

Fall 11-14-2016

INVESTIGATION OF WHETHER DETERMINING A PATIENT'S PERSONALITY RESULTS IN BETTER PATIENT COMMUNICATION AND ORAL HEALTH

Cynthia E. Chavez

Follow this and additional works at: https://digitalrepository.unm.edu/dehy_etds

 Part of the [Cognitive Behavioral Therapy Commons](#), [Dental Hygiene Commons](#), [Dental Public Health and Education Commons](#), [Health and Physical Education Commons](#), and the [Health Communication Commons](#)

Recommended Citation

Chavez, Cynthia E.. "INVESTIGATION OF WHETHER DETERMINING A PATIENT'S PERSONALITY RESULTS IN BETTER PATIENT COMMUNICATION AND ORAL HEALTH." (2016). https://digitalrepository.unm.edu/dehy_etds/15

This Thesis is brought to you for free and open access by the Electronic Theses and Dissertations at UNM Digital Repository. It has been accepted for inclusion in Dental Hygiene ETDs by an authorized administrator of UNM Digital Repository. For more information, please contact disc@unm.edu.

Cynthia E Chavez

Candidate

Dental Hygiene

Department

This thesis is approved, and it is acceptable in quality and form for publication:

Approved by the Thesis Committee:

Christine Nathe MS, RDH, Chairperson

Diana Burnham Aboytes MS, RDH

Demetra Logothetis MS, RDH

**INVESTIGATION OF WHETHER DETERMINING A
PATIENTS PERSONALITY RESULTS IN BETTER PATIENT
COMMUNICATION AND ORAL HEALTH**

by

CYNTHIA E. CHAVEZ

B.S., Dental Hygiene, University of New Mexico, 1997

THESIS

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Master of Science
Dental Hygiene**

The University of New Mexico
Albuquerque, New Mexico

December, 2016

Dedication

This thesis is dedicated to:

Oral Health Care Providers who go above and beyond their clinical skills and knowledge to challenge everyday patient personalities.

“Communication and Trust are two main ingredients for a successful REALATIONSHIP.”

To my parents, **George and Ann Chavez**, you have never questioned my education accomplishments because you always knew I would get it done. You have always prayed and believed in my goals and changes my life has taken. I cannot express my love and my appreciation of the way you taught me to keep myself in check. The morals you taught provided me the foundation to be the best person I can be.

I'm thankful to my work family, **Dr. Ray Martin, Geraldine, Anthonette, Klarisa, Melanie and Shalem**. You all have taught me what it means to be a dental team and friends at the same time. I know that I can go to any team member and share ideas and suggestions and not be judged. The design of this thesis came easily due to the successful and fun operation of this dental office.

My deepest appreciation is to my boyfriend **Mike Chavez**. You never let me give up because you never gave up on me. You pushed me when I needed pushing. You found solutions when I didn't think there was any. Thank you for being a great coach and mentor. I love you.

Acknowledgements

Writing this note of thanks is the finishing touch on my thesis. It has been a period of intense learning for me, not only in the scientific arena, but also on a personal level. I would like to reflect on the people who have supported and helped me so much throughout this period.

I would first like to thank my thesis committee: Chairperson and Principal Investigator, Christine Nathe, RDH, MS, She consistently allowed this paper to be my own work, but steered me in the right direction whenever she thought I needed it. I would like to thank Diane Burnham- Aboytes, RDH, MS and Demetra Logethetis, RDH, MS. My sincere gratitude for your assistance, guidance, and patience.

Thank you to the UNM Office of Graduate Studies for leading me in format direction for my thesis and support from the experts to complete my manuscript submission. I would also like to acknowledge Sharyn Perea; I am gratefully indebted to her for always having her computer open and available for simple format corrections to presentation slides assistance.

To my work family and Dr. Michael Ray Martin, thank you for your inspiration and willingness to help me strive to be a better clinician and the confidence you placed in my ability to succeed.

Finally, I must express my very profound gratitude and love to my parents George and Ann Chavez and to my boyfriend, Mike Chavez for providing me with unfailing support and continuous encouragement throughout my years and years of study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them. Thank you.

**INVESTIGATION OF WHETHER DETERMINING A PATIENTS PERSONALITY
RESULTS IN BETTER PATIENT COMMUNICATION AND ORAL HEALTH**

By

CYNTHIA E CHAVEZ

B.S., Dental Hygiene, University of New Mexico, 1997
M.S., Dental Hygiene, University of New Mexico, 2016

ABSTRACT

Purpose: One of the dental psychosomatic territories is the link between personality traits and oral health treatment. This present study aims at investigating whether determination of patient personality types leads to enhanced communication between dental hygienists and patients resulting in improved oral health. Some hypothesize that determining patient personality traits results in enhanced communication between the patient and the dental hygienist. Similarly, it is hypothesized that determination of a patient's personality trait can result in better oral health.

Methods: A two part post personality and treatment in office survey will be conducted by either regular dental patients, patients that randomly visit the dentist or patients that only go to the dentist as needed. The survey will target a group of 150 patients in dental private practice settings with varying oral health needs. The data will be analyzed using SPSS 21.

Table of Contents

List of Figures.....	viii
List of Tables	ix
Chapter 1 Introduction	1
Statement of Problem.....	1
Significance of the Problem.....	1
Operational Definitions.....	4
Chapter 2 Review of the Literature	6
Introduction.....	6
Personality.....	6
Communication.....	9
Oral Health.....	12
Patient treatment acceptance.....	12
Patient compliance	14
Related Studies.....	17
Chapter 3 Methods and Materials.....	20
Introduction.....	20
Research Design.....	20
Procedures.....	20
Human Subjects Addressed	20
Time Schedule	21
Sample Defined.....	21
Data Collection	21

Statistical Analysis.....	21
Chapter 4 Results, Discussion and Conclusion	22
Results.....	22
Discussion of Results	35
Conclusions.....	36
Appendices.....	38
Appendix A Human Research Review Committee (HRRC) Approval Letter	39
Appendix B Personality Survey.....	41
Appendix C Treatment Survey	48
References	52

List of Figures

Figure 1: Oral Health-Related Quality of Life Scale (QHRQoL).....	3
Figure 2: DiSC Theory Chart.....	7
Figure 3: Personality of the respondent (DiSC).....	23
Figure 4: Gender of the respondent	24
Figure 5: Age of the respondents	25
Figure 6: Overall care satisfaction	33
Figure 7: Recommendation of friends and family	34

List of Tables

Table 1: Communication.....	26
Table 2: Communication with the dental hygienist	28
Table 3: Rating of the dental hygienist.....	30
Table 4: Descriptive statistics of the dental hygienist rating	32
Table 5: Chi-square value between overall care satisfaction and recommendation of the dental hygienist	35

Chapter 1

Introduction

The purpose of this study is to determine the importance of identifying patient personality types as a means of enhancing communication between dental hygienists and patients for better oral health. It is suggested that identification and understanding of a patient's personality trait can help in treatment acceptance and in building good communication and relationship with the dental hygienist.¹ Therefore, this study will seek to find out how different patient personality types can enhance patient communication and how they can also lead to better oral health.

Statement of Problem

- How does knowing a patient personality trait help in enhancing patient communication during treatment of their oral health needs?
- How does knowing a patient personality trait help in treatment of their different oral health needs?
- How does knowing a patient personality help in their acceptance of recommended dental treatment?

Significance of the Problem

Personality trait, which refers to the degree to which a person's behavior is seen by others as being emotionally expressive or responsive, or emotionally controlled may be considered on a day-to-day dental practice. However, empirical analysis of such personality traits may be more beneficial in oral health. This is because identification and understanding of a patient personality trait can help in patient treatment acceptance and in building good relationship with the dental hygienist.²

Studies have depicted that throughout adulthood, personality traits tend to be relatively stable and have an association with oral health.³ Reports from studies have recognized that not only do the innate personalities have effects on the children`s perception of dentofacial aesthetics but it also has effects on the patients` evaluations of the influence of health on daily functioning.⁴ Why is it important to find out how a patients` personality affects their oral health needs treatment? Because previous studies have indicated that the association of personality and oral health is three fold.⁴ First, personality traits have a possibility of predisposing to oral health that is poor. Secondly, it has been claimed that personality traits may be associated with acts that are damaging to health and hence predispose to oral health that is poor. Thirdly, the study claims that personality traits may shape an individual`s reaction and interpretation of signs/symptoms and hence leading in the creation of their illness state. For instance, a highly stressful individual may interpret oral symptoms as being catastrophic. According to Thomson, Caspi, Poulton, Moffitt, & Broadbent,⁴ the first and the second mechanisms relate to the influence that personality has on the status of clinical diseases, whereas the third mechanism has its relevance on the issue of how personality differences influences oral health measurements by the use of Oral health-related quality of life (OHRQoL) scales. (See Figure 1).



