as the patients may be asked to expose themselves for assessment and treatment. A future study should further explore this variable as an important element of service delivery to these sites and to meet patients' expectations thus improving overall perceived care.

Objectives Three and Four

The third objective was to determine the factors affecting the level of satisfaction at the DUT Satellite Clinics (MHCA and NJVC), and the fourth objective was to correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

Reports of findings for satisfaction scores

In terms of the satisfaction scores, it must be noted that the scores for the negatively phrased items were reversed in order for the analysis to be completed for objective three. In addition, the data was checked for skewness in order to determine the type of tests that could be utilised to analyse the data with respect to objective three.

Table 4.21: Statistics

Statistics		
Total score		
N	Valid	72
	Missing	0
Mean		140.7639
Median		138.5000
Std. Deviation		16.08822
Skewness		.156
Std. Error of Skewness		.283
Minimum		99.00
Maximum		182.00
Percentiles	25	130.0000
	50	138.5000
	75	150.0000

In Table 4.20 it can be seen that the total score for satisfaction was relatively normally distributed, thus parametric statistical tests were used in order to analyse the data.

Reports of findings of satisfaction compared between the clinics

Table 4.22: Group statistics

Group statistics					
	Venue	N	Mean	Std. Deviation	Std. Error Mean
Total score	MHCA	58	141.6207	15.64500	2.05429
	NJVC	14	137.2143	17.98794	4.80748

In Table 4.21 the scores from the questionnaire were added up, the lowest score being 1 and the highest score being 5 (per question), which would mean that the higher the aggregate score, the lower the level of satisfaction and the lower the aggregate score the higher the level of satisfaction. With the total number of satisfaction questions being 67, the total aggregate score for most dissatisfaction would have been 335 and the total aggregate score for most satisfaction would have been 67 (as all the negative questions were reversed for this analysis). This means that an average satisfaction score would have been about 167 on this scale. Results show that the MHCA (141.6207) and NJVC (137.2143) respondents reported relatively low scores (Table 4.21) which suggests that their overall satisfaction was above average.

Table 4.23: Independent Samples Test

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total score	.191	.663	.919	70	0.361	4.40	4.79	-5.15	13.97

When looking at the overall satisfaction levels of the respondents, it was noted that there was no difference in mean satisfaction score between the two clinics (p = 0.361). This concurs with Table 4.21, where it can be seen that the total score for satisfaction showed little difference in mean satisfaction scores between the two clinics.

Reports of findings for age versus satisfaction

Table 4.24: Age versus satisfaction

Age versus satisfaction		
		Age
Total satisfaction score	Pearson Correlation	.034
	Sig. (2-tailed)	.774
	N	72

In Table 4.23 it can be seen that there was no significant association found between age and overall satisfaction (irrespective of clinic).

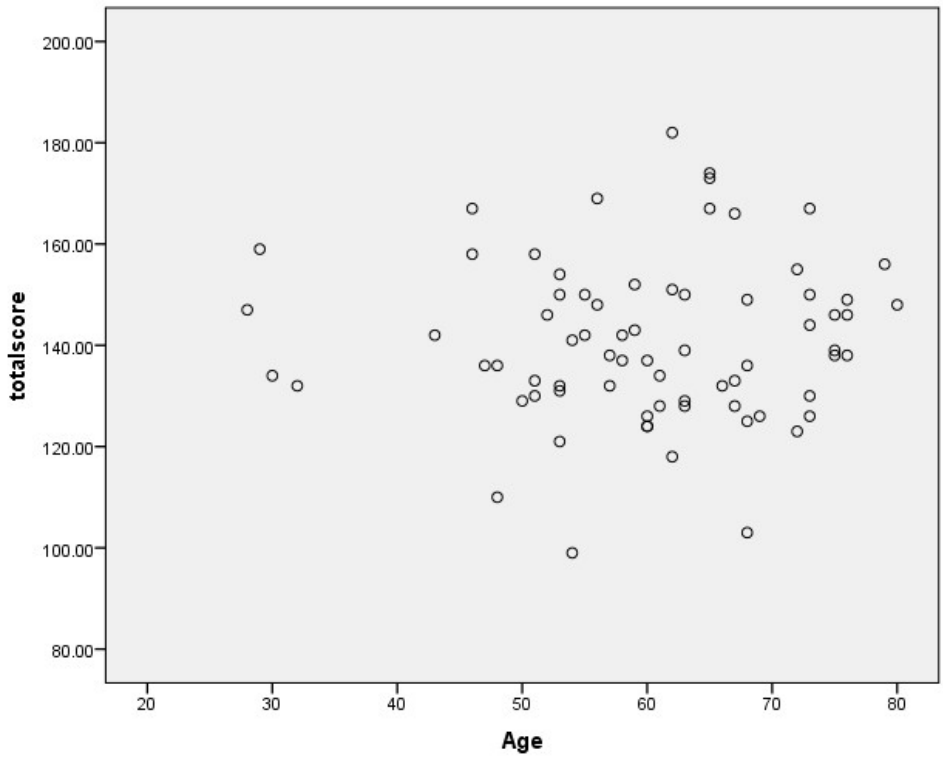

Figure 4.2: Total score versus age

This lack of significant association between age and satisfaction can also be seen on the scatter plot in Figure 4.2 (r = 0.034). Although in this study there was no comparison with younger patients, the findings are broadly consistent with the literature which states that older patients are generally more satisfied with the care they receive than younger patients (Pascoe, 1983; Coulter, Hays and Danielson, 1994; Grogan *et al.*, 2000). This was an older cohort of patients, and they were satisfied with their care, although age *per se* was not an influential factor, according to the statistical analysis in Table 4.23 and Figure 4.2.

Report of findings for gender versus satisfaction

Table 4.25: Group statistics

Group statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Total satisfaction score	Female	52	139.4231	16.89802	2.34333

	Male	17	145.7059	13.56358	3.28965

Table 4.26: Independent samples test

Independent samples test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total satisfaction score	1.492	.226	-1.391	67	.169	-6.28281	4.51603	-15.29685	2.73124

There was no gender difference in terms of the total satisfaction score (p = 0.169) although females tended to be more satisfied than males. This is seen in Tables 4.24 and 4.25. These results concur with and the literature which suggests that women are more satisfied than men with the outcomes of health care (Sawyer and Kassak 1993; Hughes 1991 citing Lieberman, Sledge and Matthews, 1989). However, Coulter *et al.* (1994) stated that men have higher satisfaction when evaluating the service received.

There is a possibility in this study that the over representation of females would have skewed the outcomes in favour of females being more satisfied. In addition, the small sample size (Dyer, 1997), the Hawthorne effect (Mouton, 2011) and the fear of offending the student doctors or the service (Jamison, 1998) provided, may have influenced the respondents to provide positive feedback.

Report of findings for ethnicity versus satisfaction

Table 4.27: Report

Report			
Total satisfaction score			
Ethnicity	Mean	N	Std. Deviation
Black	139.6154	13	15.70848
Coloured	137.8750	8	9.87692
Indian	142.5319	47	16.98062
White	136.0000	3	10.58301
Total	141.1972	71	15.77396

Table 4.28: ANOVA

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	285.585	3	95.195	.372	.773
Within Groups	17131.654	67	255.696		
Total satisfaction score	17417.239	70			

From Tables 4.26 and 4.27 it can be seen that no differences in total satisfaction scores were noted between ethnic groups (p = 0.773). This outcome contrasts with that of Coulter, Hays and Danielson (1994) who found that satisfaction is usually higher in Whites when compared to other ethnic groups. One common factor that may have overshadowed the relationship between ethnicity and satisfaction is the income level of the respondents. Given that the income in these populations was limited to meagre pensions, it is likely that irrespective of ethnicity the respondents were generally grateful for and appreciative of the fact that they could access a health care service that was of benefit to them.

Report of findings for visit type versus satisfaction

Table 4.29: Group statistics

Group statistics					
	Visit	N	Mean	Std. Deviation	Std. Error Mean
Total satisfaction score	New	14	144.3571	13.55676	3.62320
	Follow up	58	139.8966	16.62981	2.18360

Table 4.30: Independent samples test

Independent samples test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total satisfaction score	.244	.623	.930	70	.355	4.46059	4.79522	-5.10317	14.02436

There was no significant difference between the first and subsequent visit respondents. (p = 0.355), with regards to the level of satisfaction that the respondents noted. This can be seen in Tables 4.28 and 4.29, where the p-value was noted as being 0.623.

Report of findings for student doctor versus satisfaction

Table 4.31: Report

Report			
Total satisfaction score			
Student Dr	Mean	N	Std. Deviation
5th year	136.0000	19	15.83596
6th year	140.5217	46	14.71015
I do not know	160.0000	5	20.03746
Total	140.6857	70	16.21463

Table 4.32: ANOVA

ANOVA					
Total satisfaction score					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2283.607	2	1141.804	4.824	.011
Within Groups	15857.478	67	236.679		
Total	18141.086	69			

Table 4.33: Multiple comparisons

Multiple comparisons						
Dependent Variable: total satisfaction score						
Bonferroni						
					95% Confidence Interval	
(I) Student Dr	(J) Student Dr	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
5th year	6th year	-4.52174	4.19547	.855	-14.8240	5.7805
	don't know	-24.00000*	7.73256	.008	-42.9879	-5.0121
6th year	5th year	4.52174	4.19547	.855	-5.7805	14.8240
	don't know	-19.47826*	7.24437	.027	-37.2673	-1.6892
don't know	5th year	24.00000*	7.73256	.008	5.0121	42.9879
	6th year	19.47826*	7.24437	.027	1.6892	37.2673

*. The mean difference is significant at the 0.05 level.

