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Determining the Level of Patient Satisfaction in a Dental Hygiene Setting.

Vinodh Bhoopathi
East Tennessee State University

Determining the Level of Patient Satisfaction in an Academic Dental Hygiene Setting

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by

Vinodh Bhoopathi

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Dr. Beth Hogan, Chair

Dr. Michael Dunn

Dr. Joel Ryman

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ABSTRACT

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Not many studies have been conducted in the past to determine patients' level of satisfaction in academic dental hygiene settings. This patient satisfaction study analyzed the level of patient satisfaction with the dental hygiene clinic at East Tennessee State University, Johnson City, TN. The purpose of the study was to determine if there was a statistically significant influence of demographic characteristics of the patients and the affective behavior of the care providers on level of patient satisfaction. It was concluded that except for age, other demographic variables did not have any statistically significant influence on patient satisfaction. Also, care provider's affective behavior significantly influenced patient satisfaction. Overall, the dental hygiene patients were satisfied with the clinic. As patients' needs are prioritized in this customer-driven industry, such positive patient satisfaction data can be used for the welfare of the patients, the care providers, and the health care organization

DEDICATION

I would like to honor my beloved parents Dr. Vijayalakshmi and Mr. Bhoopathi by dedicating my thesis work to them.

I also would like to dedicate my work to the most beautiful, wonderful, and amazing woman, who will always be the special person in my life; no matter what. I take this opportunity to thank her for making me a better person.

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CHAPTER 1

INTRODUCTION

Two quotes presenting an explanation of patient satisfaction are, "Patient satisfaction is a summation of all the patient's expectations in a health care setting" (Worthington, 2004) and "It is a human experience, appraised subjectively by an individual, regarding the extent to which, care received has met certain expectations" (Brennan, 1995). Factors that influence the subjective appraisal of the patients and in turn support the evaluation of health care are the determinants of patient satisfaction. An in-depth analysis of the level of patient satisfaction associated with every aspect (determinants of patient satisfaction) of a health care setting will further help us to understand if the patients were satisfied in the health care environment. Customers are the most important stakeholders and their views on every aspect of the health care environment will have to be understood so that measures can be taken to satisfy them during their future encounters with the health care environment.

Importance of Patient Satisfaction

Patient satisfaction data can be extensively used in various ways within a health care organization and also by other entities outside that organization such as accreditation agencies, business coalitions, and health plans. For a health care organization, conducting patient satisfaction studies helps in the evaluation of that health care system, the quality of care provided by the care providers in that system, and the provider-patient relationships (Mascarenhas, 2001). Results from patient satisfaction studies can divulge the consumers' presumed strengths and weaknesses of the health care environment and what factors influenced or will influence their level of satisfaction in a health care setting. Measuring the level of patient satisfaction is

important because it serves as an indicator of overall success in terms of how well the organization is meeting the needs of its target population. It is also one of the steps towards developing a competitive advantage in a market place environment (Scalise, 2004). Organizations with highest patient satisfaction scores are proven to be more profitable (Scalise). Examples of external entities that use patient satisfaction data are accreditation agencies, insurance companies, and different business coalitions. Also, currently public opinion is considered as evidence for shaping new health policies (Edgington & Pimlott, 2000).

Patients' views on what is important in connection with the care they receive may be seen as an aspect of quality and patient satisfaction has increasingly come to be used as an indicator of quality (Wilde, Starrin, Larrsson, & Larsson, 1993). According to Yoshido and Mataki (2002), patient satisfaction in today's times is increasingly regarded as a component in the quality of patient care. When there is care that meets the expectations of the patients, then customer satisfaction is increased. To meet patient expectations, health care providers and the organization will need to continuously increase their quality of the care and monitor the results of their efforts. Satisfying patients must be a fundamentally sound principle and a legitimate goal for a health care organization. By delivering quality health care, an organization may succeed in today's changing business and economic environment (Newsome & Wright, 1999a).

Patient satisfaction can be used as an indicator of an organization's survival in a highly competitive environment. According to Newsome and Wright (1999a) and Bowers, Swan, and Koehler (1994), satisfying customers is necessary for a business's long term success. By doing so, there would be an increase in exchange relationships and thus positive returns to the organization. Positive organizational results of higher patient satisfaction would be evidenced by increased market share, less employee turnover, higher profits, and improved clinical quality

(Scalise, 2004). Patient satisfaction data may also be used by various other organizations such as health plans and business coalitions to evaluate a health care organization (Scalise). If satisfied with the public response, these organizations could extend more support to the health care organization and so might contribute to long term success of the organization. Hence, fostering and maintaining customer support is one of the factors that might contribute to organization's growth.

Care providers are recognized by the way they provide care to the public. The public's perception of a profession is important in understanding the values they place on that profession (Edgington & Pimlott, 2000). Patients will develop respect towards the care providers and the health care organization when value is created for the patients in the form of quality health care, increased customer support, and so on. A health care provider gets negatively recognized if the quality of treatment he/she provides is not up to the expectations of the patient and vice-versa. Recognition may be in the form of positive or negative word of mouth (Scalise, 2004). There is a higher chance for a customer to recommend an organization and a care provider to someone he/she knows through positive word of mouth, if the customer holds a positive value for the organization and the provider. In a public opinion survey conducted to find out the public perception of dental hygienists and the profession in Alberta, Canada, it was found out that more than two thirds of Albertans believed dental hygienists were highly qualified and skilled professionals who could provide efficient preventive care (Edgington & Pimlott). Thus, by conducting a patient satisfaction study the value the public holds in regard to a particular profession and the organization can be understood

Patient Satisfaction in Dental Hygiene Setting

Similarly, patient satisfaction studies in a dental hygiene setting will help in measuring the quality care offered, positive or negative recognition/perception the patients have about the dental hygienists, and, hence, might be a tool to measure the success of the setting. Though there have been many patient satisfaction studies conducted in health care settings, there are not many that are associated with a dental hygiene setting. A possible reason why there has not been serious consideration to assess the level of patient satisfaction with the dental hygienists can be assumed because dental hygienists are not seen as independent and autonomous care providers. That is why many dental hygiene organizations all over the world have been striving hard for the past two decades for greater independence, autonomy, and recognition (Adams, 2004). Often the credibility of a positive patient satisfaction in a dental office goes to the dentist alone, yet often equal or at least significant lengths of dental care encounter time is spent with dental hygienists who are an important part of the dental team. Although there are not many studies available on the actual length of the dental care encounter time with the dental hygienists, the following evidence will show that a majority of the patients visit a dental office for either a check up or a preventive measure that dental hygienists are specially qualified and trained to perform. It has been found out from a public opinion study in Alberta, Canada, that 62% of the patients visited a dental office for preventive care procedures (Edgington & Pimlott, 2000). A health promotion survey conducted in Canada (1998) supports the above mentioned evidence (Edgington & Pimlott). The Health Promotion survey discovered that more than 80% of those who visited the dental office did so for either a check up or prevention-related purpose. As dental hygienists are best qualified to offer these preventive procedures, it could be assumed that significant amount of patients' dental care encounter time will be spent with the dental hygienists. In spite of their

effort, dental hygienists, who are a part of the treatment team, may not be fully recognized in terms of overall contribution to patient satisfaction. To better understand the public recognition of dental hygienists and how they are seen in the eyes of the public, a study to determine the level of patient satisfaction in a dental hygiene setting is needed. Patient satisfaction data in a dental hygiene setting could be used as an initial step towards the process of exploring the public's perception of dental hygienists. The results would be used to develop new strategies in a dental hygiene setting to attract patients, create value for them, and elevate the level of satisfaction with the dental care encounter.

The goal of this study was to determine the level of patient satisfaction in a dental hygiene department in order to find out the areas of weaknesses to further enhance the efficiency of the department to sustain services within a competitive environment. Objectives of the study would be to understand the patient perception about dental hygienists and to identify the positive and negative aspects of a specific dental hygiene setting to enhance patient satisfaction efforts.

In effect, patient satisfaction and public perception can be analyzed and assessed by discovering the level of patient satisfaction associated with different aspects of a dental health care setting, thereby providing a wide scope, through which effectiveness of the care and the treatment outcomes could be enhanced.

Statement of the Problem

The purpose of this patient satisfaction study was two fold: to determine the impact of affective behavior of the care providers in the dental hygiene clinic on the level of patient satisfaction and to understand if the level of patient satisfaction is affected by the demographic characteristics of the patients.

Dental hygienists are oral health professionals who are qualified to perform preventive dental care for patients. Certain studies show that patients visit dental offices mainly for preventive procedures that the dental hygienists are specially trained to perform (Edgington & Pimlott, 2000). But, there are not many studies to assess the patients' opinions and ideas about dental hygienists and the corresponding level of satisfaction in a dental hygiene setting. Measuring the level of patient satisfaction in a dental hygiene setting is very important because the data can be used to develop strategies and action plans to improve care for consumers, enhance providers' knowledge of satisfaction variables and overall improve the dental care.

Many dental hygiene organizations have been striving for a greater independence, autonomy and recognition (Adams, 2004). The health care industry is highly consumer driven and positive patient satisfaction results can be utilized to the advantage dental hygienists in creating competitive advantage, and enhancing positive recognition. In this consumer-driven health care industry, using patient satisfaction data as a basis, the dental hygiene organizations can confidently strive towards a greater independence, appreciation, autonomy and recognition.

The following hypothesis will be tested in this proposed study

Hypothesis 1: Level of patient satisfaction is affected by the age of the patient (Spearman's Correlation)

Hypothesis 2: Level of patient satisfaction is affected by the gender of the patient (One way Anova)

Hypothesis 3: Level of patient satisfaction is affected by the ethnicity that the patient belongs to (One way Anova)

Hypothesis 4: Educational attainment of a patient affects his/her level of satisfaction in the dental hygiene clinic (Spearman's Correlation)

Hypothesis 5: A patient's marital status affects his/her level of satisfaction in the dental hygiene clinic (One way Anova)

Hypothesis 6: The level of patient satisfaction in the dental hygiene clinic is affected by his/her annual income (Spearman's Correlation).

Hypothesis 7: The health care provider's affective behavior towards the patient impacts level of patient satisfaction in the dental hygiene clinic (Pearson's correlation).

The null hypotheses for all of the above mentioned hypotheses will state that, demographic characteristics, and affective behavior do not have an effect on level of patient satisfaction.

Overview of the Study

The study used data collected from the surveys completed by the dental hygiene patients. The questionnaire used was a modified version of Hogan Patient Satisfaction questionnaire. The data were related to the factors associated with patient satisfaction in the dental hygiene setting. Variables regarding the patient's level of satisfaction with the clinic and the dental hygienist's affective behavior towards the patients were taken into consideration. Demographic variables such as age, sex, ethnicity, educational attainment, marital status, and occupational status were also considered.

