

Measuring the Impact of Cultural Competence Training for Dental Hygiene Students

THESIS

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By

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Abstract

The United States of America is an extremely diverse country. According to the 2010 US census, the country is continuing to become more diverse which will subsequently create a more diverse population of patients to treat in the dental office.¹ In order to treat, counsel and communicate with an increasingly diverse patient population cultural competency is necessary in the dental hygiene curriculum. Dental hygiene students must understand and appreciate a wide variety of cultures and the beliefs and customs associated with each. An understanding and awareness of a variety of cultures is vital for the dental hygiene student in order to become an effective communicator in the dental setting. The ability to communicate with patients from a variety of backgrounds is essential.

A variety of studies have focused on cultural competence and communication in the dental hygiene profession. When cultural competency training is provided during the educational process, the dental hygiene student is better prepared to handle a diverse patient population. Training in cultural awareness and cultural competency allows the dental hygiene student to have a better understanding of a variety of cultures prior to interacting with patients in the clinical setting.²

The purpose of this study was to measure the level of cultural competence of senior level dental hygiene students. The students were given a pretest, the Inventory for Assessing the Process of Cultural Competence- Student Version (IAPCC-SV). The students then completed the US Department of Health and Human Services (HHS) Office of Minority Health (OMH) Cultural Competency Program for Oral Health Professionals, a three module online training program. Three weeks after the pre-test the students re-took the IAPCC-SV. The results indicated that there was a significant increase from the pre-test mean (55.14) to the post-test mean (61.37). This significant increase in a short three week time frame indicates that the Cultural Competency Program for Oral Health Professionals is effective for increasing dental hygiene students' levels of cultural competence.

Dedication

This document is dedicated to an amazing group of people who supported me throughout this journey. I would not have been able to complete this project without my incredible husband, Les and my three fantastic children, Alexandria, Graham and Estella. My family has given me the support, encouragement and love I needed to be able to succeed in this exciting challenge. Without my family and friends I would not have been able to achieve my goals. Thank you from the bottom of my heart.

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Chapter 1: Introduction

The demographics of the United States of America are continuing to change to encompass an extremely diverse country. According to the 2010 US census, the country is continuing to become more diverse which will in subsequently create a differing population of patients to treat in the dental office.¹ In order to treat, counsel and communicate with an increasingly diverse patient populations, cultural competency is necessary in the dental hygiene curriculum. Dental hygiene students must understand and appreciate a wide variety of cultures and the beliefs and customs associated with each. An understanding and awareness of a variety of cultures is vital for the dental hygiene student in order to become an effective communicator in the dental setting. The ability to communicate with patients from a variety of backgrounds is essential. Several studies have focused on cultural competence and communication in the dental hygiene profession. When cultural competency training is provided during the educational process, the dental hygiene student is better prepared to handle a diverse patient population. Training in cultural awareness and cultural competency allows the dental hygiene student to have a better understanding of a variety of cultures prior to interacting with patients in the clinical setting.^{2,3} Previous studies have indicated that

additional research is necessary in order to prepare the dental hygiene student to treat patients from diverse cultures.^{4, 5}

According to the American Dental Education Association, Dental Hygiene is one of the country's fastest growing professions and is projected to have an increase of approximately 38% during a ten year period, from 2010-2020.³ The current dental hygiene workforce is the least culturally diverse of all dental providers.² Looking to the future with the projected anticipated growth, if this lack of diversity trend continues, the profession will be ill-prepared to treat patients of differing cultures.²

The use of creative instruction in the dental hygiene curriculum is needed in order to give the dental hygiene student the necessary training to be successful in communicating with an increasingly diverse population. Such training will enable the dental hygiene student to become culturally aware and confident in treating patients from a variety of backgrounds.

As the U.S. population continues to become more diverse, practitioners must understand a wide variety of cultures. Relating to various backgrounds while demonstrating a mutual understanding and acceptance for various beliefs serves to increase patient acceptance and understanding as well as increase patient access to health care.³ The failure to develop these skills may compromise the quality of and access to care, limit patient resources, threaten patient safety and perpetuate oral health disparities.⁶

As dental educators, we must instruct our dental hygiene students how to effectively communicate and care for patients regardless of their cultures or backgrounds.