As can be seen from Table 4.31 there was a significant difference between satisfaction scores depending on the year of the student doctor (p = 0.011). Table 4.32 shows a trend in increase in score (lower satisfaction) from 5th to 6th year and the lowest in the "I do not know group" (Table 4.30). The post hoc tests show that the difference lay between 5th year and do not know, and between 6th year and do not know. In other words, those who did not know the year of their student doctor had lower satisfaction levels than those who were served by 5th year or 6th year doctors who seemed to be more satisfied. This therefore suggests that there was no difference between whether 5th or 6th year doctor groups treated the patient.

This outcome suggests that communication with the patient is important to allow the patient to feel comfortable in their relationship with the student doctor; a lack of clarity of roles seems to be associated with increased satisfaction scores (decreased levels of satisfaction).

Report of findings for area of complaint versus satisfaction

Table 4.34: Area of complaint versus satisfaction

Area of complaint versus satisfaction				
		Total satisfaction score		*p* value
		Mean	Standard Deviation	
Area of complaint	Headache	135.50	20.49	0.491
	Neck	141.52	16.94	0.799
	Mid Back	137.33	18.16	0.299
	Low back	140.31	19.98	0.846
	Shoulder	136.32	15.75	0.041
	Arm	128.75	14.97	0.024
	Elbow	141.67	15.18	0.922
	Forearm	110.00	.	
	Wrist	128.00	25.46	0.258
	Hand	129.75	6.90	0.160
	Fingers	150.00	.	
	Hip	142.88	16.69	0.697
	Thigh	141.13	8.81	0.947
	Knee	145.29	16.00	0.244
	Leg	143.08	15.08	0.588
	Ankle	159.00	12.77	0.044
	Foot	150.33	20.84	0.296
	Toes	.	.	
	Other	.	.	

Table 4.33 shows that there were significant differences between those who had and did not have pain in the following areas in terms of satisfaction scores: shoulder (higher satisfaction), arm (higher satisfaction), and ankle (satisfaction was lower).

The finding of lowest satisfaction levels for ankles could be due to the those particular respondents being constantly on their feet, with a painful condition (Table 4.8) that seemed to be more chronic (Table 4.4) and were more likely to respond less quickly (Table 4.16 and Section 4.5.7), compared to the highest satisfaction levels of shoulder / arm complaints that can be worked around by utilising the opposite arm / shoulder and due to less weight bearing. This may also have been another reason for some of the dissatisfaction regarding number of treatment sessions and lengthy recovery – continuous movement and increased pain to the ankle leads can lead to more treatment sessions leading to the patient being less satisfied due to the seemingly increased length of recovery (Table 4.16 and Section 4.5.7).

Report of findings for pain rating versus satisfaction

Table 4.35: Correlations

Correlations			
		Pain Rating	Total score
Pain Rating	Pearson Correlation	1	.058
	Sig. (2-tailed)		.627
	N	72	72
Total satisfaction score	Pearson Correlation	.058	1
	Sig. (2-tailed)	.627	

	N	72	72

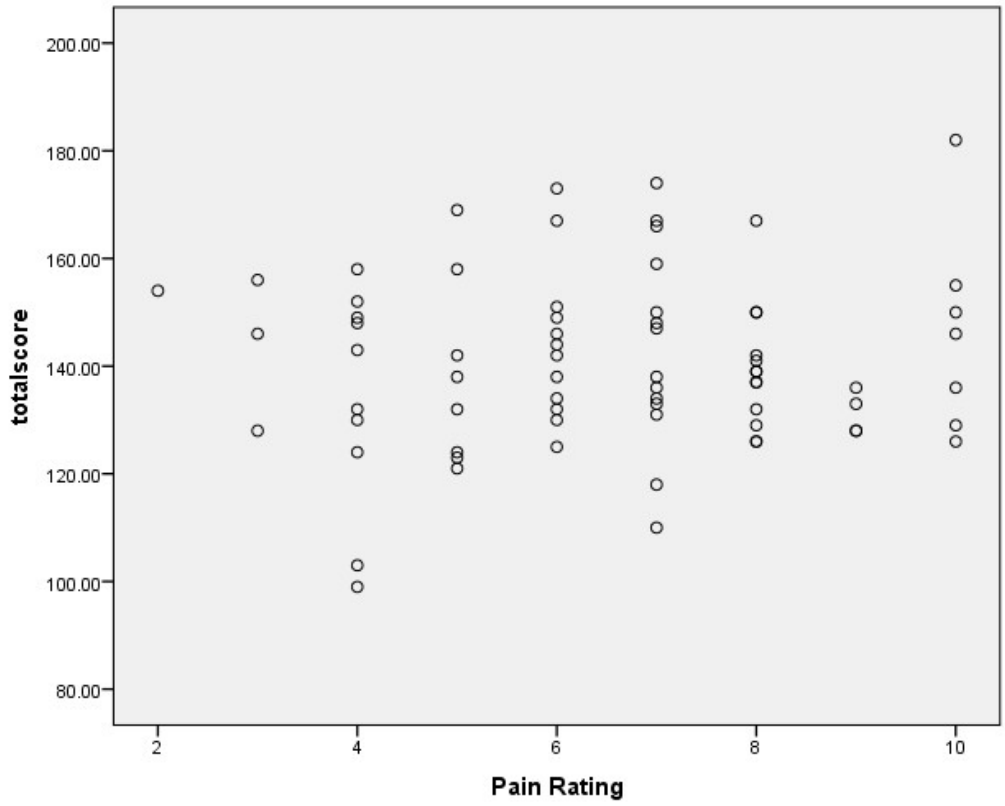

Figure 4.3: Total score versus pain rating

There was no correlation between pain rating and total satisfaction score (r = 0.058) as shown in Table 4.34 and the scatter plot (Figure 4.3).

Report of findings for previous treatment versus satisfaction

Table 4.36: Group Statistics

Group Statistics					
	Prev Treatment	N	Mean	Std. Deviation	Std. Error Mean
Total satisfaction score	1	59	140.1695	16.15779	2.10357
	2	13	143.4615	16.12253	4.47158

Table 4.37: Independent samples test

Independent samples test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total	.069	.	-.66	7	.508	-3.29205	4.94867	-	6.

satisfactio n score	793	5	0		13.1618 5	57 77 6

There was no difference between those who had previous treatment or those who had not received previous treatment (p = 0.508) and their perceived levels of satisfaction.

Reports of findings for previous outcome versus satisfaction

Table 4.38: Report

Report			
Total satisfaction score			
Prev Outcome	Mean	N	Std. Deviation
0 – No answer	143.1667	6	16.31462
1 – Patient got better	137.8043	46	15.80382
2 – Patient got worse	152.5000	2	7.77817
3 – No change in symptoms	144.1176	17	14.01286
4 – Unknown / multiple responses	182.0000	1	.
Total	140.7639	72	16.08822

Table 4.39: ANOVA Total score

ANOVA Total score					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2604.649	4	651.162	2.766	.034
Within Groups	15772.337	67	235.408		
Total	18376.986	71			

There was a statistically significant difference between the previous outcomes and satisfaction levels (p = 0.034). In Tables 4.37 and Table 4.38 it can be seen that the category 2 (patient got worse) and 4 (unknown) respondents were associated with significantly higher satisfaction scores (i.e. the patient was less satisfied), than those respondents that got better (category 1 or had no regression in clinical symptoms [category 3] or who did not answer this question [category 0]). The latter three groups all showing lower satisfaction scores and therefore increased satisfaction levels.

Report of findings for income versus satisfaction

Table 4.40: Report of total satisfaction score

Report of total satisfaction score			
Income	Mean	N	Std. Deviation
Business	139.4000	5	11.69615
Disability	148.8333	6	19.20851
Extended family	124.0000	1	.
Grant	132.8000	10	22.62643
Other	142.3333	6	17.24722
Pension	142.2581	31	14.97324
Salary	143.2500	12	8.22551
Unemployed	110.0000	1	.

Total	140.7639	72	16.08822	

Table 4.41: ANOVA Total satisfaction score

ANOVA Total satisfaction score

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2419.834	7	345.691	1.386	.226
Within Groups	15957.152	64	249.331		
Total	18376.986	71			

Income did not determine satisfaction levels (p = 0.226). In Table 4.39 and Table 4.40 it can be seen that income did not determine satisfaction in the total sample and therefore either of the clinics. This outcome therefore validates the assertion presented in Section 4.6.5, where it was speculated that income may override the levels of satisfaction and negate the influence of ethnicity. This, however, does not correlate with literature presented by Hughes (1991) and Sawyer and Kassak (1993) who showed that higher dissatisfaction was found in respondents reporting a lower income.

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on the outcomes of the study, Objective One found that the majority of the respondents at both satellite clinics were older, Indian females, who reported relatively chronic conditions with a pain rating that was above average and associated with neck and shoulder complex, and low back pain. It would seem that a small minority of respondents had previously been treated for other conditions (other than those reported on the day that the questionnaire was completed), but notwithstanding this, the majority of respondents still seemed to report improvement post treatment.

Based on this synopsis it was expected that the respondents would report satisfaction with their treatment, particularly as the population is largely composed of older females (Tatalias, 2006; Sawyer and Kassak 1993; Hughes 1991 citing Lieberman, Sledge and Matthews, 1989). Females have been reported (Tatalias, 2006; Sawyer and Kassak 1993; Hughes 1991 citing Lieberman, Sledge and Matthews, 1989) to both actively seek and be satisfied with alternative methods of care for their conditions (Tatalias, 2006; Mbutho, Gqaleni and Korporaal, 2012). The chiropractic care evaluated in this study was tailored specifically for patients with impediments in accessing health care (mainly financial), therefore it is expected that these patients would be more likely to be satisfied with care that they can access as this would allow them improved quality of life. This latter assertion forms the basis for the outcomes in terms of Objective Two, were it was expected that the majority of respondents seemed to report improvement in their condition following treatment.