Significance of Study

There have been many studies on patient satisfaction that were conducted in health care settings, and the results obtained have been used by those health care organizations to develop actions or plans and to enhance services offered to the patients. But not many studies have been put forth to understand the level of patient satisfaction in a dental hygiene setting. By conducting this study at the Dental Hygiene Clinic of East Tennessee State University, the level of patient satisfaction with different aspects of this service can be understood. We may discover if the clinical services offered at the clinic are meeting the patients' expectations. This might help in making important managerial decisions. Whether the dental hygienists get positive or negative recognition will also be assessed. Higher levels of patient satisfaction with the dental hygiene setting and with the dental hygienists would enhance the recognition and reputation of both the setting and the care providers.

Research Question

Is the level of patient satisfaction in this dental hygiene setting affected by the affective behavior of the care provider and the demographic characteristics of the patient population?

Definition of Terms

Following are some important terms that need to be defined:

Dental hygienist: Dental hygienists are licensed oral health professionals who focus on preventing and treating oral diseases-both to protect teeth and gums, and also to protect patients' total health. Doorn. M (Personal Communication, May 4, 2005)

Walk- in patients: The patients who were surveyed at the dental hygiene clinic.

Mail-out patients: The patients who were surveyed through the postal mail.

Intrinsic: Belonging to the essential nature or constitution of a thing.

Extrinsic: External to a thing, its essential nature, or its original character.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Theoretical Background

Over the years, researchers have gathered substantiate evidence and developed various theories of patient satisfaction. Such theories visualize patient satisfaction from different angles. Following are the theories of patient satisfaction that illustrate the association of patient satisfaction with treatment outcomes, health care environment, and health care provider power.

Performance Theory

According to this theory, patient satisfaction is not affected by prior patient expectations at all. Actual performance and the treatment outcome effectively affect patient satisfaction. Actual performance will overwhelm any psychological response tendencies related to expectations (Oliver & DeSabro, 1998). Higher patient satisfaction can be expected to result in a better clinical outcome and lower patient satisfaction is associated with poor clinical outcomes (Oliver & DeSabro). Basically what the theory means is, though patients have expectations, level of patient satisfaction is influenced highly by the quality of care provided and the outcomes of the care. Patients' pretreatment expectations cannot inhibit the level of patient satisfaction, as it is overcome by the high quality care offered and a superior treatment outcome.

Fulfillment Theory

Fulfillment theory views patient satisfaction in a somewhat different way from performance theory. This theory contends that patient satisfaction is the difference between actual outcome and some other ideal or other desired outcomes (Linder-Pelz, 1982). This theory

hypothesizes that satisfaction would vary positively with the extent to which perceived outcomes concurred with the pretreatment expectations (Linder-Pelz). The patients' perception of whether the outcome of a treatment was good or bad was based on the expectations the patient had before treatment and would influence the patient satisfaction. This means that there would be positive satisfaction if the treatment outcome matched with the pretreatment expectations of the patient.

Expectancy-Disconfirmation Theory

Not very different from the fulfillment theory, the expectancy-disconfirmation theory contends that patients form expectations of their treatment outcomes even before the treatment. It proposes that the consumer compares his or her perception about a product or a service against a 'pre-purchase' comparison level or standard. In a health care setting, patients tend to compare the actual outcomes with that of the perceived outcomes (Oliver & DeSabro, 1998). It proposes that if one's expectations are higher, the less likely that service could meet or exceed them, and the result would be reduced satisfaction or dissatisfaction. On the contrary, the higher the perceived level of performance, the more likely the expectations would be exceeded, resulting in increased satisfaction.

Social-Equity Theory

This theory is different from the other three theories. If a patient perceives that his/her treatment outcome is comparatively and fairly the same when compared to that of his/her counterparts, then he/she is supposed to be satisfied. Individuals compare their gains with those of other consumers and with those of the service provider (Newsome, & Wright, 1999). Patients tend to compare their treatment results with those undergoing the same treatment procedures for

a similar condition in the same health care setting or any other health care setting. If the other patient had acquired better treatment services and the outcome in that patient is found superior to that of the first patient, the first patients more likely get dissatisfied.

Primary Provider Theory

The Primary Provider Theory contends that patient satisfaction occurs at the nexus of provider power and patient expectations (Aragon, 2003). It is principally the function of an underlying network of interrelated satisfaction constructs – satisfaction with the primary provider, the amount of time a patient has to wait for the provider, and satisfaction with the provider's assistant (Aragon). According to this theory primary providers offer the greatest clinical utility to patients (Aragon). The theory is mainly operated by patient centered measures exclusively, where only patients judge the quality for service and other judgments are totally irrelevant. So this theory concludes that patients' level of satisfaction is inherently influenced by the primary care provider.

What could be understood from these theories is that patients' level of satisfaction is influenced by different factors like quality care, treatment outcomes, provider power, waiting time, equality in treatment, and staff members. The factors mentioned in these theories together with various other influencing factors were integrated in the patient satisfaction instrument. The first three theories, Performance theory, Expectancy – Disconfirmation theory and Fulfillment theory mainly focus on the treatment outcome in a patient, irrespective of patients' prior expectations (See Appendix B Q14, 17, 18, 39). Social equity theory talks about patients being treated equally (See Appendix B Q15). According to Primary Provider Theory, patient

satisfaction is influenced by the primary provider, waiting time, and the staff assisting the provider. (See Appendix B, Q8, Q24-30).

Previous Research on Patient Satisfaction

Determinants of patient satisfaction that influence the level of patient satisfaction are broad and complex. The literature reveals several factors that influence or at least are associates with patient satisfaction in health care settings. The supporting literature suggests that a questionnaire can be formulated and implemented among the patient base to assess the level of patient satisfaction associated with dental care. Following are the factors believed to influence general patient satisfaction.

Factors that influence the level of patient satisfaction in a health care setting can be divided into intrinsic factors and extrinsic factors. Intrinsic factors that are thought to influence patient satisfaction would be Age (Newsome & Wright, 1999b) Sex or Gender (Mataki, 2000; Schouten, Hoogstrate, & Eijkman, 2003), Socioeconomic Status (Ham, 2003; Mofidi, Rozer, & King, 2002; Newsome, & Wright, 1999b) Ethnicity (Badner, Bazdekis, & Richards, 1999; Carasquillo, Orav, Brennan, & Burstin, 1999; Saha & Hickam, 2003) Literacy (Vass, 2003), and Anxiety (Yellen & Davis, 2001). Extrinsic factors includes characteristics of the health care organization and setting, the health care system that includes physicians, nurses, management staff, etc., access to care, insurance coverage, and cost of the treatment.

Intrinsic Factors and Patient Satisfaction

Age, an intrinsic factor, indirectly influences patient satisfaction. According to Newsome and Wright (1999b), younger patients are more tolerant towards the dental health care system, owing to their good oral conditions. But older individuals who have deteriorating oral conditions are less satisfied because even extensive dental treatment cannot bring back their lost comfort and functions. Also, according to certain researchers, younger patients are less tolerant towards dental care providers than older individuals (Rahmann, Shahidullah, Shahiduzzaman, & Rashid, 2002). Such contradictory results have made it difficult to find the exact influence of age on patient satisfaction. Gender has also been studied and found to have indirect influence on patient satisfaction, although there is no clear cause noted. Gender is an independent predictor of patient satisfaction, and the females had displayed higher rates of satisfaction than their male counterparts in the studies conducted in the past (Mataki, 2000). Anxiety also factors into patient's level of satisfaction. Highly anxious patients miss the appointments, postpone treatments, and are found to be more noncompliant than patients who are less anxious (Yellen & Davis, 2001). Low-income clients often complain about the health care system (Ham, 2003) because of the perceived second rate treatment they receive compared to their high-income counterparts (Ham), and for being refused for treatment by certain providers (Mofidi et al., 2002).

Patients from different backgrounds, ethnicit,y and cultures have lower satisfaction rates because some of them are non-English speaking and do not understand the providers' communication (Carasquillo et al., 1999). Also, they perceive that a low quality of care is provided to them (Carasquillo et al). Saha and Hickam (2003) considered language and culture as two key factors among Asians that led to decreased interest in treatment, to disbelief, and to a

lack of understanding of the physician's advice. Authors have different opinions about the influence of one's literacy level on patient satisfaction. According to Vass (2003), if patients do not have the capacity to obtain, process, and understand basic health information and services, they are less likely to make appropriate health decisions. Patients with a low level of education are highly anxious and do not comprehend what the health provider is trying to communicate and become dissatisfied with the health care provider and the system. In another study, it was found that a larger percentage of patients with a high school education or less considered their dentists to be more informative and truthful to them (Mataki, 2000). A less educated person might be dissatisfied if the dental provider is not communicative and informative enough but would be more compliant if provided with more health information.

Extrinsic Factors and Patient Satisfaction

Extrinsic factors that influence patient satisfaction are mainly those that pertain to the health care organization itself, such as health care setting, access to the setting, providers and staff in the setting, insurance plans that the organization recognizes, cost of treatment, quality of treatment, types of services offered, etc. In effect, every aspect of the health care organization could influence patient satisfaction.

A patient-friendly health care environment could calm anxious first-time patients as well as fearful patients and might facilitate the patient's compliance and overall satisfaction. Patients recognize in a health care environment, the need for their personal space, a warm welcoming environment, supportive measures, good physical design, access to external areas, and provision of facilities for recreation and leisure (Douglas & Douglas, 2004). Mayer D (1992) predicted

that the future hospitals would offer a more patient-friendly design that would promote compliance and patient satisfaction.

Patient access to health care is often related to the availability, accessibility and accommodation of health care services when required. In one of the studies (Badner et al., 1992), regarding patient satisfaction with dental care in a municipal hospital, almost 60% of the participants were displeased with the extensive waits for the appointment. In the same study, unavailability of adequate dental care services was also found to dissatisfy patients.

Providers play an inherent role in taking care of the patient in such a way that satisfies patient's expectations. Providers are valued by the patients based on their communicative style, the quality treatment and information they provide, their personal appearance, etc. Patients exhibited more satisfaction when the dentists encouraged questions, paid more attention to them, had a calm attitude, and were friendly and assuring (Mataki, 2000). Patients evaluate the quality of health care in relation to their perceptions of "instrumental" and "affective" behaviors of the care providers (Mataki). Patients expect to be treated by highly competent and skilled health professionals (Wilde et al., 1993) and when a provider's technical competence seems unsatisfactory, patients were displeased. Dissatisfaction also rises when dentists fail to give enough information to the patients (Badner et al., 1992). Other staff in the health care setting such as nurses, front desk personnel, and management staff may also influence patient satisfaction. In a study assessing satisfaction with dental care in a municipal hospital, more than 60% of the patients were pleased with the courteous and compassionate attitude of the staff (Badner et al). Non-medical staff, although not directly involved with the treatment procedures, can act as catalysts in facilitating patients' comfort level and overall satisfaction. The way the

staff members treat patients is not only important for organizational growth but is also crucial for their long term-employment in the office (Spolidoro, 2000).

