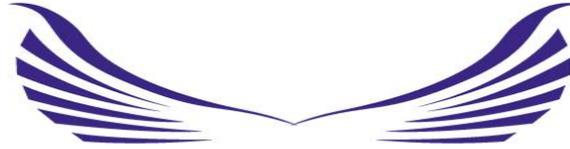




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Identification and evaluation of patient satisfaction determinants in medical service delivery systems within the South African private healthcare industry

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ABSTRACT

The aim of the study was to identify, evaluate and compare the determinants of patient satisfaction in fee-for-service, and health maintenance organisation (HMO), medical service delivery centres. Staff at both centres, who were also patients, were surveyed to determine the congruence with patients' quality improvement priorities. The survey was conducted using a questionnaire consisting of closed questions given to patients as they departed from the medical centres. The questionnaire was tested for convergent and divergent validity, content analysis and reliability. A rating scale was then applied to yield the scores for each determinant. The unique Patient Satisfaction Priority Index was determined using determinants that were rated low on satisfaction but high on importance. The results revealed that patients at the fee- for- service medical centre were significantly more satisfied than patients at the HMO. The priority index for patients were found to be different to that of the staff at both medical centres, proving that staff and patient priorities were incongruent. Accordingly, the recommendations were that patient satisfaction be continuously evaluated at medical service delivery centres, in order to achieve a competitive advantage, sustainability and growth in South Africa's highly competitive private healthcare industry.

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfillment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Name: Mahomed Yusuf Coovadia

Date: 13 November 2008

Sign:

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CHAPTER 1

INTRODUCTION TO RESEARCH PROBLEM

1.1 Introduction

The South African private healthcare industry is facing enormous competitive, financial, and regulatory burdens. In order to achieve a competitive advantage, healthcare companies need to differentiate themselves in the market and the best way to do so is by ensuring excellent service quality (Boshoff and Gray, 2004). Ruiz and Simon (2004) concur on the importance of service quality in healthcare and found that the most perplexing issue facing healthcare financiers and politicians is the debate on how to improve the quality of care delivered. According to Hollis (2006), there is a strong link between service quality and patient satisfaction. Tam (2007), who is of the same opinion as the previous authors, found that patient satisfaction was regarded as the most important indicator of quality of care, and that the quality improvement programs improve patient satisfaction, enabling medical providers to succeed in an increasingly competitive environment. It is well known throughout the healthcare industry that satisfied patients lead to improved financial outcomes, reduced risk management claims, decreased staff turnover, and increased patient loyalty (Drain, 2001).

As a result of the enormous pressure on the health service industry to respect the opinions of the public, there has been a shift in the definition of quality to include the consumer voice in the process of medical care. The focus on patient satisfaction is evident in the two leading healthcare groups in South Africa. Netcare has a subsidiary, Mediacross, which is essentially a Health Maintenance Organisation (HMO), has patient focus groups and

concedes, in their 2007 annual report, that patients are using publicly reported quality measures in making their choice of healthcare facility. Lifehealthcare group, which treats out-patients on fee-for-service basis, in their 2007 annual report, stated that ongoing quality training called “Q to the power e” and continuous patient satisfaction surveys are conducted. Therefore, patient satisfaction has come to be seen as a legitimate and desired outcome in itself; it has become an attribute of quality, a legitimate healthcare goal. Care cannot be of a high quality unless the patient is satisfied. This study will determine and evaluate the determinants of patient satisfaction in two different private healthcare centres, and then compare the satisfaction levels between the centres.

1.2. Research Problem

There is a vast amount of literature on the factors affecting patient satisfaction in a variety of different settings such as public hospitals (Zineldin, 2006), private hospitals (Boshoff and Gray, 2004), academic hospitals (Clever, Jin, Levinson and Meltzer, 2008), emergency departments (Vukmir, 2006), nursing care homes, and military medical centres (Jackson, Chamberlin and Kroenke, 2001). After an extensive review of the literature on the determinants of patient satisfaction, variations in the actual determinants were identified, and the relative importance of one determinant over another was prevalent (see literature review on determinants of patient satisfaction in Chapter Two). There were also numerous studies done on patient satisfaction with Health Maintenance Organisations (HMOs) in the United States of America (USA) - Born and Query (2004), Daniel Simonet (2005), and Gillies R.R., Chenok K.E., Shortell S.M., Paulson G, and Wimbush J.J. (2006) - but none that have been done in South Africa. Studies aimed at comparing the two types of general

practices (namely fee-for-service and HMO) in terms of patient satisfaction have been done in the USA, but with mixed results, according to Gillies et al (2006). Such a comparative study in terms of patient satisfaction in the South African private healthcare setting is also lacking.

1.3. Research Objectives

The objectives of this study are four fold:

The first objective is to ascertain the determinants of patient satisfaction in the South African private healthcare setting.

The second objective is to compare patient satisfaction levels in two different healthcare centres. The one healthcare centre (Goldman Medical Centre) consists of a solo physician, nurse, dentist, physiotherapist and psychologist that work on a fee-for-service basis. These healthcare providers are paid by the medical schemes for their service. The patients are members of various different medical schemes. The other healthcare centre (Platinum Health Medical Centre) is a HMO consisting of numerous physicians, nurses, dentists, physiotherapists and psychologists, employed on a salary basis and working at medical facilities / sites that are owned by the HMO. The patients that are members of this HMO are restricted to obtaining healthcare services at a HMO site only, and are therefore not allowed to visit healthcare providers of their choice.

The third objective of this study is to determine whether there is any congruence of the perceptions of healthcare quality between healthcare workers and their patients in the two different healthcare centres.

The final objective is to determine which of the two healthcare plans (medical scheme / fee-for- service or HMO) is superior in terms of patient satisfaction.

1.4. Research Scope

According to Eiriz and Figueiredo (2005), healthcare quality can be studied on two different levels. On one level, it can be assessed as a performance issue related to the entire healthcare system. On the organisational level, however, participants such as patients and doctors involved in service delivery can assess healthcare quality. It is to this organisational level that the scope of this study will be confined.

According to Donebedian (2005), there are three approaches that can be used to study quality of healthcare at the organisational level. The first approach studies the outcome of medical care, in terms of recovery, restoration of function and of survival. Examples are studies of pre-natal mortality, surgical fatality rates and social restoration of patients discharged from psychiatric hospitals. This approach has limitations in that many factors other than medical care may influence the outcome and furthermore, some outcomes are not clearly defined and / or are difficult to measure.

The second approach is to examine the process of care itself, rather than its outcomes. This approach includes the assessment of technical competence in the performance of diagnostic and therapeutic procedures. The limitation with this approach is that patients have difficulty in assessing technical aspects of medicine (Rao, Clarke, Sanderson and Hammersley, 2006).

The third approach is that of studying not the process of care itself, but the settings in which it takes place, and the instrumentalities of which it is the product. This approach is

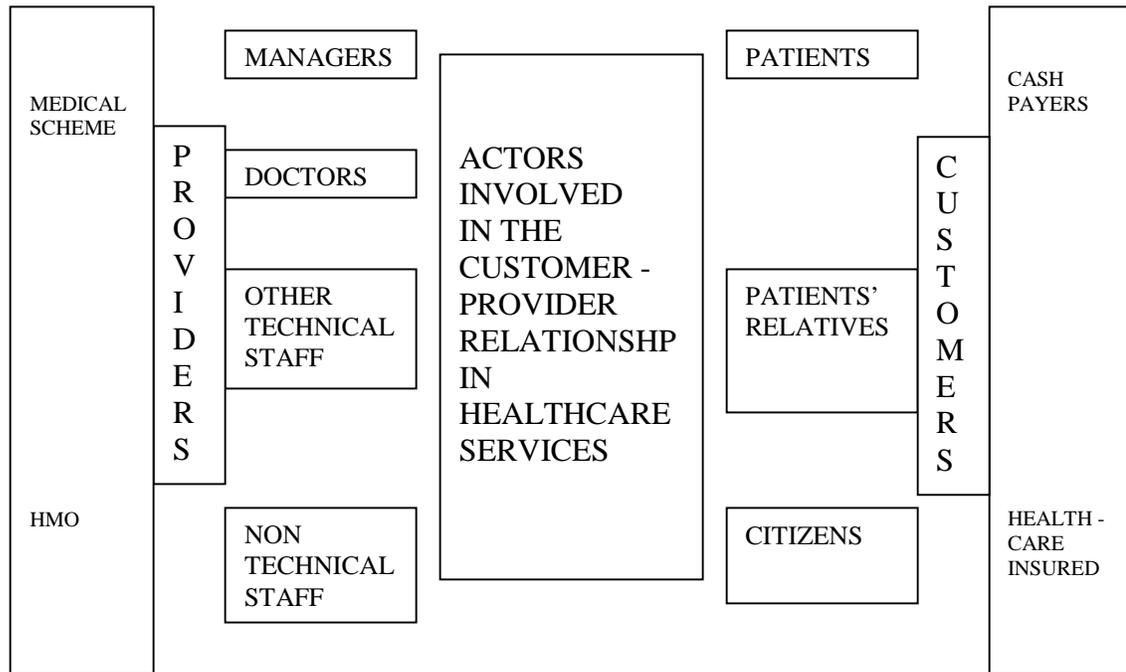
concerned with such things as adequacy of facilities and equipment, administrative structure, operation of programs and quality medical and non medical staff. This approach offers the advantage of dealing with fairly concrete and accessible information. According to Donebedian (2005), there were two classical studies that set the groundwork for research using this approach . The one that evaluated structural characteristics was done by Goldmann and Graham (1954), and the one that evaluated the characteristics of physicians was done by Peterson (1956). Since then, many researchers have followed this approach in determining healthcare quality.

This study follows the third approach because of the advantage of being able to obtain assessments from patients and healthcare workers that can ultimately be used to improve the quality of healthcare at the organisational level.

Given the nature of healthcare services, there are many participants in the provider–patient relationship. The main service provider actors are senior and middle managers, doctors, other technical staff (e.g. nurses) and non-technical staff. On the other side of the relationship, customers can be divided into patients, patients’ relatives and citizens.

Figure1. Participants in the customer – provider relationship in private healthcare services.

(adapted from Eiriz and Figueiredo, 2005)



In this study, the patients are categorised as medical aid patients and HMO patients. The medical aid patients are those patients who are members of various medical schemes currently operating in South Africa. These patients are free to access healthcare from any healthcare provider of their choice. The HMO patients are specifically those that are members of the HMO (Platinum Health) and, as such, can only obtain healthcare services from any of the HMO sites.

The healthcare providers in this study are categorised into Platinum Health HMO providers and Goldman Medical Centre providers. The basic difference between the two provider

categories lies in the different methods of remuneration. The Platinum Health HMO providers are employed by the HMO on a salary basis whereas the Goldman Medical Centre providers are paid by the various medical schemes on a fee-for- service basis. The two healthcare providers' perceptions of patient satisfaction will be evaluated to determine if their views are congruent to those of their patients.

There are also two different healthcare plans that are being evaluated in this study. The one is the medical scheme plan that allows freedom of choice to its member patients. The other plan is the type of managed healthcare plan of Platinum Health HMO which restricts its member patients to access healthcare from its sites only. The two healthcare plans will be evaluated on their overall patient satisfaction rating.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

The theory that is reviewed in this section describes the importance of service quality in the healthcare sector. The linkage between service quality and customer satisfaction will be justified. This is followed by a literature review, firstly on the determinants of patient satisfaction, secondly on the perceptions of healthcare workers on patient satisfaction and, thirdly on patient satisfaction with healthcare insurance plan. The literature review is concluded by reviewing the methods of measuring patient satisfaction with healthcare plans.

2.2. Service Quality Research

Two main bodies of research appear to have the greatest influence on the service quality. The first is the “Nordic” perspective, which defines dimensions of service quality in broad terms of functional and technical quality. The second, described by Brady and Cronin (2001) as the “American” perspective, examines service encounter characteristics or functional quality attributes such as reliability, responsiveness, empathy, assurance and tangibles. The essential difference is that the “Nordic” perspective defines service quality using overall categorical terms while the “American” perspective uses more descriptive terms.

The “Nordic” perspective is closely linked to the work of Gronroos (1984) who argues that customer perceived quality is influenced by a technical and functional dimension and that

the functional quality is more important, as long as the technical quality is at a satisfactory level, suggesting that a high level of functional quality may compensate for temporary problems in technical quality in overall assessments of service quality.

The “American” perspective, on the other hand, tends to use terms that describe service encounter characteristics (i.e. reliability, responsiveness, empathy, assurances and tangibles) and focuses on Gap Analysis, as espoused by the SERVQUAL model that recognises a key set of discrepancies or gaps exists regarding perceptions of service quality in relation to customer expectations of service quality. Service quality is a type of attitude related to satisfaction, that is described as the degree and direction of the discrepancy between the customer’s expectations and perception of the service (Parasuraman, Ziethml and Barry, 1985).

According to Brady and Cronin (2001), neither of the two perspectives are completely incorrect. The results of their study indicate that the “Nordic” perspective should incorporate a third dimension of environmental (facilities) quality and that the “American” perspective has determinants that should rather be considered as sub-dimensions, as opposed to direct determinants. Hence, Brady and Cronin (2001) developed a multiple service quality framework that incorporates the two perspectives.

The focus of this study is on the “Nordic” perspective and, more specifically, on the functional dimension of quality in healthcare delivery and the facilities dimension. The technical dimension was not evaluated in detail as this is the subject that medical personnel

would be more comfortable with if done by peers, rather than by patients. The technical evaluation must be done in conjunction with the functional evaluation in order to obtain an overall evaluation of the quality of service. In this study, it is assumed that the technical evaluations of the two medical centres are of an acceptable standard, and this is one of the limitations listed.

2.3. Importance of Service Quality

There have been numerous studies done on the importance of service quality and all the authors have concluded that financial survival and patient satisfaction are inextricably linked in the healthcare sector. Javetz and Stern (1996) were the first to observe the growing attention to quality improvement as a result of three important trends characterising the healthcare sector, namely:

1. The market has become progressively more competitive. Healthcare insurers and providers compete over market shares based on economic considerations as the paramount factor among other considerations.
2. There has been a growth in the consumption of private health services.
3. A marked growth in consumers' awareness of their rights in the health care sector.

Hollis (2006) agreed with the previous authors that the financial impact is an important consideration, but stressed that the movement toward management of consumer perceptions of healthcare quality is also important for the following two reasons:

1. Evaluations of quality are related to satisfaction and service re-use intent.

2. Quality improvement methods require the identification and meeting of patient expectations.

Furthermore he made the following 2 observations:

1. The literature suggests that sustainable competitive advantage for service organisations, such as those in the healthcare industry, is best attained through service quality and customer satisfaction as perceived by customers.
2. Improvements in service quality have been linked to increased profit margins, lower costs, positive attitudes towards the service by customers, and the willingness of customers to pay price premiums.

The previous two authors came to their conclusions after studying populations in developed countries. A different set of reasons for improving service quality in healthcare were found in developing countries by Zineldin (2006), who suggested the following reasons for improving quality:

1. Patient dissatisfaction with high costs and poor quality.
2. Quality methods give managers ways to solve problems, to influence the work and improve relations with health workers, and to provide ways to reduce waste and save money.
3. Unnecessary drugs, surgery, and laboratory investigations wastes resources and harms patients.

The author also agreed with the previous authors, that quality is a critical determinant of competitiveness and long-term profitability in both service and manufacturing organisations. However, he concluded that quality methods used in the developed countries

were not appropriate for developing countries, hence the different reasons given for quality improvement, compared to those of the previous two authors.

Raja, Deshmukh and Wadhwa (2007) supported the argument that quality management has emerged not only as the most significant and long term strategy for ensuring the survival of organisations, but also leads to business excellence. The authors concluded that declining reimbursement, new incentive structures and increasing competition, are placing unprecedented pressure on providers to deliver healthcare effectively and efficiently. Furthermore, the authors stated that most healthcare organisations are beginning to recognise the fact that quality is needed for survival.

James (2005) argued that the healthcare industry is shifting from competition based on price to competition based on quality and performance. Sofaer and Firminger (2005) agreed with the general consensus of market forces driving attention to service quality, but also identified another driving force — that is the emergence of a normative perspective on clinical practice emphasising the need to deliver patient-centered care.

Hence it is evident, from all of the authors mentioned in this section, that excellent service quality is vitally important for the financial survival of healthcare organisations.

2.4. The Link between Service Quality and Patient Satisfaction

Essentially the link according to, Fornell, Johnson, Anderson and Bryant (1994) is that service quality is one of three antecedents to patient satisfaction . The other two identified antecedents were expectation and perceived value.

Tam (2005) argued that satisfaction arises from a process of comparing perceptions of service with expectations. The initial expectations that patients have about care and services act as a major determinant of satisfaction. If perceived care falls short of expectations, the likely outcome is dissatisfaction. On the other hand, when those meet or exceed expectations, the result is likely to be an increase in the level of satisfaction. Zineldin (2006) stated that patient satisfaction was an important health outcome and quality measure. Badri, Attia and Ustadi (2008) believed that patients and their satisfaction are considered the most crucial point in the planning, implementation and evaluation of service delivery and that meeting the needs of the patient and creating healthcare standards were imperative towards achieving high quality. Hollis (2006) argued that there was a strong link between service quality and satisfaction, to the extent that it is believed that quality has been defined in other consumer-orientated industries as perceived satisfaction. Komashie, Mousavi and Gore (2007) found that the primary concern for quality comes from a pressing need to satisfy the customer. This has become a pre-requisite for staying in business and, according to these authors, most of the experts in the field such as Deming, Juran, Crosby, and Feigenbaum have argued that focusing on quality is more beneficial than focusing on profit.

Raja et al (2007) found that healthcare service quality is linked to activities, interactions and solutions to customer problems. In their systemic review of the quality of outpatient care, Sailia, Mattila, Kaila, Aalto and Kaunonen (2008) concluded that patient satisfaction is widely used as an indicator, amongst others, in assessing quality of outpatient care. Tucker and Adam (2001) found that the patients in their study appeared not to distinguish between satisfaction and quality when evaluating the care experiences.

In contrast to all of the above mentioned studies in this section, Merkouris, Papanthanassoglo and Lemonido (2004) were of the opinion that patient satisfaction and perception of quality are different concepts. The reason given by these authors was that there is no concurrence as to the degree and way unmet expectations affect overall satisfaction. Patients enter the healthcare system with a variety of characteristics, attitudes and prior experiences. This was the only study in which the authors held a view contrasting with the majority's view of service quality and patient satisfaction being linked.

2.5 Determinants of Patient Satisfaction

Marley, Collier and Goldstein (2004) differentiate between process quality and technical quality. Technical quality refers to the quality of “what” the patient receives and process refers to the quality of “how” healthcare services are delivered to the patient. These authors found that both technical and process quality were important to patients, and while clinical quality was the order qualifier, process quality was the order winner in the healthcare industry. Hence, the focus of this study will be on the determinants of process quality.

Sofaer and Firminger (2005) identified seven categories or dimensions that were important to patients:

1. Patient-centered care
2. Access
3. Courtesy and emotional support
4. Communication and information
5. Technical quality
6. Efficiency of care organisation
7. Structure and facilities

Anderson, Angela, Barbara, Weisman, Scholle, Binko, Schneider, Freund and Gwinner (2001) studied specifically women's perception of healthcare, using a sample of 137 women of different races in the United States of America. The study used 18 focus groups stratified by age and race / ethnicity and found the following determinants in order of importance – understanding women's health care and health needs (patient-centered care), accessing appointments (access) communication abilities of providers (communication and information), care co-ordination and comprehensiveness (efficiency of care organisation), provider clinical skills, including knowledge, training and experience (technical quality) and lastly, environment such as room temperature, seating and décor (structure and facilities). The authors concluded that the wide variation in experiences reported by the participants, both concurrently and retrospectively, suggested that women – focused healthcare may be uneven, or haphazard at best.