This was re-inforced by respondents in this study being for the most part satisfied with the provision of the care provided to them by the student doctors. Of interest, it was found that some patients at MHCA found it expensive to get to the MHCA, which could have been a disincentive to satisfaction and something that needs to be considered for future patients. Additionally a minority of patients at both satellite clinics' noted having concerns about the hygiene practices and ablution facilities at the clinics. These points would require further attention, by both the satellite clinics as well as in student training to make these processes more transparent for the patients. Lastly the feeling of comfort within the consultation rooms was ambivalent, which is a concern that would need to be more directly addressed with the patients – at the NJVC the patients have private cubicles, by contrast this is not possible at the MHCA, therefore it may be necessary for a smaller room to be utilised for indidivual patients that feel uncomfortable with the MHCA setting. no patient demographic variables or previous treatments were associated with satisfaction. This Objective Three showed no tangible outcomes that seemed to support or refute satisfaction levels in this patient group. This differs from the literature that suggests that most patients have some marker related to satisfaction (reference). This meant that Objective Four did not have a significant outcome as there were no factors that could be further investigated. This was however limited with small patient numbers and therefore it is suggested that this study be considered again when these satellite clinics have a larger patient base.

In final, the study found that respondents at both clinics found great satisfaction regarding the service provided by the student doctors at the clinics, with a few small areas requiring attention in order to improve the service delivery at these sites. In all it seems that the structures in place currently show an encouraging trend that has installed a high standard, which can now be maintained and possibly improved for students passing through the satellite clinics in the years to come.

Limitations to the study

- The study was reliant on the honest answers of respondents. This may not have occurred due to various unknown reasons.

- Budgetary constraints may have limited the use of outside resources (statistician etc.) which could have negatively impacted on the results of the study.

Future recommendations

- Satisfaction questionnaires are great tools to establish whether certain criteria are being met therefore measuring satisfaction at more regular intervals (e.g. once a year) would help identify trends or levels of satisfaction at the DUT Satellite Clinics.

- Similar studies investigating the level of satisfaction to be conducted at other Chiropractic Clinics.

- This study was a quantitative study. Future studies of a similar nature could consider a qualitative study as this could help provide more detailed information on levels of satisfaction.

- A qualitative study on the factors respondents identified as being important. Open ended questions in one-on-one interviews or focus groups would provide greater understanding of the underlying reasons for satisfaction/dissatisfaction, and provide clearer guidance regarding appropriate changes.

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APPENDIXES

Appendix A1 Permission letter to Marburg Haven

Letter of information and Informed Consent.

Dear Marburg Haven Manager c/o Mrs Reginald

I am currently in the process of doing my masters dissertation. This letter serves as an introduction to and explanation of my study and its aims and objectives.

Dissertation title:	Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics.
Researcher:	Dean Rieder (Tel: 0714469527)
Supervisor:	Dr.Grant Matkovich (M.Tech.Chiro) (Tel:0825683986)
Co-Supervisor:	Dr. C. Kell (M.Tech: Homeopathy) (031 3732406)

Purpose of the study:
The aim of this study is to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).

Objectives
- The first objective is to determine the demographic profile of the patients at the DUT Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).
- The second objective is to determine the level of satisfaction of patients at the DUT Satellite Clinics.
- The third objective is to determine the factors affecting the level of satisfaction at the DUT Satellite Clinics.
- The fourth objective is to correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

Outline of the procedure:

In order for myself to start this study, I would need the approval of yourself as manager of the Marburg Haven / or the Marburg Haven Board as may be appropriate before commencing my

study. Once I have gotten approval from yourself and the Institutional Research and Ethics Committee, I will be able to start distributing questionnaires.

Therefore in terms of the study, specific requirements need to be met. These respondents will be selected from the patients that present to the Marburg Haven Clinic.

As part of the research process will I be allowed to permission on the site and also be able to use two chairs and a table in order to carry out my study?

Thus in terms of the operations of the Marburg Haven, it is anticipated that there will be **no risks, remuneration or expense.** This is equally applicable to any of the respondents that agree to participate in the study. In terms of **benefits** it is anticipated that this study will provide a basis for improving the service provided by the students should it be found that there are areas that the DUT can address in providing a better service.

Your **participation** in the study is **voluntary**, as a satellite clinic of the Durban University of Technology. This is equally true for any patients that agree / do not agree to participate in the study.

Withdrawal from the study and refusal to participate in the study will have **no adverse consequences for service provision by the DUT to the Marburg Haven Clinic or the patients**.

All personal information relating to the management and operations of the Marburg Haven are required to be kept confidential as will all information that is obtained from the patients.

Contact persons:
Researcher: Dean Rieder (Tel: 0714469527)
Supervisor: Dr. Grant Matkovich (M.Tech.Chiro) (Tel: 0825683986) / (co-supervisor) Dr Colette Kell (M. Tech Homeo) (Tel: 0313732406)

If you grant permission for me to complete this study at the Marburg Haven Clinic, please tear off the bottom of this page and return the signed copy to myself.

Granting of permission in the research study:

I, …….. (full name) as a representative of the Marburg Haven Clinic, with ID number……..,have read and understood this letter.
All queries have been answered satisfactorily and I fully understand the study. I understand that there are no risks to the Marburg Haven and its Community and all information will be kept confidential. I grant permission for Researcher, Dean Rieder, to perform his proposed questionnaire study. This permission is given provided that Dean Rieder obtains and submits to us a copy of the appropriate Ethics Approval from the Durban University of Technology. Also I understand that data collected from the study will be published in the form of a dissertation.

Representatives name (print) …….
Representatives signature ……Date…….

Researcher's name (print) …….
Researcher's signature ……Date…….

Witness name (print) …….
Witness signature ……...Date…….

Appendix A2 Letter received in regards permission from Marburg Haven

Appendix A1 **Permission letter to Marburg Haven**

Letter of information and Informed Consent.

Dear Marburg Haven Manager c/o Mrs Reginald

I am currently in the process of doing my masters dissertation. This letter serves as an introduction to and explanation of my study and its aims and objectives.

Dissertation title:	Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics.
Researcher:	Dean Rieder (Tel: 0714469527)
Supervisor:	Dr.Grant Matkovich (M.Tech.Chiro) (Tel:0825683986)
Co-Supervisor:	Dr. C. Kell (M.Tech: Homeopathy) (031 3732406)

Purpose of the study:

The aim of this study is to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Center).

Objectives

- The first objective is to determine the demographic profile of the patients at the DUT Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Center).
- The second objective is to determine the level of satisfaction of patients at the DUT Satellite Clinics.
- The third objective is to determine the factors affecting the level of satisfaction at the DUT Satellite Clinics.
- The fourth objective is to correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

Outline of the procedure:

In order for myself to start this study, I would need the approval of yourself as manager of the Marburg Haven / or the Marburg Haven Board as may be appropriate before commencing my study. Once I have gotten approval from yourself and the Institutional Research and Ethics Committee, I will be able to start distributing questionnaires.

Therefore in terms of the study, participants meeting the following criteria will be required. These participants will be selected from the patients that present to the Marburg Haven Clinic.

As part of the research process will I be allowed to permission on the site and also be able to use two chairs and a table in order to carry out my study?

Thus in terms of the operations of the Marburg Haven, it is anticipated that there will be **no risks, remuneration or expense.** This is equally applicable to any of the participants that agree to participate in the study. In terms of **benefits** it is anticipated that this study will provide a basis for improving the service provided by the students should it be found that there are areas that the DUT can address in providing a better service.

Your **participation** in the study is **voluntary**, as a satellite clinic of the Durban University of Technology. This is equally true for any patients that agree / do not agree to participate in the study.

Withdrawal from the study and refusal to participate in the study will have **no adverse consequences for service provision by the DUT to the Marburg Haven Clinic or the patients**.

All personal information relating to the management and operations of the Marburg Haven are required to be kept confidential as will all information that is obtained from the patients.

Contact persons:

Researcher: Dean Rieder (Tel: 0714469527)

Supervisor: Dr. Grant Matkovich (M.Tech.Chiro) (Tel: 0825683986) / (co-supervisor) Dr Colette Kell (M. Tech Homeo) (Tel: 0313732406)

If you grant permission for me to complete this study at the Marburg Haven Clinic, please tear off the bottom of this page and return the signed copy to myself.

Granting of permission in the research study:

I, PASTOR DHANAPALAN NAIDOO (full name) as a representative of the Marburg Haven Clinic, with ID number 3603125062081, have read and understood this letter. All queries have been answered satisfactorily and I fully understand the study. I understand that there are no risks to the Marburg Haven and its Community and all information will be kept confidential. I grant permission for Researcher, Dean Rieder, to perform his proposed questionnaire study. This permission is given provided that Dean Rieder obtains and submits to us a copy of the appropriate Ethics Approval from the Durban University of Technology. Also I understand that data collected from the study will be published in the form of a dissertation.

Representatives name (print) PASTOR DHANAPALAN NAIDOO

Representatives signature [redacted] Date 23 MARCH 2015

Researcher's name (print) .....

Researcher's signature ..... Date.....

Witness name (print) .....

Witness signature ..... Date.....

Appendix B1 Permission letter to Narain Jeawon Vedic Centre – Letter of information and Informed Consent

Dear Mrs Singh,

I am currently in the process of doing my masters dissertation. This letter serves as an introduction to and explanation of my study and its aims and objectives.

Dissertation title:	Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics.
Researcher:	Dean Rieder (Tel: 0714469527)
Supervisor:	Dr.GrantMatkovich (M.Tech.Chiro) (Tel:0825683986)
Co-Supervisor:	Dr. C. Kell (M.Tech: Homeopathy) (031 3732406)

Purose of the study:
The aim of this study is to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).