Cost of the treatment and the insurance plan(s) that the organization recognizes limited access of low income and middle income patients to health care. Dental expenditures are soaring, and paying out of pocket by low-income and middle-income families is a burden leading them to the belief that public insurance plans would cover the treatment expenditures. Some patients are dissatisfied with the waiting times and the perceived unfriendly behaviors from the front desk staff and the dentists when compared with their counterparts who are privately insured or who pay out of pocket. According to dentists, patients who are Medicaid-insured miss and postpone treatment appointments more frequently than insured patients (Mofidi et al., 2002) and so dentists enrolled in the Medicaid program express their lack of interest in treating patients insured through Medicaid.

A health care system should provide at least the basic health care facilities to the public in need. According to Badner et al., (1992) patients were dissatisfied with the unavailability of adequate dental care services in a municipal hospital. Increase in the overall supply of dental services to the population in need will improve the satisfaction with care (Croucher, Robinson, Zakrzewska, Cooper, & Greenwood, 1997). So, if patients are given the necessary health care services within a single health care setting, it would satisfy the patients and thus promote patient satisfaction.

Intrinsic factors and extrinsic factors come together in such a way that the patient is positively or negatively influenced. The predictors of patient satisfaction and their relation in influencing the level of patient satisfaction in a dental hygiene department can be incorporated in the development of a questionnaire containing all the above mentioned factors. Thus, how the

intrinsic and extrinsic factors influence level of patient satisfaction should be assessed to determine patients' satisfaction in an academic dental hygiene setting.

Academic Dental Institutions

Academic dental institutions play a prominent role in promoting oral health care. These institutions often supply services to the underserved that are in real need and also contribute to the well being of the general patient population by offering accessible and economical oral health care services (Haden et al., 2003). The main mission of an academic dental institution is to combine education, research, and patient care to build a platform upon which the dental students serve the patient population (Haden et al).

Academic institutions have wide responsibilities when it comes to providing services to the patients in need. The oral health of American people is improved by academic dental institutions through providing patient care, educating patients about preventing oral diseases in community settings, advocating for oral health at the local, state, and national oral health needs, and so on (Haden et al., 2003). The patient population benefits greatly from the services provided by the care providers (students), and the care providers are in turn benefited from the experience they gain through the process of treating these patients. Such experience will hone their skills and prepare them as competent health care providers in the future. According to Maurizio, DeMattei, Meyer, and Cotner (2003), a dental clinic developed by faculty of the dental hygiene baccalaureate program located at Southern Illinois University for Medicaid patients not only benefited the patients by providing services in a cost effective method but also the students by enhancing their experience. So, in an academic setting, health services are delivered to patients

through the students for a mutual benefit. Hence, academic institutions must find a balance between meeting the needs of both patients and students (Yoshida & Mataki, 2002).

Though there is a mutual benefit between the care providers and the patients, in this customer-oriented health care industry, customer satisfaction is prioritized. According to Yoshida and Mataki (2002), educational and clinical experience gained by academic dental care providers should be patient-centered. The success of an academic dental institution lies in providing quality care and satisfying those patients who are present for care. It is evident that by doing so there is an increased chance to attract more patients and to retain the existing patient population. But, it is very difficult for the clinical students to gain the acceptance and cooperation from the patients to carry on with the treatment successfully (Yoshida & Mataki). To gain the confidence, cooperation, and satisfaction from the patient base, care providers should provide the best of care to them. Other factors that might attract patients to use services in an academic institution would be technical competence, interpersonal factors, convenience, costs, and facilities available in the academic dental setting (Yoshida & Mataki).

Therefore, to attract more patients and to create opportunities for the students to learn about care for patients, everyone in the academic dental setting should create a favorable environment that has diverse facilities to satisfy patient needs. Academic dental care providers like faculty, clinical students, and residents must offer technically competent quality procedures and also develop a good working relationship. As clinical experience is one of the important aspects of dental education (Yoshido & Mataki, 2002), it is the academic organization's obligation to make sure the patient populations are highly satisfied with the level of care provided at the facility. If not, there will be a decreased inflow of patients. This might jeopardize the chances for the students to obtain an optimal clinical experience.

In summary, conducting patient satisfaction studies in an academic dental setting will help to understand the level of patient satisfaction related to various factors associated with that setting and will provide a foundation for managerial action to continuously improve both care and levels of satisfaction with care.

CHAPTER 3

DEPARTMENT OF DENTAL HYGIENE AT EAST TENNESSEE STATE UNIVERSITY

Background

East Tennessee State University (ETSU), located in Johnson City, Tennessee, is a state supported coeducational institution. It is one of the most important campuses administered by the Tennessee Board of Reagents. It opened in 1911 as a normal school after which it attained the university status in the year 1963.

The Department of Dental Hygiene was established in 1968 within the College of Health. Currently it is operated under College of Public and Allied Health. It is fully accredited by the Commission on Dental Accreditation of American Dental Association, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the United States Department of Education. Students in the program are trained to prepare for a career in the dental hygiene field.

Mission and Goal

The mission of the Dental Hygiene Program located within the Department of Allied Health Sciences is to serve the citizens of Tennessee and the surrounding region while training graduates for the dental hygiene profession. The primary purpose is to provide quality dental hygiene education for students. The department is committed to promoting the skills essential to life-long learning that support the evidence based practice of oral health care. The program develops ethical health promotion, disease prevention, and optimal oral hygiene care while serving the communities of Northeast Tennessee and the region.

Competencies

Professionalism and Ethics, Health Promotion and Disease Prevention, Patient Care, and Career opportunities are the four different competencies that have been identified by the ETSU Dental Hygiene Facility as the fundamental knowledge and skill set necessary to graduate and practice successfully in the dental hygiene profession.

The Clinic and Services

The clinic offers all integrated preventive and treatment services provided to the patients by the dental hygiene students. The dental hygiene facilities include a 22-unit clinic, infection control area, four X-ray machines and dark rooms for processing x-rays, laboratory facilities, etc. Additional clinical rotations available to students are located at the Washington County Public Health Dental Clinic, Friends in Need Dental Clinic in Kingsport, Keystone Dental Clinic in Johnson City, and Healing Hands Clinic in Bristol.

The clinic is open Monday, Wednesday, and Friday, from 8:15 AM to 12:15 PM Eastern time. The clinic is open to all groups of people, irrespective of age, sex, ethnicity, socioeconomic status, and/or educational status. The clinic provides the patients with wide a variety of services that include dental hygiene therapy, oral cancer examination, dental charting, periodontal assessment, fluoride applications, sealant therapy, preventive oral health instructions, supportive periodontal therapy, cleaning, oral examination, and patient education. Senior citizens are treated free of cost except the charges for the x-ray copy to be sent to their dentist.

CHAPTER 4

METHODS

The Study, Data Source, and Sample

Dental hygiene patients in the dental hygiene clinic at the East Tennessee State University were the target population whose perceptions and ideas were collected in the form of a patient satisfaction survey. The *Hogan Patient Satisfaction Questionnaire* was modified, adapted and used for this dental hygiene patient satisfaction study. Prior to the study, approval to conduct the study was obtained from the Institution Review Board of East Tennessee State University.

The study was conducted by two different methods. Dental hygiene patients were met in person at the dental hygiene clinic by the principle investigator on Mondays and Wednesdays and were asked to fill the survey questionnaires. These patients will be referred to as *Walk-in Patients* from now on. A folder file and a pocket calendar were given to patients as an incentive to motivate their participation. The other method of conducting the survey was by selecting a sample of 100 patients using random sampling from 3500 (approximately) patient records stored at the dental hygiene clinic. These random numbers were generated by the computer. Contact details of the randomly selected patients were retrieved from the official patient records and they were contacted through the U.S. postal service mail. This group of patients will be called as *Mail-out Patients* from now on. A cover letter (See Appendix A), the survey questionnaire, a stamped self addressed envelope, as well as pocket calendar were sent to the patients. The cover letter was approved by the director of dental hygiene department and was signed by him, the thesis committee chair, and the principal investigator himself. These patients were asked to accept the pocket calendar as an incentive for completing the questionnaire. A file folder was not

included as an incentive for this group of patients. Patients were instructed to use the stamped self-addressed envelope to return the completed questionnaires to the principal investigator. Patients were instructed not to fill the form if he/she was a *Walk in Patient* and had already completed the questionnaire through the post or vice versa. Every patient was given the assurance of confidentiality and encouraged to participate in the study. Patients were assured that there would be no negative consequences if they choose to participate or if they did not choose to participate in the patient satisfaction study. Their identity was protected.

The *Hogan Patient Satisfaction Questionnaire* originally consisted of 43-item questionnaire that can be answered via a Likert scale, including response categories Strongly Agree, Moderately Agree, Agree, No Opinion, Disagree, Moderately Disagree, and Strongly Disagree. With the instructions from the director of the dental hygiene department, the *Hogan Patient Satisfaction Questionnaire* was modified to best fit the characteristics that pertain to the dental hygiene clinic at the East Tennessee State University. Dr. Beth Hogan gave a letter of permission to the principal investigator for use of the questionnaire as a foundation for the dental hygiene patient satisfaction research project. The *Hogan Patient Satisfaction Questionnaire* had previously been adapted for use in an academic dental health care setting. (Thomson, 2002, Thompson, Hogan, Scales, & Chen , 2003).

The core questions in the Hogan Patient Satisfaction Questionnaire were originally based on the early work of Ware, who developed and designed the *Ware Patient Satisfaction Questionnaire*. He gave permission for using his questionnaire to Dr. Beth Hogan as a basis for her dissertation at the University of Tennessee, Knoxville. *The Ware Patient Satisfaction Questionnaire* had revisions and field tests over a six-year time period. Pilot testing involved 12 studies over a four-year period, and used sample sizes ranging from 363 to 640, with widely

varied population socio-demographic characteristics. The content validity of the instrument was based on over 100 published studies defining the concept of patient satisfaction, as well as the consultation of experts. A copy of the modified *Hogan Patient Satisfaction Questionnaire* may be found in Appendix B. Permission for use of questionnaire was obtained from the author with the copy of relevant correspondence appearing in Appendix C.

Variables of Interest

Demographic variables like age, sex, ethnicity, education, marital status, and socioeconomic status will be taken into consideration. Other variables of interest are the general Patient Satisfaction Score variable (PS Score variable) and Affective Behavior score variable (AFB Score variable). Patient satisfaction score variable was derived by computing together the variables under general satisfaction, satisfaction regarding the clinic, satisfaction due to staff's behavior, satisfaction about the faculty, etc(See Appendix B). Affective Behavior Score variable is derived by computing together the variables that denote the affective behavior of the care provider towards the patients (See Appendix B). Questions 1 through 23 and questions 31 to 35 were used to derive the Patient Satisfaction Score variable, while questions 24, 25, 26, 27, and 28 were considered to derive the Affective Behavior Score variable. The score range for the affective score was from 0 to 30 and the score range for the PS Score variable was from 0 to 186.