Figure 1: Oral Health-Related Quality of Life Scale (OHRQoL)

It is theorized that majority of the dental hygienists are a mix of stabilizer and calculator personality traits.¹ This means that they may be great at therapy but experience a challenge in communicating with their patients, especially when describing treatment. Therefore, this analysis is crucial in helping better patient / dental hygienist communication. Due to the fact that dental hygienists examine and treat such an intimate part of the body, the ability of the dental hygienist to effectively communicate with their patients is essential. It can help the dental hygienist retain their patients; assist the patients in accepting the treatment prescribed by the dentist, and hence fees associated with service.

It is argued that the ability to read another person`s personality trait or behavior greatly enhances the communication between them.⁵ Enhanced communication provides new options to the dental hygienist on how better to serve their patients. People tend to give observable clues concerning their dominant behavior styles, and the ability to know them is what is referred to as people reading. Subsequently, knowing how to identify others,

especially your patients, helps establish rapport and potential of being in a position to influence them. Communication being an intricate process, the level of comprehension varies from person to person. Many a time, failed communication may lead to a strained relationship between dental hygienist and their patients. Some dental offices provide dental staff training on patient communication and have great success in patient communication and patient treatment acceptance. Therefore, it is vital to develop an effective communication in order to cultivate a healthy relationship between them. Patients tend to respect and trust their dental hygienists only when they are able to understand the messages passed to them without any confusion.

When patients do not understand the treatment suggested from their dental hygienist, they become frustrated and confused. At times, the dental hygienists tone, body language, and voice volume contribute even more in communication than the actual spoken words.⁶ Any obstruction or block to this process can result in disharmony in the relationship between the dental hygienist and the patient. Therefore, the manner of how a dental hygienist conveys a message and what he/she is doing while delivering it is crucial in the process. There is need for the information to be to the point, lucid, and based on the understanding level of the patient.

Operational Definitions

Personality: Refers to a degree to which a person`s behavior is seen by others as being emotionally expressive or responsive, or emotionally controlled.

Oral Health: A state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity.

Communication: Refers to the exchange of information between the patient and the dental hygienist/dental staff.

Patient Acceptance: Refers to the patient`s assenting to the scheduled procedures and appointments that are designed to take care of their oral health needs.

Patient Compliance: Refers to the patient`s correct adherence to the scheduled procedures and appointments that are designed to take care of their oral health needs.

Chapter 2

Review of the Literature

Introduction

Understanding the personality of a patient is a step towards cultivating an enhanced communication between the patient and the dental hygienist and thus better oral health.² Lack of understanding of others and oneself can result in real problems such as tension, hurt feelings, disappointments and poor communication.⁷ Challenges are present with patients when you do not understand what they are thinking, experiencing or feeling. Therefore, determining patient personality traits enable open communication, which can become key to meeting their oral health needs. Previous studies have assessed how determining personality traits help enhance communication between dental hygienists and patients and thus improved oral health. However, in this study, the researcher looks at how determination of patient personality can help enhance communication between the patient and the dental hygienist and thus help the dental hygienist meet the needs of the patient.

Personality

The methods through which predictable personality traits and actions are identified are put forward by Marston in the DiSC theory. According to this theory, personality traits within the human behaviors can be categorized into four DiSC personality types. This categorization is the one adopted in the dental practice as well.^{8,1} The traits are: Driver, Intuitive, Stabilizer and Calculator (DiSC). (See Figure 2).

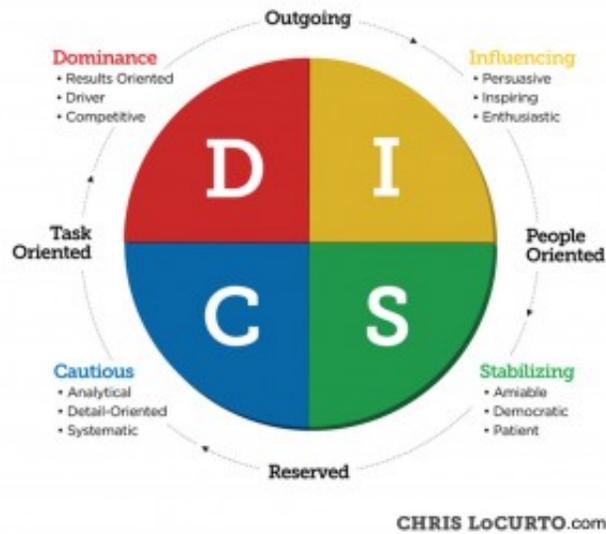


Figure 2: DiSC Theory Chart

Driver personality is at times referred to as the dominant type. In the Driver personality, there is a blend of high leveled emotional self-control that is combined with higher degree of assertiveness. Persons with this kind of personality tend to be task-oriented individuals, focused on where and what they want done, express themselves succinctly and quickly get to the point. They are found to be pragmatic, decisive, objective, and competitive. Consequently, these individuals tend to be independent and risk takers who are usually valued for their ability to get things accomplished. It has been argued that in order to cultivate a good relationship with individuals with this kind of personality, you need to show them respect and results.⁷

Intuitive personality type is at times referred to as the influential type. Persons with intuitive personality are said to depict high assertiveness levels and emotional expression. Subsequently, they look at the bigger picture, often like using, new and fresh ideas and approaches in tackling problems and challenges, and they also take risks in seizing

opportunities that can make them realize their dreams. This category also has individuals with charisma and persuasive abilities that can easily inspire, excite, and motivate people into giving into his/ her vision of the future. Individuals with this personality also tend to think and act quickly. Generally, individuals with this personality are outgoing, people oriented and like to socialize and have fun. Therefore, the key to developing a good relationship with this category of people is through admiration and recognition.⁷

Stabilizer personality is also referred to as steady personality. In this personality, individuals show a low level of assertiveness but with high responsive levels. Generally, they are people centered and tend to enjoy helping and supporting others, and working together with others as a team. Therefore, they will tend to be sympathetic and sensitive to other people's behaviors. As compared to other personality types, they are most likely ones to utilize empathy and understanding when solving interpersonal problems. It is claimed that friendliness and sincere appreciation is the key to developing a good relationship with individuals with this category of personality.⁷

The last category is the Conscientious personality type. Conscientious personality is at times referred to as the cautious type. In this category of personality, individuals are reserved, cautious, task oriented with eye for value and consistency in quality delivery. The focus of these individuals is correctness and accuracy. Therefore, they tend to be deliberate, precise and systematic in their working. They also gather and evaluate much data before implementation. Generally, they tend to be well organized, industrious, objective, and methodological. The insight to cultivating a good relationship with this category of individuals is, trust and integrity.⁷

Since each personality trait is unique and differs from one individual to another, it is vital for dental hygienists to develop people reading skills and knowledge as an ingredient of an improved quality patient care. This also means developing a communication flexibility that can not only help one know the personality of a patient but also enable them to adjust from their own personality traits in order to better communicate with their patients.

Communication

Communication is a complex process and the level of understanding among people differs from one individual to another. Communication is crucial in the development of a healthy relationship between dental hygienists and their patients. It is claimed that patients tend to trust, respect and comply with their dentist`s treatment only when they are able to understand the information from these dentists without confusion.⁹ In instances where communication fails, there develop strained relationships between patients and their dental hygienists. Therefore, it is vital for the dental hygienist to always strive to have an effective communication with their patients. Communication can be verbal or non-verbal. Verbal communication requires one to have an ability to explain ideas and present them clearly and in a way that can easily be understood by varied audiences. Some of the background skills required for an effective verbal communication include presenting skills, audience awareness, body language, and critical listening skills.

Consequently, non-verbal communication requires one`s ability to utilize enhanced expression of concepts and ideas through the use of body language, tonal voice, facial expressions, use of pictures, icons, and symbols, and without using coherent labels. Some of the set skills that are required for one to be effective in non-verbal communication includes but not limited to audience awareness, body language, and personal presentation.