Objectives
- The first objective is to determine the demographic profile of the patients at the DUT Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).
- The second objective is to determine the level of satisfaction of patients at the DUT Satellite Clinics.
- The third objective is to determine the factors affecting the level of satisfaction at the DUT Satellite Clinics.
- The fourth objective is to correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

Outline of the procedure:

In order for myself to start this study, I would need the approval your approval or that of the Narian Jeawon Vedic Centre (as appropriate) before commencing my study. Once I have gotten approval from yourself / the NJVC and the Institutional Research and Ethics Committee I will be able to start distributing questionnaires.

Therefore in terms of the study, specific requirements need to be met. These respondents will be selected from the patients that present to the NJVC.

As part of the research process will I be allowed to permission on the site and also be able to use two chairs and a table in order to carry out my study?

Thus in terms of the operations of the NJVC, it is anticipated that there will be **no risks, remuneration or expense.** This is equally applicable to any of the respondents that agree to participate in the study. In terms of **benefits**it is anticipated that this study will provide a basis for improving the service provided by the students should it be found that there are areas that the DUT can address in providing a better service.

Your **participation** in the study is **voluntary**, as a satellite clinic of the Durban University of Technology. This is equally true for any patients that agree / do not agree to participate in the study.

Withdrawal from the study and refusal to participate in the study will have **no adverse consequences for service provision by the DUT to the Narain Jeawon Vedic Centre Clinic or the patients**.

All personal information relating to the management and operations of the **Narain Jeawon Vedic Centre** are required to be kept confidential as will all information that is obtained from the patients.

Contact persons:
Researcher: Dean Rieder (Tel: 0714469527)

Supervisor: Dr. Grant Matkovich (M.Tech.Chiro) (Tel: 0825683986) / (co-supervisor) Dr Colette Kell (M. Tech Homeo) (Tel: 0313732406)
If you grant permission for me to complete this study at the **Narain Jeawon Vedic Centre** , please tear off the bottom of this page and return the signed copy to myself.

Granting of permission in the research study:

I, …….. (full name) as a representative of the **Narain Jeawon Vedic Clinic**, with ID number…….., have read and understood this letter.
All queries have been answered satisfactorily and I fully understand the study. I understand that there are no risks to the Narain Jeawon Vedic Clinic and its Community and all information will be kept confidential. I grant permission for Researcher, Dean Rieder, to perform his proposed questionnaire study. This permission is given provided that Dean Rieder obtains and submits to us a copy of the appropriate Ethics Approval from the Durban University of Technology. Also I understand that data collected from the study will be published in the form of a dissertation.

Representatives name (print) …….
Representatives signature ……Date…….

Researcher's name (print) …….
Researcher's signature ……Date…….

Witness name (print) …….
Witness signature ……...Date…….

Appendix B2 Letter received in regards permission from Narain Jeawon Vedic Centre

Appendix B1 Permission letter to Narain Jeawon Vedic Center-Letter of information and Informed Consent.

Dear Mrs Singh,

I am currently in the process of doing my masters dissertation. This letter serves as an introduction to and explanation of my study and its aims and objectives.

Dissertation title: Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics.

Researcher: Dean Rieder (Tel: 0714469527)

Supervisor: Dr.Grant Matkovich (M.Tech.Chiro) (Tel:0825083986)

Co-Supervisor: Dr. C. Kell (M.Tech: Homeopathy) (031 3732406)

Purose of the study:

The aim of this study is to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Center).

Objectives

- The first objective is to determine the demographic profile of the patients at the DUT Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Center).
- The second objective is to determine the level of satisfaction of patients at the DUT Satellite Clinics.
- The third objective is to determine the factors affecting the level of satisfaction at the DUT Satellite Clinics.
- The fourth objective is to correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

Outline of the procedure:

In order for myself to start this study, I would need the approval your approval or that of the Narian Jeawon Vedic Center (as appropriate) before commencing my study. Once I have gotten approval from yourself / the NJVC and the Institutional Research and Ethics Committee I will be able to start distributing questionnaires.

Therefore in terms of the study, participants meeting the following criteria will be required. These participants will be selected from the patients that present to the NJVC.

As part of the research process will I be allowed to permission on the site and also be able to use two chairs and a table in order to carry out my study?

Thus in terms of the operations of the Marburg Haven, it is anticipated that there will be **no risks, remuneration or expense.** This is equally applicable to any of the participants that agree to participate in the study. In terms of **benefits** it is anticipated that this study will provide a basis for improving the service provided by the students should it be found that there are areas that the DUT can address in providing a better service.

Your **participation** in the study is **voluntary**, as a satellite clinic of the Durban University of Technology. This is equally true for any patients that agree / do not agree to participate in the study.

Withdrawal from the study and refusal to participate in the study will have **no adverse consequences for service provision by the DUT to the Marburg Haven Clinic or the patients.**

All personal information relating to the management and operations of the Marburg Haven are required to be kept confidential as will all information that is obtained from the patients.

Contact persons:

Researcher: Dean Rieder (Tel: 0714469527)

Supervisor: Dr. Grant Matkovich (M.Tech.Chiro) (Tel: 0825683986) / (co-supervisor) Dr Colette Kell (M. Tech Homeo) (Tel: 0313732406)

If you grant permission for me to complete this study at the Marburg Haven Clinic, please tear off the bottom of this page and return the signed copy to myself.

Granting of permission in the research study:

I, PASTOR. DHANAPALAN NAIDOO (full name) as a representative of the Marburg Haven Clinic, with ID number 3603125062081, have read and understood this letter. All queries have been answered satisfactorily and I fully understand the study. I understand that there are no risks to the Marburg Haven and its Community and all information will be kept confidential. I grant permission for Researcher, Dean Rieder, to perform his proposed questionnaire study. This permission is given provided that Dean Rieder obtains and submits to us a copy of the appropriate Ethics Approval from the Durban University of Technology. Also I understand that data collected from the study will be published in the form of a dissertation.

Representatives name (print) PASTOR DHANAPALAN NAIDOO

Representatives signature [redacted] Date 23 MARCH 2015

Researcher's name (print) DEAN RIEDER

Researcher's name (print) [redacted]

Researcher's signature ..... Date 23-03-15

Witness name (print) [redacted]

Witness signature ..... Date 23-03-15

Appendix C1 Permission letter to CDC CD - Letter of information and Informed Consent

Dear Dr Korporaal,

I am currently in the process of doing my masters dissertation. This letter serves as an introduction to and explanation of my study and its aims and objectives.

Dissertation title: Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics.
Researcher: Dean Rieder (Tel: 0714469527)
Supervisor: Dr. Grant Matkovich (M.Tech.Chiro) (Tel: 0825683986)
Co-Supervisor: Dr. C. Kell (M.Tech: Homeo) (031 3732406)

Purpose of the study:
The aim of this study is to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg and Sea Cow Lake communities).

Objectives
- The first objective is to determine the demographic profile of the patients at the DUT Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).
- The second objective is to determine the level of satisfaction of patients at the DUT Satellite Clinics.
- The third objective is to determine the factors affecting the level of satisfaction at the DUT Satellite Clinics.
- The fourth objective is to correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

Outline of the procedure:
Inclusion Criteria
- Any patients attending the clinic that have signed the informed consent form.
- New patient visits and follow up visits will be included for all patients,
- All ages (if the participant is a minor, participant assent and parental consent will be obtained) and
- All races will be able to partake in the study.

Exclusion criteria:
- Patients not present at the clinic on the days of data collection.
- Patients under the age of 18 without signed assent and parental informed consent form will not be able to partake in the study.
- No expert group participant.
- No pilot study participant.
- No persons involved in the approval of the research.

Thus in terms of the operations of the Marburg Haven and Narain Jeawon Vedic Community Clinics, it is anticipated that there will be no risks, remuneration or expense. This is equally applicable to any of the respondents that agree to participate in the study. In terms of benefits it is anticipated that this study will provide a basis for improving the service provided by the students should it be found that there are areas that the DUT can address in providing a better service.

Your participation in the study is voluntary, as a satellite clinic of the Durban University of Technology. This is equally true for any patients that agree / do not agree to participate in the study.

Withdrawal from the study and refusal to participate in the study will have no adverse consequences for service provision by the DUT to the Marburg Haven / Narain Jeawon Vedic Clinics or the patients.

All personal information relating to the management and operations of the Marburg Haven / Narain Jeawon Vedic Community Clinics are required to be kept confidential as will all information that is obtained from the patients.

Contact persons:
Researcher: Dean Rieder (Tel: 0714469527)
Supervisor: Dr. Grant Matkovich (M.Tech.Chiro) (Tel: 0825683986) / (co-supervisor) Dr Colette Kell (M. Tech Homeo) (Tel: 0313732406)
If you grant permission for me to complete this study at the Marburg Haven / Narain Jeawon Vedic Community Clinics, please tear off the bottom of this page and return the signed copy to myself.

Granting of permission in the research study:

I, …….. (full name) as a representative of the Narain Jeawon Vedic Clinic, with ID number…….., have read and understood this letter.
All queries have been answered satisfactorily and I fully understand the study. I understand that there are no risks to the Narain Jeawon Vedic Clinic and its Community and all information will be kept confidential. I grant permission for Researcher, Dean Rieder, to perform his proposed questionnaire study. This permission is given provided that Dean Rieder obtains and submits to us a copy of the appropriate Ethics Approval from the Durban University of Technology. Also I understand that data collected from the study will be published in the form of a dissertation.

Representatives name (print) …….
Representatives signature ……Date…….

Researcher's name (print) …….
Researcher's signature ……Date…….