Attree (2001) studied the perceptions of doctors, nurses, managers, patients and their relatives in the United Kingdom. The study used a sample of 34 acute medical patients, employing semi-structured qualitative interviews. The results indicate that five of the seven dimensions were important – patient focus (patient-centered care), availability and accessibility to patients (access), open communication and information flow (communication and information), encouraging a close, sociable relationship (courtesy and emotional support) and holistic care (technical quality).

Ngo-Metzger (2003) examined factors contributing to quality of care from the perspective of Chinese and Vietnamese American patients with limited English knowledge skills. Twelve focus groups were conducted in Vietnamese, four in Cantonese and two in Mandarin. The results show that five of the seven dimensions were rated as important — providers know about and respect non-Western health beliefs and practices (patient-centered care), access to professional and non-scheduled visits (access), providers listen to what patient has to say (communication and information), respects patient preferences and shows emotional support (courtesy and emotional support), staff arrange follow-up appointments (efficiency of care / organisation).

Infante, Proudfoot, Davies, Bubner, Holton, Beilby and Harris (2004) studied the perceptions of patients with chronic conditions presenting at general practice settings in New South Wales and South Australia. Using focus groups, the authors found that all seven dimensions were rated as important - trusts and believes patients (patient-centered care), convenient consultation times (access), has good interpersonal skills (communication and

information), caring and compassionate (courtesy and emotional support), clinical skills (technical quality), good triage system (efficiency of care / organisation), and variety of clinical services (structure and facilities).

Hence, in some studies all seven determinants were found to be important in assessing service quality but in other studies, only five of the seven determinants were found to be important. Furthermore, the relative importance of each dimension varied in all of the above mentioned studies in this section. This variation might be attributed to the different settings (outpatients versus hospital patients) and / or sample populations (acute patients versus chronic patients) studied.

In the following three studies, the dimension of nursing care showed conflicting evidence as to whether nursing care was the most important factor.

Andaleeb, Siddiqui and Khandakar (2007) studied patient satisfaction at public, private and foreign hospitals in Bangladesh. Doctors' service orientation, followed by nurses' service orientation, and tangible evidence of facilities, were found to be the most important factors explaining patient satisfaction.

In contrast, Carman (2000) found that nursing care was rated as the most important issue whilst physician care was rated as third most important. The outcome of hospitalisation was the second most important issue.

In support of Carman (2000), Merkouris and Papathanassoglou (2004) studied in-patients at two large Greek public hospitals and found that patient satisfaction with nursing services

was of more importance, since owing to the very nature of nursing, patients may judge the overall quality of the medical services on the basis of their perceptions of the nursing care received.

Further evidence of the importance of nursing care, as perceived by patients in assessing the quality of healthcare, was produced by the study done by Muntlin, Gunninberg and Carlsson (2006). These authors identified nursing care in the emergency department as being the most important determinant of quality, followed by environment, nutrition, pain relief and transit time. Hence, the relative importance of nursing care as a dimension of service quality varies in different settings, but there is no doubt that it is an important dimension to be measured.

Waiting time was also found to be of varying importance in the following four studies:

Vukmir (2006), in his systemic review of the literature on customer satisfaction as it applies to current medical practice, found that the waiting time and the amount of caring were the most important determinants of patient satisfaction in the emergency department.

Saila et al (2008) found that the most important reasons for patient dissatisfaction with the quality of outpatient care were: having to wait for an appointment, the length of waiting time, communication and information received, duration of consultation, lack of reach

ability, lack of continuity, and not being able to participate in and contribute to decision making.

Tam (2007), in contrast to the two above-mentioned authors, found that waiting time was not the most important determinant of service quality but it is one of the nine identified factors that were key aspects of the medical service encounter that influenced patient satisfaction:

1. Doctors' technical quality
2. Doctors' interpersonal skills
3. Quality of nurses
4. Quality of support staff
5. Efficiency of appointment system
6. Waiting time
7. Duration of consultation
8. Physical environment
9. Respect for patient's privacy

The influence of waiting time on the satisfaction – loyalty relationship was explored in depth by Bielen and Demoulin (2007) in Belgium on radiological outpatients. The results confirm that waiting time satisfaction is not only a service satisfaction determinant, but it also moderates the satisfaction – loyalty relationship. Moreover, determinants of patient waiting time include the perceived waiting time, the satisfaction with information provided in the case of delays, and the satisfaction with the waiting environment. In addition, it was

shown that the waiting time satisfaction was a complete mediating variable in the perceived waiting time and service satisfaction link. The authors suggest that investment in improving services might be better spent on information and communication, rather than on physical facilities. Thus, it seems that waiting time is an important determinant — in some cases, the most important. Again, in different settings the importance would vary.

There was definite agreement on the importance of communication as one of the most important determinants of patient satisfaction, as evidenced by the following studies.

Anderson, Barbara and Feldman (2007) concluded that patient satisfaction ratings were highly influenced by a core of communication and follow-up care. The core qualities appear to be the most important, namely communication, access, inter-personal skills, care co-ordination and follow up. The quality of medical care processes, quality of healthcare facilities and quality of office staff followed in order of importance. The authors found that patients value more than just technical expertise, and that other factors such as access, engagement and personal attention are valued more. The practical use of their findings would be to place more emphasis in physician training on developing skills resulting in clearer communication, empathetic expression, and the support of patient information needs.

Saila et al (2008), in their systemic review of the literature on patient assessments of quality of outpatient care, found that the most important determinant of an outpatient's opinion of the quality of hospital care was the actual consultation with the doctor. Effective communication was found to be the key to patient satisfaction. The professional skills and competencies of staff members, their manners, service – mindedness, protection of privacy

and perceived usefulness of the visit were rated highly, but positive assessments were also given to the technical quality of medical care and the empathy of inter-personal care.

Clever, Jin, Levinson and Meltzer (2008) studied 3123 hospital patients and found that the relationship between patient communication ratings and overall patient satisfaction may be confounded by patient-level factors; for example, an association between ratings of communication behaviors and overall satisfaction could reflect reverse causation in which patients who are more satisfied with their care, are also more likely to rate their physician's communication behaviors highly. After controlling for such factors, there was evidence of a statistically significant and sizeable relationship between physicians' communication behaviors and overall patient satisfaction.

Carlsen and Aakvik (2006) investigated Norwegian general practitioners and their patients and found that patients had a strong preference for shared-decision making. The general practitioners also generally preferred shared-decision making, but to a lesser degree than patients. In contrast, the study done by Krupat, Rosenkrantz, Yeager, Barnard, Putnam and Inui (2000) in the United States found that the physicians in that country preferred shared-decision making to a greater extent than patients.

Most patients prefer a patient - centred communication (PCC) style, and use of PCC may improve both patient satisfaction scores and control of chronic disease [Epstein, Franks, Shields, Meldrum, Miller, Campbell and Fiscella (2005), Swenson, Buell, Zettler, White, Ruston, and Lo (2002), Mead and Bower (2002), Mead, Bower and Hann (2002)].

However, Roher, Wilshusen, Adamson and Stephen (2008) studied patients from a family medicine clinic in Rochester (USA) and found that reliance solely on patient-centred communication to promote empowerment may be insufficient, as well as costly. Instead, the authors suggest that improved one-on-one communication between patients and providers should be reserved for clinically complex and urgent situations. They further suggest that for other health matters, referral of patients to community health promotion and education programs should be considered as this may offer a lower-cost approach to empowerment.

Tucker and Adams (2001) found that issues related to interpersonal relations between patients and providers were by far the most significant in predicting patients' assessments. The second most significant issue was that of access. Thus, the importance of good communication as a determinant of patient satisfaction is conclusive, but the relative importance might vary in different settings.

Strong evidence for the use of teams in healthcare to increase patient satisfaction levels was found in the following study. Wagner (2000) found that healthcare practitioners who implemented teams achieved improvement in administrative and support functions, as well as core health care services. Furthermore, he found that by providing functions that the doctor cannot provide efficiently or effectively, such as counselling or laboratory tests, patient care teams (PCTs) improved health outcomes and reduced costs. PCT is defined as a group of diverse clinicians who participate in, and communicate regularly about, the care of a specific group of patients. Deeter-Schmelz and Kennedy (2003) found that the use of

patient care teams (PCTs) improved patient satisfaction. More importantly, the authors found that cohesion within the team was linked directly to quality of care that, in turn, was associated with patient satisfaction. The suggestion was that managers can help facilitate in PCTs to provide higher levels of quality care and patient satisfaction. The table below summarises the key determinants identified by various authors.

Table 1 : Summary of Studies on Determinants of Patient Satisfaction

Year	Author / s	Purpose of study	Sample	Determinants Identified
2005	Sofaer and Firminger	Empirical study of literature on determinants of patient satisfaction	First four studies shown below	1. Patient-centred care
				2. Access
				3. Courtesy and emotional support
				4. Communication and information
				5. Technical quality
				6. Efficiency of care organisation
				7. Structure and facilities
2001	Anderson et al	Examine womens' concepts and definitions of healthcare quality	137 women of various races	1. Understanding women's healthcare needs and privacy
				2. Accessing appointments
				3. Communication abilities of providers
				4. Care co - ordination
				5. Provider's clinical skills
				6. Temperature, seating and decor

2001	Attree	Investigate patients and relatives' perceptions of care and evaluations thereof	34 Acute medical patients in United Kingdom	1. Patient involvement
				2. Availability and accessibility to patients
				3. Open communication and information flow
				4. Encourage close and sociable relationship
				5. Holistic care
2003	Ngo- Metzger	Chinese and Vietnamese American patients' perceptions of care	Chinese and Vietnamese American patients at an American Health Centre sample size = 122	1. Provider's knowledge and respect of non- Western health beliefs
				2. Access to care and interpreters
				3. Providers listen to patients
				4. Respect for patient's preferences
				5. Staff arrange follow-up appointments
2004	Infante et al	Chronic Patients perceptions of quality in general practice	76 patients in New South Wales and South Australia	1. Trusts and believes patient
				2. Convenient consultations times

				3. Good interpersonal skills
				4. Caring and Compassionate
				5. Clinical Skills
				6. Good triage system
				7. Variety of clinical services
2007	Andaleeb, Siddiqui and Khandakar	Patient Satisfaction at a private and public hospital	Bangladesh Sample =400	1. Doctors' service orientation
				2. Nurses' service orientation
				3. Facilities
2000	Carmen	Service quality at acute care hospital	Acute care patients, Illinois, USA	1. Nursing care
				2. Hospitalisation
				3. Physician care
2004	Merkouris and Papanthanassogeou	Patient satisfaction	Public Hospitals in Greece	1. Nursing service
2006	Muntlin et. al	Patient perception of quality of care in emergency department	Emergency department in Sweden	1. Nursing care
				2. Facilities/ environment
				3. Pain relief
				4. Waiting time
2006	Vukmir	Systemic review of literature	Emergency department	1. Waiting time
				2. Care
2008	Saila et. al	Methods used to assess quality of care	Systemic review of literature in Cochrane Database. 35 articles	1. Waiting for appointment
				2. Waiting time
				3. Communication
				4. Lack of accessibility

				5. Lack of continuity
				6. Lack of involvement in decision making
2007	Tam	Investigate improvements in service quality on patient satisfaction	1012 patients at Hong Kong hospital	1 Doctors' technical quality
				2. Doctors' interpersonal skills
				3. Quality of nurses
				4. Quality of support staff
				5. Efficiency of appointment system
				6. Waiting time
				7. Duration of consultation
				8. Physical environment
				9. Respect for privacy
2007	Bielen & Demoulin	Satisfaction - Loyalty Relationship	Belgian radiological patients	Waiting time
2007	Anderson Barbara & Feldman	Key qualities influencing patient satisfaction	5030 internet surveys	1. Communication
				2. Follow-up care
2008	Clever et al	Relationship between physicians' communication and patients' overall satisfaction	3123 Hospital patients' records	Physician Communication
2006	Carlson & Aakvik	General practitioners' attitude to communication	41 Norwegian GPs and 829 of their patients	Shared decision making
2000	Krupat et al	Physician orientation and patient satisfaction	400 physicians and 1020 of their patients in Boston , USA	Shared decision making
2008	Roher et al	Relationship between patient centred care and patient satisfaction	680 adult patients from Medicare clinic in Rochester, USA	One to one communication for complex clinical situations
2001	Tucker & Adams	Assessment of satisfaction and service quality	89079 military patients	Interpersonal skills
2001	Wagner	Role of patient care teams in chronic disease management	Literature review	Patient care teams

2005	Deeter-Sihmelz & Kennedy	Antecedents and consequences of team cohesion	Patient – centred – teams Birmingham England	1. Patient care teams
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How stable are patient’s ratings of quality?

Jackson, Chamberlin and Kroenke (2001) studied 500 retired military patients who were walk-in patients seeing new physicians because of a symptom. Patient ratings of the quality of the visit went up over time: 52% rated their overall care as excellent immediately post visit, 59% gave an excellent rating two weeks later, and 63% an excellent rating three months later. Of greater interest - there were some changes in the determinants of satisfaction, and of dissatisfaction, over these three points in time. Multi-variate analysis revealed that 26% of the variance in immediate post-visit satisfaction was determined by age (older patients were more likely to give a high satisfaction rating), better functional status, having no unmet expectations, and getting an explanation of symptom cause and likely duration. Two weeks later, the predictors of satisfaction shifted. Those with shorter symptom duration, whose symptoms had improved, who were less worried about having a serious illness, who felt that the symptoms had not lasted longer than expected and had not required another physician visit, were more satisfied. These predictors were stable from two weeks to three months. Thus, initial satisfaction is linked to patient- physician interaction, whereas over time and distance from the interaction itself, satisfaction shifts to the course and impact of the patient’s symptoms. In a similar study by Sofaer and Gruman (2003), participants’ rankings of the importance of different features of health changed over time. Prior to an intervention, ‘choice of provider’ was fourth most important, and after the

intervention it became second most important. Therefore, this study will survey patients at different times over a period of a month.

2.6. Providers' Perception of Patient Satisfaction

Nurses' views of patient satisfaction were studied by Lynn and McMillen (1999). These authors conducted a study to examine whether nurses know what patients actually think about nursing care. They surveyed 448 patients and 350 nurses using qualitative interviews, and ranking 90 different items in order of importance, as a determinant of patient assessment of nursing quality. Nurses were found to over-estimate the importance of trust, empathy, nursing competence, nurse's examination of patients, and explanation of status to the patient. On the other hand, patients gave significantly higher ratings to 46 of the 90 items than did the nurses, and gave high ranks to several very concrete items: nurse is skillful (ranked second most important); equipment needed for patient care is available (ranked third versus fifty-second); nurse gives patient medication on time (fourth versus forty-second); and nurse is there when patient needs him/her (ninth versus fourteenth).

Physicians' views on patient satisfaction were evaluated in the following three studies:

Laine, Davidoff, Lewis, Nelson and Nelson (1996) found that patients and physicians disagreed significantly about the relative importance of the provision of information, with patients ranking it second, and physicians ranking it sixth, most important. Jung, Wensing,

Olesen and Grol (2002), comparing patients and general practitioners, also found differences in ratings of care, but substantial similarities in ranking performance with respect to different features of care. General practitioners were more critical of the care provided than were their patients; general practitioners also underestimated how positively the patients rated their care. In ranking the features they felt were more positive, the correlation between patient and GP was 0.76 ($p < 0.001$). However, GPs rated their performance more positively on waiting time and being able to talk to the GP on the phone, whereas patients rated GP performance more positively on the communication of information and support. Thus, evidence from this study showed that patients' perceptions are in fact distinctive and that these perceptions may lead to different assessments of the quality of care.

Therefore, there seems to be divergent views from patients and providers on service quality. Vukmir (2006) proposes four models to describe the physician – patient relationship. The 'paternalistic model' ensures that patients receive interventions that best promote their health and well-being, with the physician acting as the guardian. The 'informative model' finds the physician a competent technical expert, who provides relevant information for the patient to make the correct decision. The 'interpretive model' finds the physician as counselor or advisor attempting to elucidate the values the patient actually wants. The 'deliberative model' enables the physician to act as a teacher helping the patient determine their best choices by eliciting desirable values. Ideally, the accomplished physician may use all approaches based on the patient encounter, in order to individualise care to the particular person.

2.7. Patients' Perceptions of Healthcare Plans

The single best source of information in the United States on how patients rate the quality of their health plans is the National Consumer Assessment Health Providers and Systems Benchmarking Database (NCBD). The 2004 report found that overall satisfaction was less than half, with 41% of adults in commercial plans rating their health plans a 9 or 10 on the scale of 0 for 'worst possible' and a 10 for 'best possible'. About 20% gave their plan a rating from 0 to 6. In contrast the SCHIP survey (surveys that address children's care) found that 70% of the respondents rated their plan a 9 or 10, and only 8% gave a rating of 0 to 6 (Sofaer and Firminger, 2005).

Schlesinger, Mitchell and Elbel (2002) found that 51% of their 2500 telephone sample respondents reported at least having one problem that they attributed in part to their health plan. Of the 1278 people reporting a problem, nearly 10% said it had caused a serious decline in their health, and 8.5% said it had caused them to incur large out-of-pocket expenses.

Carlson, Shaul, Eisen and Cleary (2002) compared the responses of commercial and public plans and found significant differences based on patient characteristics, such as educational level. These significant differences disappeared when the analysis controlled for patient characteristics such as educational level. Does this mean that people with different personal characteristics do not get the same kind of care? Similarly, Landon, Zavlavsky, Beaulieu, Shaul and Cleary (2001) found that the strongest predictors of performance were ownership and national affiliation; for-profit and national health plans scored lower on

almost all of the outcome variables. Clearly, these kinds of comparisons cannot be explained away easily and rather need to be examined further.

The literature on patient satisfaction with HMOs seems to vary. Gillies et al (2006) posited that health plans affiliated with group- or staff-model delivery systems deliver higher quality care than other plans because of greater integration across specialties and sites of care; decreased conflict among clinical protocols; more consistency of incentives and goals, and larger scale and more stable enrollment populations. On the other hand, a study by Baker, Hopkins, Dixon, Rideoutt and Geppet (2004) found that the high quality scores for staff-model delivery systems found at HMOs could be owing more to efficient administrative and data reporting systems, than to what the physicians themselves did. Mechanic (2004) is of the opinion that the main cause for public rejection of managed care plans found at HMOs is the explicit rationing at the point of service and the restriction on choice of health care provider. He suggests that negative anecdotes in the media and the regulatory initiatives that succeeded in diluting strong utilisation management controls, contributed to the current difficulties of containing large health cost increases. On the issue of whether choice of provider is an important determinant, the following study makes a strong case. Amyx, Mowen and Hamm (2000) studied the impact of patients' freedom to choose a physician and health locus of control on patient satisfaction. The results showed that patients with an internal health locus of control were more satisfied with having a choice of physician than not having a choice, and were also more satisfied than external health locus of control patients who had a choice. In contrast, patients with an external health locus of control did not discriminate between having, or not having, the opportunity

to choose a physician. The authors concluded by suggesting the following managerial implications:

1. By at least meeting patients' expectations during the treatment process (i.e. through choice offering and desirability of physician received), patients will probably be more satisfied.
2. Even when outcomes are held constant, patient satisfaction ratings will differ significantly, merely based on the manipulation of a single process variable - the freedom to choose a physician.
3. Word of mouth appeared to have a strong impact on patients' rating of doctors.
4. As a policy issue, choice in healthcare is not a dichotomous condition where patients either do, or do not, have a choice. Rather, choice in healthcare is something which may be offered in a continuum. Thus, managers should not get caught in the dilemma that they must offer either unlimited choice, or no choice at all.
5. The key to developing the right strategy for maximising patient satisfaction with healthcare is to recognise both patient perceptions and needs, and to implement a plan of action that exceeds patient expectations.