Despite the aforementioned differences in the two communication styles, it is vital to combine both if one is to experience an effective communication. An effective communication is essential in building and preserving good patient-dental hygienist relationships. Effective communications means that people are able to understand each other, learn from one another, develop alternative perspectives, and be able to meet each other's needs by communicating verbally and non-verbally combined.

In a dental setting, communication skills are significant in a dental hygienist to explain oral health instruction, dentist diagnosis and recommended treatment. These skills help in the involvement of the patient when making decisions and communicating with relatives of a patient, communicating with professional colleagues, and dealing with patients and relatives who are anxious. Finally, communication is important when seeking informed consent for an invasive procedure such as oral surgery, when giving advice about health promotion factors and lifestyles, and when instructing a patient on post-operative procedures.

Certain factors such as emotions, prejudices, stress, defensiveness, and hidden agendas are some of the barriers, that have been found to impede effective communication.¹⁰ From the prior factors, it is clear that they all arise as a result of difference in personalities. Therefore, this study argues that by understanding one's personality, for this case a patient's personality type, it is more likely that the dental hygienist will experience an effective communication that will lead to improved relationship and consequently better oral health.

Drevenstedt⁵ has suggested certain tips to communicating to individuals with specific personality traits that is based on the DiSC model of determining personalities. For instance, she suggests that when communicating with people with "D" or dominant/driver personality types, dental hygienists should be prepared and organized, be brief, concise and clear when

speaking. Speak directly; ensure that socialization is kept at minimum. Keep time and inform the patients about time. Emphasize the benefits of the treatment, and give the patients alternative or choices from which to make their own treatment decisions.

Subsequently, Drevenstedt⁵ suggests that “I” intuitive personality types should be given freedom to express their views and concerns, socialization should be maximized since these category of people like to have fun. Their opinions, ideas and goals should often be sought. Communications should be kept positive and they are a kind that likes to be praised, and so they should. The dental hygienist is encouraged to stick to bigger picture with little details and pictures and testimonials should be shared with them before and after treatment.

As for the “S” stabilizer personality type, conversation should be sincere and showing concern for them, time should be sought to get to know them better, and this can be through asking them about their families. It is advisable that when talking to them, dental hygienists should slow down and should avoid putting them in situations of high pressure. These kinds of patients should be given assurances about the provider’s help and like to have a show of support during difficult moments of their lives, such after a long procedure or a surgery. When giving them recommendations, dental hygienists should ensure that they include any existing guarantees or assured benefits.

Furthermore, for the “C” calculator personality types, Drevenstedt⁵ claims that dental hygienists should be knowledgeable in their areas and what they will be talking about when they are with patients. These types of patients like to be all about facts and data, the dental hygienist should be practical and logical as possible, the patients should not be asked personal questions pertaining to their families, dental hygienists should draw the thoughts of patients through questions but at the same time give them time to think before they expect

answers. Drevenstedt further claims that these category of patients need to be informed before anything is done or performed on them. Consequently, there should be advantages and disadvantages of the possible treatment methods. It should be explained to them, also the dental hygienists choice recommended based on the analysis of the pros and cons of the methods on the table. It should also be noted that these individuals like explanations that touch on the saving of costs rather than on the time and quality of a recommended approach or method.

Oral Health

World Health Organization (WHO) defines oral health as “a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity.”¹¹ For better oral health to be achieved there is need for patient acceptance and compliance with the treatment suggested from the dental hygienist.

Patient treatment acceptance

Patient treatment acceptance can be achieved through making sure that a patient is made comfortable at every communication point of dental practice.¹² For a treatment plan to be accepted, there is a need to understand a patient`s goals, which can be achieved through educating the patients and agreeing with them on the best care for their overall oral health needs. The process of understanding a patient`s goals commences from the first day a patient makes contact with the front office and proceeds on to receive treatment from the provider.

When a patient makes a first appointment with a practice, it is advised to gather information from the patient. This information should be reviewed by the front office or the providers themselves to help in the preparation of the first visit. Part of the information can

include but not limited to call date, the name of the staff that was contacted by the patient, and information about the dental benefits. Along with information on the oral health history of the patient to enable evaluation and prepare appropriate treatment to calculate the time that will be required for the first visit. Since patients want their needs to be heard and understood, it is crucial to assess the reasons for their contact of the practice. This is through inquiring if they have any significant complaints and their oral health needs and goals. The message can then be shared with the relevant members of the dental team. All these processes aim at building a good relationship and trust with a patient, which can subsequently result in patient treatment acceptance. Further, positive and consistent communication from all the members of the dental team is key in the creation of a trusting practice environment.¹³ The dental staff might have had a wonderful conversation with the patients, but if the patients were greeted or shown a frown and unwelcome face by any of the members of the practice team, this might make them doubt the provider's recommendations. It is in this regard that providers should ensure that all dental team members should exuberate positivity on their first meeting with the patient. This makes the patients more comfortable and thus increases the likelihood of them accepting the providers' recommendations of the required treatment.¹⁴

In the process of treatment recommendation, dental hygienists should incorporate the needs, goals and concerns of the patients. This can be achieved by the dental hygienist spending time to discuss the patient's goals and concerns and ascertain that the responses are at par with the ones recorded by the front office, assistant, or dentist. A good example of a recommendation that depicts an incorporation of a patient's concern can be; "I understand your concern about the longevity of the process of your tooth replacement, hence, I recommend that you rather have a dental implant that will be a longer option." This shows

that the patient and the dental hygienist are on the same wavelength in terms of the patient's concern being addressed and the dental hygienist giving the patient options and letting them make a decision based on the education and the options offered. The argument here is that a patient who feels more comfortable, feels highly empowered and informed is more likely to accept treatment recommendation from the hygienist since they feel more in control when making their decisions.¹²

Patient compliance

Patient compliance refers to the degree to which individuals adhere to the provided advice from the health care professionals. Noncompliance has a potential of compromising on the health and wastage of resources and productivity. For instance, it has been estimated that the cost for noncompliance is about \$300 billion a year. In spite of the advancements in the field of dentistry, patient compliance has been highlighted as one of the critical factors to the success of any treatment program. Some of the factors involved in encouraging and ensuring that patients comply with treatment include patient medical assessment, dental history of their social and other related phobias and fears. Additionally, effective communication plays a significant role in the motivation and patient education about their dental needs.

According to Gill et al.,¹⁵ the five key factors related to patient care that affect compliance include motivation, relationship, participation, trust, and value. Motivation is derived from *motives*, which is a Latin term that means a moving cause. Extrinsicly, motivation means the desire to get engaged in an activity as a means to an end. Intrinsicly, motivation refers to the desire to be engaged in an activity for its own sake, and this definition provides a stronger spur for behavior change. The occurrence of intrinsic

motivation is when individuals act devoid or free from any external rewards. Nevertheless, studies have indicated that most adults are not intrinsically motivated in adopting oral hygiene behaviors that promote health. This results in the need for them to be extrinsically motivated to adopt oral hygiene behaviors-a task that is usually very challenging to most if not all dental hygienists. Some of the ways of increasing intrinsic motivation include creation of attainable goals that provide personal satisfaction and utilization of positive reinforcement because patients get pleasure from having their accomplishments and efforts being recognized by others.

Improvement of patient compliance also requires building of relationships between patients and the dental hygienist. Patients with satisfaction of the dental care provided have been found to show better compliance, less anxiety and pain, and fewer missed appointments.^{15,16} Patients tend to comply with instructions from dental hygienists who inspire confidence, listen and demonstrate a caring, friendly attitude towards them. They get discouraged and thus show noncompliance when the dental hygienists chastises them over the past practices of oral health. Similarly, studies have shown that patients favor ideologies and practices that focus on their disease prevention.¹⁷

In a study carried out by Riley et al.¹⁷ on patient satisfaction involving more than 5000 persons, it was reported that dentist's depicted lack of understanding of patient satisfaction with the services provided and exhibited poor communication skills towards patients. Consequently, in a survey carried out by Rozier et al.¹⁸ on more than 6,000 dentists on their basic communication practices usage such as using simple language and speaking slowly, it was found out that in a routine practice, only a fraction of the communication practices were used by dentists in a typical workweek.