A set of core competencies for all graduates of dental hygiene programs has been established by the American Dental Hygienists' Association (ADHA), along with the American Dental Education Association (ADEA). The first core competency includes diversity, social and cultural sensitivity. This supports the importance and need to implement a plan for diversity training and cultural awareness. "The development of these *Core Competencies* reflects current trends in the profession and the educational and health care system needs of the future."^{6, 7} The Commission on Dental Accreditation (CODA) has a set of accreditation standards for dental hygiene. CODA addresses diversity by stating: Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups and other members of the health care team. The intent of this standard is for hygienists to have the following abilities:

Dental hygienists should be able to effectively communicate with individuals, groups and other health care providers. The ability to communicate verbally and in written form is basic to the safe and effective provision of oral health services for diverse populations. Dental Hygienists should recognize the cultural influences impacting the delivery of health services to individuals and communities (i.e. health status, health services and health beliefs).⁸ Dental hygiene educators play an essential role in training dental hygiene students concerning diversity and social and cultural sensitivity.

Dental hygiene students experience rigorous and extensive training in order to apply for licensure. The ultimate goal of a student's educational career is to be a well-trained practitioner. Dental hygienists are taught to provide the best and highest quality of care to meet and treat the needs of their patients. Each patient can possess their own set of challenges; therefore, it is the dental hygienists' responsibility to have the knowledge and the understanding to treat every patient well.

This becomes even more challenging today, as the nation as a whole is becoming an increasingly culturally diverse population. Cultural diversity has a variety of challenges to overcome. Every culture has a different language or communication style. Each ethnic group may have certain beliefs or customs that make treatment appointments or routine protocol not appropriate or acceptable. There is a wide variety of a culture's acceptance of modern/western medicine. Hygienists need to be well versed on customs, beliefs, languages and views about treatment among a variety of cultures. There is a need to be accepting of others and adaptable to any ethnic background in the clinical setting.

Demographic Profiles

Between the years of 2000- 2010 there has been a great shift in the demographics of the United States which has caused the population of this country to become increasingly more diverse.¹ "According to the United States Census Bureau, more than half of the population growth observed between the 2000 and 2010 census was due to an increase in the number of Hispanic residents, although the Asian population experienced the greatest growth as a group- increasing by 43%."¹ Additionally, during the same time frame the population of the white, non-Hispanic group had the slowest rate of growth. It

is important to observe and to be able to react to the shift in cultures that is currently happening in the United States of America. Unfortunately, even though the overall culture of the nation is changing, the profession of dental hygiene is not experiencing the same shift in provider cultural diversity.

Dental hygiene, according to the American Dental Education Association, is “one of the fastest growing professions” and is estimated to experience a growth of 38% more hygienists for the years 2010-2020.³ The Bureau of Labor and Statistics suggests that nearly 62,900 new jobs in dental hygiene will be created by the year 2018 which is an increase of nearly 36%.³ Despite the growth, the profession remains “the least culturally diverse workforce of all the dental healthcare providers.”² The percentage of faculty in dental schools encompassing the largest group was approximately 73%, 7328 out of 10,033, and this majority was categorized as the White ethnic group. The next closest ethnic backgrounds were Asian 8.1%, unknown or did not report was 8.1%, and Hispanic or Latino was 6.4%.⁹ In order for the future dental hygienist to be effective in treating the extremely diverse population of the United States, additional training is necessary to prepare the students to be aware and sensitive to the needs of the patients that they serve. The ADHA, along with the ADEA, have created a set of eight core competency themes for graduate dental hygiene programs to incorporate into the dental hygiene program.⁶ The two associations suggest that each competency be included in the curriculum, but they do not have to be a specific course by itself within the overall course catalog. The core competencies themes are a way to focus on strategic items “related to critical thinking, life-long learning, communication, collaboration, advocacy, evidence-based

decision making and ethics.”⁶ The first theme listed was that of diversity and social and cultural sensitivity. Below are the items they included in the diversity theme competency:

Cultural Diversity

Diversity, social and cultural sensitivity: refers to the ability to engage and interact with individuals and groups across and within diverse communities and cultures in an effective and respectful manner. It can be defined as the ability to:

1. Recognize the impact of health status and ability, age, gender, ethnicity, social, economic, and cultural factors on health and disease, health beliefs and attitudes, health literacy and the determinants of health.
2. Model cultural sensitivity in all professional endeavors.
3. Identify the needs of vulnerable populations and communities to prevent and control oral diseases and reduce health disparities.
4. Develop programs and strategies responsive to the diverse cultural and ethnic values and traditions of the communities served.⁶