2.8. Measurement of Customer Satisfaction

SERVQUAL is a service quality measurement that is extensively applied and was developed by Parasuraman, Zeithaml and Barry (1985). The difference between customer perceptions and expectations is referred to as "the satisfaction gap dimensions". There are five dimensions to the SERVQUAL model, namely reliability, responsiveness, assurance,

empathy and tangibles. Applying the model to healthcare, reliability would refer to illness diagnostic precision. Responsiveness would refer to waiting time. Assurance would refer to professional knowledge. Empathy would refer to personal attention and caring. Tangibles would refer to ambiance of facility and quality of medical equipment. Boshoff and Gray (2004), who have done research in South Africa, support the use of SERVQUAL in assessing quality in healthcare. The original model had ten dimensions of measurements which were later reduced to five dimensions. According to Ramsaran – Fowler (2008), SERVQUAL has limited appropriateness in the healthcare setting and additional evaluation measurements are required to supplement SERVQUAL. Subsequently, a PRIVHEALTHQUAL was developed by Ramsaran-Fowler (2008). Boshoff and Gray (2004) also have some reservations about the use of SERVQUAL. Firstly, they believe that the original ten dimensions of measurement is better than the revised five dimensions of measurement. Secondly, they believe that the model has poor validity. Thirdly, in the absence of any credible alternative, the ten dimensional (original SERVQUAL) was chosen as a service quality measurement instrument in their study.

Zineldin (2006) also argues that the SERVQUAL dimensions are not sufficient in measuring quality in healthcare because the model identifies service quality gaps, but not their root causes. The 5Q model proposed by Zineldin [2006] therefore includes the dimensions of SERVQUAL as well as other attributes such as infrastructure, atmosphere and interaction between the healthcare staff and patients. The technical quality, referring to the quality of the service product (i.e. what the customer buys and whether the service fulfils its technical standards and specifications), and the functional or process quality, that

describes the way in which the service product is delivered, are the two qualities used as the building blocks of total quality in the 5Q model.

Friedman (2008), in his review of current measurement systems, stated that the most common rating of service is of the relationship of medical staff with their patients, or more specifically the communication. The Baldrige National Quality Programme was highly rated in his assessment, but this was aimed at hospital service measurement. The Hospital Consumer Assessment of Health Providers and Systems (HCAPS) is another rating system that measures patient satisfaction and quality of service, and has the advantage of the founders publicly reporting the data in the hope that hospitals will enhance their care and learn from patients' answers to priority questions.

The Thompson 100 Top Hospitals differs from the HCAPS by incorporating growth and financial factors, in addition to service and quality. However, according to Friedman (2008), since criteria are based on tangible numbers, the size of the hospital and its demographics may severely affect the results of the rankings, and may not accurately rate the hospital.

A mathematical model for measuring performance is the Kanji Business Excellence Measurement System (KBEMS). This rating system, and the others mentioned above, measures various other factors in addition to patient satisfaction, and were thus thought to be inappropriate for use in this study.

Drain (2001) argues that satisfaction ratings have not been mirroring objective reality. He dismisses many of the surveys as little more than report cards and is against surveys that ask patients a series of ‘yes’ or ‘no’ questions, serving only to reinforce assessment and stifles improvement. The survey instrument developed by the author was designed specifically for use in primary healthcare setting.

Since this study is also based in a similar setting, a modified version of the survey instrument was used to evaluate the following determinants of patient satisfaction:

1. Access to care
2. Office visit
3. Care provider
4. Personal issues
5. Overall assessment

All the studies in this literature review show different results for the various settings with some degree of similarity. This study attempts to identify the determinants that may or may not be similar between two different settings, or to any of the mentioned studies.

CHAPTER 3

RESEARCH QUESTIONS AND HYPOTHESES

Question 1

- a. What are the top ten determinants / items of patient satisfaction at Goldman Medical Centre?

- b. What are the top ten determinants / items of patient satisfaction at Platinum Health Medical Centre - HMO?

Question 2

- a. What are the priorities for quality improvement of patient satisfaction at Goldman Medical Centre?
- b. What are the priorities for quality improvement of patient satisfaction at Platinum Health Medical Centre - HMO?
- c. What are the priorities for quality improvement of patient satisfaction according to healthcare workers at Goldman Medical Centre?
- d. What are the priorities for quality improvement of patient satisfaction according to healthcare workers at Platinum Health - HMO?
- e. What are the general priorities for patient satisfaction in medical service delivery?

Question 3

- a. What are the underlying factors of patient satisfaction at Goldman Medical Centre?

b. What are the underlying factors of patient satisfaction at Platinum Health Medical Centre - HMO?

Question 4

What are the common core predictors that correlate most highly with recommending the two practices?

Hypothesis 1

Is there a difference in the overall satisfaction levels between Platinum Health Medical Centre and Goldman Medical Centre?

The null hypothesis is that there is no difference between the mean satisfaction levels of the two centres.

The alternate hypothesis is that there is a difference between the mean satisfaction levels of the two centers.

$H_0: \mu_1 = \mu_2$ where μ_1 and μ_2 are the mean overall satisfaction scores of patients attending Goldman Medical Centre and Platinum Health Medical Centre respectively.

$H_A: \mu_1 \neq \mu_2$.

Hypothesis 2

Is there a difference in the satisfaction levels experienced by the healthcare workers of Platinum Health Medical Centre and the healthcare workers of Goldman Medical Centre?

The null hypothesis is that there is no difference between the mean satisfaction levels of the Platinum Health Medical Centre healthcare workers and the Goldman Centre healthcare workers.

The alternate hypothesis is that there is a difference between the mean satisfaction levels of the healthcare workers of Platinum Health Medical Centre and the Goldman Centre healthcare workers

$H_0 : \mu_1 = \mu_2$ where μ_1 and μ_2 are the mean of satisfaction scores of healthcare workers at Goldman Medical Centre and Platinum Health Medical Centre respectively.

$H_A : \mu_1 \neq \mu_2$

CHAPTER 4

RESEARCH METHODOLOGY

4.1. Research Classification

According to Zikmund (2003), business research produces information to reduce uncertainty. Business research can be classified into three main classes based on the purpose or function, namely exploratory, descriptive and causal research. Descriptive research is undertaken to describe characteristics of a population or a phenomenon. Descriptive research is distinguished from exploratory research in that descriptive studies are based on some previous understanding of the nature of the research problem. The research undertaken in this study can therefore best be described as mainly descriptive, although it does incorporate an exploratory aspect, which was the factor analyses used to uncover unknown dimensions in the data.

4.2. Research Design

The research gathered data via a survey with a questionnaire. Zikmund (2003) describes a survey as a research technique in which information is gathered from a sample of people using a questionnaire. Surveys have the advantage of being quick, inexpensive, efficient and accurate means of assessing information about the population. Two major sources of survey error are random sampling error and systemic error. Systemic errors include respondent and administrative errors. Respondent errors include non-response errors and response bias. Administrative errors include data processing errors, sample selection errors, interviewer errors and interviewer cheating. These errors could have occurred in this study and can be considered as a limitation of this study .

Qualitative analysis involves the use of open-ended questions . In this study, the questionnaire consisted of closed questions, and therefore the analysis of the research can best be described as quantitative analysis.

4.3. Method of Administration

The methods available include personal interviews, telephone interviews and self-administered questionnaires. The self-administered questionnaires could be printed or electronic questionnaires. The criteria suggested by Zikmund (2003) to select appropriate methods include cost, speed of data collection, and anonymity. The chosen method of administering the survey was a self-administered questionnaire handed personally to patients in the consulting rooms and the completed questionnaires being collected after the consultation. The reason for collection after the consultation was that some members of the sample might be new patients who have not been consulted before. The questionnaire took on average about ten minutes to complete.

Pre-testing of the questionnaire involved a trial run with a group of respondents, consisting of patients and staff at both medical centres, and was conducted for the purpose of detecting problems in the questionnaire's instructions or design. The questionnaire was evaluated at this stage for evidence of ambiguous questions, potential misunderstandings, evidence that the question meant the same thing to all respondents, the point at which respondent fatigue set in, and places in the questionnaire where a respondent was likely to terminate.

4.4. Questionnaire Design

According to Zikmund (2003), the two basic criteria a questionnaire must meet if it is to achieve the researcher's purpose are relevance and adequacy. A questionnaire is relevant if no unnecessary information is collected, and if the information that is needed to solve the business problem is obtained. The adequacy of the questionnaire is determined by it being reliable and valid. The validity of the survey instrument was assessed by a variety of techniques:

1. The face, content, and consensus validity was determined by literature review and expert judgement.
2. Construct validity, (convergent validity and divergent validity) was assessed using exploratory factor analysis and confirmed by item total correlations.
3. Predictive validity was examined by measuring the instrument's ability to predict patients' intentions to recommend.

The questionnaire consisted of 29 questions. The questions were modified from the original questionnaire developed by Drain(2001). Patients completed the questionnaire after treatment at the centres. Refer to Appendix 1.1 for questionnaire.

4.5. Scale

Zikmund (2003) defines attitude as an enduring disposition to respond consistently in a given manner to various aspects of the world, including persons, events and objects. According to this definition, there are three components — namely cognitive, behavioural, and affective components. Direct verbal statements concerning affect, belief or behaviour

are utilised to measure behavioural intent. Obtaining verbal statements from respondents generally requires that the respondent perform a task such as ranking, rating, sorting or making a choice or comparison. Rating asks the respondents to estimate the magnitude of a characteristic or quality that an object possesses. Quantitative scores, along a continuum that has been supplied to the respondents, are used to estimate the strength of the attitude or belief. A multiple - response scale, ranging from very poor to very good, was used. According to Drain (2001), the multiple-response scale permits greater variability in patient responses and also allows for the prioritising of the quality improvement efforts. A Likert-type response scale was chosen with the following response anchors: very poor, poor, fair, good, and very good. This scale is both balanced and parallel so that responses could be quantified and differences analysed appropriately. Patient responses were converted to a point scale for data analysis as follows; very poor = 1, poor = 2, fair = 3, good = 4, and very good = 5. The “excellent - to - poor” scale (excellent, very good, good, fair and poor) was not employed because it is neither uni-dimensional nor balanced, response categories are inconsistent and responses on either side of the central category are not parallel. One cannot assume that the distance between “fair” and “poor” on the response continuum is equivalent to the distance between “very good” and “excellent.”. The 5-point scale has approximately equal intervals rather than ordinal, which permitted us to use parametric methods of analysis. (Stacey, 2005)

4.6. Sample

According to Zikmund (2003), it is important to carefully define the target population so that the proper source from which the data is to be collected, can be identified. In this

study, the target population can be identified as medical scheme members (and their dependants), managed healthcare members (and their dependants), and medical centre staff.

The sampling frame was patients that are consulted by a healthcare worker at the two medical centres, and the staff at both the centres.

The unit of analysis were patients from the two medical centres.

The most common criteria used in selecting a sample design are degree of accuracy, resources, time, need for statistical projections, geographic proximity of population elements and advance knowledge of population characteristics (such as availability of lists of populations members). There are several alternative ways of taking a sample. The two main groups are probability and non-probability techniques. In probability sampling, every element in the population has a known non-zero probability of selection. In a non-probability sampling, the probability of any particular member of the population being chosen is unknown. The ideal would be to obtain a probability sample, thus ensuring that the projections of the data beyond the sample would be statistically appropriate. In order to accomplish this within the research, a full list of members from the medical scheme and from the managed healthcare organisation would be required and then a simple random sample, systemic sample, stratified sample, cluster sample or multi-stage sample, would need to be chosen.

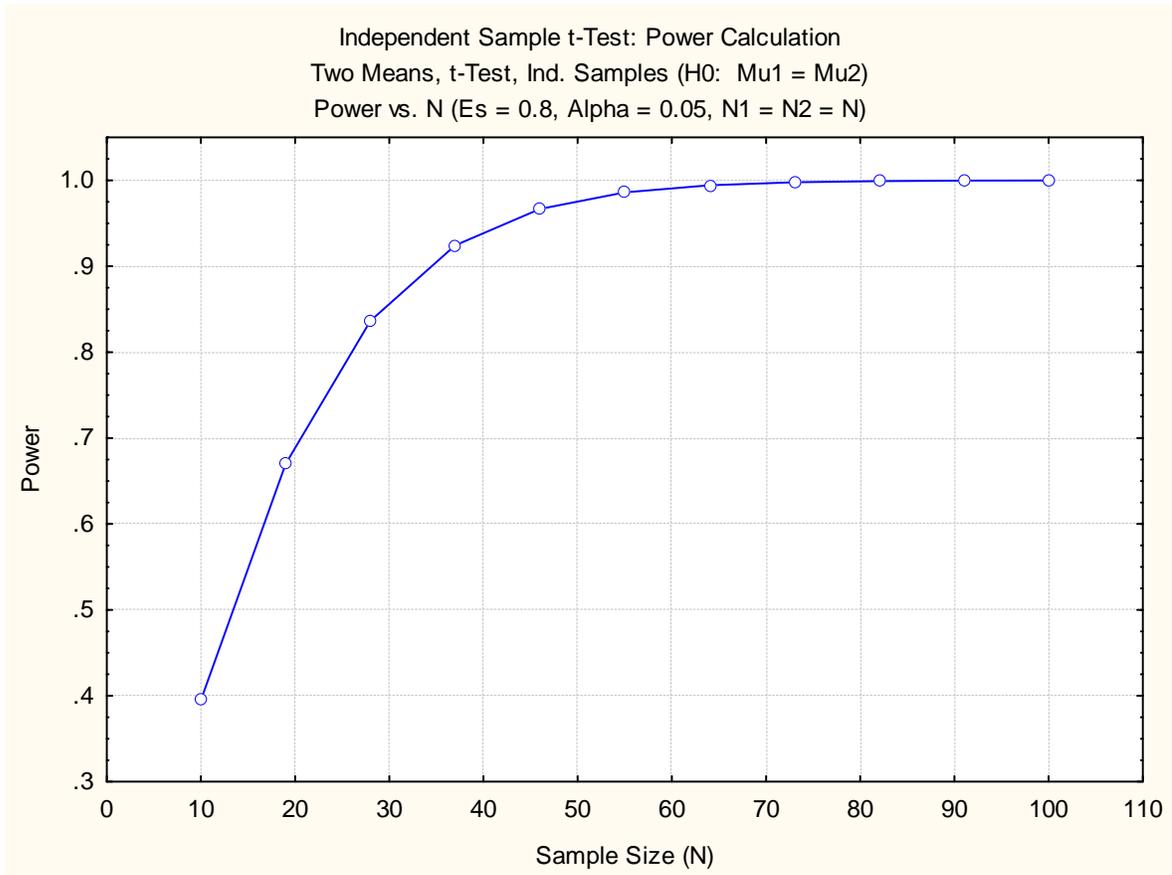
A non-probability sample, and in particular a convenience sample, was chosen for the purposes of this study. The disadvantage of using a non-probability sample such as a convenience sample is that variability and bias of estimates cannot be measured or controlled and projecting the data beyond the sample is inappropriate (Zikmund, 2003). However, the advantage of non-probability sampling methods is that there is no need for a list of population. This convenience sample is noted as one of the limitations of the research.

4.7. Sample Size

A sample size of 657 was used in this study.

According to Statistica's (data analysis software system) sample size calculator, a sample size of 65 observations per group is necessary for significance at the 5% level of significance, with power of .8 and a moderately large effect size, using an independent groups t test (see Figure2). A moderate effect size, assuming a standard deviation of 0.5 would equate to a difference between the means of the Goldman versus Platinum Health samples of 0.25 on a particular 5-point Likert-type item or scale. In other words, for a difference in sample means of 0.25 or more to be significant using a 5% level of significance, and a probability of 0.8 of detecting a significant effect correctly, one would need only 65 people in each group(Valentine and Cooper, 2003).

Figure 2 Sample Size Determination



The sample size used in this study exceeds the minimum requirements as determined in the above calculation.

Table 2 : Sample Subsets

Medical centre	Patient	Staff	Row
Goldman Medical	302	11	313
Platinum Health	305	39	344
All Groups	607	50	657

Table 2 above shows the sample size of the various groups that were used as the sample.

4.8. Statistical Analysis

This research extended the research conducted by Drain (2001) for items in the measurement scale as it produced a bi-variate scatter plot of item-total correlation ranks versus mean ranks. In so doing, the scatter plot for each category of respondent highlighted items highly correlated with overall scale satisfaction, but with relatively low mean satisfaction levels. Hence, items requiring attention were identified as priority items ranked in the priority index. The priority index was tabulated for the patients and the staff separately for the two medical centres.

Hypothesis tests were performed using t - tests.

4.9. Limitations of Research

1. A convenient sample was used as the basis of this study and therefore the results and conclusions may not be applicable to the general population.
2. Only one fee-for-service medical practice (Goldman Medical Centre) and one Health Maintenance Organisation (Platinum Health Medical Centre) was used in this study, and therefore the results and conclusions may not be applicable to all such medical centres.
3. The staff at both medical centres were patients of the respective medical centres as well. This might not be true for all medical centres, in which case the same questionnaire cannot be given to patients and staff when conducting research.
4. The questionnaire was designed to identify determinants of patient satisfaction as well as priority determinants for quality improvements. Separate questionnaires may be required, depending on the scope of study.
5. The assumption made in this study was that the technical abilities of care providers in the two medical centres were of an acceptable standard. This may need to be tested in future studies.

CHAPTER 5

RESULTS

5.1 Questionnaire Design Results

The survey instrument was found to be psychometrically sound across multiple tests of validity and reliability. The instrument was validated on tests of content, construct, and criterion validity and was found to be internally consistent across measures of item-total correlations, split-half reliability correlation and co-efficient alpha. The derived questionnaire consisted of three internally consistent scales – Access to Care, Office Visit, and Personal Connectivity.

Construct Validity

Exploratory factor analysis is a technique used to identify factors that explain as much variance in the data as possible. This helps to identify which questions belong together by reducing the items to a smaller number of underlying constructs, thereby revealing a questionnaire's underlying structure. As the underlying constructs were expected to be inter-correlated, oblique factor rotation was used to identify the extent to which each of the factors was correlated. The Kaiser criterion was used to drop all components with Eigenvalues under 1.0. Eigenvalues are also known as latent roots, and represent the amount of variance in the data accounted for by the factor. Kaiser's criterion revealed three factors. Perusal of the items that loaded highly on each factor revealed the descriptions of Care Provider, Access to Care, and Personal Connectivity. This 3-factor solution explained 70,5% of the total variance. Separate factor analyses were performed for the Platinum

Health Medical Centre and the Goldman Medical Centre, in addition to the factor analysis of the whole sample.

Convergent and Divergent Validity

Convergent validity is indicated by questions that are well correlated with their own scales measured by the extent to which items, designed to measure the same construct, load highly on the same factor, while divergent validity is indicated by the extent to which these highly correlated items have relatively lower loadings on factors represented by items measuring other constructs. In other words, discriminant or divergent validity was demonstrated by a pattern of factor loading that was high on one factor, and relatively lower on the other two factors.

Factor loadings are correlations between the original variables and the factors, and the key to understanding the nature of a particular factor. In this study, a Varimax factor analysis with oblique factor rotation was used to examine the convergent and divergent validity of the scale. Oblique factor rotation is factor rotation computed so that the extracted factors are correlated. Rather than arbitrarily constraining the factor rotation to an orthogonal solution, the Oblique rotation identifies the extent to which each of these underlying factors are correlated (Hav, Blaqc, Babin, Anderson and Tatham, 2007).

Eigenvalues represent the amount of variance that the factor accounts for. According to Kaiser's criterion, factors with Eigenvalues less than one should not be considered for further analysis. This method, together with the visual **scree** plot or plot of the cumulative

Eigenvalues of the three factors, was used in determining the number of factors underlying the item responses.