Further findings led to a conclusion that there was need for the establishment and distribution of clear effective communication guidelines for the dental professions. Despite several studies explored by researchers on the role of gender on the patient treatment compliance, there seems to be no difference for men and women. Men and Women have been found to show comparable levels of protocols and recommendations adherence.^{19,20} In comparison to their male counterparts, women providers are more likely to engage in longer discussions concerning treatment options and materials.¹⁷ In addition, women providers offer greater encouragement and reassurance.^{15,17}

According to Longtin et al.,²¹ participation entails involvement of patients in oral health care decision-making. Positive outcomes have been associated with active involvement of patients in the dental process. The need to value patient voice has been emphasized by the array of literature encouraging health care providers to move away from their paternalistic model of care.

The patients` solid belief in the judgment of health care providers makes them more inclined to following the treatment recommendations. Trust is an outcome of an ongoing discussion and interaction between both parties and it is dependent on the parties` disposition. The key components of trust are competence, fidelity, honesty, and confidentiality.²²

Value is determined by patients during the treatment process. Krisjanous and Maude²³ argues that value is encounter specific, it is derived from the care received, it is not found in the product or object *per se*, but rather, it is the patients phenomenological experience derived from the interactivity and relativistic consumption of the treatment.

Related Studies

A study was carried out to determine the relationship between personality and oral health⁴. Specifically, the study aimed at getting to know the association between personality and self-reported oral health, the association between personality and clinical disease status, and lastly the association between personality and self-reported oral health, even after the clinical disease status is controlled. The study interrogated characteristics of age-26 personality and age-32 oral health in Dunedin, New Zealand. Measurement of personality was done by the use of Multidimensional Personality Questionnaire (MPQ), whereas oral health was measured by the use of Oral Health Impact Profile (OHIP-14), which is a global measure in dental examinations. The construction of Personality profiles for the respondents was done by the use of standardized MPQ scores, whilst their association with oral health was examined through multivariate analysis.⁴ The key findings of the study were that there was a steady association between individuals with negative emotions and poor self-reported oral health. This was regardless of whether it was measured by the use of a single-item global measure or sophisticated scale. This association was found to be persistence even with gender, existing clinical oral status, and other personality traits being controlled. Consequently, the study revealed existence of strong association between negative emotions and carries that are associated with loss of tooth, as well as with high numbers of untreated and decayed surfaces. Further, the study also depicted that personality not only shapes self-reported oral health, but also clinical status, with respect to dental caries and their sequel.

In a study carried out to investigate the personality role as a modifying factor in the investigation of subjective oral health measures, it was found out that there exists a link between certain psychological characteristics and subjective health.²⁴ This study aimed at

describing the prevalence of xerostomia and dental anxiety, and in determining their influence on OHRQoL. Secondly, the study aimed at investigating the association of personality traits with OHRQoL, xerostomia, and dental anxiety. Thirdly, the study aimed at testing the validity of utilizing a short personality scale (the PANAS) together with other measures of oral health. Fourthly, the study aimed at testing the validity of a new measure of dental anxiety (the IDAF-4C) in New Zealand.

To achieve its objectives, the study applied a cross-sectional study with a representative adult sample undertaken in New Zealand. The data was collected using a questionnaire that was emailed to 523 participants that were randomly selected. The sent questionnaire included a cover letter, a sheet with information, and a free-postage envelope. The purpose of the cover letter was to request the participants to read and answer the questionnaire. The target age group for the study was 35-54 years. The collection of data was on socio-demographic characteristics, oral health-related quality of life (OHRQoL), oral and general health care, dental anxiety, xerostomia, and the personality characteristics of positive and negative affect (PA and NA, respectively). In total, 253 questionnaires were filled and returned and thus yielding a response rate of 51.8%. The findings of the study were that the prevalence of xerostomia was 7.8%. It was also found that OHIP-14 impacts “often” or “very often” were reported by half of those with xerostomia. Consequently, the most prevalent and highest subscale impacts were of those with psychological discomfort. It was also found that there was more likelihood of reporting 1+ OHIP-14 impacts from those participants with higher scores of negative emotionality. This category of individuals also had high risk of reporting dental anxiety or xerostomia. The research concluded that particular personality

traits can influence responses to self-report measures and thus making this crucial in considering the usage and interpretation of such measures.

Chapter 3

Methods and Materials

Introduction

In order to establish whether the determination of the patient personality and the application of the subsequent communication strategies led to better oral health, a two part survey questionnaire will be administered to the patients after their dental treatment. The aim of the personality survey will be to analyze their understanding and acceptance of the treatment administered, whereas, the treatment survey questionnaire will aim at analyzing their compliance and satisfaction with the treatment provided.

Research Design

The behavior and personality is explored across the four dimensions postulated by Dr. William Moulton Marston in his DiSC theory. The four dimensions are Driver, Intuitive, Stabilizer and Calculator (DiSC).

Procedures

To determine the personalities and understand the behaviors of the patients, this study uses an in office DiSC profile questionnaire that is administered to patients after their dental treatment in a private practice dental setting.

Human Subjects Addressed

DiSC profiles describe human behaviors in various situations and it is constructed at grade level 4.7 ages 18 and older. This questionnaire makes people respond to a phrase and not a single word.

Time Schedule

The questionnaire takes only 5-10 minutes to complete and it uses a rating scale that is much easier for the majority of people than the ranked choice scale.

Sample Defined

This survey will target a group of 150 patients in dental private practice settings with varying oral health needs. These are patients that are either regular dental patients or those that randomly go to the dentist or patients that only go to the dentist as needed.

Data Collection

This data will be then analyzed using SPSS 21 to obtain data with distributed quality of observable effects. The data will be analyzed using SPSS 21.

Statistical Analysis

From the results of the questionnaire, dental hygienists attending to these patients are then encouraged to adopt communication strategies based on the tips suggested by Linda Drevenstedt for the individual personality trait outcomes.⁵

Chapter 4

Results, Discussion and Conclusion

Results

This present study aims at investigating whether determination of patient personality types leads to enhanced communication between dental staff and patients and if it also results to a better oral health. This study targeted 150 patients with varying oral health needs. These are patients that are either regular dental patients or those that randomly go to the dentist or patients that only go to the dentist as needed. 141 questionnaires were filled yielding a response rate of 94%. The findings were divided into three sections; the first one was on respondent personality, the second section was on the demographics and the third section was on the data related to the research questions. The demographic variables and other variables related to the research questions in the study were then analyzed using descriptive statistics where frequencies, percentage, measure of central tendency (mean) and dispersion (standard deviation) were conducted.

Personality of the Respondents (DiSC)

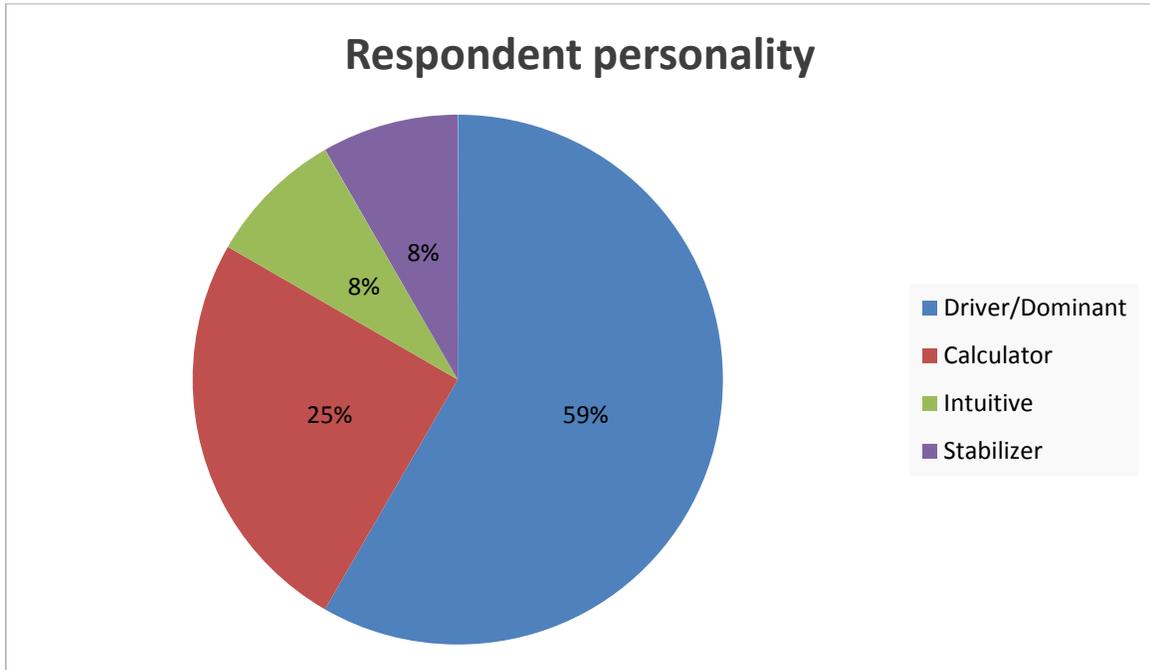


Figure 3: Personality of the respondent (DiSC)

Majority of the respondents were of Driver/Dominant personality (59%), followed by Calculator personality at 25% as indicated in the pie-chart. Minority of the respondents were Intuitive and stabilizer personality individuals at 8% and 8% respectively.