Setting a Criterion

To assess the level of patient satisfaction, the AFB Scores and the PS Scores were used. The lowest acceptable response for positive satisfaction to every question was determined. The response was totally subjective but considered to be an accurate evaluation. The lowest acceptable score for positive satisfaction for AFB score was 20, and it was106 for the PS score.

Data Analysis

The questions from the questionnaire were taken as variables and a database was created in SPSS software using those variables. The questionnaires were numbered and filed. Responses from the questionnaires were entered manually into the SPSS database. The response categories Strongly Disagree to Strongly Agree were valued from 0 through 6 to most of the questions except for the questions 9, 17, and 20, for which the response categories were valued from 6 through 0 (Please see Appendix B).

Descriptive statistics were conducted with the variables of interest. Pearson's and Spearman's Correlation were conducted to determine if the affective behavior of the care providers influenced the level of patient satisfaction. Patient Satisfaction Score variable and Affective Behavior Score variable were used for Pearson's and Spearman's Correlation. Scatter plots were derived to determine the association between affective behavior of the care provider and level of patient satisfaction. One way ANOVA was conducted to determine the association between level of patient satisfaction and the demographic variables that were considered nominal or categorically unordered like gender, ethnic background, and marital status. Spearman's correlation was conducted to determine if the level of patient satisfaction was affected by the

demographic variables that were ordinal in nature (ordered categorically, like age, educational status, and yearly income).

Limitations of the Study

This study evidenced a few limitations. A questionable sample size was a major drawback. Seventy-three participants cannot be considered a good sample size as it cannot be considered a true representative of the overall patient population. As the patients did not belong to different ethnic backgrounds, it was difficult to determine if ethnicity influenced level of patient satisfaction. The findings from this academic dental hygiene setting may not be adapted in another setting as every health care setting is unique. Wider ranges of patient population were not reached due to financial and time constraints.

CHAPTER 5

RESULTS

Description of the Sample

The summary of the data obtained for various demographic variables through this patient satisfaction study is shown in Table 1. The demographic variables included were gender, age, marital status, ethnicity, education, and yearly income. Women comprised the majority, almost 66% among those who participated in the study. Out of 73 participants, 53.4 % of them were aged 60 to 79 years, proving that the facility is being used more by elderly patients than the middle aged or younger individuals. Surprisingly, the patient population did not share different ethnic origins as they were mainly of Caucasian/white, who made up to 98.4% of the total participants. Approximately 59% of the patient population was married while the widowed ones made the lowest group of patients (5.5%). Greater parts of the patient participants, approximately 97%, have had some kind of high school education to above high school education. The majority of the patients who used the services provided at the dental hygiene clinic had a yearly income ranging between 0 to 49,999 dollars while only 5.5% of the patients who received treatment procedures in the clinic had a net yearly income over 50,000 dollars. It was found that of 100 mail outs, 49 surveys were completed by the patients and returned. Of the 100 mails that were posted, 21 mails returned back due to inappropriate address and delivering difficulties. Of the 73 patients who participated in the study, 24 patients were surveyed at the Dental Hygiene Clinic. It was also determined that, of the total participants, 82.2 % of the patients visited the clinic on a regular basis.

Table 1

Demographic Characteristics of Patient Participants

Selected Variables of the Participants	Participants n = 73	
	%	n
Gender		
Male	34.2	25
Female	65.8	48
Age		
0 to 19	0	0
20 to 39	23.3	17
40 to 59	20.5	15
60 to 79	53.4	39
80 and above	2.7	2
Race		
African American	0	0
Asian	0	0
Caucasian/White	98.6	72
Hispanic	1.4	1
Native American	0	0
Marital Status		
Married	58.9	43
Single	15.1	11
Divorced	20.5	15
Widowed	5.5	4
Education		
Postgraduate	17.8	13
College Graduate	24.7	18
Graduate	8.2	6
Some College	34.2	25
High School	11.0	8
Some High School	1.4	1
Missing	2.7	2
Yearly Income		
0 to 15,999 dollars	27.4	20
16, 000 to 29, 999 dollars	24.7	18
30, 000 to 49, 999 dollars	20.5	15
50, 000 to 69, 999 dollars	4.1	3
70, 000 and above	1.4	1
Wish not to answer	12.9	16

Table 2 to Table 11 represents the distribution of level of patient satisfaction among study participants associated with the clinic, faculty, students, and staff at the dental hygiene clinic. Table 2 summarizes the distribution of level of patient satisfaction among the patient participants associated with dental hygiene clinic. Please refer to Appendix A for the variables derived from the survey questionnaire. It was discovered that approximately 81% of the patients agreed that they did not have any problem to reach the clinic by telephone, while less than 7% of them disagreed. Almost 85% of the patients agreed that they had difficulties in finding a parking space close to the clinic. The majority of the patients (approximately 95 %) were highly comfortable with the hours during which the clinic operated. A greater number of the patient participants (96%), were more than ready to recommend the clinic to others. But only 73% (approximately) of the participants got an appointment right away, while 20% of the patients disagreed saying that they did not get an appointment right away.

Table 2

Distribution of Patient Satisfaction Variables (Variables Associated with the Dental Hygiene clinic Q1-Q4, Q13)

Level of Patient Satisfaction	Variables Associated with the Clinic									
	(Q1) Reaching Clinic by Telephone		(Q2) Parking		(Q3) Appointment		(Q4) Clinic Hours		(Q13) Would Recommend	
	%	n	%	n	%	n	%	n	%	n
Strongly Disagree	1.4	1	2.7	2	1.4	1	1.4	1	0	0
Moderately Disagree	2.7	2	2.7	2	11.0	8	1.4	1	0	0
Disagree	2.7	2	6.8	5	8.2	6	2.7	2	2.7	2
No Opinion	12.3	9	2.7	2	6.8	5	0	0	1.4	1
Agree	31.5	23	23.3	17	32.9	24	39.7	29	27.4	20
Moderately Agree	20.5	15	13.7	10	20.5	15	9.6	7	2.7	2
Strongly Agree	28.8	21	47.9	35	19.2	14	45.2	33	65.8	48
Total	100.0	73	100.0	73	100.0	73	100.0	73	100.0	73

Distribution of level of patient satisfaction among the dental hygiene patients associated with appearance of the clinic, availability of reading material, and driving distance from the patient's residence to the clinic is summarized in Table 3. Almost all of the study participants were satisfied with the appearance of the clinic. Almost 99% found the clinic environment to be neat and clean. Fifty-one patients (83.6%) said that there was variety of reading material in the waiting area, while only three patients (4.2%) disagreed that they did not find enough reading material at the waiting area. Approximately 25% of the patients agreed that they had to drive more than an hour to reach the clinic, while 71% of them said that they did not have to drive more than an hour to reach the clinic. Eight-nine percentage of the study participants disagreed with the statement, "He or she would not recommend the clinic to others", compared to the 96% of the participants (see Table 2) who agreed to recommend the clinic to others. Only 8% agreed that they would not recommend the clinic to others compared to the 3% of the participants who disagreed on recommending the clinic to others (See Table 2).

Table 3

Distribution of Patient Satisfaction Variables (Variables Associated with the Dental Hygiene Clinic Q5-Q7, Q9)

Level of Patient Satisfaction	Variables Associated with the Clinic							
	(Q5) Appearance of the Clinic		(Q6) Reading Material		(Q7) Long Drive to Clinic		(Q9) Would not Recommend	
	%	n	%	n	%	n	%	n
Strongly Disagree	0	0	1.4	1	32.9	24	64.4	47
Moderately Disagree	0	0	1.4	1	1.4	1	8.2	6
Disagree	0	0	1.4	1	37.0	27	16.4	12
No Opinion	0	0	12.3	9	2.7	2	2.7	2
Agree	26.0	19	30.1	22	5.5	4	8.2	6
Moderately Agree	8.2	6	11.0	8	6.8	5	0	0
Strongly Agree	64.4	47	42.5	31	12.3	9	0	0
Missing	1.4	1	0	0	1.4	1	0	0
Total	100.0	73	100.0	73	100.0	73	100.0	73

Table 4 represents the percentage of patient population with different level of satisfaction with respect to the waiting time before their treatment, the ease with which information regarding the clinic was obtained before they reached the clinic, the difference in the patients expected charges for the services and the actual billed charges, and the management's responsibility to make the patients aware of what they are expected to pay. Sixty-six patients (90%) agreed that they did not have to wait long before they were treated, while 8 % of the patients thought they had to wait for long before they were treated. Patients who obtained information without much of difficulty with reference to the clinic comprised of 80% (approximately) while less than 6% of the patients disagreed to the statement that "He/She obtained information without any difficulty". Around 67% of the patients agreed that the amount charged for the services came close to their expectations. But out of 73 participants only 50 patients knew what their financial responsibilities were.

Table 4

Distribution of Patient Satisfaction Variables (Variables Associated with the Dental Hygiene Clinic Q8, Q10-12)

Level of Patient Satisfaction	Variables Associated with the Clinic							
	(Q8) Waiting too Long		(Q10) Easy Information		(Q11) Expected Payment		(Q12) Financial Responsibility	
	%	n	%	n	%	n	%	n
Strongly Disagree	0	0	1.4	1	2.7	2	2.7	2
Moderately Disagree	4.1	3	1.4	1	1.4	1	0	0
Disagree	4.1	3	2.7	2	4.1	3	8.2	6
No Opinion	1.4	1	15.1	11	24.7	18	20.5	15
Agree	30.1	22	38.4	28	30.1	22	30.1	22
Moderately Agree	15.1	11	11.0	8	1.4	1	4.1	3
Strongly Agree	45.2	33	30.1	22	35.6	26	32.9	24
Missing	0	0	0	0	0	0	1.4	1
Total	100.0	73	100.0	73	100.0	73	100.0	73

Table 5 summarizes the findings regarding general satisfaction in the dental hygiene clinic. Seventy-eight percent of the patient participants said that the patients treated at the dental hygiene clinic were treated equally regardless of what race or ethnicity they belonged to, while approximately 22% of them did not have an opinion regarding this issue. Approximately 91% of the patients said they were satisfied with the services available at the clinic. A greater number of the study participants (approximately 80%), disagreed that the services obtainable at the clinic could have been better, while 10% of the patients agreed that the services offered could have been better. Overall, 96% of the patients said they were satisfied with the care they received at the clinic while compared to 4% of the patients who were not satisfied with the care provided at the clinic

Table 5

Distribution of Patient Satisfaction Variables (Variables Associated with General Satisfaction Q14-17)

Level of Patient Satisfaction	Variables Associated with General Satisfaction							
	(Q14) Overall Satisfaction		(Q15) Racial Discrimination		(Q16) Has Every Thing to Take care		(Q17) Need Better Care	
	%	n	%	n	%	n	%	n
Strongly Disagree	0	0	0	0	0	0	34.2	25
Moderately Disagree	0	0	0	0	1.4	1	13.7	10
Disagree	4.1	3	0	0	1.4	1	31.5	23
No Opinion	0	0	21.9	16	5.5	4	9.6	7
Agree	23.3	17	24.7	18	28.8	21	5.5	4
Moderately Agree	4.1	3	2.7	2	5.5	4	2.7	2
Strongly Agree	68.5	50	50.7	37	56.2	41	1.4	1
Missing	0	0	0	0	1.4	1	1.4	1
Total	100.0	73	100.0	73	100.0	73	100.0	73

This paragraph represents the results summarized in Table 6. Almost 97% of the patients said they were satisfied and pleased with the results of the care they received at the clinic, compared to 3% of them who were not pleased with the treatment outcomes. Patients who said they were very well instructed and educated and thus knew what they were supposed to do next while leaving the clinic made up to 97% while only 3% of the patients disagreed that they did not understand or were not instructed properly on what to do the next while leaving the clinic. Out of 73 participants, only four agreed to the question if he/she was not satisfied with the care while compared to 90% of the patients who disagreed with the statement of not being satisfied with the care provided at the clinic.