Predictive Validity

Predictive validity is defined as the ability of an instrument to predict outcomes that theoretically should be tied to construct measurement by the instrument. The predictive validity of a patient satisfaction instrument can be estimated by the degree to which individual items on the instrument predict the patient's intentions to recommend the clinic. Pearson's product moment correlation co-efficients revealed that all other items were significant predictors of the patient's reported likelihood to recommend the care provider, and that the items themselves were highly inter-correlated, suggestive of a situation of multi-co-linearity among the predictor variables . The questionnaire was highly predictive of patients' likelihood to recommend the practice, explaining approximately 78% of variance in this outcome variable. This figure was computed via the adjusted R^2 which represents the percentage variance in the outcome variable, the extent to which the patient would recommend the practice, taking into account the sample size and number of independent variables (items) included in the regression equation.

Instrument Reliability

The internal consistency of each scale was assessed by item – total correlations and Cronbach's alpha. All three scales exceeded the criterion 0.70 Cronbach's alpha standard for reliable measures: the coefficient alpha ranged from 0.93 for access, 0.94 for personal connectivity, and 0.96 for care provider. The Cronbach's alpha for the entire questionnaire

was 0.98, confirming the instrument's high internal consistency and reliability. Refer to Appendix 1.2.

Table 3: Cronbach's Alpha Values

Scale/ subscale	Items	Cronbach's alpha	Average item-total correlation	Range of item-scale correlations
Total scale	29	0.98	0.6	0.179
Care provider	9	0.96	0.62	0.13
Access	12	0.93	0.66	0.131
Personal connectivity	8	0.94	0.7	0.168

5.2 Top Ten Determinants

Question 1

1a. What are the top ten determinants / items of patient satisfaction at Goldman Medical Centre?

Table 4 : Top Ten Determinants / Items by Patients for Goldman Medical Centre

	Item / Determinants	Goldman Medical Patient means
1	28: Care received during my visit	4.575
2	27: Cleanliness of the practice	4.571
3	26: Cheerfulness of the practice	4.520
4	10: Friendliness/ courtesy of nurse/ assistant	4.485
5	21: My confidence in the care provider	4.478
6	18: Instruction on follow-up care by care providers	4.468
7	14: Explanation of my problem by care provider	4.463
8	16: Extent to which care provider includes me in decisions	4.460
9	20: Amount of time care provider spent with me	4.450
10	12: Length of waiting time in exam room	4.451

Table 4, above, shows the ten items that were rated highly by the patients at Goldman Medical Centre. The mean score was used to derive the top ten items. The item with the highest mean (i.e. care received) was the item that could be considered as the most important determinant for patients at Goldman Medical Centre.

1b. What are the top ten determinants /items of patient satisfaction at Platinum Health Medical Centre?

Table 5 : Top Ten Determinants / Items by Patients for Platinum Health Medical Centre

	Item / Determinants	Platinum Health Patient means
1	27: Cleanliness of the practice	4.017
2	13: Friendliness/ courtesy of care provider	3.937
3	25: Concern for my privacy	3.934
4	10: Friendliness/ courtesy of nurse/ assistant	3.930
5	28: Care received during my visit	3.910
6	6: Courtesy of registration staff	3.884
7	14: Explanation of my problem by care provider	3.867
8	17: Information about my medication given by care provider	3.861
9	2: Courtesy of person taking appointment	3.858
10	21: My confidence in the care provider	3.857

Table 5, above, shows the ten items / determinants that were rated highly by the patients at Platinum Health Medical Centre. The mean score was used to derive the top ten items. The item with highest mean (i.e. cleanliness of the practice) was the item that could be considered as the most important determinant of satisfaction for patients at Platinum Health Medical Centre

5.3 Priority Index

Question 2

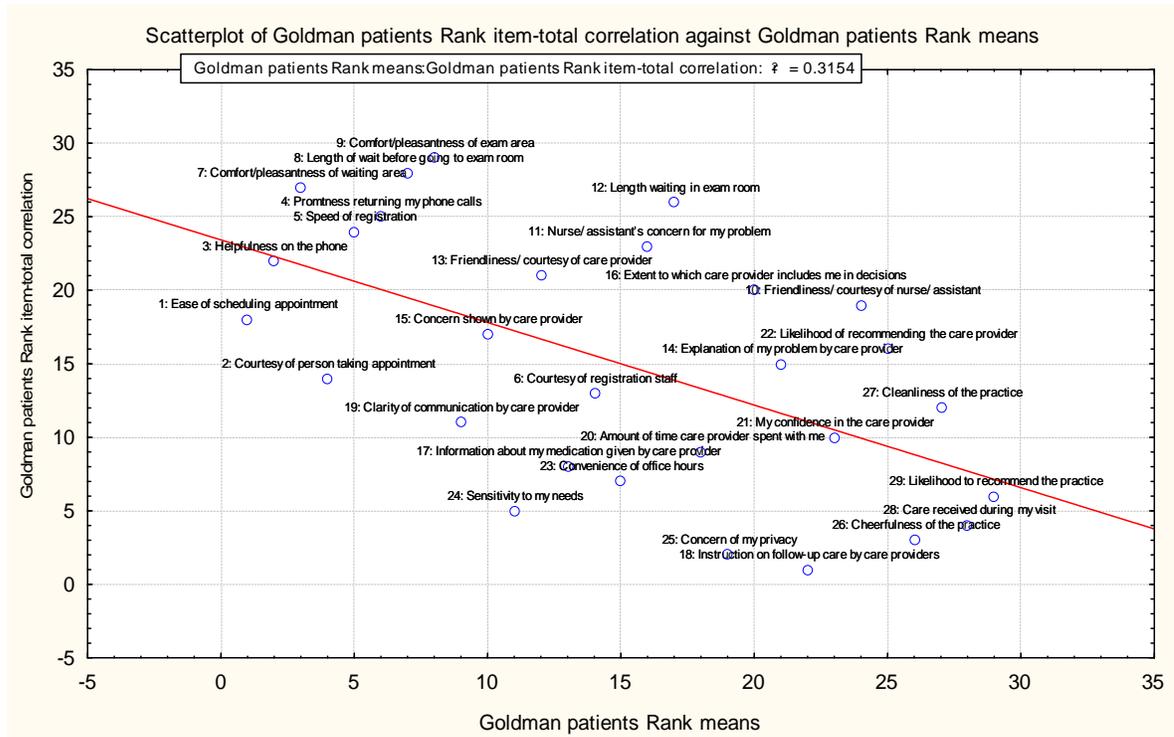
2a. What are the priorities for quality improvement of patient satisfaction at Goldman Medical Centre?

Table 6: Priority Index by Patients at Goldman Medical Centre

Item / Determinants
1: Ease of scheduling appointment
3: Helpfulness on the phone
4: Promptness returning my phone calls
5: Speed of registration
7: Comfort / pleasantness of waiting area
8: Length of wait before going to exam room
9: Comfort / pleasantness of exam area
13: Friendliness / courtesy of care provider
15: Concern shown by care provider

Table 6 shows the items that are rated as high on importance but low in satisfaction by the patients, thus resulting in a priority index for quality improvement at Goldman Medical Centre.

Figure 2 :Scatterplot for Goldman Patients



The scatter plot above shows the items identified by patients that were used to determine the priority index for Goldman Medical Centre. Items in the upper left of the scatter plot were rated low on satisfaction (low rank means) but high on importance (high item –total correlation).

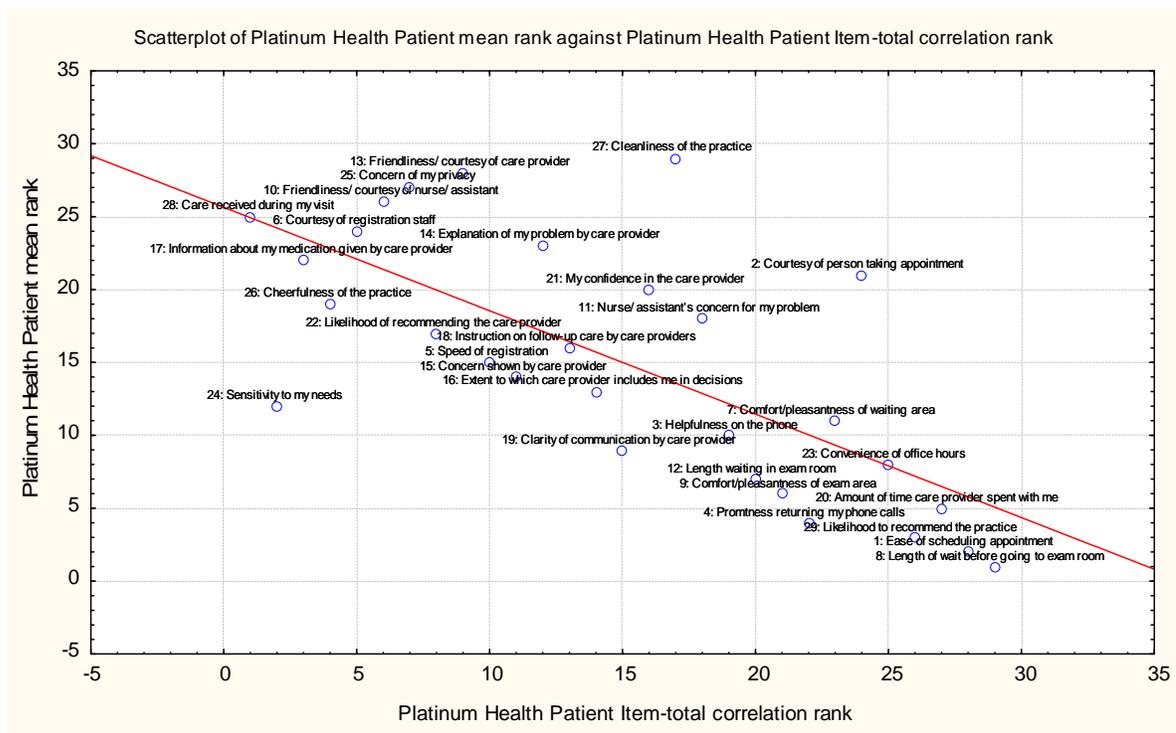
2b. What are the priorities for quality improvement of patients satisfaction at Platinum Health Medical Centre?

Table 7: Priority Index by Patients at Platinum Health Medical Centre

Item / Determinants
1: Ease of scheduling appointment
3: Helpfulness on the phone
4: Promptness returning my phone calls
7: Comfort / pleasantness of waiting area
8: Length of wait before going to exam room
9: Comfort / pleasantness of exam area
12: Length waiting in exam room
19: Clarity of communication by care provider
20: Amount of time care provider spent with me
23: Convenience of office hours
29: Likelihood to recommend the practice

Table 7, above, shows the items / determinants that were rated high on importance but low on satisfaction by patients, thus resulting in a priority index for quality improvement at Platinum Health Medical Centre.

Figure 3 : Scatter plot for Platinum Health Patients



The scatter plot above shows the items / determinants identified by patients that were used to determine the priority index for Platinum Health. The items in the lower right of the scatter plot were rated low on satisfaction (low mean rank) but high on importance (high item-total correlation).

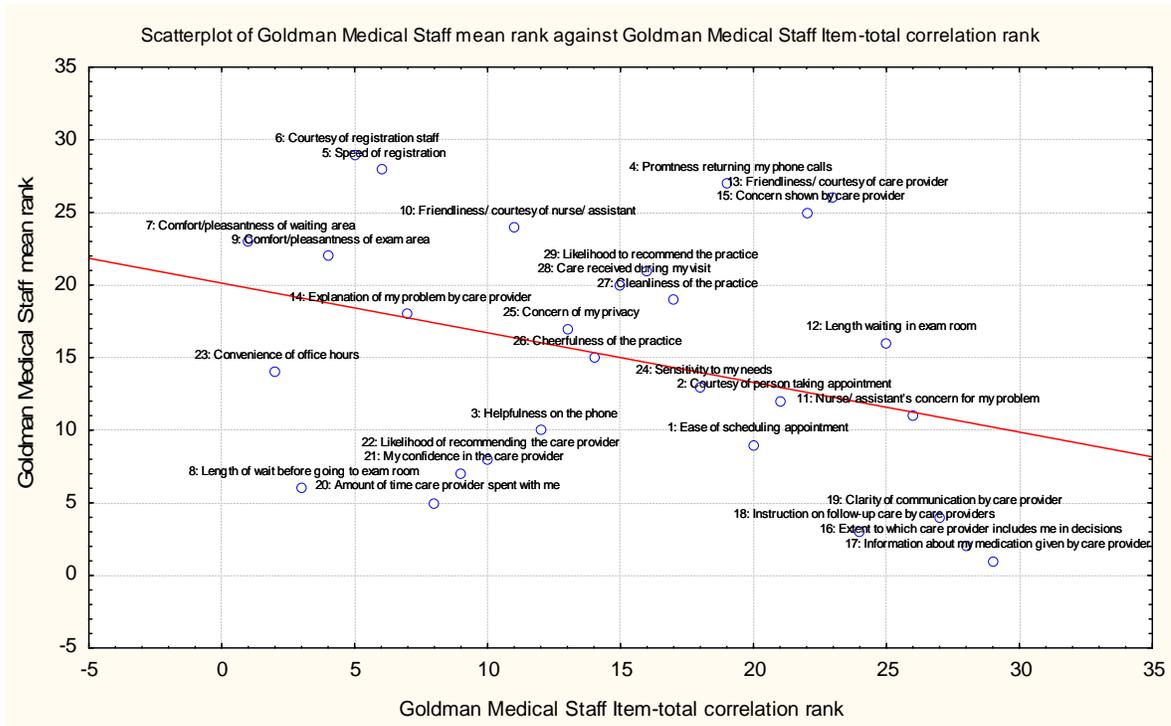
2c. What are the priorities for quality improvement of patient satisfaction according to healthcare workers at Goldman Medical Centre?

Table 8: Priority Index by Staff at Goldman Medical Centre

Item / Determinants
1: Ease of scheduling appointment
2: Courtesy of person taking appointment
11: Nurse's/ assistant's concern for my problem
16: Extent to which care provider includes me in decisions
17: Information about my medication given by care provider
18: Instruction on follow-up care by care providers
19: Clarity of communication by care provider
24: Sensitivity to my needs

Table 8 shows the items / determinants that were rated as high on importance but low on satisfaction by healthcare workers resulting in a priority index for quality improvement at Goldman Medical Centre.

Figure 4 : Scatter plot for Staff at Goldman Medical Centre



The scatter plot above shows the items / determinants identified by staff at Goldman Medical Centre that were used to determine the priority index for Goldman Medical Centre. Items in the lower right of the scatter plot were rated low on satisfaction (low mean rank) but high on importance (item-total correlation).

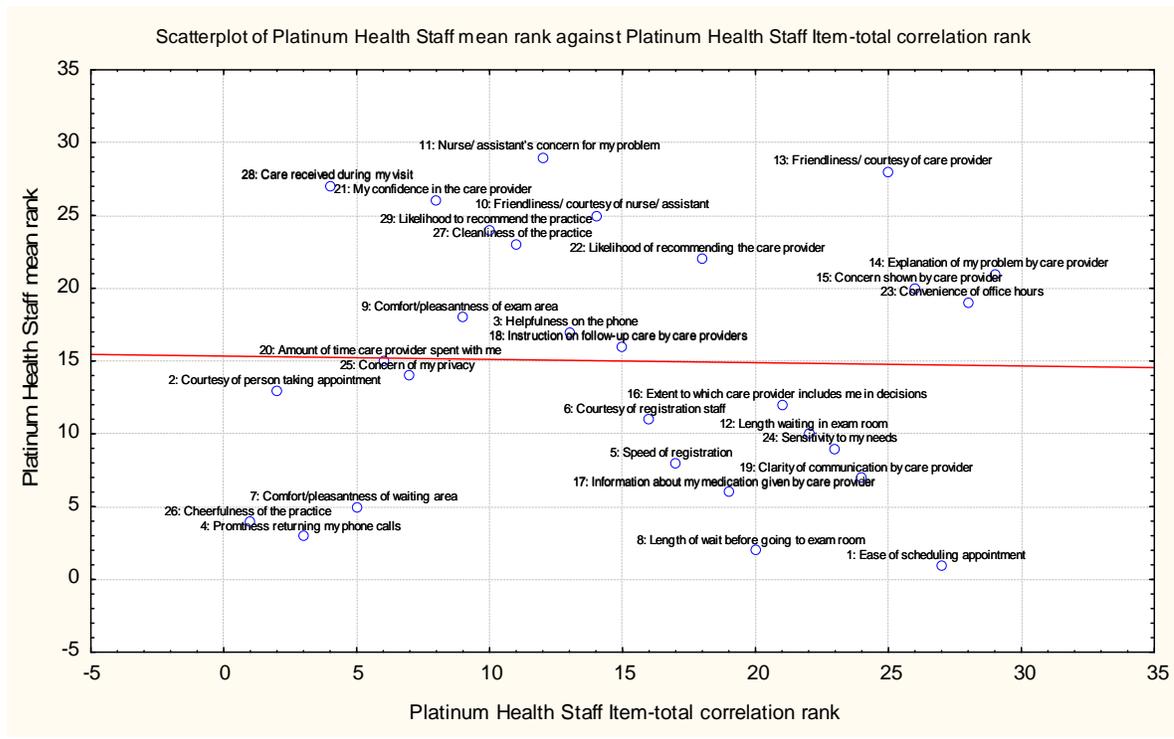
2d. What are the priorities for quality improvement of patient satisfaction according to healthcare workers at Platinum Health Medical Centre?

Table 9 : Priority Index by Staff at Platinum Health Medical Centre

Item / Determinants
1: Ease of scheduling appointment
5: Speed of registration
6: Courtesy of registration staff
8: Length of wait before going to exam room
12: Length waiting in exam room
16: Extent to which care provider includes me in decisions
17: Information about my medication given by care provider
19: Clarity of communication by care provider
24: Sensitivity to my needs

Table 9 shows the items / determinants that were rated as highly important but low in satisfaction by healthcare workers, resulting in a priority index for Platinum Health Medical Centre.

Figure 5 : Scatter plot for Staff at Platinum Health Medical Centre



The scatter plot above shows the items / determinants identified by the staff at Platinum Health Medical Centre that were used to determine the priority index for Platinum Health Medical Centre. Items in the lower right of the scatter plot were rated low on satisfaction (low mean rank) but high on importance (high item – total correlation).



2e What are the general priorities for medical service delivery?

Table 10 : Priority Index of Total Sample (on next page)



no	Item	Goldman Medical Patient Priority Index Items	Goldman Medical Staff Priority Index Items	Platinum Health Patient Priority Index Items	Platinum Health Staff Priority Index Items
1	Ease of scheduling appointment	P	p	p	p
2	Courtesy of person taking appointment		p		
3	Helpfulness on the phone	P		p	
4	Promptness returning my phone calls	P		p	
5	Speed of registration	P			p
6	Courtesy of registration staff				p
7	Comfort / pleasantness of waiting area	P		p	
8	Length of wait before going to exam room	P		p	p
9	Comfort/pleasantness of exam area	P		p	
10	Friendliness / courtesy of nurse/ assistant				
11	Nurse's / assistant's concern for my problem		p		
12	Length waiting in exam room			p	p
13	Friendliness / courtesy of care provider	P			
14	Explanation of my problem by care provider				
15	Concern shown by care provider	P			
16	Extent to which care provider includes me in decisions		p		p
17	Information about my medication given by care provider		p		p
18	Instruction on follow-up care by care providers		p		
19	Clarity of communication by care provider		p	p	p
20	Amount of time care provider spent with me			p	
21	My confidence in the care provider				
22	Likelihood of recommending the care provider				
23	Convenience of office hours			p	
24	Sensitivity to my needs		p		p
25	Concern for my privacy				
26	Cheerfulness of the practice				
27	Cleanliness of the practice				
28	Care received during my visit				
29	Likelihood to recommend the practice			p	

The three priority items that were common to three or four subsets of the total sample are highlighted. These are items that were low on satisfaction scores but high on importance scores, and were found to be such in both medical centres, and can thus be construed as general priority items, irrespective of type of medical centre.