Demographic variables

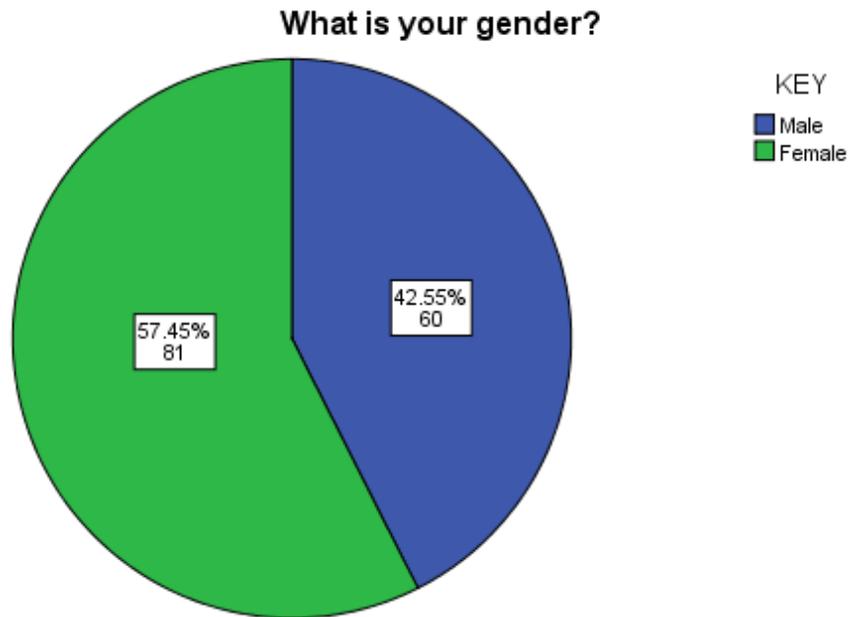


Figure 4: Gender of the respondent

Majority of the participants (57.45%, $n = 81$) were female, while male participants accounted for (42.55%, $n = 60$) as shown by the pie chart above.

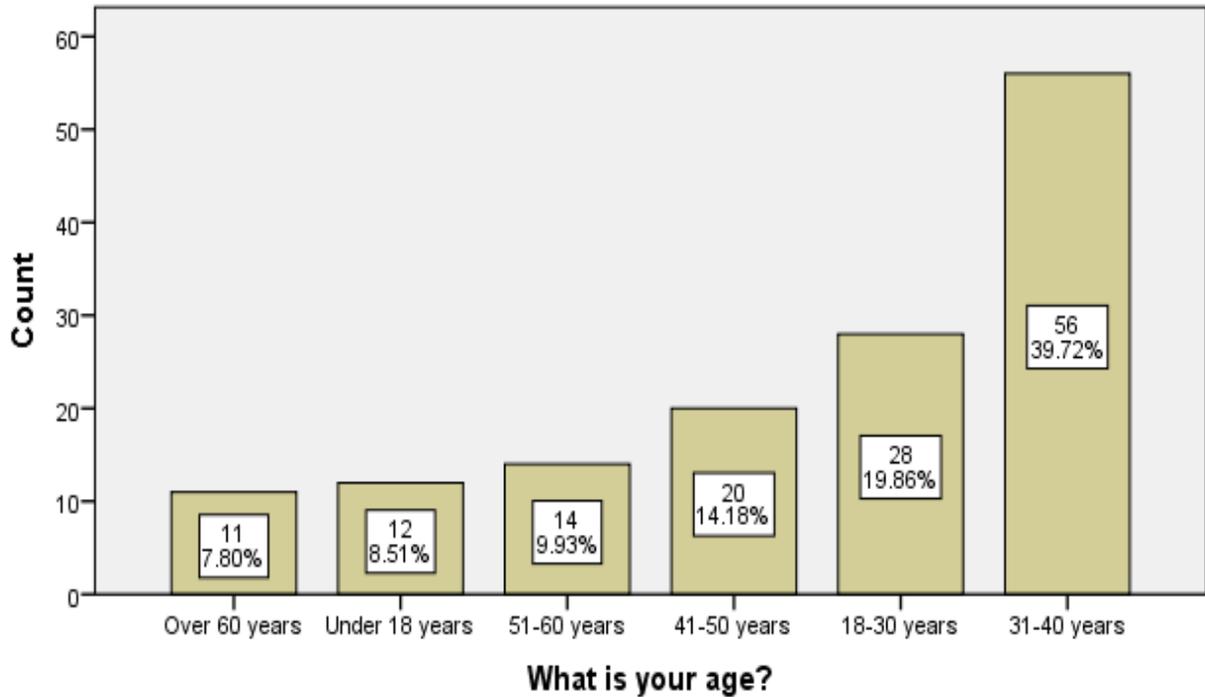


Figure 5: Age of the respondents

Approximately forty percent (39.72%, $n = 56$) of the participants were aged 31-40 years, followed by those who were aged 18-30 years (19.86%, $n = 28$), 41-50 years (14.18%, $n = 20$), 51-60 years (9.93%, $n = 14$), under 18 years (8.51%, $n = 12$), and over 60 years (7.8%, $n = 11$) as shown by the bar chart above.

Table 1: Communication

Items		Frequency	Percent
Brief	No	23	16.3
	Yes	118	83.7
Concise (To the point)	No	16	11.3
	Yes	125	88.7
Clear	No	18	12.8
	Yes	123	87.2
Spoke directly to you	No	19	13.5
	Yes	122	86.5
Our socialization was kept at minimum	No	123	87.2
	Yes	18	12.8
Our socialization was kept at maximum	No	22	15.6
	Yes	119	84.4
You were given alternatives or choices	No	19	13.5
	Yes	122	86.5
We kept time	No	17	12.1
	Yes	124	87.9
You had freedom to express your views and concerns	No	21	14.9
	Yes	120	85.1
We were sincere	No	16	11.3
	Yes	125	88.7
We slowed down when talking to you	No	20	14.2
	Yes	121	85.8
We were factual and used data in our communication	No	23	16.3
	Yes	118	83.7
We were logical and practical as possible	No	26	18.4
	Yes	115	81.6
	Total	141	100.0

When it comes to communication, majority of the patients agreed that the communication was brief (83.7%, n = 118), concise (88.7%, n = 125), and clear (87.2% n = 123). They were spoken to directly at (86.5%, n= 122), socialization was kept at minimum

(12.8%, n = 18), socialization was kept at maximum (84.4%, n = 119). They were given alternatives or choices (86.5%, n = 122), Time was kept (87.9%, n = 124). Patients had freedom to express their views and concerns (85.1%, n = 120). We were sincere (88.7%, n = 125), we slowed down when talking to patients (85.8%, n = 121). We were factual and used data in our communication (83.7%, n = 118), and we were logical and practical as possible (81.6%, n = 81.6) as shown in Table 1.