Table 6

Distribution of Patient Satisfaction Variables (Variables Associated with General Satisfaction Q18-20)

Level of Patient Satisfaction	Variables Associated with General Satisfaction					
	(Q18) Pleased with Results		(Q19) Understand What to Do Next		(Q20) Not Satisfied With Care	
	%	n	%	n	%	n
Strongly Disagree	0	0	0	0	63.0	46
Moderately Disagree	2.7	2	2.7	2	1.4	1
Disagree	0	0	0	0	26.0	19
No Opinion	0	0	0	0	2.7	2
Agree	27.4	20	30.1	22	4.1	3
Moderately Agree	6.8	5	13.7	10	0	0
Strongly Agree	63.0	46	53.4	39	1.4	1
Total	100.0	73	100.0	73	100.0	73

Table 7 displays the level of patient satisfaction among the dental hygiene patients related to the clinic staff in the dental hygiene clinic. According to 97% of the study participants, the front desk staff and other staff members of the clinic were very helpful. Also, approximately 96% of the patients said the dental hygiene clinic staff was friendly. A majority of the study participants (94%) said the staff member were very courteous. Based on the results obtained, it could be said that majority of the patient participants were satisfied with the way the staff interacted with them as they found them to be helpful, friendly, and courteous.

Table 7

Distribution of Patient Satisfaction Variables (Variables Associated with Clinic Staff Q21-23)

Level of Patient Satisfaction	Variables Associated with Clinic Staff					
	(Q21) Helpful Staff		(Q22) Friendly Staff		(Q23) Courteous Staff	
	%	n	%	n	%	n
Strongly Disagree	0	0	0	0	1.4	1
Moderately Disagree	0	0	0	0	0	0
Disagree	2.7	2	2.7	2	0	0
No Opinion	0	0	1.4	1	4.1	3
Agree	37.0	27	26.0	19	28.8	21
Moderately Agree	6.8	5	6.8	5	8.2	6
Strongly Agree	53.4	39	64.4	47	57.5	42
Total	100.0	73	100.0	73	100.0	73

The dental hygiene patients' level of patient satisfaction in regard with the dental hygiene students' honesty, friendliness, ability to use understandable words, and ability to accept the patients as equal is summarized in Table 8. All the study participants said they were satisfied with the students' honesty and friendly nature. Of 73 participants only one of them thought that the student did not treat him/her as an equal. It was hard for less than 6% of the participants to understand as the students did not use appropriate words to educate

Table 8

Distribution of Patient Satisfaction Variables (Variables Associated with Dental Hygiene Student Q24-27)

Level of Patient Satisfaction	Variables Associated with the Dental Hygiene Student							
	(Q24) Honest		(Q25) Friendly		(Q26) Talked as Equal		(Q27) Used Understandable Words	
	%	n	%	n	%	n	%	n
Strongly disagree	0	0	0	0	0	0	4.1	3
Moderately disagree	0	0	0	0	0	0	0	0
Disagree	0	0	0	0	1.4	1	1.4	1
No opinion	0	0	0	0	0	0	1.4	1
Agree	23.3	17	19.2	14	19.2	14	19.2	14
Moderately Agree	4.1	3	4.1	3	2.7	2	4.1	3
Strongly Agree	72.6	53	76.7	56	76.7	56	69.9	51
Total	100.0	73	100.0	73	100.0	73	100.0	73

Table 9 summarizes the distribution of level of satisfaction among the dental hygiene patients associated with the characteristics pertaining to the dental hygiene students (care providers). Ninety-six percent of the patients said the students listened to the patients very carefully and patiently to their complaints and also encouraged them to ask questions. Ninety-eight percent of the study participants were extremely satisfied with the students for executing their duties appropriately in explaining about the oral health status of the patients and educating them in maintaining a good oral hygiene. The characteristics of the dental hygiene students in informing the patients before the treatment of what they are going to do and what the patients are about to undergo positively impressed 97% of the patient participants.

Table 9

Distribution of Patient Satisfaction Variables (Variables Associated with Dental Hygiene Student Q28-30)

Level of Patient Satisfaction	Variables Associated with the Dental Hygiene Student					
	(Q28) Listened and encouraged Questions		(Q29) Explanation and Education		(Q30) Explained That to Be Done	
	%	n	%	n	%	n
Strongly Disagree	0	0	0	0	1.4	1
Moderately Disagree	0	0	0	0	0	0
Disagree	1.4	1	1.4	1	1.4	1
No Opinion	2.7	2	0	0	0	0
Agree	19.2	14	21.9	16	19.2	14
Moderately Agree	5.5	4	1.4	1	4.1	3
Strongly Agree	71.2	52	75.3	55	74.0	54
Total	100.0	73	100.0	73	100.0	73

The level of patient satisfaction in the study participants associated with the characteristics of the dental faculty is summarized in Table 10. Seventy patients (86%), out of the study participants said the faculty members listened carefully to their complaints and encouraged them to ask more questions. Ninety-eight percent of the patients accepted the faculty member who supervised the students during treatment was courteous, and treated them with high regards and respect. According to ninety-one percent of the patients, the faculty member was helpful and of great assistance to the students while the students were performing the treatment.

Table 10

Distribution of Patient Satisfaction Variables (Variables Associated with Dental FacultyQ31-33)

Level of Patient Satisfaction	Variables Associated with Dental Faculty					
	(Q31) Encouraged Questions		(Q32) Courteous		(Q33) Assisting Students	
	%	n	%	n	%	n
Strongly Disagree	0	0	0	0	0	0
Moderately Disagree	0	0	0	0	1.4	1
Disagree	6.8	5	2.7	2	5.5	4
No Opinion	6.8	5	0	0	2.7	2
Agree	26.0	19	27.4	20	23.3	17
Moderately Agree	6.8	5	8.2	6	11.0	8
Strongly Agree	53.4	39	61.6	45	56.2	41
Total	100.0	73	100.0	73	100.0	73

Table 11 represents the percentage of study participants and their level of satisfaction associated with the way the faculty members treated the dental hygiene students (care providers) and their willingness and interest in answering to the questions asked by them. Out of 73 participants, 69 participants (94.5%) said that the faculty member who supervised the dental hygiene students while performing treatment was highly respectful towards the student. Almost 91% of the patients said that faculty members were communicative and responsive as they answered to whatever questions the patient inquired.

Table 11

Distribution of Patient Satisfaction Variables (Variables Associated with Dental FacultyQ34-35)

Level of Patient Satisfaction	Variables Associated with Dental Faculty			
	(Q34) Faculty Respected Students		(Q35) Faculty Answered Questions	
	%	n	%	n
Strongly Disagree	0	0	0	0
Moderately Disagree	0	0	0	0
Disagree	0	0	2.7	2
No Opinion	5.5	4	5.5	4
Agree	24.7	18	21.9	16
Moderately Agree	5.5	4	8.2	6
Strongly Agree	64.4	47	61.6	45
Total	100.0	73	100.0	73

One Way ANOVA

Table 12 summarizes the influence of nominal (unordered categorical) demographic variables on level of patient satisfaction in the dental hygiene clinic. The demographic variables that were considered were gender, ethnicity, and marital status. The demographic variables were taken as independent variables, AFB Score variable and the PS Score variables were taken as the dependant variables. One Way Anova was conducted to find out the significant influence of each nominal demographic variable with the level of patient satisfaction. The mean values and P values for AFB score variable and the PS score variable were derived and were used to analyze if the nominal demographic variables had any significant influence over the level of patient satisfaction.

It was discovered that there was no significant difference in the level of patient satisfaction between the male and female participants. Both the groups were equally satisfied (Table 12). There were no significant findings to prove that gender of the patient influenced the level of patient satisfaction. The majority of the participants were Caucasian/White, so it was not possible in this case to assess the association between ethnicity and level of patient satisfaction (Table 12). While trying to discover if marital status had any effect on the level of patient satisfaction, it was found that there was no significant difference in overall satisfaction among the study participants except patients who were single had a less overall satisfaction and were also less satisfied with the affective behavior of the care provider than those who were married, divorced, or widowed. The overall satisfaction with the clinic and satisfaction associated with the affective behavior did not seem to be significantly different among married, divorced, or widowed. But, still marital status did not seem to statistically significant affect the level of patient satisfaction (Table 12).

Table 12

Influence of Demographic Variables on Level of Patient Satisfaction (One Way ANOVA)

Selected Demographic Variable	AFB Score					PS Score				
	N	Mean	S.D	F	P	N	Mean	S.D	F	P
Gender										
Male	25	27.1	4.2			23	134.4	22.5		
Female	48	27.3	4.5			46	137.4	20.0		
Between Groups (df)	1			0.04	0.84	1			0.32	0.58
Within Groups (df)	71					67				
Ethnicity										
Caucasian (Or) White	72	27.2	4.4			68	136.3	20.9		
Hispanic	1	30.0	-			1	145.0	-		
Between Groups (df)	1			0.4	0.53	1			0.20	0.66
With in Groups (df)	71					67				
Marital Status										
Married	43	27. 7	3.9			40	138.2	19.6		
Single	11	26.0	4.7			10	128.7	26.2		
Divorced	15	27.5	5.0			15	136.2	19.4		
Widowed	4	25.0	5.8			4	138.8	27.0		
Between Groups (df)	3			0.83	0.48	3			0.54	0.65
Within Groups (df)	69					65				

Spearman's Correlation

To determine if the level of patient satisfaction was affected by the demographic variables that were considered ordinal (ordered categorically) like age, education, and annual income, Spearman's Correlation was determined (Table 13 and Table 14).

The influence of age, education, and yearly income on overall general patient satisfaction (PS Score) is shown in Table 13. It can be seen from the results that age had a moderate correlation (r=0.273) with a high statistical significance But it was concluded from the results that neither the educational attainment nor did the income status of the patients had any statistically significant effect on over all patient satisfaction.