Cultural Competency in Dental Hygiene

It is important for those who practice in the field of dental hygiene to understand what is meant by being a culturally diverse practitioner. Basic definitions allow us to understand the meaning of the behaviors and patterns we hope to achieve:

Culture: is a specific set of social, educational, religious and professional behaviors, practices or values that individuals learn and adhere to daily including communication styles, customs, dress, cultural beliefs and societal rules.¹⁰

Cultural Competency: ability to interact effectively with people of different cultures and socio-economic backgrounds, particularly in the context of human resources, non-profit organizations, and government agencies who employees work with persons from different cultural/ethnic backgrounds.¹⁰

Cultural Diversity: the quality of diverse or different cultures as opposed to monoculture, as in the global monoculture, akin to cultural decay. The phrase cultural diversity can also refer to having different cultures respect each other's differences.¹⁰

Cultural Congruence: to be familiar with another person's culture¹¹, while maintaining levels of cultural awareness, cultural sensitivity and cultural competence.¹²

In order to obtain overall understanding of treating a variety of cultures, or becoming a completely culturally competent clinician, there are three criteria one needs to meet: obtain cultural awareness, cultural sensitivity and cultural competence.¹² When a clinician is culturally aware they are able to “recognize patterns and understand variation that leads to particular choices.”¹² Cultural sensitivity allows health care providers to “recognize personal attitudes, values, beliefs, and practices and uses communication skills to tune the message to the client.”¹² A person who has all the necessary ingredients to be culturally competent is able to use the “knowledge, experience and attitude” that is relevant to each individual scenario in which they are presented.¹² The idea behind being a culturally congruent person is to not put your own beliefs, feelings and attitudes onto your patient. The lines of communication need to be open so that the patient feels at ease with the situation they are in and it is our job as clinicians to make sure the patient has a clear understanding of everything that is happening. There has been a large amount of articles and a variety of information that is instituting initiatives in order to increase the diversity of faculty and staff for dental hygiene education.

The effort to increase the diversity in the teaching faculty of dental hygiene programs is necessary in order to further develop the diverse group of hygienists that they hope to attract to the career of dental hygiene. There may be a relationship between the lack of diversity among dental hygiene faculty and the lack of diversity of dental hygienists.¹³ Upon reading a few strategic plans for a variety of dental schools, there was definitely a theme that the plans wanted to improve upon: the need to increase the

diversity of not only the faculty and staff, but the student population as well. The Ohio State University College of Dentistry's strategic plan have made it a part of their goal to achieve the balance in the "student body, staff and faculty composition that reflects the make-up of the communities in Ohio" and are working with the Office of Diversity in order to help achieve this goal.¹³ They have hired a director that has experience in the recruiting of minority groups that are not currently represented. The college is evaluating the staff to ensure that there are equal "representation and opportunities for advancement."¹⁴ In the workplace of the College of Dentistry, they will be "providing cultural awareness education experiences for students, staff and faculty to ensure appropriate interaction with each other and with patients receiving care in college clinics or at affiliated sites."¹⁴ They plan to monitor the levels of cultural competence throughout the College of Dentistry. The University of Illinois at Chicago- College of Dentistry's strategic plan devoted one of its eight goals to "provide compassionate patient-centered care services for a diverse population."¹⁵ UIC plans to accomplish this goal by providing educational and clinical resources to help meet the needs of the diverse population of patients. They plan to "utilize outreach programs to recruit and retain a well-qualified diverse student body that represents the diversity of the State of Illinois."¹⁵ Diversity training and cultural awareness will allow everyone that comes in contact with the patients, students and staff to be ready to handle any situation that they encounter. It is vital for the medical profession to be aware of some issues that might affect diverse cultures from seeking care and from following through with treatment plans.

There are a variety of ways to experience and study the habits, belief and rituals of a variety of cultures and ethnic groups. Until clinicians understand the cultures' values about healthcare we may be fighting an uphill battle. It is the clinicians' objective to obtain as much information from the patient about their conditions and concerns. "Communication" is vital in all aspects of treating any patient, especially those who have cultural beliefs or rituals that may hinder the ability of the care giver to provide complete information regarding the health status of that individual.⁵ The ability to effectively communicate with others is a skill that can be taught, learned and improved upon. "We now know that effective clinician-patient communication must be learned as both an art and a science."¹⁶ There is research that explains "increasing communication skills improves diagnostic accuracy, increases involvement of the patient in decision making and increases the likelihood of adherence to therapeutic regimens."¹⁶ There are many things that might never have been considered in the past. The possibility of a handshake being offensive, eye contact being forbidden, or a person's personal space feeling intruded upon, these are just some behaviors that need to be considered when interacting and treating different ethnic groups. There are a wide variety of holidays where certain cultures or religious beliefs call for the followers of that religion to fast during the day and to not consume anything, not even water. The provider needs to be aware and take into account these factors when scheduling appointments. Family beliefs and perceptions of ones' culture may affect a person's outlook on seeking care or the amount of care that they will perform at home is also another important factor to consider. An international study found that a parent's attitudes about oral health care significantly affected the