Table 2: Communication with the dental hygienist

		Frequency	Percent
The willingness of the dental hygienist to listen carefully to you	Poor	2	1.4
	Fair	14	9.9
	Good	10	7.1
	Very good	64	45.4
	Excellent	51	36.2
The dental hygienist taking time to answer your questions	Poor	4	2.8
	Fair	7	5.0
	Good	16	11.3
	Very good	67	47.5
	Excellent	47	33.3
The amount of time dental hygienist spent with you	Poor	6	4.3
	Fair	9	6.4
	Good	14	9.9
	Very good	77	54.6
	Excellent	35	24.8
The dental hygienist explained things in a way that you could understand and interest you	Poor	4	2.8
	Fair	18	12.8
	Good	15	10.6
	Very good	76	53.9
	Excellent	28	19.9
The instructions given by the dental hygienist regarding oral health instruction	Poor	12	8.5
	Fair	13	9.2
	Good	14	9.9
	Very good	82	58.2
	Excellent	20	14.2
	Total	141	100.0

Most of the patients (45.4%, n = 64) stated that the willingness of the dental hygienist to listen carefully to patients is very good, followed by (36.2%, n = 51) for those who stated that it is excellent, fair (9.9%, n = 14), good (7.1%, n = 10), and poor (1.4%, n = 2). 47.5%, n

= 67 of the participants stated that the dental hygienist taking time to answer your questions is very good, followed by excellent (33.3%, n = 47), good (11.3%, n = 16), fair (5%, n = 7), and poor (2.8%, n = 4). Approximately (54.6%, n = 77) stated that ease of the amount of time the dental hygienist spent with them is very good, followed by excellent (24.8%, n = 35), good (9.9%, n = 14), fair (6.4%, n = 9), and poor (4.3%, n = 6). 53.9%, n = 76 of the participants the dental hygienist explained things in a way that you could understand and interest you is very good, followed by excellent (19.9%, n = 28), fair (12.8%, n = 13), good (10.6%, n = 15), and poor (2.8%, n = 4). Most of the patients (58.2%, n = 82) stated that the instructions given by the hygienist regarding oral health instruction is very good (58.2, n= 82), followed by (14.2%, n = 20) for those who stated that it is excellent, good (9.9%, n = 14), fair (9.2%, n = 13), and poor (8.5%, n = 12) as shown in Table 2.

Table 3: Rating of the dental hygienist

		Frequency	Percent
The thoroughness of the examination by the dental hygienist	Poor	8	5.7
	Fair	19	13.5
	Good	20	14.2
	Very good	79	56.0
	Excellent	15	10.6
The advice that the dental hygienist gave to you on ways to maintain or improve good oral health	Poor	2	1.4
	Fair	28	19.9
	Good	17	12.1
	Very good	69	48.9
	Excellent	25	17.7
Ease of the dental hygienist to follow up on needed dental treatment and determining recall appointments	Poor	2	1.4
	Fair	28	19.9
	Good	17	12.1
	Very good	67	47.5
	Excellent	27	19.1
Rate your trust of the dental hygienist	Poor	7	5.0
	Fair	16	11.3
	Good	18	12.8
	Very good	51	36.2
	Excellent	49	34.8
	Total	141	100.0

Most of the patients (56%, $n = 79$) stated that the thoroughness of the examination by the dental hygienist is very good, followed by (14.2% $n = 20$) for those who stated that it is good, fair (13.5%, $n = 19$), excellent (10.6%, $n = 15$), and poor (5.7%, $n = 8$). 48.9%, $n = 69$ of the participants stated that the advice that the dental hygienist gave to you on ways to maintain or improve good oral health is very good (12.1%, $n = 17$), followed by fair (19.9%, $n = 28$), excellent (17.7%, $n = 25$), good (12.1%, $n = 17$), and poor (1.4%, $n = 2$). Approximately (47.5%, $n = 67$) stated that the ease of the dental hygienist to follow up on

needed treatment and determining recall appointments is very good (47.5%, n = 67), followed by fair (19.9%, n = 28), excellent (19.1%, n = 27), good (12.1%, n = 17), and poor (1.4%, n = 2). 36.2% of the participants rated their trust of the dental hygienist as very good (36.2%, n = 51), excellent (34.8%, n = 49), good (12.8%, n = 18), fair (11.3%, n = 16) and poor (5%, n = 7) as shown in Table 3.

Table 4: Descriptive statistics of the dental hygienist rating

	N	Minimum	Maximum	Mean	SD
The willingness of the dental hygienist to listen carefully to you	141	1	5	4.05	.981
The dental hygienist taking time to answer your questions	141	1	5	4.04	.952
The amount of time the dental hygienist spent with you	141	1	5	3.89	.991
The dental hygienist explained things in a way that you could understand and interest you	141	1	5	3.75	1.008
The oral health instructions given by the dental hygienist	141	1	5	3.60	1.108
The thoroughness of treatment by the dental hygienist	141	1	5	3.52	1.039
The advice that the dental hygienist gave to you on ways to maintain or improve good oral health	141	1	5	3.62	1.040
Ease of the dental hygienist to follow up on needed dental treatment and determining recall appointments	141	1	5	3.63	1.052
Rate your trust of the dental hygienist	141	1	5	3.84	1.167

Measurement scale: 1 – poor; 2 – fair; 3 – good; 4 – very good; 5 – excellent.

The mean and standard deviation of the variables related to the dentist hygienist is shown by Table 4.

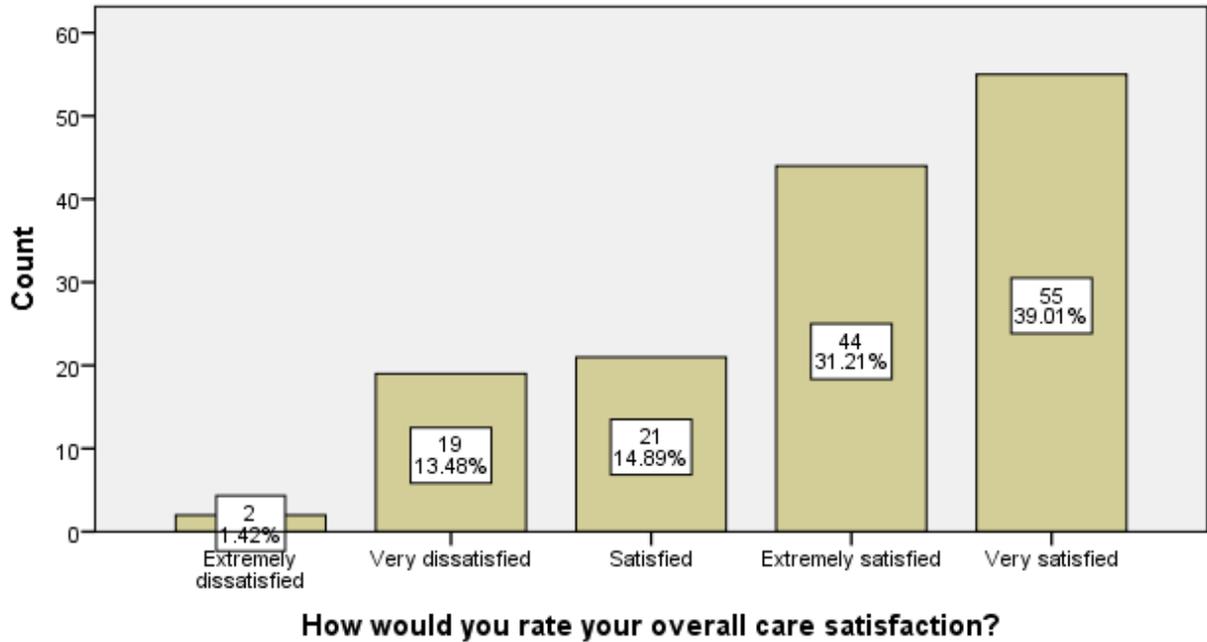


Figure 6: Overall care satisfaction

39.01%, n = 55 of the participants stated that they are very satisfied with the overall care satisfaction, followed by those who were extremely satisfied (31.21%, n = 44), very dissatisfied (14.89%, n = 21), satisfied (13.48%, n = 19), and extremely dissatisfied (1.42%, n = 2) as shown by Figure 6.

Would you recommend your dental hygienist to your friends and family

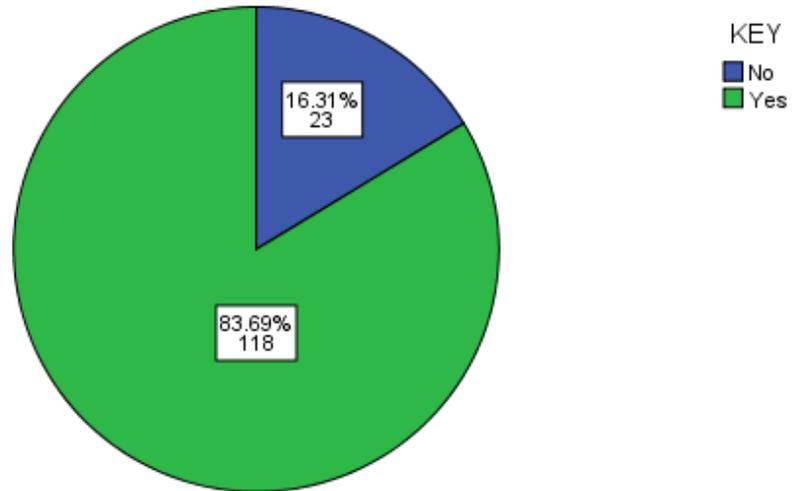


Figure 7: Recommendation of friends and family

Majority of the patients (83.69%, n = 118) stated that they would recommend their dental hygienist to their friends and family, while (16.31%, n = 23) stated that they would not recommend their dental hygienist to their friends and family, as shown by the pie chart above.