The general priority items are therefore :

1. Ease of scheduling an appointment
2. Length of wait before going to exam room
3. Clarity of communication by care provider

5.4. Factor Analyses

Question 3

3a. What are the underlying factors for patient satisfaction?

Table 11: Factor Analysis for Total Sample

	Care provider	Access	Personal connectivity
1: Ease of scheduling appointment	0.068073	0.659420	0.517892
2: Courtesy of person taking appointment	0.296320	0.736921	0.273685
3: Helpfulness on the phone	0.320132	0.741543	0.303858
4: Promptness returning my phone calls	0.392921	0.705747	0.226082
5: Speed of registration	0.372132	0.716441	0.283092
6: Courtesy of registration staff	0.419776	0.677733	0.313075
7: Comfort / pleasantness of waiting area	0.357165	0.618924	0.249269
8: Length of wait before going to exam room	0.115465	0.603745	0.460149
9: Comfort / pleasantness of exam area	0.327455	0.553265	0.408508
10: Friendliness / courtesy of nurse / assistant	0.549127	0.504118	0.344536
11: Nurse's / assistant's concern for my problem	0.615516	0.483480	0.256281
12: Length waiting in exam room	0.577982	0.551694	0.175434
13: Friendliness / courtesy of care provider	0.725070	0.389771	0.230512
14: Explanation of my problem by care provider	0.786772	0.281481	0.276713
15: Concern shown by care provider	0.789333	0.283155	0.284004
16: Extent to which care provider includes me in decisions	0.733397	0.239268	0.364950
17: Information about my medication given by care provider	0.727774	0.242466	0.364444
18: Instruction on follow-up care by care providers	0.697090	0.298121	0.405736
19: Clarity of communication by care provider	0.665330	0.249506	0.449295
20: Amount of time care provider spent with me	0.481362	0.296532	0.534461
21: My confidence in the care provider	0.602816	0.217985	0.573714
22: Likelihood of recommending the care provider	0.585624	0.242310	0.571307
23: Convenience of office hours	0.437404	0.314518	0.573735
24: Sensitivity to my needs	0.479601	0.302936	0.648728
25: Concern for my privacy	0.458839	0.304815	0.653171
26: Cheerfulness of the practice	0.436432	0.337364	0.673570
27: Cleanliness of the practice	0.374064	0.353534	0.678563
28: Care received during my visit	0.452028	0.333533	0.683419
29: Likelihood to recommend the practice	0.247914	0.355011	0.743290

Table 11, above, shows the results of the factor analysis for the whole sample. Three

factors emerged for this sample, namely Access, Care Provider and Personal Connectivity.

3b. What are the underlying factors for patient satisfaction at Goldman Medical Centre?

Table 12 : Factor Analysis for Goldman Medical Centre

Goldman	Factor 1	Factor 2
1: Ease of scheduling appointment	0.201686	0.674939
2: Courtesy of person taking appointment	0.345914	0.739118
3: Helpfulness on the phone	0.377435	0.791206
4: Promptness returning my phone calls	0.439983	0.663261
5: Speed of registration	0.421639	0.773145
6: Courtesy of registration staff	0.472089	0.736447
7: Comfort / pleasantness of waiting area	0.457887	0.594102
8: Length of wait before going to exam room	0.233159	0.565913
9: Comfort / pleasantness of exam area	0.522379	0.566682
10: Friendliness / courtesy of nurse / assistant	0.675021	0.497297
11: Nurse's / assistant's concern for my problem	0.684364	0.465450
12: Length waiting in exam room	0.612730	0.481253
13: Friendliness / courtesy of care provider	0.771444	0.388449
14: Explanation of my problem by care provider	0.863327	0.243646
15: Concern shown by care provider	0.851730	0.287562
16: Extent to which care provider includes me in decisions	0.825601	0.321179
17: Information about my medication given by care provider	0.832413	0.304972
18: Instruction on follow-up care by care providers	0.807149	0.335370
19: Clarity of communication by care provider	0.759266	0.351964
20: Amount of time care provider spent with me	0.578673	0.407983
21: My confidence in the care provider	0.763631	0.376461
22: Likelihood of recommending the care provider	0.758846	0.390657
23: Convenience of office hours	0.534523	0.486502
24: Sensitivity to my needs	0.639235	0.544479
25: Concern for my privacy	0.611439	0.565397
26: Cheerfulness of the practice	0.610272	0.560578
27: Cleanliness of the practice	0.533105	0.628509
28: Care received during my visit	0.659593	0.551508
29: Likelihood to recommend the practice	0.487516	0.489973

Table 12 shows the results of the factor analysis for Goldman Medical Centre. Two factors

emerged for this sample, namely Access and Care Provider.

3c. What are the underlying factors for patient satisfaction at Platinum Health Medical Centre?

Table 13 : Factor Analysis for Platinum Health Medical Centre

Platinum	Factor 1	Factor 2	Factor 3	Factor 4
1: Ease of scheduling appointment	0.139317	0.661846	0.081889	0.328386
2: Courtesy of person taking appointment	0.184481	0.750918	0.089906	0.195581
3: Helpfulness on the phone	0.185575	0.694588	0.066620	0.201227
4: Promptness returning my phone calls	0.008531	0.692163	0.206404	0.013123
5: Speed of registration	0.023282	0.642231	0.285230	0.054253
6: Courtesy of registration staff	0.051568	0.612132	0.374660	0.083084
7: Comfort / pleasantness of waiting area	0.182181	0.471702	0.132793	0.134234
8: Length of wait before going to exam room	0.150551	0.414402	0.197164	0.077484
9: Comfort / pleasantness of exam area	0.199148	0.408099	0.076379	0.132927
10: Friendliness / courtesy of nurse / assistant	0.201401	0.552664	0.238716	0.099067
11: Nurse's / assistant's concern for my problem	0.183936	0.463956	0.134938	0.242371
12: Length waiting in exam room	0.079525	0.500332	0.164773	0.128066
13: Friendliness / courtesy of care provider	0.180033	0.430083	0.196799	0.326238
14: Explanation of my problem by care provider	0.117915	0.444425	0.383596	0.286014
15: Concern shown by care provider	0.194377	0.291093	0.250838	0.518315
16: Extent to which care provider includes me in decisions	0.127989	0.193508	0.233647	0.665810
17: Information about my medication given by care provider	0.202726	0.164379	0.193193	0.768135
18: Instruction on follow-up care by care providers	0.208591	0.306282	0.364455	0.541229
19: Clarity of communication by care provider	0.163628	0.154990	0.519996	0.519277
20: Amount of time care provider spent with me	0.160432	0.242879	0.671899	0.269700
21: My confidence in the care provider	0.259852	0.230542	0.675607	0.186375
22: Likelihood of recommending the care provider	0.154782	0.265865	0.703414	0.152916
23: Convenience of office hours	0.270932	0.250685	0.663257	0.172148
24: Sensitivity to my needs	0.270633	0.205710	0.607746	0.265616
25: Concern for my privacy	0.348022	0.241044	0.553702	0.271735
26: Cheerfulness of the practice	0.567453	0.249196	0.354035	0.269672
27: Cleanliness of the practice	0.797155	0.213482	0.211430	0.264783
28: Care received during my visit	0.787744	0.235806	0.294719	0.167620
29: Likelihood to recommend the practice	0.812975	0.223731	0.308028	0.137074

Table 13 shows the results of the factor analysis for Platinum Health Medical Centre. Four factors emerged, namely Access, Care Provider, Personal Connectivity and Facilities.

5.5 Common Core Predictors

Question 4

What are the common core predictors that correlate most highly with recommending the two centres? Table 14 : Common Predictors for Recommendation of Medical Centre

	GOLDMAN29 rank	GOLDMAN29: Likelihood to recommend the practice	PLATINUM29: Likelihood to recommend the practice	PLATINUM29 rank
Correlations				
29: Likelihood to recommend the practice		1.000000	1.000000	
28: Care received during my visit	3	0.634987	0.824848	1
27: Cleanliness of the practice	5	0.629686	0.788291	2
26: Cheerfulness of the practice	2	0.664223	0.551663	3
25: Concern for my privacy	7	0.593921	0.502415	4
21: My confidence in the care provider	11	0.554974	0.485365	5
23: Convenience of office hours	19	0.496993	0.464206	6
20: Amount of time care provider spent with me	28	0.419533	0.434041	7
24: Sensitivity to my needs	6	0.608670	0.424660	8
22: Likelihood of recommending the care provider	10	0.563248	0.411951	9
19: Clarity of communication by care provider	8	0.587859	0.397551	10
18: Instruction on follow-up care by care providers	13	0.536119	0.387190	11
17: Information about my medication given by care provider	12	0.542668	0.383921	12
15: Concern shown by care provider	23	0.468582	0.363716	13
1: Ease of scheduling appointment	4	0.634765	0.351655	14
10: Friendliness / courtesy of nurse / assistant	9	0.581466	0.346363	15
2: Courtesy of person taking appointment	27	0.434276	0.338186	16
16: Extent to which care provider includes me in decisions	14	0.526220	0.327281	17
3: Helpfulness on the phone	20	0.493645	0.322794	18
7: Comfort / pleasantness of waiting area	24	0.460226	0.305043	19
11: Nurse's / assistant's concern for my problem	16	0.499354	0.302471	20
13: Friendliness / courtesy of care provider	22	0.473315	0.300542	21
14: Explanation of my problem by care provider	21	0.483533	0.300003	22
6: Courtesy of registration staff	17	0.498781	0.287084	23
8: Length of wait before going to exam room	15	0.512327	0.276880	24
9: Comfort / pleasantness of exam area	1	0.669527	0.267955	25

5: Speed of registration	18	0.498457	0.244015	26
12: Length waiting in exam room	25	0.450107	0.206390	27
4: Promptness returning my phone calls	26	0.448822	0.181040	28

Table 14 on the previous page shows the Pearson correlation co-efficients between each item and the patients' likelihood of recommending the practice for Goldman and Platinum patients. All items were significantly correlated ($p < 0.05$). Based on the ranks of these correlations, it can be seen that certain items correlated highest with likelihood of recommending the practice in both groups, suggesting a common core of important predictors of patient satisfaction levels, irrespective of which practice they attended.

5.6 Hypothesis 1 Result

Hypothesis 1

Is there a difference in the overall satisfaction levels between Goldman Medical Centre and Platinum Health Medical Centre?

Please see Appendix 3.1 for result

Appendix 3.1 shows the results of t-test for independent groups, assuming heterogeneous underlying population variances (p variances < 0.05) were used to compare the mean scores of Goldman and Platinum Centre patients. The results revealed that, compared to Goldman patients, Platinum patients were significantly less likely to recommend the practice they attended, and were significantly less satisfied with that practice. Both comparisons are significant at the 0.1% level of significance ($p < 0.001$).

Table 16: Overall Satisfaction Level for Goldman Medical Centre

Item	Goldman Medical Patient Mean
1: Ease of scheduling appointment	4.249
2: Courtesy of person taking appointment	4.334
3: Helpfulness on the phone	4.322
4: Promptness returning my phone calls	4.367
5: Speed of registration	4.351
6: Courtesy of registration staff	4.436
7: Comfort / pleasantness of waiting area	4.333
8: Length of wait before going to exam room	4.384
9: Comfort / pleasantness of exam area	4.387
10: Friendliness / courtesy of nurse / assistant	4.485
11: Nurse's / assistant's concern for my problem	4.445
12: Length waiting in exam room	4.446
13: Friendliness / courtesy of care provider	4.423
14: Explanation of my problem by care provider	4.463
15: Concern shown by care provider	4.405
16: Extent to which care provider includes me in decisions	4.460
17: Information about my medication given by care provider	4.434
18: Instruction on follow-up care by care providers	4.468
19: Clarity of communication by care provider	4.394
20: Amount of time care provider spent with me	4.453
21: My confidence in the care provider	4.478
22: Likelihood of recommending the care provider	4.497
23: Convenience of office hours	4.438
24: Sensitivity to my needs	4.413
25: Concern for my privacy	4.460
26: Cheerfulness of the practice	4.520
27: Cleanliness of the practice	4.571
28: Care received during my visit	4.575
29: Likelihood to recommend the practice	4.596
Overall mean	4.434
Overall standard deviation	0.078

Table 16, above, shows the overall mean satisfaction result for Goldman Medical Centre —

a score of 4.434.

Table 17: Overall Satisfaction Level for Platinum Health Medical Centre

Item	Platinum Health Patient Mean
1: Ease of scheduling appointment	3.167
2: Courtesy of person taking appointment	3.858
3: Helpfulness on the phone	3.787
4: Promptness returning my phone calls	3.658
5: Speed of registration	3.827
6: Courtesy of registration staff	3.884
7: Comfort / pleasantness of waiting area	3.790
8: Length of wait before going to exam room	2.895
9: Comfort / pleasantness of exam area	3.689
10: Friendliness / courtesy of nurse/ assistant	3.930
11: Nurse's / assistant's concern for my problem	3.846
12: Length waiting in exam room	3.718
13: Friendliness / courtesy of care provider	3.937
14: Explanation of my problem by care provider	3.867
15: Concern shown by care provider	3.822
16: Extent to which care provider includes me in decisions	3.806
17: Information about my medication given by care provider	3.861
18: Instruction on follow-up care by care providers	3.838
19: Clarity of communication by care provider	3.774
20: Amount of time care provider spent with me	3.662
21: My confidence in the care provider	3.857
22: Likelihood of recommending the care provider	3.841
23: Convenience of office hours	3.764
24: Sensitivity to my needs	3.800
25: Concern for my privacy	3.934
26: Cheerfulness of the practice	3.850
27: Cleanliness of the practice	4.017
28: Care received during my visit	3.910
29: Likelihood to recommend the practice	3.505
Overall mean	3.762
Overall standard deviation	0.229

Table 17 shows the overall mean satisfaction result for Platinum Health Medical Centre — a score of 3.762.

For full results of means and standard deviations refer to Appendix 2

5.7 Hypothesis 2 Result

Hypothesis 2

Is there a difference in the satisfaction levels of the healthcare workers at Goldman Medical Centre and the healthcare workers at Platinum Health Medical Centre?

Please see Appendix 3.2 for result.

Appendix 3.2, in contrast, shows the results of t-test for independent groups, assuming homogeneous underlying population variances (p variances >0.05) were used to compare the mean scores of Goldman and Platinum Centre health workers. The results revealed no significant differences between Goldman and Platinum staff ($p>0.05$).

CHAPTER 6

DISCUSSION OF RESULTS

6.1. Top Ten Items / Determinants

6.1.a The top ten items of patient satisfaction at Goldman Medical Centre - refer to Table 4.

Care received was rated as the most important determinant for this medical centre. The nature of the facilities, especially the cleanliness and cheerfulness, were rated second to recommending the practice. Patients expect a certain standard of cleanliness and will, therefore, not visit a medical centre that has a standard lower than that which they are accustomed to. The other important determinants are linked to the behaviour of the care provider. Thus, fee-for-service centres that compete fiercely for market share must ensure that these items are evaluated by patients in order to determine their satisfaction.

6.1.b The top ten items of patient satisfaction at Platinum Health Medical Centre, refer to Table 5.

The top ten items identified by the patients at the HMO seem to be very different from the items identified by patients at the fee- for service medical centre. Cleanliness is the common determinant of patient satisfaction, and this determinant can therefore be assumed to be a universal prerequisite for patient satisfaction, irrespective of operating model.

The fact that there are differences in the determinants between the two patient bases, indicates that there could possibly be different determinants for different operating models in the delivery of medical services.

Therefore first objective of this study has been accomplished.

6.2. Priority Items for Quality Improvements

6.2a. Priority Index Items for Goldman Medical Centre.

The five main priorities in order of importance according to patients at Goldman Medical Centre, as per Table 6, were:

1. Ease of scheduling an appointment
2. Helpfulness on the phone
3. Promptness returning calls
4. Speed of registration
5. Comfort / pleasantness of waiting area

When identifying the main priorities for each of the medical centres, as identified by their patients, it becomes imperative to also identify the priorities that are identified by the staff as well. If there is a good match, then the probability of increased patient satisfaction would be optimised. For Goldman Medical Centre, the staff identified the following five main priorities in order of importance as per Table 8:

1. Ease of scheduling an appointment
2. Courtesy of person taking appointment
3. Nurses' / assistants' concern for problem
4. Extent to which care provider includes patient in decision making
5. Information about medication

The only priority item that features in both responses is the ease of scheduling an appointment. It is therefore evident that there is not a perfect match, and thus quality

improvement programs, in the absence of any research on both patients and staff perceptions of quality improvements, will be of minimal value.

6.2b. Priority Index Items for Platinum Health Medical Centre

The five main priority items according to patients, in order of importance as per Table 7 were:

1. Ease of scheduling an appointment
2. Helpfulness on the phone
3. Promptness of returning calls
4. Comfort / pleasantness of waiting area
5. Length of wait before going to exam room

Four of the five items identified by these patients differ from that of the Goldman Medical Centre patients. This suggests that different healthcare settings and models have different priorities, probably related to the different operating models. Ease of scheduling an appointment seems to be the only priority item common to both settings.

The five main priority items as identified by staff at Platinum Health Medical Centre, in order of importance as per Table 9 were:

1. Ease of scheduling an appointment
2. Speed of registration
3. Courtesy of registration staff
4. Length of wait before going to exam room

5. Length of waiting in exam room

There are two items that match (i.e. ease of scheduling an appointment and length of wait in exam room) seeming to suggest that there is some degree of congruence in the priorities identified by staff and patients in terms of quality improvement.

In comparison, at Goldman Medical Centre, the priorities of patients and staff did not have much commonality. Therefore, we can deduce that quality improvement programs will only achieve optimal results if the staff are made knowledgeable of patients' priorities. Hence, in order for any quality improvement program to succeed, it is imperative to gather the research on the viewpoints of all stakeholders. This process will ensure proper alignment of strategy, culture, operating environment and leadership. It is possible that complacency has set in at Goldman Medical Centre due to high patient satisfaction ratings. However, it must be emphasised that satisfaction ratings must be undertaken regularly in order to avoid complacency, ultimately resulting in loss of patients to other medical centres.

Therefore the third objective of this study has been accomplished.

6.2c. Priority Index for Total Sample

For the total sample, the priority determinant items that need to be addressed to improve patient satisfaction as per Table 10, were the following:

1. Ease of scheduling an appointment
2. Length of wait before going to the exam room
3. Clarity of communication by care provider

These three items could possibly be considered as the general priority items that need attention irrespective of operating model. Thus, enhancements in the delivery of these items would result in greater patient satisfaction, ultimately resulting in achieving a competitive advantage in the medical service delivery sector, in the private healthcare industry.

The ease of scheduling an appointment, as a determinant of patient satisfaction, was emphasised by Sofaer and Firminger, 2005; Attree, 2001; Ngo Metzger, 2003; Infante et al, 2004; and Saila, 2008. There has been no contrasting view as to the importance of obtaining an appointment as a determinant of patient satisfaction, although the relative importance does differ between the different studies. The relative importance of this determinant is probably due to the different demographics, and the different operating models, in the various studies. However, it is important to note that all the studies correlated with this study, in identifying ease of scheduling an appointment as a determinant of patient satisfaction.

What could possibly be the reasons for this determinant to be identified in almost all studies?

1. Medical conditions are construed as vital to the efficient functioning of people, as opposed to a delivery service which can be delayed without any dire consequences. Therefore, studies using emergency patients and acute conditions as the sample would find that ease of scheduling an appointment would be the most important determinant of patient satisfaction. If, however, the sample was patients receiving chronic rehabilitation from the

medical centre's physiotherapy department, then this determinant would be rated as of importance, but not as the most important.