Table 13

Influence of Age, Education and Income on Patient Satisfaction (Spearman's Correlation – PS Score)

Spearman's Correlation	PS Score	Age	Education	Income
Correlation Coefficient	1.000	0.273	- 0.132	- 0.009
P (2-tailed)	-	0.023	0.288	0.940
N	69	69	67	69

The influence of age, education, and income of the patient on the level of patient satisfaction with the affective behavior of the care providers is shown in table 14. It is clearly evident that none of the demographic variables have statistically significant influence on the level of patient satisfaction associated with the affective behavior of the care providers.

Table 14

Influence of Age, Education and Income on Patient Satisfaction (Spearman's Correlation – AFB Score)

Spearman's Correlation	AFB Score	Age	Education	Income
Correlation Coefficient	1.000	0.061	-0.171	- 0.076
Sig. (2-tailed)	-	0.608	0.153	0.522
N	73	73	71	73

Pearson's and Spearman's Correlation

The Pearson's and Spearman's correlation were conducted to determine if there was any significant association between the affective behavior of the care provider and the level of patient satisfaction (Table 15). P value was less than 0.001 and Pearson's value was 0.73. Considering the Pearson's correlation alone (normal distribution assumed), it can be said that 53% (r^2) of the AFB score and the PS score is associated with each other. Figure 1 is a scatter plot that was derived to show the strength of association between the level of patient satisfaction and the affective behavior of the care providers. Note that PS Score is bell shaped (parametric), but the AFB is not. Nonetheless, the r values for the parametric (Pearson's) and non-parametric (Spearman's) correlation were similar, differing only by 0.053. This indicates the assumption of a normal distribution is valid for these correlations.

Table 15

Influence of Affective Behavior on Patient Satisfaction

Pearson's Correlation	0.726
Spearman's Correlation	0.673
Sig (2-tailed)	0.001
N	69

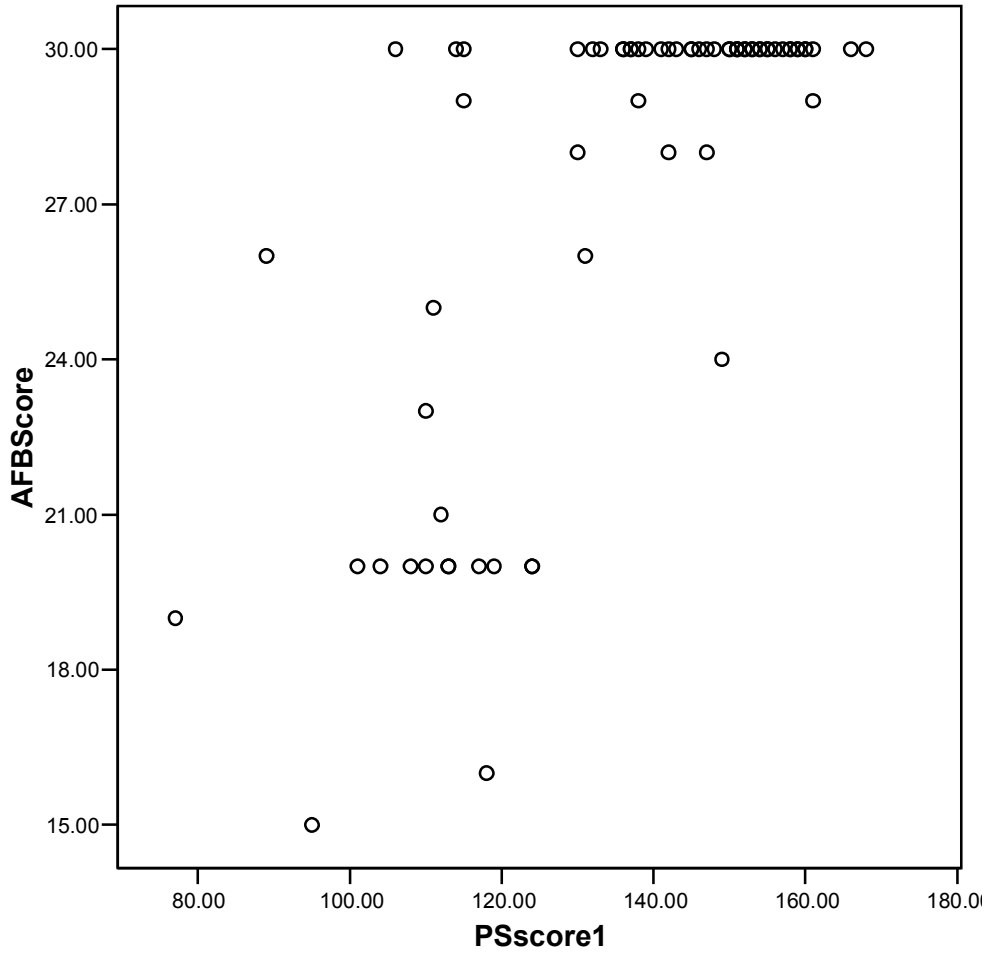

Figure 1. Scatter plot: AFB score Vs PS score

CHAPTER 6

DISCUSSION

The dental hygiene patient satisfaction study was conducted from January 2005 to May 2005. The dental hygiene patients at the dental hygiene clinic of East Tennessee State University, Johnson City, Tennessee were the target population. Patient satisfaction data were used to assess the level of patient satisfaction. It was also found out whether the demographic characteristics of the patients and the affective behavior of the care providers affected the level of patient satisfaction.

The sample of Mail-out Patients selected through random sampling comprised of 55 female patients and 45 male patients respectively. Out of 73 study participants, 22 were Walk-in patients and the rest belonged to Mail-out Patients category. It was determined whether or not there was a significant difference in response rates between the genders among the mail out patients. Out of the 45 surveys sent to the male patients, only 19 were returned while 32 female patients responded out of 55 mailed. (Please refer to Table 16)

Table 16

Response Rates of Study Participants.

	Male	Female
Walk-in Patients	6	16
Mail-out patient	19/45	32/55
Total	25	48

The return rates from the female patients were much higher than the male patients. One cannot conclude that female patients were more willing to voice their opinion than the male patients because the chance of higher response from the female patients could be attributed by the bigger female patient sample that was selected by systematic random sampling.

Almost 83% of the study participants were regular visit patients (n=60). According to Alvesalo and Uusi – Heikkila (1984), there is significantly positive correlation between the degree of use of dental care and satisfaction with care. So it can be assumed that the majority of the study participants visited the dental hygiene clinic on a regular basis as they were satisfied with the care offered at the clinic.

Also the data obtained supports partially the fulfillment theory of patient satisfaction and to a higher extent supports the performance theory of patient satisfaction. According to the fulfillment theory, level of patient satisfaction increases if the treatment outcomes are close to the patient's perceived pretreatment outcomes. It can be seen from Table 17 that almost 22% of the patients' pretreatment outcome expectations matched that of post treatment outcomes. Around 75% of the study participants said that actual performance and treatment outcomes were even better than what they had expected.

Table 17

Expectations of Patient and Actual Treatment Outcomes

Actual Outcomes	Participants (n = 73)	
	%	n
Worse than expected	2.7	2
Same as expected	21.9	16
Better than expected	75.3	55

To assess the level of patient satisfaction, the responses for satisfaction variables were computed together to get AFB Score variable and the PS Score variable. As the least acceptable score criterion to consider the patients were satisfied with the affective behavior of the care providers was 20, it can be concluded that majority of the patients were satisfied with the care providers' affective behavior. Except for three patients, all other patients had responded in such a way that computed AFB scores were more than 20. The least acceptable score criterion for PS Score was 106, and after computing the scores, it was found only 6 patients had low levels of overall satisfaction. Though it could be said from the AFB Scores and the PS Scores that there was overall positive patient satisfaction associated with the dental hygiene clinic, it could also be interpreted from the results obtained for every single variable, and certain groups of patients were dissatisfied with certain aspects of the clinic. For the clinic to evolve as a better health care setting, a close watch on these aspects is mandatory.

A greater proportion (85%) of patients said they did not find enough parking spaces near the clinic. As the clinic is believed to be used mainly by elderly individuals that can be supported by the higher response rates from patients aged 60 and above (54% approximately, n = 39), serious consideration of this issue is indeed necessary. A parking space close to the clinic would minimize their difficulty of not having to walk far to reach the clinic. Obtaining an appointment was another concern. Almost 15 out of 73 participants said that they did not get an appointment right away. This could because patients might have to wait for longer period of time to get appointments because the clinic offers services only on Mondays and Wednesdays from 8.15 am to 12.15 pm. Increasing the clinic hours and offering services on an additional weekday might decrease the waiting time period to get appointments and, hence, promote satisfaction. Approximately 24 percent of the study participants said that they had to drive more than an hour

from their residence to reach the clinic. The elderly patients are treated free of charge and as the service is being used more by elderly patients, many answered "No Opinion" and a few disagreed with the statement. The same reason could be attributed for significant number of people answering "No opinion" for Q11 (See Appendix B). Elderly patients did not have to pay any treatment charges and so they would not have had expected to pay any charges at all.

But, overall, it can be concluded that patients were extremely satisfied with the setting, the staff, the faculty, and the students. A majority of the patients (96%) were so pleased with the results that they were ready to recommend the clinic to others. As recognition may be in the form of positive or negative word of mouth (Scalise, 2004), we can conclude that recommending the service is an outcome of positive patient satisfaction results. The patient satisfaction results from this study due to a patient friendly environment support the views of Douglas and Douglas (2004) and Mayer (1992). Almost every study participant said the clinic was maintained in order and except for three study participants who said that they were not supplied with enough reading material at the waiting area before the treatment. So overall, it can be concluded that the patients felt the dental hygiene clinic to have a patient-friendly and a welcoming environment. Patient satisfaction is increased when there are adequate dental care services (Badner et al., 1992). The dental hygiene patients said they were satisfied with the availability of enough services and the accessibility to the services at the clinic. More than 97 %(n=71) of the study participants were pleased with the treatment outcomes. On the contrary, approximately 91% (n=67) of the patients disagreed when were asked if they were not satisfied with the care offered at the clinic. The patients said they were completely satisfied with the staff members of the clinic due to the staffs' courteousness, friendliness, and being helpful.

One way Anova was performed to determine if the level of patient satisfaction was affected by gender, ethnicity, and marital status. Spearman's correlation was performed to determine the effect of age, income, and educational attainment on level of patient satisfaction. The results obtained through one way Anova and Spearman's correlation was used to check if the hypotheses that were proposed earlier in this study were to be rejected or not. As the level of patient satisfaction was divided into AFB score and the PS score, the null hypotheses would be rejected or not rejected only after considering the level of influence of the demographic variables with each score variable.