Table 5: Chi-square value between overall care satisfaction and recommendation of the dental hygienist

		Would you recommend your dental hygienist to your friends and family		Total	Chi-square value	df	p-value
		No	Yes				
How would you rate your overall care satisfaction?	Extremely dissatisfied	2	0	2	113.613	4	.000
	Very dissatisfied	18	1	19			
	Satisfied	2	19	21			
	Very satisfied	1	54	55			
	Extremely satisfied	0	44	44			
Total		23	118	141			

The chi-square table above shows that there is significant difference between overall care satisfaction and recommendation of the dental hygienist to your friends and family with the chi = 113.613, $p < 0.001$.

Discussion of Results

The findings of this study indicate that determination of patient personality type results in better patient communication and consequently better oral health. After identifying the personality traits of the patients, the dental hygienists were able to devise communication strategies based on the tips suggested by Linda Drevenstedt for the individual personality trait outcomes⁵. Since majority of the patients were of “D” and “C” personality type, majority of communication strategies applied by the dental hygienist centered on the suggested tips related to these two personality types. As depicted from the findings majority of the surveyed

patients understood the messages passed by their dental hygienist and thus making it easier for the patients to accept, comply and be satisfied with the treatment.

To determine whether establishing better patient communication results in better oral health, patient treatment acceptance, compliance, and satisfaction was sought. As seen from the findings, majority of the patients felt that the thoroughness of the treatment by the dental hygienist is very good, that the advice that the dental hygienist gave to them on ways to maintain or improve good oral health was equally very good. The ease of the dental hygienist following up on needed dental treatment and determining recall appointments was very good, and the patients rated their trust of the dental hygienist as very good as well. The results of their satisfaction with the overall oral health, majority of the patients stated that they were very satisfied with the overall care satisfaction. From the foregoing observation, it is lucid that majority of the patients tended to accept, comply and felt satisfied with the overall treatment. Therefore, it can be concluded that better patient communication results in better oral health.

Conclusions

The purpose of this study was to investigate whether determination of patient personality types leads to enhanced communication between dental hygienists and patients resulting in improved oral health. Literature reports that identification and understanding of a patient's personality trait can help in building good patient communication and relationship with the dental hygienist and thus resulting in patient treatment acceptance, compliance and satisfaction. This study demonstrated that identification of patient personality type helps the dental hygienist in developing effective communication strategies for the patients. Consequently, this study recommends the communication tips suggested by Linda

Drevenstedt for the individual personality trait outcomes. Subsequently, this study depicts that better oral health is achieved through patient treatment acceptance, compliance and satisfaction. Further, patient treatment acceptance is achieved through patient involvement in decision making for their care, whereas patient compliance is achieved through patient building a better relationship with the patient to that extent of him/her getting to trust the dental hygienist.

Appendices

Appendix A Human Research Review Committee (HRRC) Approval Letter	39
Appendix B Personality Survey.....	41
Appendix C Treatment Survey	48

Appendix A

Human Research Review Committee (HRRC) Approval Letter



Human Research Review Committee
Human Research Protections Office

October 3, 2016

Christine Nathe
University of New Mexico
MSC09 5020
Albuquerque, NM 87131
(505) 272-8147
Fax: (505) 272-5584
CNathe@salud.unm.edu

Dear Christine Nathe:

On 10/3/2016, the HRRC reviewed the following submission:

Type of Review: Initial Study
Title of Study: Investigation of Whether Determining a Patients Personality Results
in Better Patient Communication and Oral Health
Investigator: Christine Nathe
Study ID: 16-311
Submission ID: 16-311
IND, IDE, or HDE: None

Submission Summary: Initial Study
Documents Approved:

- Exemption Form
- Recruitment Letter- Cynthia Chavez.pdf
- Personality Thesis Surveys.pdf
- Letter for Informed Consent Cover Letter for Anonymous Surveys-
Cynthia Chavez.pdf

Review Category: EXEMPTION: Categories (2) Tests, surveys, interviews, or
observation.

Determinations/Waivers: Provisions for Consent are adequate.
HIPAA Authorization Addendum Not Applicable.

Submission Approval Date: 10/3/2016
Approval End Date: None
Effective Date: **10/3/2016**

The HRRC approved the study from 10/3/2016 to inclusive. If modifications were required to secure approval, the effective date will be later than the approval date. The "Effective Date" 10/3/2016 is the date the HRRC approved your modifications and, in all cases, represents the date study activities may begin.

Because it has been granted exemption, this research is not subject to continuing review.

Please use the consent documents that were approved and stamped by the HRRC. The stamped and approved consents are available for your retrieval in the "Documents" tab of the parent study.

This determination applies only to the activities described in this submission and does not apply should you make any changes to these documents. If changes are being considered and there are questions about whether HRRC review is needed, please submit a study modification to the HRRC for a determination. A change in the research may disqualify this research from the current review category. You can create a modification by clicking Create Modification / CR within the study.

In conducting this study, you are required to follow the Investigator Manual dated April 1, 2015 (HRP-103), which can be found by navigating to the IRB Library.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas F. Byrd". The signature is fluid and cursive, with a large initial "T" and "B".

Thomas F. Byrd, MD
HRRC Chair

Appendix B

Personality Survey

DiSC Personality Test Instruction

Answer honestly and spontaneously. It should take only 5 to 10 minutes to complete.

- Circle the one description that you consider **most like you** (👍)
- Circle the one description you consider **least like you** (👎)

Sometimes it may be difficult to decide which descriptions to select. Remember there is no right or wrong answers in this DiSC personality test; make the best decision you can.



People look up to me



I tend to be a kind person



I accept life as it comes



People say I have a strong personality



I find it difficult to relax



I have a very wide circle of friends



I am always ready to help others



I like to behave correctly



I tend to do what I am told



I like things to be very neat and tidy



People can't make me feel inferior



I enjoy having fun



I respect my elders and those in authority



I am always willing to do new things - to take a risk



I believe things will go well



I am a neat and orderly person



I am very active, both at work and play



I am a very calm and unexcitable person



I generally get my own way



I am very content with life



I tend to trust people



I like peace and quiet



I have a very positive attitude



I have a great deal of will power



I always take notice of what other people say



I try to respect what other people say



I am always cheerful



I am self-confident



I am sympathetic toward others



I have a tolerant attitude towards life



I am an assertive (bold) person



I never lose my temper



I like things to be precise and correct



I am very sure of myself



I enjoy having a laugh and a joke



My behavior is well disciplined



People see me as being helpful



I am always on the move



I keep trying until I get what I want



I enjoy competition



I do not treat life too seriously



I always consider others



I am an agreeable type



I am very persuasive



I see myself as a gentle person



I am a very modest type



I often come up with original ideas



I am very helpful towards others



I don't like tempting fate



I don't give up easily



People like my presence



I tend to be a cautious person



I am a very determined person



I am good at convincing people



I tend to be a friendly person



I don't get scared easily



I am always willing to follow orders



I am a rather shy person



I am very willing to change my opinion



I like a good argument



I tend to be an easy going type



I always look on the bright side of life



I am a very social person



I am very patient



I am a very self-sufficient person



I rarely raise my voice



I am always ready and willing



I am always keen to try new things



I don't like arguments



People describe me as high spirited



I enjoy taking a chance



I tend to be very receptive to other people's ideas



I am always polite and courteous



I am a moderate rather than an extreme person



I tend to be a forgiving type



I am a sensitive person



I have a lot of energy



I can blend in with everyone



I enjoy chatting with people



I control my emotions



I am very conventional in my outlook



I make decisions quickly



I tend to keep my feelings to myself



Accuracy is very important to me



I like to speak my mind



I am very friendly



I like to handle things fairly



I am very daring



I feel satisfied with life



I am obedient



I am always willing to try new things



Loyalty is one of my strengths



I have a good deal of charisma



I tend to be an aggressive type



I am good fun and have a lot of personality



People tend to see me as pushover



I tend to be rather timid



I am good at motivating people



Patience is one of my major strengths



I am careful to say the right thing



I have a strong desire to win



People find me easy to get along with



I get a lot of satisfaction from helping others



I always think things through



I prefer to get things done now rather than later



I am good at analyzing situations



I get restless quickly



I think about how my decisions might affect others



People see me as relaxed and easy going

Appendix C

Treatment Survey

Patient Treatment

Dear Patient: We are interested in getting feedback from you about the care you received from our dental staff and dental hygienist. Kindly share your opinion about the service you received. Your response will be kept confidential. Thank you.