2. In South Africa, most companies would insist on a medical certificate when an employee is sick. As a result, the patient would seek an appointment immediately with a medical doctor in order to ensure that the first day of sickness is recorded in the sick note.

3. Since most patients are at their workplaces during working hours, the ease of scheduling an appointment with a medical doctor after the normal working hours is convenient and leads to greater patient satisfaction. Hence, most medical centres have extended hours of consultations in an effort to satisfy the busy patient.

4. Some patients develop a good relationship with a particular medical doctor and will not want to be consulted by any other medical doctor. Once this medical doctor becomes very popular amongst patients, it does become difficult to obtain an appointment. This is a problem at Platinum Health Medical Centre where there is a restriction on patients' choice of medical doctor, resulting in the popular doctor at the centre often being booked out one month in advance. These patients, therefore, would rate ease of scheduling an appointment as a priority determinant of satisfaction.

Waiting time before examination has also been identified as a priority determinant of patient satisfaction by Vukmir (2006), Saila (2008), Bielin and Demoulin (2007). Tam (2007) was the only author who found waiting time not to be of grave importance, although it was found to be a determinant of patient satisfaction amongst others. The reason for this was that Tam (2007) performed a longitudinal study between 2003 and 2004, with the waiting time result of 2004 being significantly better than that for 2003 at the Western

Medical Service Centre. Thus, there is thus evidence that quality improvement programs, if incorporating patient feedback as an input for quality improvement, and if directed at identified satisfaction factors, will result in increased patient satisfaction.

The reason for waiting time being rated as an important determinant is that most medical care providers have multiple examination rooms and, therefore, are able to see patients in different consulting rooms simultaneously. Patients often would become agitated when the care provider moved from one consulting room to another without concluding the consultation. From the care providers point of view, it is a question of effective time management, as it is better to have the patients in the examination rooms, as opposed to being in the waiting area.

Clarity of communication was raised as an important determinant of patient satisfaction by Sofaer and Firminger (2005), Anderson et al (2001), Attree (2001), Ngo-Metzger (2003), Anderson et al (2007), Saila (2008), Clever et al (2008), Tucker and Adams (2001) and Infante et al (2004).

Saila (2008) rated effective communication as the key to patient satisfaction. Informed consent has been routinely performed by care providers in countries where litigation against care providers is common. Informed consent is becoming equally important in South Africa, where medical scheme patients are now on savings plans and are thus more responsible with the funds allocated. Thus, with patients making informed decisions about their health, it becomes imperative that communication between the care provider and

patient is clear. The use of patient- centred communication style was advocated by a number of authors, namely Epstein et al (2005), Swenson et al (2002), Mead and Bower (2002) and Mead , Bower and Hann (2002). Patient- centred communication would allow for clarity of information transfer from care provider to patient, thus enhancing patient satisfaction. In order for patient-centred communication to be effective, care providers will have to allocate more time than normal to their consultations.

Clarity of communication would also enhance patient compliance, leading to treatment modalities being more cost effective as patients would hopefully recover quicker from their illness. This would, in turn, result in patients having increased confidence in the care provider, causing them to recommend the care provider to family and friends. Such a practice would lead to increased market share in the highly competitive private medical service delivery sector.

6.3. Factor Analysis

For the total sample, there were three factors that emerged (as per Table11) from the content analysis, namely access, care provider and personal connectivity. In a similar study, Drain (2001) found that there were four factors, namely access, office visit, care provider and personal issues. Tam (2007) found the following seven factors in his study:

1. Support staff's performance
2. Doctors' performance
3. Nurses' performance
4. Physical environment
5. Dispensers' performance

6. Length of wait for consultation
7. Doctors' pro-active attitudes

Andaleeb , Siddiqui and Khandakar (2007) found eight factors in their study, namely doctors' service orientation, nurses' service orientation, tangibles (hospitals), treatment costs, tangibles (staff), access, process, and baksheesh.

Factor analysis helps to identify which questions belong together, confirming a questionnaire's construct, or structure. The number of factors identified is largely a product of the variety of questions in the questionnaire, and the variations in the responses thereto. Hence, the larger the variation in responses, the larger the number of factors identified .

For Platinum Health Medical Centre, four factors emerged (as per Table 13), namely access, personal connectivity, care provider and facilities. This suggests that there were considerable variations in the responses(positives and negatives) given by patients to the different questions. The majority of patients were either satisfied or dissatisfied with the items measured.

With Goldman Medical Centre, only two factors emerged (as per Table 12), namely access and care provider. This suggests that there was very little variation in the positive responses by patients to the different questions. The majority of patients thus responded positively to almost all questions. This could be a true reflection of the service quality, or it could be due to the halo effect. The halo effect occurs when customers, or in this case patients, are satisfied with some major items and will respond positively to all other items measured.

The common factors in most of the studies mentioned, and in the present study, were:

1. Access
2. Doctors' / nurses' / care providers' performance
3. Facilities

These factors were also found to be common in most of the studies cited in the literature review section 2.5., with the following authors having identified the above-mentioned three factors in their studies, Sofaer and Firminger (2005); Attree (2001); and Infante et al (2004).

6.4. Common Core Predictor Items that Correlate with Overall Satisfaction and / or Recommending the Centre

The following are the predictor items from most important to least, as per Table 14

1. Care received
2. Cheerfulness of practice
3. Cleanliness
4. Privacy
5. Sensitivity to needs
6. Confidence in care provider

The reason for identifying the core predictor items was to guide medical centres, irrespective of operating models, to focus on these items to achieve increased patient satisfaction. The suggestion here is that if these six items are sufficiently covered, then the overall satisfaction rating of the medical centre would be of an acceptable level, retaining

patients, rather than inducing them to switch to other medical centres. Medical centres that are new, or have recently started, should ensure that these items are adequately accounted for, in order to attract patients from other centres lacking in these areas. The staff and management should be made aware of these items and be measured on them in their performance management reviews. It would also be helpful to build the medical centre's mission and vision statements around these items.

6.5. Hypothesis 1

Is there a difference in the overall satisfaction levels between Platinum Health Medical Centre and Goldman Medical Centre?

The null hypothesis is that there is no difference between the mean satisfaction levels of the two centres. The alternate hypothesis is that there is a difference between the mean satisfaction levels of the two centres.

The result of the hypothesis testing as per Appendix 3.1 was that there was a significant difference in patient satisfaction with the health care plans. The patients that were on a fee-for-service plan were more satisfied than the patients on the HMO plan. The results of this research study contradict the results of the study done on HMOs by Gillies et al (2006), who found that HMOs would have higher patient satisfaction scores than other plans. The reasons given by the authors were that there would be greater integration across specialties and sites of care, decreased conflict among clinical protocols, more consistency of incentives and goals, and more stable enrollment populations. These reasons are not the

result of a patient-centred satisfaction survey, and accordingly could be misleading in terms of patient satisfaction. Baker et al (2004) clarified the position of Gillies et al (2006), finding that the higher quality scores HMOs were not due to what physicians did, nor to what patients experienced, but were more to do with the systems at the HMO as rated by consultants. This research and others (Mechanic, 2004; Amyx et al, 2000; Simonet, 2005) that looked at patients' perception of quality, found that patients were dissatisfied with the HMO plan. The main problems experienced by Platinum Health patients could best be identified by looking at the priority index as expressed by the patients, namely the following:

1. Ease of scheduling an appointment
2. Helpfulness on the phone
3. Promptness returning phone calls
4. Comfort / pleasantness of waiting area
5. Length of wait before going to exam room

These problem areas are the direct result of the operating model implemented by the HMO. The time given to patients seems to be an area of major concern, with patients probably feeling that they are given insufficient time by the process and the care provider, in such large practices. The HMO model operates on the system that all patients belonging to the HMO are forced to obtain medical services from a specific medical centre, with the result that the centre is always very busy, invariably working at maximum capacity. Physicians and other staff are, therefore, pressured for time to be able to treat all patients that present for treatment on any given day. Dissatisfaction with a care provider leads to the most

popular care provider being the busiest, with the least amount of time to spend with patients. With large numbers of patients being present at any given time at the HMO, it is not surprising that patients would be concerned about the waiting area. Platinum Health Medical Centre would need to improve the pleasantness of the waiting area, possibly by having a television to provide entertainment, and a cafeteria for patients to pass their time in, while waiting to see the care provider. Alternatively, the waiting time must be reduced.

Overall Level of Patient Satisfaction

The overall level of satisfaction for each of the two practices was measured by the mean value of item number 29 which is the “likelihood to recommend the practice”. The mean value for Platinum Health Medical Centre was 3,762 as per [Table 17](#) and the corresponding mean value for Goldman Medical Centre was 4,434 as per [Table 16](#). The results suggest that patients at Goldman Medical Centre are more satisfied with the quality of the service, than patients at Platinum Health Medical Centre. Furthermore, the significant difference between the means, suggests that there is a major difference in the satisfaction levels. This could be attributed to the different operating models in the two medical centres.

Therefore the second objective of the study has been accomplished.

At Goldman Medical Centre, there is a fee-for-service model in operation, whereby the medical doctor bills the medical scheme that a patient is a member of, for the treatment rendered. Patients in this model are free to choose any medical doctor or medical centre of

their choice, and therefore patient satisfaction plays a vital role in determining the success of such a medical doctor or centre.

In contrast, the Platinum Health Medical Centre operates on a HMO model, whereby patients are restricted in terms of choice of care provider. Such patients cannot consult with care providers not affiliated with, or not employed by the HMO. The result is a majority of the patients, especially the new members of the HMO, are not satisfied with the fact that they have to consult with an unfamiliar care provider. This probably explains the lower overall satisfaction level, and the unlikelihood to recommend such a medical centre. This does not mean that the entire model must be changed or discarded, as there are strong economic justifications for the existence of such a model. The correct remedy for the HMO model would be to ensure periodic reviews of patient satisfaction with the restricted care provider, and to give constant feedback to all stakeholders in an effort to raise the level of satisfaction, as done in any service-orientated industry. Minor changes to the HMO model might be necessary to accommodate the concerns of patients. These changes can be determined by using the Patient Satisfaction Priority Index as a basis for identification, and implementing these service quality improvement measures would obviously have to fit in with the operating model of HMOs.

Therefore the fourth objective of the study has been accomplished.

6.6. Hypothesis 2

Is there a difference in the satisfaction levels experienced by staff members at Goldman Medical Centre to that of staff members at Platinum Health Medical Centre?

The results as per Appendix 3.2, showed that there was no significant difference in the satisfaction levels. The results suggest that the staff at both medical centres experience a similar level of satisfaction with the services provided by the centres. In both medical centres, the staff utilise the services in their respective centres as patients themselves (the staff members at the Goldman Medical Centre are treated by the part- time medical staff employed to render medical services during very busy periods). Since the overall satisfaction rating for Platinum Health Medical Centre was significantly lower than that for Goldman Medical Centre, the expectation would have been that the staff at Platinum Health Medical Centre should be less satisfied. However, it could be that staff at Platinum Health Medical Centre treat each other more favourably than their patients. The fact that the staff are satisfied with quality of service is a cause for concern at Platinum Health, because the staff are most probably unaware of the low satisfaction levels amongst patients, and are unlikely to take steps to improve the quality of service. Management, therefore, needs to proactively and constantly measure service quality levels, communicating the results and actioning steps to all staff members at Platinum Health Medical Centre. Staff members who are more critical of the quality of service, could result in an increased patient satisfaction level, ultimately leading to the benefit of the medical centre.

CHAPTER 7

RECOMMENDATIONS

The level of patient satisfaction at Goldman Medical Centre was proven to be significantly higher than that at Platinum Health Medical Centre. The recommendation is that the Goldman Medical Centre management should not become complacent with their high rating result, but should rather strive to continuously evaluate and determine the needs of patients. Patients' satisfaction with the care they receive determines not only whether they will remain with a practice, but also whether they will recommend it to others. With increased purchasing power and a choice of providers in the fee-for-service sector, patients will demand service excellence just as customers in other markets have. The recommendation is to not only focus on patients giving the highest ratings, but to focus also on the patients that give negative ratings. Accordingly, limited resources can be spent on identifying and eliminating the negative aspects of patient experiences, rather than on increasing the positive aspects only. By using the priority index developed in this study, patient dissatisfaction and important priority determinants of patient satisfaction are taken into account. The index of items identified, if addressed, will increase patient satisfaction. The exercise should be done on an annual basis, if not more often. This would ensure that the centre increases its market share and continues to grow. Failure to do so will result in loss of market share and loss of competitive advantage to the nearest competitor medical center. This study has shown that, even though the patients were highly satisfied with the overall quality of service, there were still some determinants which were rated low and needed attention. Thus there is a need for detailed and continuous research, even though overall satisfaction might be highly rated. As was undertaken in this study, the staff

perceptions of service quality also need to be evaluated and then, using the priority index, compared with patients' perceptions of service quality. The results need to be communicated to the staff in order for them to focus on areas needing improvement.

This study proves that these patients are relatively satisfied and therefore, the fee-for-service model can be assumed to be favoured by patients - as this is the operating model employed in this centre. However, this does not automatically mean that the fee-for-service model is the better one. There are merits and demerits of any operating model, and this could be the subject of another study. There may be economic factors that favour the HMO model over the fee-for-service model but, in terms of patient satisfaction, this study has proven the superiority of the fee-for-service model. However, this study did not compare the satisfaction levels of two fee-for -service centers, which would be a better benchmarking exercise. Therefore, it is recommended that future studies aim at comparing similar fee-for-service centres in order to obtain benchmark levels of patient satisfaction.

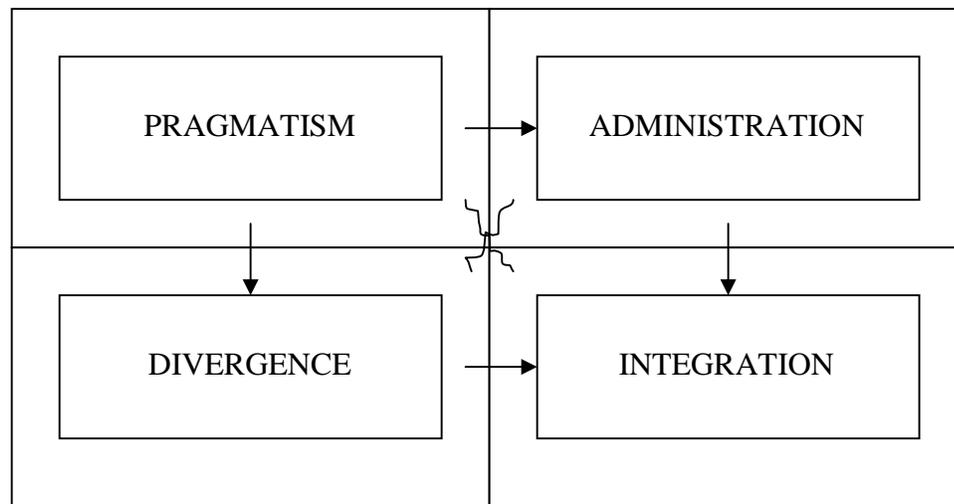
This study has shown that the patients at Platinum Health Medical Centre are relatively dissatisfied with the quality of service rendered. It is thus recommended that more intensive and more frequent research be conducted on the patients and staff, using the priority index to drive quality improvement initiatives. If this research is not done, this centre risks being replaced by another management team, or a competitor HMO organisation. Dissatisfaction can have serious ramifications: patients are unlikely to follow treatment regimen, may fail to show up for follow- up care and, in extreme cases, may resort to bad-mouthing the centre, dissuading others from seeking medical services there, or persuading them to seek

services elsewhere. Developing stronger patient bonds via customer- or patient-relationship management would be required to drive profits upwards. The aim of customer- or patient-relationship management is, after all, to produce high customer equity which is seemingly lacking at Platinum Health Medical Centre. There must be a realisation that the ultimate purpose of business is its ability to meet customer / patient needs. Hence the *raison d'être* of any business should be to satisfy the needs of customers / patients. Future studies should also attempt to identify benchmark service quality indicators for HMOs to be compared to one another.

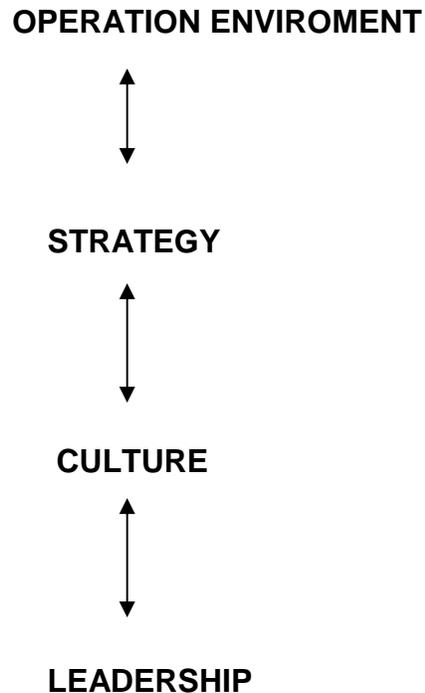
The general recommendations to any medical service delivery organisation would be that customer / patient satisfaction measures be identified, evaluated, communicated and implemented bi-annually for poor performers, and on an annual basis for good performers.

A model called Patient Satisfaction Priority Index Model has been developed from this study. The model is essentially a combination of the recommendations emanating from this study, and the Strategic Alignment Model developed by Chorn (2004). The principle of the Strategic Alignment Model is that there must be alignment between the elements of operating environment, strategy, culture and leadership within an organisation, for organisational effectiveness to result in sustainability and growth. Misalignment of any of these elements would translate to ineffectiveness, slow growth and lack of sustainability. Each of the elements has a dominant logic or behaviour that can be used to describe them. There are four main types of logics - pragmatism (a need for action and getting things done), administration (a need for control and order), divergence (a need for difference and

change) , and integration (a need for cohesion) .The combinations of logics that can be effective together are pragmatism with administration, pragmatism with divergence, integration with administration, and integration with divergence. Misalignment would occur if there is pragmatism in one element and integration in another, or if there is divergence in one and administration in the other. Therefore, if the dominant logic in the operating environment is pragmatism, then the other elements must have a dominant logic of pragmatism, administration or divergence, but not integration. If the dominant logic in the operating environment is administration, then the dominant logic in other elements must be administration, integration or pragmatism, but not divergence. The diagram below shows the combinations that will be effective (straight arrows) and those that will be ineffective (curved lines).