In one way Anova, the F-ratio represents if the group means are the same or not for the combined between group effect. The P value indicates how likely the F ratio of that size is bound to occur by chance. In considering the effect of Gender on the AFB score, there is a probability of 0.84 that an F-ratio (0.04) of this size would have occurred by chance (more than 0.1% chance). As 0.05 is the criterion of significance and as the P value is greater than 0.05, it can be concluded that gender did not have any statistically significant effect on AFB score. Likewise, for ethnicity, there is a probability of 0.53 that an F-ratio (0.4) of this size would have occurred by chance. So it can be concluded that ethnicity did not have statistically significant effect on AFB score. To determine the effect of marital status on AFB score, it was found out that, there is a probability of 0.48 that an F- ratio(0.83) of this size is bound to occur by chance. So, it can be concluded that even marital status did not significantly affect the AFB score. It was also determined by performing one way Anova if gender, ethnicity, and marital status had any statistically significant influence on overall patient satisfaction (PS score). It was concluded that gender (F ratio = 0.32, P=0.58), ethnicity (F ratio=0.20, P = 0.66), and marital status (F-ratio = 0.54, P = 0.65) did not have a statistically significant influence on PS score variable. The null

hypothesis indicates that gender of the patient did not affect the level of patient satisfaction. As the P value is more than 0.05 for both AFB score and the PS score, we will not reject the null hypothesis. We will also not reject the null hypotheses stating that ethnicity and marital status does not affect the level of patient satisfaction as P values were higher than 0.05.

Spearman's correlation was conducted to find out if age, educational status, and yearly income had a significant influence on level of patient satisfaction. If we look at the first two variables (age by AFB score) from the Table 14, we note that the correlation coefficient is 0.061 or 'weak positive correlation', while the statistical significance is very low. Similarly when the second set of variables were considered (Education by AFB score), it was determined that the correlation coefficient in -0.171 or 'weak negative correlation', with very low statistical significance. Considering the last set of variables (Income by AFB score), it was found out that there was a 'weak negative correlation' among the two, as the correlation coefficient was – 0.076, with very low statistical significance. Correlations between age, education, income, and overall patient satisfaction (PS score) were tested by conducting Spearman's correlation (Please refer to Table 13). The first two variables (Age by PS score), were analyzed to determine if age influenced the score variable. It was found that there was a 'strong positive correlation' among the two as the correlation coefficient was 0.273, with a high statistical significance (P=0.02). Education attainment (r=-0.132) and income status(r= -0.009) had 'weak negative correlations' with very less statistical significance respectively. The null hypothesis states that age does not affect the level of patient satisfaction, and as the P value is less that 0.05 (P=0.02) for the PS score, we reject the null hypothesis. We will not reject the null hypotheses that states educational status and yearly income because the P values for AFB score and the PS score in both the cases is more than 0.05.

It was interesting to find out that the except for age, which had a significant influence on overall general patient satisfaction, other demographic variables did not have statistically significant influence on levels of patient satisfaction. It was discovered that though age significantly influenced the overall patient satisfaction, it did not significantly influence the level of patient satisfaction associated with the affective behavior of the care providers (AFB score). So, to determine why age alone should have an influence on PS score but not AFB score, the following concept was put forth.

We discovered through Pearson's Correlation that, 53% of AFB score and PS score are associated with each other (See Table 15). It was also seen that 7% of age was associated with influencing overall patient satisfaction (See Table 13). The following path diagram summarizes the relation between age, PS score, and AFB score.

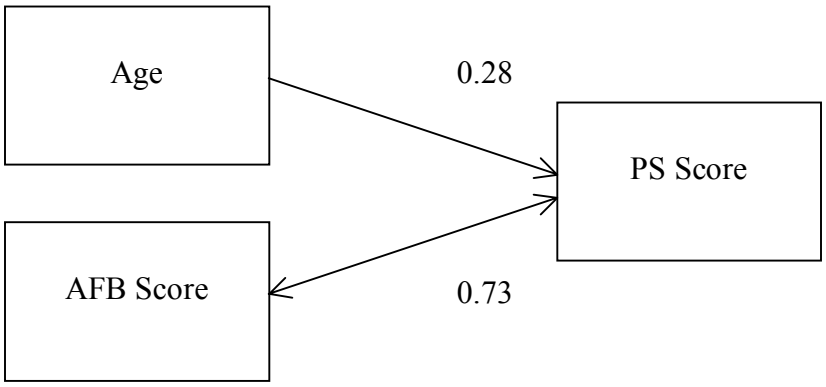

Figure 2. Path Diagram: Association Between Age, AFB Score and PS Score

Note that age has no arrows pointed towards the AFB score. This is because the correlation was only 0.06, and the r^2 was only 0.0036, which is statistically and effectively insignificantly different from zero. The lack of correlation further indicates that age and AFB score have additive effects on PS score. Age accounts for r^2, which is equal to 8% of variance in the PS score and the AFB score accounts for r^2, which is equal to 53% of variance in PS score. The total accounted by both the age and AFB score is 61% of the variance in PS score.

CHAPTER 7

CONCLUSION

The dental hygiene patient satisfaction study assessed the level of patient satisfaction at the dental hygiene clinic of the East Tennessee State University. It is important to assess findings in terms of overall strategy of the organization and also to incorporate the findings in future strategic planning efforts.

It was concluded that the level of patient satisfaction was high as patient satisfaction scores (AFB score and PS score) measured above the selected criterion. Except for age, other demographic variables did not statistically influence the level of patient satisfaction. And, it was discovered that the affective behavior of the care providers had a statistically significant influence on patient satisfaction.

According to Al-Doghaither, Abdelrhman, Saeed, and Magzoub (2003), time factors such as working hours, waiting hours, and visiting time were important in influencing patients' choice of hospitals. Therefore, it can be concluded based on the results that the study participants who regularly visited the clinic were satisfied with the current operating hours of the clinic. Thus, for this particular population, hours of the clinic operation led to continued use of clinic services. From a managerial perspective, however, if there are populations that are currently not represented in the patient base that are desirable target markets (such as young adults and children), the current hours of operation may be less desirable. So, it is important for the manager of the clinic to determine what the target market should be for future planning efforts and also to determine whether or not hours of operation should be changed or kept the same to attract that desired market.

Because the majority of the patients belong to the elderly population, the administration should make (or continue to make) special accommodations for the aged, promote the services to the elderly, and even perhaps provide additional gerontological training for the dental hygiene students. Parking unavailability was one of the biggest concerns among the elderly patients. To make it easier for the elderly patients to reach the clinic, allotting more parking spaces for the elderly patients near the dental hygiene clinic might facilitate continued use of the clinic and/or attract additional patients. The administrator of the clinic will probably need support from upper administration to provide enhanced parking for elderly patients because parking space is limited on campus. Again, any additional promotional efforts such as this should be related to the chosen strategic plan for the clinic and also related to meeting the needs of the chosen target market.

Satisfied patients are more likely to be compliant, co-operative, use the services on a regular basis (Hudak & Wright, 2000), and recommend a particular health care provider through positive word of mouth (Scalise, 2004). Even in this study, a majority of the patient participants were highly satisfied with the dental hygiene clinic, and, hence, were cooperative, and compliant and used the services on a regular basis. As many as 70 patients were willing to recommend the clinic to others. This finding further proves that the patients were satisfied with the clinic. Though the results obtained were highly favorable for the dental hygiene clinic, to further enhance the setting's standards, research to assess the level of patients' dissatisfaction is an important next step. Suggested target populations for continued study would include patients who have not visited the clinic more than once, those who have not visited the clinic on a regular basis, those who did not keep up their appointments, and perhaps those who have never visited the clinic. The factors influencing such patient behaviors should be determined in order to better understand the dental hygiene clinic's image within the community and within populations that

are not represented in the previous study population. A zip-code analysis of patient origin could enlighten management about driving distance and the location of their current base as well as showing evidence of the lack of patients from other geographic areas. This type of information could be very helpful in the future strategic planning efforts.

Though the results obtained from 73 participants represent only their perception of satisfaction, it is also important to understand the perception of the population that has not been surveyed. Because of the questionable sample size, the responses obtained from these patients do not necessarily represent the level of satisfaction among the patients who did not participate in the study. So, management needs to make concerted efforts to reach the patient base that did not respond to the survey. Management must take efforts to reach the patient base that was not contacted earlier for the patient satisfaction study. A mechanism to survey satisfaction in an ongoing manner rather than a "one-shot" approach would facilitate reaching a wider range of the patient base. The walk-in patients can be asked to complete the satisfaction survey by a dental hygiene staff after the treatment, rather than by an outside investigator because the patients are likely to be more comfortable and willing to listen to someone they already know. An official request from the director of the clinic to every patient to fill the survey will also increase the willingness to participate among the patient population. However, it is also true that patients may be less likely to share the negative comments about the services if the actual service provider is involved in the process of data collection. Thus, it is important for the researcher to choose the methodology that will best work for the intended goal of the study.

Dental hygienists are specially trained to perform prevention-related treatment procedures. Preventive procedures in children and adolescents will minimize future oral ailments in them. Children and adolescents are the most affected by dental caries. Children and

adolescents from lower socioeconomic groups have more unmet dental needs than do the children from a higher socioeconomic groups. As the elderly patients made the majority of the study participants, it cannot be assumed that the dental hygiene clinic does not concentrate on children. Though the dental hygiene facility offers economical services to the patients, management should ask why children and young adults are not using the services offered as compared to the elderly patients. Perhaps additional promotion could impact use, if the adopted strategies include increasing the use within this particular market segment. If non-use is related to lack of awareness of importance of oral health, the clinic management should consider adopting new marketing strategies to alleviate these barriers. A direct way of reaching the children by conducting free dental camps at different schools in and around Tri-Cities region will first of all create awareness among the children and their parents about the clinic's existence at East Tennessee State University. Dental hygiene students can also be motivated to actively participate in the camps by awarding them with points, incentives, and appreciation.

Conducting patient satisfaction studies in a health care setting is one of the most important administrative responsibilities of a health care manager because it is both a direct and an indirect way of creating value for both patients and the health care providers (dental hygiene students) in the health care environment. A direct way of creating value for patients is to come forth and conduct a satisfaction study to understand their level of satisfaction with the clinic. The patients will be pleased as the management is interested to know what they feel about the clinic. This creates as a sense of importance among the patients. By conducting satisfaction studies, the administrator makes it clear to the patients how important their perception and opinions about the clinic and the dental hygienists is. By understanding the public's level of satisfaction with the clinic and perception about the dental hygienists, the administrator creates more value for them

by adapting new strategies that will best satisfy the patients. Indirectly, an organization can create value for patients by using the satisfaction data to adapt new strategies such as, contracting with a health plan that is affordable by the patients, improving customer call services, enhancing integrated systems, increasing the technological advancements, and so on. The administrator is expected to execute his/her strategies efficiently to satisfy not only the patients but also the students to work towards the mission of the integrating student education and patient care. By satisfying the patients, the administrator increases the chance of attracting more patients and retaining the existing patients. Hence, windows of opportunities might open for the students to hone their clinical and social skills in with dealing patients. Also, an increase in the patient inflow (and diverse treatment populations) creates opportunities for the public to know more about the dental hygienists, thus increasing chance of better recognition, reputation, and appreciation for dental hygienists. This is one of the ways in creating value for the health care providers. Another way of creating value for the care providers (dental hygiene students) in an academic dental hygiene setting is to understand the perceptions of the students themselves. A student opinion survey about the clinic or a satisfaction survey to understand the level of satisfaction with different aspects of the clinic could be performed. After understanding the students' opinions and the level of their satisfaction with the clinic, the clinic environment can be transformed to a better place that will motivate the students to show more interest in working with patients. So a health care administrator can create value for both the patients and also for the dental hygiene students (both of the major target markets) by conducting satisfaction and opinion studies among the student and patient population periodically in a dental hygiene setting.