amount of homecare that their children participated in.¹⁷ The same study also found that tooth brushing, snacking on sugary snacks and the rate and amount of decay a child experienced were related to the parents' attitudes toward oral health and socioeconomic status.¹⁷ A major conclusion at the end of the study stated that "further research should examine in a prospective intervention whether enhancing parenting skills is an effective route to preventing childhood caries."¹⁷ Treating patients from different ethnic groups may help to give the practitioner a better understanding of a variety of options and customs that they may not previously have been exposed to.

There are endless ways to have experiences treating people in different cultures or backgrounds. Through dental hygiene education a school may participate in out-reach programs in order to provide care to those who lack the access to care. Louanne Keenan wrote a paper entitled "Providing Oral Health Care across Cultures." She suggests that being able to treat people in different countries may allow a practitioner to see things from a different point of view. She states, "Working in foreign countries improves our ability to accept and adapt to the cultural context of our clients (individual, family and community). By witnessing the huge diversity of healing and wellness practices (traditional and non-traditional), we heighten our awareness of the cultural barriers that patients face."¹⁸ Clinicians need to take into consideration a patient's beliefs and practices when they are approached, treat and communicate concerns or recommendations. Being aware of different cultures and accepting of the values, beliefs and traditions of each culture is a crucial step in treating a diverse nation.

There have been a few mnemonic devices that have been created in order to help remember some key points in order to become culturally competent practitioners.

The L-E-A-R-N Model is as follows: created by Berlin and Fowkes

- Listen with sympathy and understanding to the patient's perception of the problem.
- Explain your perception of the problem and the strategy for treatment.
- Acknowledge and discuss the differences and similarities between these perceptions.
- Recommend treatment while remembering the patient's cultural parameters.
- Negotiate agreement. It is important to understand the patient's explanatory model so that medical treatment fits in his/her cultural framework.^{19-20, 2}

Also:

The ETHNIC (explanation, treatment, healers, negotiate, intervention, collaboration) mnemonic (tool to improve memory) helps clinicians provide culturally competent clinical care by increasing communication while the medical history and physical examination are completed.¹

There are many ways to assess the level of cultural competence. Many tools have been created and their validity has been proven. Just a few examples of these tools are:

-The Cultural Self-Efficacy Scale (CSES). This is a 26 question survey that was created by Bernal and Froman. The survey is broken down into three parts and each part focuses on a different area to establish a person's level of cultural competence.⁴ The inventors of

this tool were searching for a “valid way to measure the perceived sense of self-efficacy of community health nurses caring for culturally diverse clients.”²¹

-The Transcultural Self-Efficacy Tool (TSET). This is an 83 question survey that is also broken down into three parts.⁴ The survey was created by Jeffreys, and was a valid tool that was divided into three “testing subscales: cognitive, practical and affective.”²² This tool was designed to establish that a person’s Transcultural Self-Efficacy (TSE) perceptions “change over time and is influenced by previous health care experience and education.”²²

-The Cultural Assessment Survey. This 20 question survey was modified from the existing “Cultural Competence Self- Assessment Questionnaire, created by Mason, J.”²³ The survey was meant to “cover attitudes and abilities regarding cultural issues in the Dr.-patient relationship, beliefs about health and social policy issues affecting immigrants and refugees, knowledge about local cultures and personal involvement with other cultures.”²³ This was a two part survey and the instrument was found to be valid.⁴

-Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals- Student Version (IAPCC-SV). The original version of the self-assessment was called the IAPCC, the Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals, and was created by Dr. Josepha Campinha-Bacote in 1997. The original version only measured four of the five constraints: cultural awareness, cultural knowledge, cultural skill and cultural encounters and is no longer

used today. A revised version was established in 2002 and called the IAPCC-R. The IAPCC-R added a fifth construct of cultural desire. The IAPCC-R was adapted to use a 4 point Likert scale with the responses being strongly agree, agree, disagree and strongly disagree and revised to only contain 20 questions. It was established by researchers, Vito, Roszkowski, & Wieland (2005) that students had a lower reliability when using the IAPCC-R tool compared to their professional counterparts.²⁴ The IAPCC-SV is a 20 item “pencil/paper self-assessment tool that measures the level of cultural competence among undergraduate students.”²⁴ This tool measures five areas of desire, awareness, knowledge, skill and encounters. This tool uses a 4-point Likert scale for the responses and is highly reliable. This IAPCC-SV is a modified version from the original, IAPCC, and was created by Dr. Campinha-Bacote in 2007.²⁴ The IAPCC-SV tool has been used in a variety of studies and reported data to corroborate the validity of the IAPCC-SV.²⁵⁻²⁸

In April of 2014 the US Department of Health and Human Services (HHS), Office of Minority Health (OMH) implemented a three module online training program specifically for Oral Health Professionals: The Think Cultural Health Initiative. The program is titled the Cultural Competency Program for Oral Health Professionals. This “e-learning program provides oral health professionals with basic knowledge and skills related to cultural and linguistic competency, based on the HHS Office of Minority Health National Standards for culturally and linguistically appropriate services in Health and Health Care (the National CLAS Standards).”²⁹ The online program is offered at no cost and allows the oral health professional to work at a pace conducive to their schedule. For those

practitioners who need continuing education requirements, this program offers 6 free continuing education hours. The training modules provide “oral health professionals with basic knowledge and skills related to cultural and linguistic competency based on the HHS Office of Minority Health National Standards for Culturally and Linguistically Appropriate Services in Health and Health Care (the National CLAS Standards).”²⁹ This training tool serves to inform the students about a variety of cultures, traditions, beliefs, and customs of the diverse population that they will encounter. The lecture is designed to increase awareness and prepare students to treat a wide variety of cultures with a respectful appreciation for all individuals regardless of culture. The intervention used for the purpose of this study is an online “E-learning program that provides oral health professionals with basic knowledge and skills related to Cultural and Linguistic competency, based on HHS Office of Minority Health’s *National Standards for Culturally and Linguistically Appropriate Services in Health and Health Care* (the National CLAS Standards).”²⁹ This program is broken down into three sections called courses. Each course has a pretest, information and video and then a post test. The three courses are broken down as follows: “Course 1: Fundamentals of Culturally and Linguistically appropriate Oral Health Care, Course 2: Providing Culturally and Linguistically appropriate Oral Health Care, and Course 3: Culturally and linguistically appropriate Communication and Messaging.”²⁹ The information and skills the practitioners’ receive from this program will be valuable in the “day-to-day practice.”²⁹ The program has added features to enhance the learning experience. “These skills and concepts are reinforced through features such as:

- The "**Filling in the Gaps**" boxes designed to provide you with additional information, resources and applications of the course material;
- "**Think About It**" questions to encourage your reflection on the information;
- "**Cultural Connections**" boxes designed to provide you with additional, culturally specific information about issues related to oral health; and
- Video vignettes that show you how to adopt the skills and concepts into your own environment.²⁹

The course is setup as follows:

Introduction to the Cultural Competency Program for Oral Health Professionals E- Learning Program

Introduction to Course 1: Fundamentals of Culturally and Linguistically Appropriate Health Care and Services

Course 1 Pretest (Part 1)

Module 1.1- Meaning of Culture and Cultural and Linguistic Competency

Course 1 Pretest (Part 2)

Module 1.2- The Importance and Benefits of CLAS

Module 1.3- Barriers to Accessing Oral Health Care and Services

Course 1- Video Case Study

Course 1- Conclusion

Course 1- Post-test (grade of 70% to move onto the next Course)

Introduction to Course 2: Culturally and Linguistically Appropriate Oral Health Practice Management

Course 2 Pretest (Part 1)

Module 2.1- Preparing to Provide CLAS

(Culturally and Linguistically Appropriate Oral Health Care and Services)

Course 2 Pretest (Part 2)

Module 2.2- Key strategies to Providing Culturally and Linguistically Appropriate Healthcare and services

Course 2 Pretest (Part 3)

Module 2.3- Maintaining, Inviting, Engaging culturally and Linguistically Appropriate Oral Healthcare Services

Course 2- Video Case Study

Course 2- Conclusion

Course 2- Posttest

Introduction to Course 3: Communication and Messaging in the Dental Clinic

Course 3- Pretest (Part 1)