The Strategic Alignment Model elements are shown below:

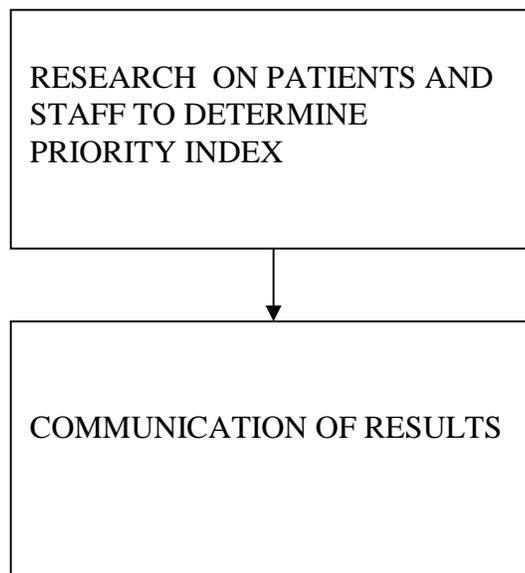


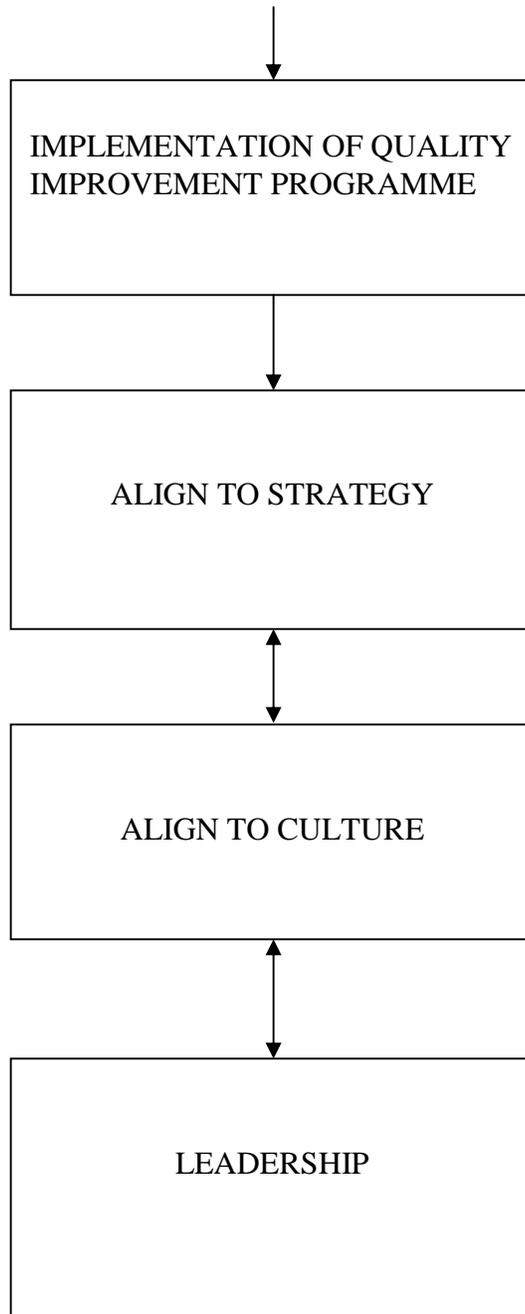
The research methodology that is recommended is similar to that used in this study, beginning with identifying the determinants of patient satisfaction and then identifying and measuring the priority determinants for quality improvements. The priority index determinants are those that are high on importance but low on satisfaction scores. Separate questionnaires may be required for staff and patients, depending on the nature of the organisation.

Communication of the results to all levels of staff must be undertaken by management. This would ensure everyone's buy-in to the quality improvement initiatives, enhancing the success thereof.

Implementation of quality improvement programmes must then be undertaken by all in the organisation. This should be publicised to make patients aware that their concerns have been addressed.

The implementation must be aligned to the overall strategy of the organisation . Therefore, for example, a poor performing organisation with regards to patient satisfaction, such as Platinum Health, would need to adopt a pragmatic behaviour logic, which in turn must be aligned to a pragmatic strategy approach and a pragmatic culture approach within the organisation. Finally, the leadership of the organisation needs to adopt a pragmatic style. Ensuring alignment throughout these elements will ultimately result in greater organisational effectiveness, leading to sustainability, growth and financial success. The Patient Satisfaction Priority Index Model is shown below.





The financial and economic success in using this model would be in ensuring that all elements are aligned to each other.

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APPENDIX 1.1

PATIENT SATISFACTION SURVEY QUESTIONNAIRE

Thank you for taking time to complete the survey. The purpose of the survey is to determine and evaluate patient satisfaction with the quality of services provided. All data will be kept anonymous. By placing a tick in the box, I hereby consent to take part in this survey and allow the information entered and data gathered to be used by the researcher as required.

Please indicate the following by placing a tick in the correct box below.

1. Medical centre	Platinum Health	Goldman Medical
2. I am	Patient	Staff

Please rate the following 29 services by placing a single tick for each service category evaluated in the appropriate box. If very dissatisfied with the service then place a tick in the very poor box. If very pleased with the service then place a tick in the very good box. If not very dissatisfied and neither very pleased then place tick in poor, fair or good box.

	Very poor	Poor	Fair	Good	Very good
1 Ease of scheduling my appointment	1	2	3	4	5
2 Courtesy of person taking my appointment	1	2	3	4	5
3 Helpfulness on the telephone	1	2	3	4	5



4	Promptness on returning my phone calls	1	2	3	4	5
5	Speed of registration	1	2	3	4	5
6	Courtesy of registration staff	1	2	3	4	5
7	Comfort / pleasantness of waiting area	1	2	3	4	5
8	Length of wait before going to exam room	1	2	3	4	5
9	Comfort / pleasantness of exam room	1	2	3	4	5
10	Friendliness / courtesy of nurse / Assistant	1	2	3	4	5
11	Nurse's / assistant's concern for my problem	1	2	3	4	5
12	Length of waiting in exam room	1	2	3	4	5
13	Friendliness / courtesy of care provider	1	2	3	4	5
14	Explanation about my problem by care provider	1	2	3	4	5
15	Degree of concern shown by care provider	1	2	3	4	5
16	Degree to which care giver includes me in decisions	1	2	3	4	5
17	Information about my medication given by care provider	1	2	3	4	5
18	Instruction about follow - up care by care providers	1	2	3	4	5
19	Clarity of communication by care provider	1	2	3	4	5
20	Amount of time care provider spent with me	1	2	3	4	5
21	My confidence in the care provider	1	2	3	4	5
22	Likelihood of recommending the care provider	1	2	3	4	5
23	Convenience of office hours	1	2	3	4	5
24	Sensitivity to my needs	1	2	3	4	5
25	Concern of my privacy	1	2	3	4	5
26	Cheerfulness of the practice	1	2	3	4	5
27	Cleanliness of the practice	1	2	3	4	5
28	Care received during my visit	1	2	3	4	5
29	Likelihood to recommend the practice	1	2	3	4	5

APPENDIX 1.2

Factor Analysis Results

Factor Loadings (Varimax raw) (Data) Clusters of loadings are marked; those clusters determine the oblique factors for hierarchical analysis	Care provider	Access	Personal connect ivity		Eigen value	% Total	Cumulativ e	Cumulati ve
1: Ease of scheduling appointment	0.068073	0.659420	0.517892	Care provider	17.777 92	61.30317	17.77792	61.30317
2: Courtesy of person taking appointment	0.296320	0.736921	0.273685	Access	1.5689 3	5.41011	19.34685	66.71329
3: Helpfulness on the phone	0.320132	0.741543	0.303858	Persona connecti vity	1.1015 1	3.79830	20.44836	70.51159
4: Promptness returning my phone calls	0.392921	0.705747	0.226082					
5: Speed of registration	0.372132	0.716441	0.283092		1	2	3	
6: Courtesy of registration staff	0.419776	0.677733	0.313075	Care provider	1.000	0.811	0.894	
7: Comfort/pleasant ness of waiting area	0.357165	0.618924	0.249269	Access	0.811	1.000	0.830	
8: Length of wait	0.115465	0.603745	0.460149	Persona	0.894	0.830	1.000	



I
connecti
vity

before going to exam room			
9: Comfort/pleasantness of exam area	0.327455	0.553265	0.408508
10: Friendliness/courtesy of nurse/assistant	0.549127	0.504118	0.344536
11: Nurse/assistant's concern for my problem	0.615516	0.483480	0.256281
12: Length waiting in exam room	0.577982	0.551694	0.175434
13: Friendliness/courtesy of care provider	0.725070	0.389771	0.230512
14: Explanation of my problem by care provider	0.786772	0.281481	0.276713
15: Concern shown by care provider	0.789333	0.283155	0.284004
16: Extent to which care provider includes me in decisions	0.733397	0.239268	0.364950
17: Information about my medication given by care provider	0.727774	0.242466	0.364444
18: Instruction on follow-up care by care providers	0.697090	0.298121	0.405736
19: Clarity of communication by care provider	0.665330	0.249506	0.449295

20: Amount of time care provider spent with me	0.481362	0.296532	0.534461
21: My confidence in the care provider	0.602816	0.217985	0.573714
22: Likelihood of recommending the care provider	0.585624	0.242310	0.571307
23: Convenience of office hours	0.437404	0.314518	0.573735
24: Sensitivity to my needs	0.479601	0.302936	0.648728
25: Concern of my privacy	0.458839	0.304815	0.653171
26: Cheerfulness of the practice	0.436432	0.337364	0.673570
27: Cleanliness of the practice	0.374064	0.353534	0.678563
28: Care received during my visit	0.452028	0.333533	0.683419
29: Likelihood to recommend the practice	0.247914	0.355011	0.743290

APPENDIX 1.3

Reliability Results

Summary for scale: Mean=120.472 Std.Dv.=18.4745 Valid N:536 (Spreadsheet24)	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Cronbach alpha: .975555 Standardized alpha: .977287					
Average inter-item corr.: .603855					
1: Ease of scheduling appointment	116.7052	312.3758	17.67416	0.683299	0.975506
2: Courtesy of person taking appointment	116.3507	319.8322	17.88385	0.726293	0.974843
3: Helpfulness on the phone	116.3731	318.2227	17.83880	0.760883	0.974654
4: Promptness returning my phone calls	116.3713	317.5357	17.81953	0.740572	0.974767
5: Speed of registration	116.3172	319.3360	17.86997	0.766084	0.974643
6: Courtesy of registration staff	116.2668	319.1023	17.86344	0.792395	0.974520
7: Comfort/pleasantness of waiting area	116.3507	319.3919	17.87154	0.684341	0.975084
8: Length of wait before going to exam room	116.7183	312.0569	17.66513	0.648577	0.975961
9: Comfort/pleasantness of exam area	116.3694	316.8710	17.80087	0.721785	0.974898
10: Friendliness/ courtesy of nurse/ assistant	116.2183	318.5438	17.84780	0.794481	0.974496
11: Nurse/ assistant's concern for my problem	116.2537	318.6557	17.85093	0.772023	0.974603
12: Length waiting in exam room	116.3134	318.2898	17.84068	0.742925	0.974750
13: Friendliness/ courtesy of care provider	116.2369	320.7069	17.90829	0.770984	0.974658
14: Explanation of my problem by care provider	116.2612	318.8758	17.85709	0.774362	0.974596
15: Concern shown by care provider	116.2929	319.5989	17.87733	0.782352	0.974577



16: Extent to which care provider includes me in decisions	116.2836	318.6099	17.84965	0.768097	0.974621
17: Information about my medication given by care provider	116.2780	319.4059	17.87193	0.766478	0.974643
18: Instruction on follow-up care by care providers	116.2593	318.6510	17.85080	0.803811	0.974458
19: Clarity of communication by care provider	116.3507	317.4926	17.81832	0.780887	0.974543
20: Amount of time care provider spent with me	116.3470	316.2191	17.78255	0.741838	0.974778
21: My confidence in the care provider	116.2351	318.6052	17.84952	0.792929	0.974505
22: Likelihood of recommending the care provider	116.2481	318.1903	17.83789	0.795009	0.974485
23: Convenience of office hours	116.3060	319.4138	17.87215	0.742881	0.974756
24: Sensitivity to my needs	116.3172	318.0076	17.83277	0.805858	0.974431
25: Concern for my privacy	116.2369	318.7330	17.85310	0.794207	0.974502
26: Cheerfulness of the practice	116.2575	316.9636	17.80347	0.813190	0.974373
27: Cleanliness of the practice	116.1698	319.0738	17.86264	0.782949	0.974561
28: Care received during my visit	116.1810	317.7825	17.82646	0.827610	0.974329
29: Likelihood to recommend the practice	116.3470	311.3572	17.64532	0.749309	0.974911

Summary for scale: Mean=36.3223
Std.Dv.=6.49223 Valid N:574
(Spreadsheet24)

	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
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Cronbach alpha: .925894
Standardized alpha: .932912

Average inter-item corr.: .616231

1: Ease of scheduling appointment	32.55923	31.51827	5.614113	0.742539	0.918056
2: Courtesy of person taking appointment	32.20557	34.28526	5.855362	0.775942	0.915374
3: Helpfulness on the phone	32.23171	33.78777	5.812725	0.804590	0.913445
4: Promptness returning my phone calls	32.24042	33.65300	5.801121	0.760805	0.915595
5: Speed of registration	32.18815	34.33045	5.859220	0.784145	0.915064



6: Courtesy of registration staff	32.13066	34.43415	5.868062	0.798445	0.914608
7: Comfort/pleasantness of waiting area	32.22126	34.43014	5.867720	0.682684	0.920319
8: Length of wait before going to exam room	32.58188	31.53250	5.615380	0.674510	0.925264
9: Comfort/pleasantness of exam area	32.21951	34.00408	5.831302	0.697325	0.919451

Summary for scale: Mean=50.2648
Std.Dv.=7.78311 Valid N:593
(Spreadsheet24)

Cronbach alpha: .958118
Standardized alpha: .958554

Average inter-item corr.: .664799

10: Friendliness/ courtesy of nurse/ assistant	46.03204	51.50825	7.176925	0.745206	0.955827
11: Nurse/ assistant's concern for my problem	46.06577	51.11034	7.149150	0.766177	0.955236
12: Length waiting in exam room	46.13153	51.21036	7.156141	0.704022	0.957328
13: Friendliness/ courtesy of care provider	46.03035	51.86417	7.201678	0.790478	0.954618
14: Explanation of my problem by care provider	46.05565	50.84850	7.130814	0.819319	0.953671
15: Concern shown by care provider	46.09949	50.93614	7.136956	0.835293	0.953258
16: Extent to which care provider includes me in decisions	46.09444	50.61165	7.114187	0.809922	0.953929
17: Information about my medication given by care provider	46.09275	50.83963	7.130191	0.817085	0.953733
18: Instruction on follow-up care by care providers	46.07083	50.88200	7.133162	0.828484	0.953426
19: Clarity of communication by care provider	46.15514	50.34356	7.095319	0.809217	0.953965
21: My confidence in the care provider	46.04216	50.95775	7.138470	0.795170	0.954369
22: Likelihood of recommending the care provider	46.04216	50.99485	7.141068	0.794050	0.954402



Summary for scale: Mean=33.4277
 Std.Dv.=5.76862 Valid N:629
 (Spreadsheet24)

Mean if Var. if StDv. if Itm-Totl Alpha if

Cronbach alpha: .941822
 Standardized alpha: .946155

Average inter-item corr.: .695062

	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
20: Amount of time care provider spent with me	29.34499	25.80308	5.079673	0.702333	0.940785
23: Convenience of office hours	29.28776	26.18270	5.116903	0.753843	0.936550
24: Sensitivity to my needs	29.29730	25.80510	5.079872	0.838078	0.931143
25: Concern of my privacy	29.21145	25.99504	5.098533	0.829948	0.931814
26: Cheerfulness of the practice	29.23688	25.65931	5.065502	0.841387	0.930802
27: Cleanliness of the practice	29.12083	26.23024	5.121546	0.818278	0.932731
28: Care received during my visit	29.15739	25.68111	5.067653	0.870018	0.929193
29: Likelihood to recommend the practice	29.33704	23.83235	4.881839	0.761316	0.939861



APPENDIX 1.4

Correlations Results

Goldman	Means	Std.Dev.	1: Ease of scheduling appointment	2: Courtesy of person taking appointment	3: Helpfulness on the phone	4: Promtness returning my phone calls	5: Speed of registration	6: Courtesy of registration staff	7: Comfort/plea santness of waiting area	8: Length of wait before going to exam room	9: Comfort/plea santness of exam area	10: Friendliness/ courtesy of nurse/ assistant	11: Nurse/ assistant's concern for my problem	12: Length waiting in exam room
1: Ease of scheduling appointment	4.250965	0.515975	1.000000	0.770043	0.609557	0.390700	0.446289	0.366789	0.379864	0.205729	0.251555	0.313075	0.278952	0.239028
2: Courtesy of person taking appointment	4.324324	0.516235	0.770043	1.000000	0.702281	0.493667	0.389550	0.444635	0.342086	0.246637	0.250941	0.407430	0.313128	0.355886
3: Helpfulness on the phone	4.312741	0.488900	0.609557	0.702281	1.000000	0.509514	0.457268	0.326320	0.290901	0.134579	0.266328	0.302854	0.350954	0.272913
4: Promtness returning my phone calls	4.401544	0.536423	0.390700	0.493667	0.509514	1.000000	0.638409	0.618481	0.214589	0.342380	0.181709	0.340287	0.232550	0.325913
5: Speed of registration	4.370656	0.537064	0.446289	0.389550	0.457268	0.638409	1.000000	0.652148	0.307126	0.239195	0.258331	0.298052	0.349831	0.285315
6: Courtesy of registration staff	4.444015	0.535334	0.366789	0.444635	0.326320	0.618481	0.652148	1.000000	0.421900	0.443784	0.236561	0.403794	0.329288	0.337222
7: Comfort/plea santness of waiting area	4.335907	0.675645	0.379864	0.342086	0.290901	0.214589	0.307126	0.421900	1.000000	0.363181	0.348596	0.349433	0.333031	0.258189
8: Length of wait before going to exam room	4.401544	0.617068	0.205729	0.246637	0.134579	0.342380	0.239195	0.443784	0.363181	1.000000	0.369194	0.461445	0.249671	0.444216
9: Comfort/plea santness of exam area	4.370656	0.654196	0.251555	0.250941	0.266328	0.181709	0.258331	0.236561	0.348596	0.369194	1.000000	0.490191	0.432847	0.213995
10: Friendliness/	4.490347	0.530927	0.313075	0.407430	0.302854	0.340287	0.298052	0.403794	0.349433	0.461445	0.490191	1.000000	0.629929	0.519466

courtesy of nurse/ assistant
11: Nurse/ assistant's concern for my problem
12: Length waiting in exam room
13: Friendliness/ courtesy of care provider
14: Explanation of my problem by care provider
15: Concern shown by care provider
16: Extent to which care provider includes me in decisions
17: Information about my medication given by care provider
18: Instruction on follow-up care by care providers
19: Clarity of communication by care provider
20: Amount of time care provider

4.451737	0.528809	0.278952	0.313128	0.350954	0.232550	0.349831	0.329288	0.333031	0.249671	0.432847	0.629929	1.000000	0.567506
4.467181	0.585586	0.239028	0.355886	0.272913	0.325913	0.285315	0.337222	0.258189	0.444216	0.213995	0.519466	0.567506	1.000000
4.428571	0.518751	0.422012	0.361837	0.355869	0.284545	0.373641	0.289112	0.317541	0.089948	0.203951	0.317648	0.450121	0.435642
4.459459	0.529459	0.342428	0.431172	0.356130	0.357776	0.352928	0.412464	0.249498	0.216109	0.110693	0.326077	0.252552	0.417613
4.416988	0.524461	0.370909	0.285932	0.335945	0.174050	0.329832	0.304354	0.281354	0.127350	0.225589	0.223308	0.366332	0.234040
4.486486	0.552313	0.358769	0.341687	0.266908	0.201540	0.199887	0.315325	0.193978	0.232064	0.207006	0.306868	0.266492	0.301221
4.447876	0.542912	0.441215	0.337138	0.361006	0.231853	0.265912	0.299983	0.285663	0.236261	0.240127	0.243650	0.318593	0.204903
4.505792	0.545387	0.359815	0.378768	0.349322	0.362979	0.310228	0.396061	0.283961	0.280990	0.298136	0.385033	0.306717	0.313106
4.401544	0.578153	0.349506	0.276225	0.253338	0.140466	0.292743	0.360946	0.209023	0.154702	0.178841	0.252590	0.342541	0.210802
4.486486	0.586352	0.337942	0.334656	0.210851	0.276101	0.262132	0.420500	0.212068	0.240017	0.093944	0.276603	0.263522	0.272446

spent with me
21: My confidence in the care provider
22: Likelihood of recommending the care provider
23: Convenience of office hours
24: Sensitivity to my needs
25: Concern of my privacy
26: Cheerfulness of the practice
27: Cleanliness of the practice
28: Care received during my visit
29: Likelihood to recommend the practice