"The public perspective of a profession is an important barometer of how the profession is valued in society" (Edgington & Pimlott, 2000), in this consumer driven industry, patient

satisfaction data can be used in different ways for the welfare of the public, the care providers and the organization. As not many opinion and satisfaction studies have been conducted in a dental hygiene setting in the United States, it has been difficult to understand the public's perception about the dental hygiene profession. Such studies have not been attempted on dental hygienists because they do not work independently as do many other health care providers. This patient satisfaction study at the dental hygiene clinic of the East Tennessee State University can be considered an initial step towards understanding the public's perception about the dental hygiene profession and dental hygienists.

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APPENDICES

APPENDIX A

Cover Letter

Dear Patient,

I, Dr. Charles C. Faust, the Director of Dental Hygiene Clinic would like to introduce you to Dr.Vinodh Bhoopathi, a Public Health student, who is enrolled for the Master of Public Health Program at the East Tennessee State University. As a part of completing his Master of Public Heath degree, he is working on a research in the Dental Hygiene Clinic at the East Tennessee State University. Your values, opinions and suggestions about the Dental hygiene Clinic at the East Tennessee State University, are important to us and your feedback is very much appreciated and would be used in his research. Your responses would be used to continuously improve the services to you.

So please take a few minutes to fill in this survey form. If you had already filled a one earlier in the Clinic, you do not have to respond. Your participation is totally voluntary and your responses will be entirely anonymous.

A small calendar is sent with the survey as an incentive for your active participation. Please complete the survey and return it through the stamped envelope that is provided for your convenience.

Your feedback is very important to this student and the Dental Hygiene Clinic.

Thank you for the time. Your suggestions will be given high consideration.

Sincerely,

Dr. Charles C. Faust, EdD
Dental Hygiene Clinic,
East Tennessee State University

Dr. Beth Hogan, Ph.D., CHES
Associate Professor,
Dept. of Public Health
East Tennessee State University

Dr.Vinodh Bhoopathi
MPH Student
Department of Public Health
East Tennessee State University

APPENDIX B

Hogan Patient Satisfaction Instrument

We are interested in your evaluation of your dental visit. The survey that you are filling out is strictly confidential. It is asked that you DO NOT put your name, signature, social security number or any other identifiable characteristics on this form. The information that you provide will be used to make this questionnaire more useful in identifying areas for improving service to customers like you. Thank you for your help in this important effort to improve dental care to our patients in this clinic

Instructions: For each of the following statements, please mark the box that describes how you feel about the services provided in Dental Hygiene Clinic at East Tennessee State University.

	Strongly Disagree	Moderately Disagree	Disagree	No Opinion	Agree	Moderately Agree	Strongly Agree
About the Clinic							
1. I can reach the clinic without a problem when I have a question by telephone.	☐	☐	☐	☐	☐	☐	☐
2. Parking is a problem at the clinic.	☐	☐	☐	☐	☐	☐	☐
3. I can get an appointment right away.	☐	☐	☐	☐	☐	☐	☐
4. The clinic hours are good for me.	☐	☐	☐	☐	☐	☐	☐
5. The appearance of the clinic is clean and neat.	☐	☐	☐	☐	☐	☐	☐
6. There is a variety of reading material available in the waiting area.	☐	☐	☐	☐	☐	☐	☐
7. It takes longer than an hour to drive to the clinic	☐	☐	☐	☐	☐	☐	☐
8. I usually do not have to wait long to be seen at a clinic.	☐	☐	☐	☐	☐	☐	☐
9. I would not recommend the clinic to others.	☐	☐	☐	☐	☐	☐	☐
10. It was easy for me to get information about the clinic when I first checked.	☐	☐	☐	☐	☐	☐	☐

	Strongly Disagree	Moderately Disagree	Disagree	No Opinion	Agree	Moderately Agree	Strongly Agree
11. The amount charged for the services at the clinic is what I expected to pay.	☐	☐	☐	☐	☐	☐	☐
12. I know what my financial responsibility is for the treatment I receive.	☐	☐	☐	☐	☐	☐	☐
13. I would recommend the clinic to others.	☐	☐	☐	☐	☐	☐	☐
<u>About General Satisfaction</u>							
14. Over all, I am very satisfied with the care I received at the clinic.	☐	☐	☐	☐	☐	☐	☐
15. Patients are treated the same here, regardless of their race.	☐	☐	☐	☐	☐	☐	☐
16. The clinic has everything necessary to take care of me.	☐	☐	☐	☐	☐	☐	☐
17. There are things about the care I get at the clinic that could be better.	☐	☐	☐	☐	☐	☐	☐
18. I am pleased with the results of my care.	☐	☐	☐	☐	☐	☐	☐
19. When I leave the clinic, I understand What I am supposed to do.	☐	☐	☐	☐	☐	☐	☐
20. I am not satisfied with the care I received at the clinic.	☐	☐	☐	☐	☐	☐	☐
<u>About the staff (Front Desk & other)</u>							
21. The staffs are helpful.	☐	☐	☐	☐	☐	☐	☐
22. The staff are friendly and treat me with respect.	☐	☐	☐	☐	☐	☐	☐
23. I am always treated courteously when I call the clinic.	☐	☐	☐	☐	☐	☐	☐
<u>About the Student</u>							
24. My student was honest.	☐	☐	☐	☐	☐	☐	☐
25. My student was friendly	☐	☐	☐	☐	☐	☐	☐

	Strongly Disagree	Moderately Disagree	Disagree	No Opinion	Agree	Moderately Agree	Strongly Agree
26. My student talked to me as an equal.	☐	☐	☐	☐	☐	☐	☐
27. My student used words I could understand.	☐	☐	☐	☐	☐	☐	☐
28. My students listened carefully and encouraged me to ask questions.	☐	☐	☐	☐	☐	☐	☐
29. My student explained my problems and told me how to keep my mouth healthy.	☐	☐	☐	☐	☐	☐	☐
30. My students explained what they were going to do.	☐	☐	☐	☐	☐	☐	☐
<u>About the Faculty</u>							
31. The faculty listened carefully and encouraged me to ask questions.	☐	☐	☐	☐	☐	☐	☐
32. The faculty was very courteous and treated me with respect	☐	☐	☐	☐	☐	☐	☐
33. The student seemed to have enough faculty to assist them.	☐	☐	☐	☐	☐	☐	☐
34. The faculty treated the student with respect	☐	☐	☐	☐	☐	☐	☐
35. The faculty answers my questions	☐	☐	☐	☐	☐	☐	☐

36. Compared to before you started treatment here, would you say your overall health is (Please Shade the circles below)

○ Much Better ○ Better ○ About the Same ○ Worse ○ Much Worse ○ Not Sure

37. Would you say your dental health now is?

○ Excellent ○ Very Good ○ Good ○ Fair ○ Poor

38. How long have you been a patient here?

○ 0-6months ○ 6months-1year ○ 1-3 years ○ 3-5 years ○ 5-7 years

○ 7-10 years ○ 10+ years ○ 15+years ○ 20+ years

39. When you think about what you expected from the treatment, would you say that your experience here has been?

○ Better than expected ○ About the same as expected ○ Worse than expected

Do you have any other suggestions to improve our services?

Demographic Information

▪ Sex:
○ Male ○ Female

▪ Age:
○ 0 to 19 ○ 20 to 39 ○ 40 to 59 ○ 60 to 79 ○ 80 and above

▪ Race:

○ African American/Black ○ Asian ○ Caucasian/White ○ Hispanic

○ Native American ○ Other

▪ Marital Status:

○ Married ○ Single ○ Divorced ○Widowed

▪ Education:

○ Post Graduate ○ College Graduate ○ Some College ○ High School

○ Graduate ○ Some High School ○ Never attended a school

▪ Yearly income

○ 0 – 15,999dollars ○ 16, 000 dollars – 29, 999dollars ○ 30,000 dollars – 49,999dollars

○ 50, 000 dollars – 69, 999 dollars ○ 70, 000dollars and above ○ Wish not to answer

▪ I am a

○ New patient ☐ ○ Return Patient ☐

Thank you

You are done!

APPENDIX C

Permission Letter

East Tennessee State University
College of Public and Allied Health
Department of Public Health • Box 70674 • Johnson City, Tennessee 37614-1709 • (423) 439-4332 • Fax: (423) 439-6491

May 11, 2005

Bhoopathi, Vinodh, MPH Candidate
Department of Public Health
East Tennessee State University
Johnson City, Tennessee 37614

Dear Vinodth,

Please consider this letter as permission to use the Hogan Patient Satisfaction Survey and adapt it for use within dental hygiene. It has been successfully used in Gastroenterology, Multi-specialty clinics and an academic dental practice setting. The core questions were originally based on the early work of Dr. Ware, who gave permission for use, and have been extensively tested for reliability and validity.

Permission is given with the following conditions:

- You must acknowledge the source of the instrument within your thesis.
- Beth Hogan and other members of your thesis committee will co-author any publications that derive from this thesis project.
- You will adhere to the standards set forth in your IRB proposal for maintaining confidentiality of the data.

Thank you for your interest in this questionnaire as a foundation for your research project.

With Regards,

Beth Hogan

M. Beth Hogan, Ph.D., Associate Professor
East Tennessee State University

VITA

Vinodh Bhoopathi., BDS., MPH. vinodhshere@hotmail.com

Personal Data: Date of Birth: March 16, 1978
Nationality: Indian
Gender: Male
Marital Status: Single

Work Experience:

Apollo International Dental Clinic, Chennai, Tamilnadu, India.
Junior Resident Dental Surgeon, February 2001-April 2002

College of Nursing, East Tennessee State University, Johnson City, TN
Graduate Assistant, (Part time) January 2003 – May 2004

Learning Resource Center, East Tennessee State University, Johnson City, TN
Graduate Assistant, (Part time) August 2003 – April 2005

College of Nursing, East Tennessee State University, Johnson City, TN
Research Technician, May 2004 – July 2004

Education:

Sree Balaji Dental College, Affiliated to The Tamilnadu Dr. MGR Medical University, India
Bachelors of Dental Surgery, Graduated *January 2001*

East Tennessee State University, College of Public & Allied Health, Johnson City, TN
Master of Public Health, Public Health Administration, *Spring 2003-Summer 2005*
Health Care Management Certificate, *Spring 2004 – Spring 2005*