Witness name (print) …….
Witness signature ……...Date…….

Appendix C2 Letter received in regards permission from CDC CD

MEMORANDUM

To : Prof Puckree
Chair : RHDC

Prof Adam
Chair : IREC

From : Dr Charmaine Korporaal
Clinic Director : Chiropractic Day Clinic : Chiropractic and Somatology

Date : 17.02.2015

Re : Request for permission to use the Chiropractic Day Clinic for research purposes

Permission is hereby granted to :

Mr Dean Rieder (Student Number: 20902778)

Research title : Patient Satisfaction at the Durban University of Technology Chiropractic Satellite Clinics.

It is requested that Mr Rieder submit a copy of his RHDC / IREC approved proposal to the Clinic Administrators before he starts with his research in order that any special procedures with regards to his research can be implemented prior to the commencement of him seeing patients.

Thank you for your time. Kind regards

Dr Charmaine Korporaal

Clinic Director : Chiropractic Day Clinic : Chiropractic and Somatology

Cc: Mrs Pat van den Berg : Chiropractic Day Clinic

Dr G Matkovich / Dr C Kell : Research supervisors

Appendix D Notice

Patient Satisfaction Can we improve the service delivery?

All patients receiving treatment at Marburg and Narian Jeawon Vedic Centre are eligible to participate in my research study.

Contact the Office at the Clinic that you attend, to find out when I (Dean Rieder-Researcher) will next be available.

Please can you leave your name and contact details at the reception desk and I will contact you if you have any specific queries.

Appendix E1 Original questionnaire									
Demographics:									
1	Age (In Years)		Gender	Female				Male	
2	Race	Black	Coloured	Indian		White		Other	
3	Visit	New patient	Follow up patient	Student doctor		5th year student		6th year student	
4	Venue	Marburg Haven Community Centre	Narian Jeawon Vedic Centre						
5	Area of Complaint	Headache	Neck	Mid Back	Low Back	Shoulder	Arm	Elbow	
		Fingers	Hip	Thigh	Knee	Leg	Ankle	Foot	
6	Pain rating	1	2	3	4	5	6	7	
7	Condition being treated for								
8	Have you been treated for the above conditions?			What was the outcome?			Good	Wo	
9	Primary income		Business earni	Social Grant		Pension Grant	Disability Grant	Ex Fa	

		ngs				

Questionnaire:				
		Strongly agree	Neutral	
Knowledge of the clinic				
1	I was referred to this clinic via another health professional.			
2	I heard about this clinic via word of mouth and friends.			
Environmental Questions				
3	The clinic is located in a safe area.			
4	The waiting area at the clinic is comfortable.			
5	The people at the clinic are generally friendly and helpful.			
6	Travel to the clinic is easy.			
7	The clinic did not meet my hygiene expectations.			
8	I did not feel comfortable in the consultation room.			
9	I think the clinic has everything that is needed to provide good treatment.			
10	It was expensive for me to get to the clinic.			
11	The clinic had appropriate toilet facilities.			
12	The clinic did not have facilities for disabled patients.			
Reception and waiting area				
13	I was able to schedule appointments that were convenient for me.			
14	It was difficult for me to obtain an appointment in the clinic.			
15	The clinic staff were not efficient in scheduling appointments.			
16	The clinic staff did not inform me of potential delays in my appointment.			
17	The clinic staff were able to talk to me in my home language.			
18	The clinics' office hours were convenient for me.			
19	The clinics' staff were helpful and courteous and polite.			
20	In an emergency, it is easy for me to see my student doctor.			

		Strongly agree	Neutral	
Finance				
21	The cost of treatment is expensive.			
22	My Medical aid/insurance provided full coverage for the cost of my care.			
23	The clinics fees where reasonable.			
24	A fee reduction option was offered to me, provided it met certain requirements.			
The student doctor				
25	The student doctor introduced themselves to me.			
26	The student doctor was appropriately dressed to meet my expectations.			
27	I was not able to understand my student doctor fully due to language barriers.			
28	The student doctor was prompt and on time.			
The assessment				
29	My student doctor did not examine me as well as I expected.			
30	My student doctor examined me with respect and concern.			
31	My student doctor made me feel uncomfortable during the assessment.			
32	My student doctor good and exceeded what was expected to help me.			
33	I am happy that the student doctors have the ability to consult with a qualified supervisor.			
34	My student doctor rushed my assessment and did not give me the time I deserved.			
Treatment				
35	I think that my student doctor should have spent more time with me during my treatment session.			
36	My student doctor treated me with respect and concern.			
37	My student doctor made me feel uncomfortable during the treatment physically.			
38	My student doctor was very good with the treatment.			
39	I am happy that the student doctors have the ability to consult with a qualified supervisor when treating me.			
40	My student doctor seemed to rush my treatment and did not give me the time I deserved.			
41	My student doctor took too long to run through basic procedures.			

		Strongly agree	Neutral	
Overall Care				
42	I am satisfied with the care I have received.			
43	All of my questions were answered by my student doctor.			
44	My student doctor did his/her best to keep me from worrying about my complaint/condition.			
45	My student doctor gave me suggestions on what I could do to help me with my condition.			
46	My student doctor was interested in all my health problems.			
47	I would recommend this student doctor to a friend or relative.			
48	My student doctor gave me advice on how to prevent future complaints from occurring.			
49	The care I received could have been better.			
50	Improvements in my conditions took longer than I expected.			
51	My student doctor made me feel important at all times.			
52	I feel I had to see my student doctor more than I should have.			
53	I would recommend chiropractic treatment to others.			
54	My student doctor provided information regarding my health concerns without me asking.			
55	My student doctor explained to me about the different treatment options.			
56	I understand the term 'Chiropractic' and the treatment it includes.			
57	The treatment I expected was the same as the treatment I received.			
58	My student doctor took the time to explain to me about the benefits of chiropractic treatment.			
59	My student doctor explained to me about the risk factors of Chiropractic treatment.			
60	My student doctor ensured I made an informed decision when agreeing to my Chiropractic treatment.			
61	Improvements in my condition took the amount of time that I expected.			
62	I feel like my student doctor stopped treatment sessions before I was completely healed.			
63	I felt that my student doctor did everything possible to try and help me.			
64	My student doctor ensured that I understood everything being discussed.			

		Strongly agree	Neutral	
Future Care				
65	I prefer a female student doctor treating me.			
66	I prefer a male student doctor treating me.			
67	I am not happy with this clinic.			

Appendix E2 Expert group – letter of information and informed consent

Letter of information and informed consent. Expert group.

DEAR PARTICIPANT

Welcome to my research project. Thank you for taking the time to consider participating in my study.

TITLE OF RESEARCH STUDY:

Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).

Principal investigator: Dean Scott Rieder
Supervisor: Dr. G. Matkovich (M.Tech: Chiropractic) (0825683986)
Co-Supervisor: Dr. C. Kell (M.Tech: Homeo) (031 3732406)

Introduction and Purpose of the study:

When describing patient satisfaction and perception of a clinical service, a congruency between what the patient expected and what they actually received, results in satisfaction. It can therefore be deduced that patient satisfaction is an important, desired measure of quality care and can greatly influence the patients' perception of the quality of care and outcome of treatment, thereby holding great value to the treating clinician. With greater patient satisfaction comes more improved, patient compliance with treatment and advice, loyalty to their clinician and positive referrals. On the other hand, dissatisfaction usually results in non-compliance, negative outcomes, negative word of mouth referrals and even legal action.

No research has been done on patient satisfaction on DUT Satellite Clinics. This research will therefore assist in establishing a baseline level of patient satisfaction at these clinics.

In order to effectively measure patient satisfaction, it is important to develop a validated and reliable tool that measures the constructs that are directly or indirectly related to knowledge, perception, expectations and satisfaction. Therefore I, as the researcher require you as a member of the expert group to assist me in developing this questionnaire to effectively be able to measure that which I have set out to do in terms of my aims and objectives which are as follows:

Aim :

- The aim of this study is to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).

Objectives :

- To determine the demographic profile of the patients at the DUT Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).
- To determine the level of satisfaction of patients at the DUT Satellite Clinics.
- To determine the factors affecting the level of satisfaction at the DUT Satellite Clinics.
- To correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

To be included in the expert group, you are required to conform to the following criteria :

Inclusion criteria:

- At least one person that has completed a previous questionnaire study.
- At least one person that is currently busy completing a questionnaire study.
- At least one person that has previously supervised a questionnaire based study.
- At least one patient that is familiar with chiropractic care.
- At least one patient / person that is familiar with English
- At least one chiropractor.
- At least one non-chiropractic patient.

Exclusion Criteria

- Anyone younger than 18 years of age.

Expert Group Procedure:

In order for there to be a systematic manner in which the group discusses the questionnaire, we will first need to complete all the relevant paperwork that is required to formalise the expert group. This requires that you read this letter, complete your details and sign at the end. This latter signing indicates that you voluntarily participate in this discussion and that you have had the opportunity to ask questions of the researcher with regards to the process that you will be involved in. Once you have agreed to participate you will also need to read and sign the confidentiality statement which details the rules of engagement in the expert group.

It should be noted that the expert group will be recorded. This recording will be subject to the same confidentiality statement that you as an expert group member will be bound. Therefore your contributions will be confidential and recorded in an anonymous manner, such that neither you or your contributions will be identifiable in either the questionnaire, the study or any report / publication that arises from the study.

Once the researcher has received all the read and signed documents, you will be given five minutes to read through the questionnaire that will be issued to you. You are NOT required to complete the questionnaire; you are requested to consider each question in the context of my study's aims and objectives. You may therefore wish to write down cursory comments next to questions that pose problems for you or for which you have additional suggestions. On completion of this reading of the questionnaire, the researcher will then systematically read through the questionnaire inviting comment on each question as it is sequentially dealt with.