4.494208	0.552448	0.297466	0.278425	0.286568	0.204066	0.294662	0.342927	0.280412	0.166027	0.188281	0.320263	0.294242	0.206085
4.505792	0.566306	0.306729	0.325002	0.322418	0.260257	0.298768	0.355860	0.172171	0.181877	0.140653	0.357918	0.230673	0.219724
4.447876	0.528440	0.268499	0.275330	0.265875	0.265549	0.382451	0.363003	0.228351	0.195185	0.179432	0.319398	0.299577	0.260617
4.420849	0.560756	0.263163	0.289861	0.224952	0.325121	0.368063	0.395126	0.198325	0.282631	0.207071	0.306621	0.192936	0.201573
4.459459	0.550983	0.369952	0.346194	0.284663	0.291343	0.299845	0.356929	0.260575	0.276067	0.246159	0.286839	0.309200	0.245130
4.525097	0.544838	0.287727	0.398145	0.326920	0.243886	0.259500	0.313802	0.234975	0.258127	0.256535	0.352569	0.303546	0.236450
4.548263	0.536088	0.313361	0.349379	0.348872	0.215393	0.220334	0.255932	0.249346	0.163810	0.225091	0.291023	0.367150	0.205700
4.571429	0.526170	0.312047	0.371005	0.312108	0.213833	0.221416	0.292899	0.286586	0.305264	0.271853	0.380560	0.294523	0.262372
4.575290	0.525629	0.351655	0.338186	0.322794	0.181040	0.244015	0.287084	0.305043	0.276880	0.267955	0.346363	0.302471	0.206390

Means	Std.Dev.	1: Ease of scheduling appointment	2: Courtesy of person taking appointment	3: Helpfulness on the phone	4: Promptness returning my phone calls	5: Speed of registration	6: Courtesy of registration staff	7: Comfort/pleasantness of waiting area	8: Length of wait before going to exam room	9: Comfort/pleasantness of exam area	10: Friendliness/courtesy of nurse/assistant	11: Nurse/assistant's concern for my problem	12: Length waiting in exam room
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1: Ease of scheduling appointment	3.175214	1.319735	1.000000	0.595978	0.582229	0.456419	0.503305	0.478988	0.456395	0.632583	0.593615	0.445499	0.414645	0.358297
2: Courtesy of person taking appointment	3.858974	0.931900	0.595978	1.000000	0.813685	0.638781	0.672418	0.693739	0.580467	0.412397	0.566537	0.570550	0.579178	0.583685
3: Helpfulness on the phone	3.820513	0.968299	0.582229	0.813685	1.000000	0.822101	0.765638	0.722678	0.584797	0.474431	0.582744	0.642944	0.621003	0.616229
4: Promptness returning my phone calls	3.735043	0.975170	0.456419	0.638781	0.822101	1.000000	0.752188	0.685368	0.602708	0.392803	0.486576	0.597044	0.563261	0.634634
5: Speed of registration	3.871795	0.854561	0.503305	0.672418	0.765638	0.752188	1.000000	0.844621	0.657244	0.462509	0.602002	0.686575	0.688396	0.651352
6: Courtesy of registration staff	3.901709	0.814934	0.478988	0.693739	0.722678	0.685368	0.844621	1.000000	0.695793	0.422358	0.651212	0.704371	0.697126	0.686108
7: Comfort/pleasantness of waiting area	3.833333	0.932255	0.456395	0.580467	0.584797	0.602708	0.657244	0.695793	1.000000	0.504498	0.631475	0.594836	0.575849	0.643407
8: Length of wait before going to exam room	2.952991	1.233445	0.632583	0.412397	0.474431	0.392803	0.462509	0.422358	0.504498	1.000000	0.526551	0.428337	0.396567	0.424695
9: Comfort/pleasantness of exam area	3.735043	1.018230	0.593615	0.566537	0.582744	0.486576	0.602002	0.651212	0.631475	0.526551	1.000000	0.687807	0.664310	0.537387
10: Friendliness/courtesy of nurse/assistant	3.940171	0.871983	0.445499	0.570550	0.642944	0.597044	0.686575	0.704371	0.594836	0.428337	0.687807	1.000000	0.802314	0.657452
11: Nurse/assistant's concern for my problem	3.897436	0.911393	0.414645	0.579178	0.621003	0.563261	0.688396	0.697126	0.575849	0.396567	0.664310	0.802314	1.000000	0.685767
12: Length waiting in exam room	3.782051	0.897982	0.358297	0.583685	0.616229	0.634634	0.651352	0.686108	0.643407	0.424695	0.537387	0.657452	0.685767	1.000000
13: Friendliness/courtesy of	3.952991	0.798289	0.390786	0.585276	0.594240	0.590384	0.651715	0.711965	0.594961	0.302860	0.639337	0.711153	0.736618	0.763969



care provider
14: Explanation of my problem by care provider
15: Concern shown by care provider
16: Extent to which care provider includes me in decisions
17: Information about my medication given by care provider
18: Instruction on follow-up care by care providers
19: Clarity of communication by care provider
20: Amount of time care provider spent with me
21: My confidence in the care provider
22: Likelihood of recommending the care provider
23: Convenience

3.880342	0.845715	0.345718	0.501280	0.586853	0.601488	0.655672	0.674088	0.557061	0.311389	0.605955	0.682813	0.702306	0.700188
3.854701	0.810499	0.360945	0.552346	0.611930	0.608130	0.648411	0.667056	0.552864	0.310828	0.608415	0.698156	0.711815	0.711106
3.837607	0.843631	0.334052	0.522115	0.605142	0.604802	0.631800	0.675861	0.532971	0.314344	0.564237	0.663507	0.681571	0.700901
3.914530	0.819009	0.414957	0.568956	0.608348	0.637866	0.646549	0.681835	0.582720	0.357128	0.636623	0.744013	0.724175	0.645660
3.863248	0.801351	0.387993	0.520043	0.587715	0.623475	0.644886	0.708824	0.555346	0.332154	0.612888	0.731430	0.656506	0.626396
3.782051	0.897982	0.474186	0.558042	0.611293	0.615029	0.623388	0.650919	0.576759	0.389822	0.584326	0.695820	0.670034	0.595496
3.675214	1.000678	0.514503	0.489148	0.541971	0.483194	0.518231	0.550133	0.447792	0.436136	0.483821	0.533437	0.551557	0.484477
3.901709	0.840854	0.417812	0.524471	0.584433	0.538622	0.591617	0.637221	0.542943	0.334852	0.555946	0.682658	0.625233	0.613802
3.871795	0.839359	0.407810	0.530963	0.578840	0.566561	0.605252	0.640313	0.619784	0.383831	0.607883	0.675555	0.644760	0.634679
3.794872	0.869497	0.401731	0.451443	0.547405	0.537967	0.611376	0.558947	0.497702	0.335126	0.505521	0.595097	0.596165	0.607606



of office
hours

24: Sensitivity to
my needs
25: Concern
of my privacy
26: Cheerfulness
of the
practice
27: Cleanliness
of the
practice
28: Care
received
during my
visit
29: Likelihood
to recommend
the practice

3.824786	0.853713	0.465435	0.546035	0.647119	0.614183	0.710319	0.703074	0.567121	0.420103	0.588210	0.671933	0.682856	0.683365
3.961538	0.860816	0.432857	0.554973	0.635310	0.580886	0.693388	0.692043	0.532136	0.362085	0.615079	0.660182	0.651412	0.633166
3.863248	0.863231	0.427991	0.546786	0.622605	0.578782	0.662656	0.651911	0.590200	0.409115	0.622665	0.696103	0.631266	0.636860
4.004274	0.846593	0.483336	0.610049	0.629202	0.536837	0.671116	0.691121	0.561015	0.316669	0.633625	0.692192	0.640249	0.543198
3.931624	0.846366	0.468014	0.575401	0.655287	0.586359	0.676165	0.693355	0.572951	0.391581	0.636264	0.738802	0.697487	0.618420
3.547009	1.283743	0.634765	0.434276	0.493645	0.448822	0.498457	0.498781	0.460226	0.512327	0.669527	0.581466	0.499354	0.450107

Means	Std.Dev.	1: Ease of scheduling appointment	2: Courtesy of person taking appointment	3: Helpfulness on the phone	4: Promtness returning my phone calls	5: Speed of registration	6: Courtesy of registration staff	7: Comfort/plea santness of waiting area	8: Length of wait before going to exam room	9: Comfort/plea santness of exam area	10: Friendliness/ courtesy of nurse/ assistant	11: Nurse/ assistant's concern for my problem	12: Length waiting in exam room
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1: Ease of
scheduling
appointment
2: Courtesy
of person
taking
appointment
3:
Helpfulness
on the phone
4: Promtness
returning my
phone calls

3.766791	1.120621	1.000000	0.672191	0.652236	0.552558	0.576603	0.560373	0.511521	0.679655	0.588036	0.503769	0.476831	0.465588
4.121269	0.779549	0.672191	1.000000	0.812971	0.664160	0.644305	0.673281	0.564307	0.484272	0.546894	0.584812	0.557565	0.575314
4.098881	0.803915	0.652236	0.812971	1.000000	0.773161	0.725442	0.673095	0.551223	0.502944	0.562064	0.597793	0.593351	0.577456
4.100746	0.850024	0.552558	0.664160	0.773161	1.000000	0.749385	0.709954	0.554964	0.529780	0.501867	0.590652	0.543579	0.618132



5: Speed of registration	4.154851	0.758931	0.576603	0.644305	0.725442	0.749385	1.000000	0.825159	0.593732	0.523196	0.564922	0.611815	0.620448	0.597390
6: Courtesy of registration staff	4.205224	0.743100	0.560373	0.673281	0.673095	0.709954	0.825159	1.000000	0.647394	0.548417	0.586025	0.651800	0.621071	0.624594
7: Comfort/pleasantness of waiting area	4.121269	0.841802	0.511521	0.564307	0.551223	0.554964	0.593732	0.647394	1.000000	0.543754	0.598158	0.576596	0.556310	0.573398
8: Length of wait before going to exam room	3.753731	1.188333	0.679655	0.484272	0.502944	0.529780	0.523196	0.548417	0.543754	1.000000	0.585639	0.542846	0.481072	0.571665
9: Comfort/pleasantness of exam area	4.102612	0.895843	0.588036	0.546894	0.562064	0.501867	0.564922	0.586025	0.598158	0.585639	1.000000	0.683193	0.652043	0.530118
10: Friendliness/courtesy of nurse/assistant	4.253731	0.760586	0.503769	0.584812	0.597793	0.590652	0.611815	0.651800	0.576596	0.542846	0.683193	1.000000	0.787970	0.669823
11: Nurse/assistant's concern for my problem	4.218284	0.777560	0.476831	0.557565	0.593351	0.543579	0.620448	0.621071	0.556310	0.481072	0.652043	0.787970	1.000000	0.693360
12: Length waiting in exam room	4.158582	0.819757	0.465588	0.575314	0.577456	0.618132	0.597390	0.624594	0.573398	0.571665	0.530118	0.669823	0.693360	1.000000
13: Friendliness/courtesy of care provider	4.235075	0.705626	0.466579	0.563124	0.565236	0.558773	0.598557	0.606507	0.549800	0.399079	0.570895	0.647897	0.693257	0.691574
14: Explanation of my problem by care provider	4.210821	0.767539	0.422355	0.516376	0.544740	0.566155	0.572778	0.599098	0.501332	0.430003	0.517597	0.631811	0.624300	0.641912
15: Concern shown by care provider	4.179104	0.734727	0.445837	0.523321	0.558564	0.551672	0.573660	0.579597	0.520885	0.425258	0.559865	0.617592	0.661049	0.613775
16: Extent to which care provider includes me	4.188433	0.782959	0.442160	0.513726	0.540505	0.552784	0.523304	0.579148	0.484242	0.451759	0.518679	0.603814	0.616976	0.611515

in decisions

17: Information about my medication given by care provider	4.194030	0.756061	0.470465	0.514992	0.537295	0.548304	0.524120	0.554454	0.509212	0.436081	0.536283	0.616321	0.636844	0.547393
18: Instruction on follow-up care by care providers	4.212687	0.748523	0.480399	0.532309	0.561378	0.609619	0.573658	0.633791	0.525574	0.479269	0.575059	0.673294	0.620189	0.602905
19: Clarity of communication by care provider	4.121269	0.810120	0.510937	0.521262	0.546950	0.538666	0.550068	0.588880	0.504640	0.460173	0.513379	0.617346	0.625543	0.547975
20: Amount of time care provider spent with me	4.125000	0.897166	0.573780	0.520818	0.532244	0.530027	0.517810	0.581060	0.462503	0.542620	0.484023	0.558799	0.566361	0.532125
21: My confidence in the care provider	4.236940	0.759868	0.482077	0.522543	0.558243	0.533063	0.545604	0.589015	0.524810	0.445621	0.529861	0.642871	0.605117	0.560712
22: Likelihood of recommending the care provider	4.223881	0.772342	0.479404	0.538470	0.554321	0.560627	0.549815	0.593950	0.533148	0.479717	0.539452	0.647685	0.593874	0.572646
23: Convenience of office hours	4.166045	0.778474	0.500847	0.487287	0.544176	0.545260	0.598636	0.574286	0.496887	0.478698	0.506206	0.591650	0.582300	0.573747
24: Sensitivity to my needs	4.154851	0.768720	0.517185	0.533169	0.580097	0.585374	0.638044	0.654317	0.505294	0.510395	0.533300	0.613615	0.590658	0.577918
25: Concern of my privacy	4.235075	0.754278	0.500613	0.555411	0.596592	0.569375	0.625253	0.644086	0.499618	0.458837	0.556201	0.589816	0.587988	0.559300
26: Cheerfulness of the practice	4.214552	0.797574	0.526629	0.577372	0.616936	0.582878	0.618187	0.635164	0.537458	0.521277	0.573433	0.631105	0.581390	0.579668
27: Cleanliness	4.302239	0.752612	0.535841	0.600078	0.614720	0.545430	0.608394	0.634189	0.523248	0.432402	0.577687	0.620071	0.605713	0.512946

of the
practice
28: Care
received
during my
visit
29:
Likelihood to
recommend
the practice

4.291045	0.757020	0.536249	0.576717	0.619106	0.567249	0.601368	0.634588	0.542867	0.516159	0.598070	0.683083	0.644450	0.579090
4.125000	1.066591	0.668732	0.489793	0.530535	0.499437	0.518685	0.531210	0.493125	0.612747	0.637970	0.603672	0.550771	0.505318

APPENDIX 2

Means and Standard Deviations Results

	Means					Standard deviations				
	Goldman Medical Patient	Goldman Medical Staff	Platinum Health Patient	Platinum Health Staff	All Groups	Goldman Medical Patient	Goldman Medical Staff	Platinum Health Patient	Platinum Health Staff	All Groups
Sample size	302	11	305	39	657	302	11	305	39	657
1: Ease of scheduling appointment	4.25	4.27	3.17	3.95	3.73	0.54	0.90	1.33	1.19	1.15
2: Courtesy of person taking appointment	4.33	4.36	3.86	4.36	4.12	0.53	0.92	0.94	0.71	0.80
3: Helpfulness on the phone	4.32	4.27	3.79	4.38	4.08	0.50	0.90	1.00	0.85	0.84
4: Promptness returning my phone calls	4.37	4.55	3.66	4.16	4.03	0.55	0.69	1.05	0.93	0.91
5: Speed of registration	4.35	4.64	3.83	4.28	4.11	0.55	0.67	0.92	0.86	0.81
6: Courtesy of registration staff	4.44	4.64	3.88	4.34	4.18	0.54	0.67	0.84	0.81	0.76
7: Comfort / pleasantness of waiting area	4.33	4.55	3.79	4.26	4.08	0.68	0.93	0.93	0.88	0.86
8: Length of wait before going to exam room	4.38	4.27	2.90	3.97	3.67	0.63	1.01	1.25	1.22	1.24
9: Comfort / pleasantness of exam area	4.39	4.45	3.69	4.44	4.07	0.66	0.93	1.05	0.68	0.93
10: Friendliness / courtesy of nurse / assistant	4.49	4.55	3.93	4.54	4.23	0.56	0.93	0.93	0.55	0.81
11: Nurse's / assistant's concern for my problem	4.44	4.30	3.85	4.62	4.18	0.54	0.67	0.97	0.55	0.83
12: Length waiting in exam room	4.45	4.45	3.72	4.34	4.10	0.60	0.69	0.95	0.75	0.86
13: Friendliness / courtesy of care provider	4.42	4.55	3.94	4.62	4.21	0.54	0.69	0.85	0.54	0.75
14: Explanation of my problem by care provider	4.46	4.45	3.87	4.46	4.19	0.54	0.93	0.90	0.82	0.80
15: Concern shown by care provider	4.40	4.55	3.82	4.46	4.14	0.56	0.69	0.85	0.68	0.77
16: Extent to which care provider includes me in decisions	4.46	3.82	3.81	4.36	4.14	0.58	1.25	0.89	0.67	0.82



17: Information about my medication given by care provider	4.43	3.82	3.86	4.26	4.15	0.57	1.08	0.89	0.86	0.81
18: Instruction on follow-up care by care providers	4.47	4.09	3.84	4.38	4.16	0.58	0.83	0.85	0.67	0.79
19: Clarity of communication by care provider	4.39	4.18	3.77	4.28	4.10	0.59	0.75	0.93	0.79	0.83
20: Amount of time care provider spent with me	4.45	4.18	3.66	4.37	4.08	0.61	0.87	1.02	0.75	0.92
21: My confidence in the care provider	4.48	4.27	3.86	4.56	4.19	0.58	0.90	0.92	0.55	0.82
22: Likelihood of recommending the care provider	4.50	4.27	3.84	4.49	4.19	0.57	0.90	0.89	0.60	0.81
23: Convenience of office hours	4.44	4.36	3.76	4.44	4.12	0.55	0.92	0.93	0.68	0.83
24: Sensitivity to my needs	4.41	4.36	3.80	4.29	4.12	0.58	0.67	0.89	0.80	0.81
25: Concern for my privacy	4.46	4.45	3.93	4.36	4.21	0.55	0.69	0.89	0.74	0.78
26: Cheerfulness of the practice	4.52	4.36	3.85	4.18	4.19	0.56	0.67	0.87	0.97	0.81
27: Cleanliness of the practice	4.57	4.45	4.02	4.49	4.31	0.53	0.69	0.86	0.76	0.76
28: Care received during my visit	4.57	4.45	3.91	4.58	4.27	0.54	0.69	0.87	0.55	0.79
29: Likelihood to recommend the practice	4.60	4.45	3.50	4.50	4.08	0.52	0.69	1.28	0.80	1.10
Total satisfaction	4.44	4.36	3.76	4.37	4.12	0.35	0.67	0.75	0.52	0.67

APPENDIX 3.1

Hypothesis 1 Results

	Mean Goldman Medical Patient	Mean Platinum Health Patient	t separ. var.est.	df	p 2-sided	Valid Goldman Medical Patient	N	Valid Platinum Health Patient	N	Std.Dev. Goldman Medical Patient	Std.Dev. Platinum Health Patient	F-ratio Variances	p Variances
29: Likelihood to recommend the practice	4.60	3.50	13.72	398.00	0.00	302		303		0.52	1.28	6.146	0.00
Total satisfaction	4.44	3.76	14.37	429.29	0.00	302		305		0.36	0.75	4.68	0.00

APPENDIX 3.2

Hypothesis 2 Results

	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	ratio	p
29: Likelihood to recommend the practice	4.45	4.50	-0.17131	47	0.864716	11	38	0.688	0.797	1.343555	
Total satisfaction	4.36	4.37	-0.03559	48	0.971756	11	39	0.669	0.517	1.673796	0.246445