INFORMATION ABOUT YOU:

GENDER

Male	
Female	

AGE

18-30	
31-40	
41-50	
51-60	
Over 60	

PLEASE RATE THE FOLLOWING:

COMMUNICATION FROM DENTAL STAFF

A: COMMUNICATION WITH YOU	Yes	NO
1. Brief		
2. Concise		
3. Clear		
4. Spoke directly to you		
5. Socialization was kept at minimum		
6. Socialization was kept at a maximum		
7. You were given alternatives or choices		
8. We kept on time		
9. You had freedom to express your views and concerns		
10. We were sincere		
11. We slowed down when talking to you		
12. We were factual and used data in our communication		
13. We were logical and practical as possible		

DENTAL HYGIENIST

B: RATE YOUR VISIT WITH THE DENTAL HYGIENIST	Excellent	Very Good	Good	Fair	Poor
1. The willingness of the dental hygienist to listen carefully to you					
2. The dental hygienist taking time to answer your questions					
3. The amount of time the dental hygienist spent with you					
4. The dental hygienist explained things in a way that you could understand and interest you					
5. The instructions given by the dental hygienist regarding oral health instruction					
6. The thoroughness of the treatment by the dental hygienist					
7. The advice that the dental hygienist gave to maintain or improve oral health					
8. Ease of the dental hygienist to follow up on needed dental treatment and determine recall appointments					
9. Rate your trust of the dental hygienist					

HOW WOULD YOU RATE YOUR OVERALL CARE SATISFACTION?

Extremely Dissatisfied	
Very Dissatisfied	
Satisfied	
Very Satisfied	
Extremely Satisfied	

**WOULD YOU RECOMMEND YOUR DENTAL HYGIENIST TO YOUR FRIENDS
AND FAMILY?**

Yes	
No	

References

1. CDA. *The Four Human Personality Types in the Dental Practice*. California Dental Association. 2014 [cited 2016 Apr 2]. Retrieved from: <http://www.cda.org/news-events/the-four-human-personality-types-in-the-dental-practice>.
2. McCrae RR, Costa PT. *Personality in Adulthood: A Five-Factor Theory Perspective*. Guilford Press; 2003 [cited 2016 Apr 9]. Retrieved from: <https://books.google.com/books?hl=en&lr=&id=FEebGEJjQH8C&oi=fnd&pg=PA1&q=Personality+in+Adulthood&ots=Bp2WNzdxV9&sig=9Jkg5U1vJPCIEsNagScAcbt5Weg>.
3. Clijmans M, Lemiere J, Fieuws S, Willems G. *Impact of Self-Esteem and Personality Traits on the Association between Orthodontic Treatment Need and Oral Health-Related Quality of Life in Adults Seeking Orthodontic Treatment*. *Eur J Orthod*. 2015; 37(6):643–650.
4. Thomson WM, Caspi A, Poulton R, Moffitt TE, Broadbent JM. *Personality and Oral Health*. *Eur J Oral Sci*. 2011; 119(5):366–372.
5. Drevenstedt L. *Communication and Your Dental Patients - Personalities and People-Reading*. Drevenstedt Consulting. 2013 [cited 2016 Apr 9]. Retrieved from: <http://www.drevenstedt.com/patient-communication/>.
6. Dobkin BA, Pace RC. *Communication in a Changing World*. McGraw-Hill; 2006. p. 427.
7. Rohm RA. *Understand People Using the DiSC Personality Concept*. 2013 [cited 2016 Apr 18]. Retrieved from: <http://www.discoveryreport.com/introduction-to-disc-personality-types.html>.

8. Discinsights.com. *DiSC Theory and DISC Personality Traits*. 2016 [cited 2016 Apr 18]. Retrieved from: <https://www.discinsights.com/disc-theory#.VxS2QnpJ-w>.
9. Carol C. *Why does Communication Sometimes Fail in the Dental Practice?* 2015 [cited 2016 Apr 18]. Retrieved from: <http://www.dentistryiq.com/articles/2014/04/why-does-communication-sometimes-fail-in-the-dental-practice.html>.
10. Oscehome.com. *Communication Skills for Healthcare Professionals*. 2015 [cited 2016 Apr 18]. Retrieved from: <http://www.oscehome.com/Communication-Skills.html>.
11. WHO. *Oral Health*. WHO. 2016 [cited 2016 Apr 8]. Retrieved from: http://www.who.int/topics/oral_health/en/.
12. Cda.org. *Patient Communication is Key to High Treatment Acceptance Rate*. California Dental Association. 2014 [cited 2016 May 5]. Retrieved from: <http://www.cda.org/news-events/patient-communication-is-key-to-high-treatment-acceptance-rate>.
13. Engelhardt-Nash D. *8 Simple Rules for Increasing Treatment Acceptance*. 2016 [cited 2016 May 5]. Retrieved from: <http://www.dentaleconomics.com/articles/print/volume-98/issue-1/features/focus-on/8-simple-rules-for-increasing-treatment-acceptance.html>.
14. Mullins R. *5 Vital Steps to Successfully Improve Case Acceptance in Dental Practices*. 2016 [cited 2016 May 5]. Retrieved from: <http://www.dentistryiq.com/articles/2016/02/5-vital-steps-to-successfully-improve-case-acceptance-in-dental-practices.html>.
15. Gill L, Cassia F, Cameron ID, Kurrle S, Lord S, Fairhall N, et al. *Exploring Client Adherence Factors Related to Clinical Outcomes*. Australas Mark J AMJ. 2014; 22(3):197–204.

16. Sbaraini A, Carter SM, Evans RW, Blinkhorn A. *Experiences of Dental Care: What do Patients Value?* BMC Health Serv Res. 2012; 12(1):1.
17. Riley JL, Gordan VV, Hudak-Boss SE, Fellows JL, Rindal DB, Gilbert GH, et al. *Concordance Between Patient Satisfaction and the Dentist's View: National Dental Practice-Based Research Network.* J Am Dent Assoc. 2014; 145(4):355–362.
18. Rozier RG, Horowitz AM, Podschun G. *Dentist-Patient Communication Techniques Used in the United States: The Results of a National Survey.* J Am Dent Assoc. 2011; 142(5):518–530.
19. Ojima M, Hanioka T, Shizukuishi S. *Survival Analysis for Degree of Compliance with Supportive Periodontal Therapy.* J Clin Periodontol. 2001; 28(12):1091–1095.
20. Famili P, Short E. *Compliance with Periodontal Maintenance at the University of Pittsburgh: Retrospective Analysis of 315 Cases.* Gen Dent. 2009; 58(1):e42–7.
21. Longtin Y, Sax H, Leape LL, Sheridan SE, Donaldson L, Pittet D. *Patient Participation: Current Knowledge and Applicability to Patient Safety.* In: Mayo Clinic Proceedings. Elsevier; 2010 [cited 2016 Jun 26]. p. 53–62. Retrieved from: <http://www.sciencedirect.com/science/article/pii/S002561961160311X>.
22. Dy SM, Purnell TS. *Key Concepts Relevant to Quality of Complex and Shared Decision-Making in Health Care: A literature review.* Soc Sci Med. 2012; 74(4):582–587.
23. Krisjanous J, Maude R. *Customer Value Co-Creation within Partnership Models of Health Care: An Examination of the New Zealand Midwifery Partnership Model.* Australas Mark J AMJ. 2014; 22(3):230–237.

24. Ibrahim H. *Personality Characteristics and Self-Reported Oral Health* [Thesis].

University of Otago; 2014 [cited 2016 Apr 29]. Retrieved from:

<https://ourarchive.otago.ac.nz/handle/10523/5205>.