If you have any comments, please alert the researcher to this fact so that each of the expert group members are given a turn to discuss their contributions. You are welcome to suggest additions, deletions and modifications to the questionnaire, however it is necessary that the entire expert group agree unanimously to any change in order for it to be affected.

Once the expert group is complete the researcher will be required to take all comments and make the necessary changes to the questionnaire in order to most appropriately contextualise the questionnaire for purposes of meeting the aims and objectives of this study. Your obligation to the study ceases once the expert group is disbanded, and I as the researcher thank you for your contribution to my study.

Risks/discomfortsand Benefits

None to be expected from the expert group.

Remuneration: You will not be awarded any remuneration for taking part in this expert group.
Cost: Your participation in this research is free of charge.

Confidentiality:
Your personal information will remain confidential. Your participation in this study is voluntary and refusal to participate will not result in any adverse consequences. You are free to withdraw from this expert group at any time. Video recording will also remain strictly confidential with access to the recording only by the researcher, the research supervisors and potentially the research examiners (should the latter request to view the recordings).

Should there be a research related injury: None to be expected from the expert group.

Persons to contact in the event of any Problems or Queries:
Supervisor: Dr G. Matkovich (M.Tech: Chiropractic) (0825683986)
Co-Supervisor: Dr. C. Kell (M.Tech: Homeo) (031 3732406)
HREC Research Administrator (IREC) Tel: 0313732900

Statement of Agreement to Participate in the Research Expert Group:

I, ...Subject's full name

.....(ID number) have read this document in it is entirelyand understand its contents. Where I have had any questions or queries, these have been explained to me by ***Dean Rieder***to my satisfaction. Furthermore, I fully understand that I may withdraw from this study at any stage without any adverse consequences and my future health care will not be compromised. I, therefore, voluntarily agree to participate in thisstudy.

Subject's name (print) .....

Subject's signature. .....Date.....

Researcher's name (print) .....

Researcher's signature .....Date.....

Witness name (print) .....

Witness signature .....Date.....

Appendix E3 Expert group – code of conduct

CONFIDENTIALITY STATEMENT – EXPERT GROUP

IMPORTANT NOTICE:

THIS FORM IS TO BE READ AND FILLED IN BY EVERY MEMBER PARTICIPATING IN THE EXPERT GROUP, BEFORE THE EXPERT GROUP MEETING CONVENES.

DECLARATION

1. All information contained in the research documents and any information discussed during the expert 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 kept confidential 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 expert 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:

Expert Group Member: _____ Signature: _____

Witness Name: _____ Signature: _____

Researcher's Name: _____ Signature: _____

Supervisor's Name: _____ Signature: _____

Appendix F1 Post-expert group – pre-pilot questionnaire

Questionnaire:						
		Strongly agree	Neutral	Strongly Disagree		N / A
Knowledge of the clinic						
1	I was referred to this clinic via another health professional.					
2	I heard about this clinic via word of mouth and friends.					
Environmental Questions						
3	The clinic is located in a safe area.					
4	The waiting area at the clinic is comfortable.					
5	The people at the clinic are generally friendly and helpful.					
6	Travel to the clinic is easy.					
7	The clinic did not meet my hygiene expectations.					
8	I did not feel comfortable in the consultation room.					
9	I think the clinic has everything that is needed to provide good treatment.					
10	It was expensive for me to get to the clinic.					
11	The clinic had appropriate toilet facilities.					
12	The clinic did not have facilities for disabled patients.					
Reception and waiting area						
13	I was able to schedule appointments that were convenient for me.					
14	It was difficult for me to obtain an appointment in the clinic.					
15	The clinic staff were not efficient in scheduling appointments.					
16	The clinic staff did not inform me of potential delays in my appointment.					
17	The clinic staff were able to talk to me in my home language.					
18	The clinics' office hours were convenient for me.					
19	The clinics' staff were helpful and courteous and polite.					
20	In an emergency, it is easy for me to see my student doctor.					

		Strongly agree	Neutral	Strongly Disagree	N / A
Finance					
21	The cost of treatment is expensive.				
22	My Medical aid/insurance provided full coverage for the cost of my care.				
23	The clinics fees where reasonable.				
24	A fee reduction option was offered to me, provided it met certain requirements.				
The student doctor					
25	The student doctor introduced themselves to me.				
26	The student doctor was appropriately dressed to meet my expectations.				
27	I was not able to understand my student doctor fully due to language barriers.				
28	The student doctor was prompt and on time.				
The assessment					
29	My student doctor did not examine me as well as I expected.				
30	My student doctor examined me with respect and concern.				
31	My student doctor made me feel uncomfortable during the assessment.				
32	My student doctor good and exceeded what was expected to help me.				
33	I am happy that the student doctors have the ability to consult with a qualified supervisor.				
34	My student doctor rushed my assessment and did not give me the time I deserved.				
Treatment					
35	I think that my student doctor should have spent more time with me during my treatment session.				
36	My student doctor treated me with respect and concern.				
37	My student doctor made me feel uncomfortable during the treatment physically.				
38	My student doctor was very good with the treatment.				
39	I am happy that the student doctors have the ability to consult with a qualified supervisor when treating me.				
40	My student doctor seemed to rush my treatment and did not give me the time I deserved.				
41	My student doctor took too long to run through basic procedures.				

		Strongly agree	Neutral	Strongly Disagree	N / A
Overall Care					
42	I am satisfied with the care I have received.				
43	All of my questions were answered by my student doctor.				
44	My student doctor did his/her best to keep me from worrying about my complaint/condition.				
45	My student doctor gave me suggestions on what I could do to help me with my condition.				
46	My student doctor was interested in all my health problems.				
47	I would recommend this student doctor to a friend or relative.				
48	My student doctor gave me advice on how to prevent future complaints from occurring.				
49	The care I received could have been better.				
50	Improvements in my conditions took longer than I expected.				
51	My student doctor made me feel important at all times.				
52	I feel I had to see my student doctor more than I should have.				
53	I would recommend chiropractic treatment to others.				
54	My student doctor provided information regarding my health concerns without me asking.				
55	My student doctor explained to me about the different treatment options.				
56	I understand the term 'Chiropractic' and the treatment it includes.				
57	The treatment I expected was the same as the treatment I received.				
58	My student doctor took the time to explain to me about the benefits of chiropractic treatment.				
59	My student doctor explained to me about the risk factors of Chiropractic treatment.				
60	My student doctor ensured I made an informed decision when agreeing to my Chiropractic treatment.				
61	Improvements in my condition took the amount of time that I expected.				
62	I feel like my student doctor stopped treatment sessions before I was completely healed.				
63	I felt that my student doctor did everything possible to try and help me.				
64	My student doctor ensured that I understood everything being discussed.				

		Strongly agree	Neutral	Strongly Disagree	N / A
Future Care					
65	I prefer a female student doctor treating me.				
66	I prefer a male student doctor treating me.				
67	I am not happy with this clinic.				

Appendix F2 Pilot – letter of information and informed consent

Letter of information and informed consent. Pilot study.

DEAR PARTICIPANT

Welcome to my research project. Thank you for taking the time to consider participating in my study.

TITLE OF RESEARCH STUDY:

Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).

Principal investigator:	Dean Scott Rieder
Supervisor:	Dr. G. Matkovich (M.Tech: Chiropractic) (0825683986)
Co-Supervisor:	Dr. C. Kell (M.Tech: Homeopathy) (031 3732406)

Introduction and Purpose of the study:

When describing your satisfaction and perception of a clinical service, a congruency between what you expect and what you actually receive, results in satisfaction. It can therefore be deduced that your satisfaction is an important, desired measure of quality care and can greatly influence your perception of the quality of care and outcome of treatment, thereby holding great value to the treating clinician. With greater satisfaction on your part comes improved, compliance with your treatment and advice, loyalty to your clinician and positive referrals. On the other hand, dissatisfaction usually results in non-compliance, negative outcomes, negative word of mouth referrals and even legal action.

No research has been done on patient satisfaction on DUT Satellite Clinics. This research will therefore assist in establishing a baseline level of patient satisfaction at these clinics.

In order to effectively measure your satisfaction, it is important to be able to document your feelings and responses with regard to the service that you experience at the DUT Satellite Clinics. Therefore I, as the researcher require you as a member of the pilot study to assist me in refining developing this questionnaire to effectively be able to measure that which I have set out to do in terms of my aims and objectives which are as follows:

Aim :

- The aim of this study is to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg and Sea Cow Lake communities).

Objectives :

- To determine the demographic profile of the patients at the DUT Satellite Clinics (Sea Cow Lake and Marburg communities).
- To determine the level of satisfaction of patients at the DUT Satellite Clinics.
- To determine the factors affecting the level of satisfaction at the DUT Satellite Clinics.
- To correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

To be included in the pilot study, you are required to conform to the following criteria :

Inclusion criteria:

- Any patients attending the clinic that have signed the informed consent / assent form.
- New patient visits and follow up visits will be included for all patients,
- All ages and
- All races will be able to partake in the study.

Exclusion Criteria

- Patients not present at the clinic on the days of data collection.
- Patients under the age of 18 without signed assent and parental informed consent form will not be able to partake in the study.
- No expert group participant.
- No persons involved in the approval of the research.

Pilot study procedure:

- On arrival at the venue (pilot study will occur at the Chiropractic Day Clinic, the researcher will set up a small research station at a site away from the main group of patients.
- You will have been approached by the researcher in order to screen you for participation.
- Once you have answered the questions and appropriately completed the face-to-face interview, you will have been given a letter of information and informed consent or assent to read (which you are currently doing).
- Once completed you will place this into a ballot box marked A.
- You will then be given an anonymous data sheet and a questionnaire to complete. Please make sure that this data sheet does not contain identifying information (such as your name).
- The completed documents will then be placed in ballot box B.

The second part of the pilot study will require that you complete a questionnaire about your experience, indicating things that you may wish to alter in order for the questionnaires or the procedures to be more patient friendly and to increase the likelihood that patients like yourself will complete the required documents.

Once the researcher has completed three to five pilot studies the researcher will take all the comments and make the necessary changes to the questionnaire to facilitate ease of use. Your obligation to the study ends once the pilot study is over, and I as the researcher thank you for your contribution to my study.
Risks/discomforts and Benefits
None to be expected from the pilot study process.

Remuneration: You will not be awarded any remuneration for taking part in this pilot study.
Cost: Your participation in this research is free of charge.

Confidentiality:
Your personal information will remain confidential. Your participation in this study is voluntary and refusal to participate will not result in any adverse consequences. You are free to withdraw from this expert group at any time. Video recording will also remain strictly confidential with access to the recording only by the researcher, the research supervisors and potentially the research examiners.

Should there be a research related injury: None to be expected from your participation in the pilot study.

Persons to contact in the event of any Problems or Queries:
Supervisor: Dr G. Matkovich (M.Tech: Chiropractic) (0825683986)
Co-Supervisor: Dr. C. Kell (M.Tech: Homeopathy) (031 3732406)
HREC Research Administrator (IREC) Tel: 0313732900

Statement of Agreement to Participate in the Pilot Study:

I, ...Subject's full name

.....(ID number) have read this document in it is entirely and understand its contents. Where I have had any questions or queries, these have been explained to me by Dean Rieder to my satisfaction. Furthermore, I fully understand that I may withdraw from this study at any stage without any adverse consequences and my future health care will not be compromised. I, therefore, voluntarily agree to participate in this study.

Subject's name (print) .....

Subject's signature. .....Date.....

Researcher's name (print) .....

Researcher's signature .....Date.....

Witness name (print) .....

Witness signature .....Date.....

Appendix F3 Pilot study review form

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 ☐
- 1.2 Interesting ☐
- 1.3 Average ☐
- 1.4 Boring ☐
- 1.5 Very boring ☐

2 Do you think the topics raised in this questionnaire were adequately covered?

- 2.1 Yes ☐
- 2.2 No ☐

3 What is your opinion about the covering letter?
(Please mark one box only)

- 3.1 Very clear ☐
- 3.2 Clear ☐
- 3.3 Adequate ☐
- 3.4 Unclear ☐
- 3.5 Needs revising ☐

4 How would you describe the instructions accompanying each of the questions?
(Please mark one box only)

- 4.1 Very clear ☐
- 4.2 Clear ☐
- 4.3 Adequate ☐
- 4.4 Unclear ☐
- 4.5 Needs revising ☐

5 Do you think the questionnaire is too long?

- 5.1 Yes ☐
- 5.2 No ☐

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 ☐
- 6.2 The meaning of **most** questions is clear ☐
- 6.3 There is too much chiropractic/ medical jargon ☐
- 6.4 The questions will not be understood by lay persons ☐
- 6.5 The questionnaire needs to be revised because it is unclear ☐

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.

Appendix G1 Post pilot – main study questionnaire

Questionnaire:					
		Strongly agree	Neutral	Strongly Disagree	N / A
Knowledge of the clinic					
1	I was referred to this clinic via another health professional.				
2	I heard about this clinic via word of mouth and friends.				
Environmental Questions					
3	The clinic is located in a safe area.				
4	The waiting area at the clinic is comfortable.				
5	The people at the clinic are generally friendly and helpful.				
6	Travel to the clinic is easy.				
7	The clinic did not meet my hygiene expectations.				
8	I did not feel comfortable in the consultation room.				
9	I think the clinic has everything that is needed to provide good treatment.				
10	It was expensive for me to get to the clinic.				
11	The clinic had appropriate toilet facilities.				
12	The clinic did not have facilities for disabled patients.				
Reception and waiting area					
13	I was able to schedule appointments that were convenient for me.				
14	It was difficult for me to obtain an appointment in the clinic.				
15	The clinic staff were not efficient in scheduling appointments.				
16	The clinic staff did not inform me of potential delays in my appointment.				
17	The clinic staff were able to talk to me in my home language.				
18	The clinics' office hours were convenient for me.				
19	The clinics' staff were helpful and courteous and polite.				
20	In an emergency, it is easy for me to see my student doctor.				

		Strongly agree	Neutral	Strongly Disagree	N / A
Finance					
21	The cost of treatment is expensive.				
22	My Medical aid/insurance provided full coverage for the cost of my care.				
23	The clinics fees where reasonable.				
24	A fee reduction option was offered to me, provided it met certain requirements.				
The student doctor					
25	The student doctor introduced themselves to me.				
26	The student doctor was appropriately dressed to meet my expectations.				
27	I was not able to understand my student doctor fully due to language barriers.				
28	The student doctor was prompt and on time.				
The assessment					
29	My student doctor did not examine me as well as I expected.				
30	My student doctor examined me with respect and concern.				
31	My student doctor made me feel uncomfortable during the assessment.				
32	My student doctor good and exceeded what was expected to help me.				
33	I am happy that the student doctors have the ability to consult with a qualified supervisor.				
34	My student doctor rushed my assessment and did not give me the time I deserved.				
Treatment					
35	I think that my student doctor should have spent more time with me during my treatment session.				
36	My student doctor treated me with respect and concern.				
37	My student doctor made me feel uncomfortable during the treatment physically.				
38	My student doctor was very good with the treatment.				
39	I am happy that the student doctors have the ability to consult with a qualified supervisor when treating me.				
40	My student doctor seemed to rush my treatment and did not give me the time I deserved.				
41	My student doctor took too long to run through basic procedures.				

		Strongly agree	Neutral	Strongly Disagree	N / A
Overall Care					
42	I am satisfied with the care I have received.				
43	All of my questions were answered by my student doctor.				
44	My student doctor did his/her best to keep me from worrying about my complaint/condition.				
45	My student doctor gave me suggestions on what I could do to help me with my condition.				
46	My student doctor was interested in all my health problems.				
47	I would recommend this student doctor to a friend or relative.				
48	My student doctor gave me advice on how to prevent future complaints from occurring.				
49	The care I received could have been better.				
50	Improvements in my conditions took longer than I expected.				
51	My student doctor made me feel important at all times.				
52	I feel I had to see my student doctor more than I should have.				
53	I would recommend chiropractic treatment to others.				
54	My student doctor provided information regarding my health concerns without me asking.				
55	My student doctor explained to me about the different treatment options.				
56	I understand the term 'Chiropractic' and the treatment it includes.				
57	The treatment I expected was the same as the treatment I received.				
58	My student doctor took the time to explain to me about the benefits of chiropractic treatment.				
59	My student doctor explained to me about the risk factors of Chiropractic treatment.				
60	My student doctor ensured I made an informed decision when agreeing to my Chiropractic treatment.				
61	Improvements in my condition took the amount of time that I expected.				
62	I feel like my student doctor stopped treatment sessions before I was completely healed.				
63	I felt that my student doctor did everything possible to try and help me.				
64	My student doctor ensured that I understood everything being discussed.				

		Strongly Agree	Neutral	Strongly Disagree	N / A
Future Care					
65	I prefer a female student doctor treating me.				
66	I prefer a male student doctor treating me.				
67	I am not happy with this clinic.				

There were no changes in the pre-pilot study questionnaire to the post pilot study questionnaire due to no changes and suggestions recommended by the participants.

STUDENT NAME----------

SIGNATURE---------- DATE----------

SUPERVISOR NAME----------

SIGNATURE---------- DATE----------

Appendix G2 Main study – letter of information and informed consent

Letter of information and informed consent. Main study.

DEAR PARTICIPANT

Welcome to my research project. Thank you for taking the time to consider participating in my study.

TITLE OF RESEARCH STUDY:

Patient satisfaction at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).

Principal investigator:	Dean Scott Rieder
Supervisor:	Dr. G. Matkovich (M.Tech: Chiropractic) (0825683986)
Co-Supervisor:	Dr. C. Kell (M.Tech: Homeopathy) (031 3732406)

Introduction and Purpose of the study:

When describing patient satisfaction and perception of a clinical service, a congruency between what you expect and what you actually receive, results in satisfaction. It can therefore be deduced that your satisfaction is an important, desired measure of quality care and can greatly influence your perception of the quality of care and outcome of treatment, thereby holding great value to the treating clinician. With greater satisfaction on your part comes improved, compliance with your treatment and advice, loyalty to your clinician and positive referrals. On the other hand, dissatisfaction usually results in non-compliance, negative outcomes, negative word of mouth referrals and even legal action.

No research has been done on patient satisfaction on DUT Satellite Clinics. This research will therefore assist in establishing a baseline level of patient satisfaction at these clinics.

In order to effectively measure your satisfaction, it is important to be able to document your feelings and responses with regard to the service that you experience at the DUT Satellite Clinics. Aims and Objectives are as follows:

Aim :
- The aim of this study is to determine the patient satisfaction level at the Durban University of Technology Chiropractic Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).

Objectives :
- To determine the demographic profile of the patients at the DUT Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).
- To determine the level of satisfaction of patients at the DUT Satellite Clinics.
- To determine the factors affecting the level of satisfaction at the DUT Satellite Clinics.
- To correlate and determine any relationships between the demographics, level of satisfaction and the factors affecting satisfaction.

To be included in the pilot study, you are required to conform to the following criteria:

Inclusion criteria:
- Any patients attending the clinic that have signed the informed consent / assent form.
- New patient visits and follow up visits will be included for all patients,
- All ages and
- All races will be able to partake in the study.

Exclusion Criteria
- Patients not present at the clinic on the days of data collection.
- Patients under the age of 18 without signed assent and parental informed consent form will not be able to partake in the study.
- No expert group participant.
- No pilot study participant.
- No persons involved in the approval of the research.

Main study procedure:

- On arrival at the venue, the researcher will set up a small research station at a site away from the main group of patients.
- You will have been approached by the researcher in order to screen you for participation.
- Once you have answered the questions and appropriately completed the face-to-face interview, you will have been given a letter of information and informed consent or assent to read (which you are currently doing).
- Once completed you will place this into a ballot box marked A.
- You will then be given an anonymous data sheet and a questionnaire to complete. Please make sure that this data sheet does not contain identifying information (such as your name).
- The completed documents will then be placed in ballot box B.

Risks/discomforts and Benefits
None to be expected from the pilot study process.

Remuneration: You will not be awarded any remuneration for taking part in this pilot study.
Cost: Your participation in this research is free of charge.

Confidentiality:
Your personal information will remain confidential. Your participation in this study is voluntary and refusal to participate will not result in any adverse consequences. You are free to withdraw from this expert group at any time. Video recording will also remain strictly confidential with access to the recording only by the researcher, the research supervisors and potentially the research examiners.

Should there be a research related injury: None to be expected from your participation in the study.

Persons to contact in the event of any Problems or Queries:
Supervisor: Dr G. Matkovich (M.Tech: Chiropractic) (0825683986)
Co-Supervisor: Dr. C. Kell (M.Tech: Homeopathy) (031 3732406)
HREC Research Administrator (IREC) Tel: 0313732900

Statement of Agreement to Participate in the Main Study:

I, ...Subject's full name

.....(ID number) have read this document in it is entirely and understand its contents. Where I have had any questions or queries, these have been explained to me by Dean Rieder to my satisfaction. Furthermore, I fully understand that I may withdraw from this study at any stage without any adverse consequences and my future health care will not be compromised. I, therefore, voluntarily agree to participate in this study.

Subject's name (print) .....

Subject's signature. .....Date.....

Researcher's name (print) .....

Researcher's signature .....Date.....

Witness name (print) .....

Witness signature .....Date.....

Appendix G3 Face to face screening document

Name of patient:		
Date of face-to-face interview:		
Time of face-to-face interview:		
	Question	Answer required to participate
1	Are you willing to take some time to answer my research questionnaire?	Yes
2	Is your home language English?	Yes
3	If your home language is not English, would you like an interpreter?	Yes
4	If you would like an interpreter would you be happy for the interpreter to know your responses?	Yes
5	Are you under the age of 18 years?	No

Patient met the inclusion criteria YES

Patient did not meet the inclusion criteria YES

Researcher Name _____

Researcher Signature _____

Patient Name

_____

Patient Signature _____

Appendix H Demographic data collection form

Dear Participant,

Thank you for participating in my study, which is titled: Patient Satisfaction at the Durban University of Technology Satellite Clinics (Marburg Haven) and (Narain Jeawon Vedic Centre).

This study is therefore based on responses that you have agreed to provide in this questionnaire, based on your signature on the Letter of Information and Informed Consent.
It is however important that I remind you again, that anything you will be writing down is both:

- Confidential as only my research supervisors and I will have access to the questionnaire responses on an individual level (that is this questionnaire)
- Anonymous
  - As you are not required to place your name on this questionnaire
  - You will be placing the questionnaire and the Letter of Information and Informed Consent into separate ballet boxes so that neither my supervisors nor myself can identify which questionnaire belongs to which Letter of Information and Informed Consent.

The questionnaire should not take more than 20 minutes to complete.

Place a cross in the appropriate box that corresponds with the answer that you feel is most appropriate to you.

Thank you

Dean Rieder

Demographics:											
1	Age (In Years)		2	Gender	Female	Male					
3	Ethnicity	Black	Coloured	Indian		Other:					
4	Visit	New patient	Follow up patient	5	Student doctor	5th year student	6th year student	Don't Know			
6	Venue	Marburg Haven Community Center				Narian Jeawon Vedic Centre					
7	Area of Complaint (you may choose more than one)	Headache	Neck	Mid Back	L	Shoulder	Arm	E	Forearm		Hand
		Fingers	Hip	Thigh	K	Leg	Ankle	F	Toes		Other:

8	Pain rating	0	1	2	3	4	5	6	7	8	9	10
		Best / no pain				A						Worst Pain
9	Condition(s) being treated for											
10	Have you been treated for the above conditions?				Yes	What was the outcome?			Worse			No change
11	What is your main source of primary income?			Salary		Social Grant			Disability Grant		Extended Family	Other:

Appendix I1 Control log for main study questionnaires

1		33		65		97		129	
2		34		66		98		130	
3		35		67		99		131	
4		36		68		100		132	
5		37		69		101		133	
6		38		70		102		134	
7		39		71		103		135	
8		40		72		104		136	
9		41		73		105		137	
10		42		74		106		138	
11		43		75		107		139	
12		44		76		108		140	
13		45		77		109		141	
14		46		78		110		142	
15		47		79		111		143	
16		48		80		112		144	
17		49		81		113		145	
18		50		82		114		146	
19		51		83		115		147	
20		52		84		116		148	
21		53		85		117		149	
22		54		86		118		150	
23		55		87		119			
24		56		88		120			
25		57		89		121			
26		58		90		122			
27		59		91		123			
28		60		92		124			
29		61		93		125			
30		62		94		126			
31		63		95		127			
32		64		96		128			

Appendix I2 Control log for main study letters of information and informed consent

1		**33**		**65**		**97**		**129**	
2		**34**		**66**		**98**		**130**	
3		**35**		**67**		**99**		**131**	
4		**36**		**68**		**100**		**132**	
5		**37**		**69**		**101**		**133**	
6		**38**		**70**		**102**		**134**	
7		**39**		**71**		**103**		**135**	
8		**40**		**72**		**104**		**136**	
9		**41**		**73**		**105**		**137**	
10		**42**		**74**		**106**		**138**	
11		**43**		**75**		**107**		**139**	
12		**44**		**76**		**108**		**140**	
13		**45**		**77**		**109**		**141**	
14		**46**		**78**		**110**		**142**	
15		**47**		**79**		**111**		**143**	
16		**48**		**80**		**112**		**144**	
17		**49**		**81**		**113**		**145**	
18		**50**		**82**		**114**		**146**	
19		**51**		**83**		**115**		**147**	
20		**52**		**84**		**116**		**148**	
21		**53**		**85**		**117**		**149**	
22		**54**		**86**		**118**		**150**	
23		**55**		**87**		**119**			
24		**56**		**88**		**120**			
25		**57**		**89**		**121**			
26		**58**		**90**		**122**			
27		**59**		**91**		**123**			
28		**60**		**92**		**124**			
29		**61**		**93**		**125**			
30		**62**		**94**		**126**			
31		**63**		**95**		**127**			
32		**64**		**96**		**128**			

Appendix J1 Application for amendment of research numbers

Address
1 Park Lodge Gardens, 369 Berea Road, Durban
Date
28/08/2015

To Whom It May Concern
c/o Mr K Shange

Dear Mam / Sir,

Re : Application for an amendment

I would like to apply for an amendment to my Narain Jeawon Vedic Centre research numbers for my dissertation titled “Patient Satisfaction at the DUT Satellite Clinics”. During my data capture process over the last three months, there have only been 14 prospective patients attending the Narain Jeawon Vedic Centre over this data capture time period. I have currently seen all 14 of these patients and they have each completed the required questionnaire for my research.

On analysing the current active patient files at the Narain Jeawon Vedic Centre, I have observed that only 19 patients have attended this satellite clinic during this current year, 2015. As this satellite chiropractic clinic caters mainly for the surrounding geriatric population, reasons for this diminished patient attendance is due to patients moving cities, passing away or requiring alternative health care (Singh, 2015).

My original sample size for my data capture at Narain Jeawon Vedic Centre was approved at 33 active patients. This was calculated at 70% of the total 47 patient files at Narain Jeawon Vedic Centre. This total of 47 was calculated from all the patient files over the 6 years that the Narain Jeawon Vedic Centre satellite clinic has been running. However, the total sample in 2015 has decreased to 19 thus far. Therefore, if 70% of the current 19 active patients in 2015 is taken, the result is a sample size of 13 patients. As I have previously stated, I have obtained questionnaires from 14 patients, and so, although my sample pool has decreased, my percentage of 70% of the total sample pool has still been achieved.

This shows that in order for me to complete my research by the end of the year I would need an amendment to my Narain Jeawon Vedic Centre research numbers.
Yours Sincerely and in Gratitude,

.....	.....
Dean Rieder	Dr Matkovich
Researcher	Supervisor

Appendix J2 Letter from statistician on sample size reduction

9 Santa Cruz Crescent
La Paloma, Big Bay
Cape Town
7441

Dean Rieder
Chiropractic Department
DUT
27 August 2015

Re: Sample size reduction

Dear Dean
The sample size reduction that you have proposed from 33 to 14 patients will have the effect of a reduction in the precision of your estimates in any inferences you will make from the sample to the population, however, in a situation such as you describe, you do not have any other choice. Additionally, considering that the initial approved sample size of 33 was decided upon using 70% of the presumed population size, if the population size is now smaller and you are still using more than 70%, the risk of a biased sample is minimized. The statistical methods originally proposed will still be applied to the smaller sample, however, the practical and clinical importance of the results should be focussed on in studies such as this, rather than the statistical significance and precision. Since this study is mainly descriptive in nature, statistical power is not a necessary focus here.
Yours sincerely

Tonya Esterhuizen
Biostatistician