Module 3.1- Role of Communication in Providing Culturally and Linguistically Appropriate Oral Health care and Services (CLAS)

Course 3- Pretest (Part2)

Module 3.2- Barriers to Effective Communication

Course 3- Pretest (Part 3)

Module 3.3- Communication Differences

Course 3- Pretest (Part 4)

Module 3.4- Key Communication Tools and Techniques

Course 3- Video Case Study

Course 3- Conclusion

Course 3- Posttest

After scores of 70% or higher on all three posttests have been achieved, a certificate can be saved and printed as proof of completion of the course. This course also provides six hours of continuing education. After the course has been completed, you are eligible to become a course facilitator. “Facilitators are enabled to present the course material in a group session and are provided with exclusive facilitator site access, case study videos and documents to facilitate your group sessions.”²⁹

Dental hygiene students need to be competent in the five cultural constructs of desire, awareness, knowledge, skill and encounters. “Measuring and understanding the effect of cultural competence training on learner attitudes, knowledge, skills and behavior are both fundamental to achieving clinical competency among health care professionals and improving patient outcomes for an increasingly diverse population.”⁴ It is vital for students to have a thorough understanding of the customs, beliefs and values that a variety of cultures that our nation represent. Educating students in the area of cultural competency will prepare them for their professional career. The purpose of this study is to

determine the level of cultural competence that senior students in a dental hygiene program possess both before and after the Cultural Competency Program for Oral Health Professionals online training modules. Cultural competence is important to understand in order for health care providers to meet the needs of their patients and provide services in a “culturally and linguistically appropriate manner.”²⁹

Chapter 2: Methods

This study is an experimental pre-test post-test design. The Institutional Review Board at The Ohio State University determined this research protocol exempt. Senior dental hygiene students were given an informational session to explain the study. The students were then asked to participate in the study and consent was obtained. After obtaining consent, the students took the Inventory for Assessing the Process of Cultural Competency among Health Professionals- Student Version (IAPCC-SV), a 20-item survey. In order to utilize the self-assessment tool, IAPCC-SV, written permission was granted from Dr. Josepha Campinha-Bacote. The validity and reliability of this instrument has been established previously in the literature.²⁵⁻²⁸ The IAPCC-SV is specifically designed to assess students’ cultural competence level in five specific areas. The areas, or constructs, that are assessed in the IAPCC-SV are: Cultural Awareness,

Cultural Knowledge, Cultural Skill, Cultural Encounter and Cultural Desire. The IAPCC-SV is designed so that specific questions are designed to assess the level of each of the specific construct, see table 2. For example: to assess a student's level of Cultural Awareness the questions #1, 3 and 15 are evaluated, Cultural Knowledge: 4,6,8,9 and 12, Cultural Skill: 7, 17 &18, Cultural Encounters: 10, 11, 13, 14 and 19 and Cultural Desire: 2,5,16 and 20. Each response is given a point value. For questions #1-13 and 15-20 the values are as follows:

Strongly Agree= 4 Points

Agree= 3 Points

Disagree= 2 Points

Strongly Disagree= 1 Point

For question #14 there is a reverse coding system and the point values for each answer are as follows:

Strongly Disagree= 4 Points

Disagree= 3 Points

Agree= 2 Points

Strongly Agree= 1 Point

Once the number value has been assessed for a student's responses, a Level of Cultural Competence can be established. The values for each level of cultural competence are as follows:

Culturally Proficient: 75- 80

Culturally Competent: 60-74

Culturally Aware: 41-59

Culturally Incompetent: 20-40

The results from the pre-test survey established a baseline level of knowledge and a level of cultural competence for each student.

Following the pre-test the students were instructed to complete the US Department of Health and Human Services, Office of Minority Affairs Cultural Competency Program for Oral Health Professionals. The students were given two full weeks to complete the online training modules. When the students completed the three modules of the program they received an email from the Office of Minority Health Cultural Competency Program confirming completion of the three course content program. To ensure that the students completed the online training modules, the students sent the confirmation email that they received to their instructor that verifies that they completed the course with an accuracy of 70% or greater on the post tests at the end of each of the three modules. Three weeks after the pre-test, the students completed the post-test survey, the IAPCC-SV. The post-test survey was used to establish the level of cultural competence after the online training program had been completed. The pre-test and post-test results were analyzed using descriptive statistics, a Paired t-test and the Wilcoxon Signed-rank test.

Chapter 3 Results

There were 28 senior dental hygiene students who agreed to participate in the study. Twenty-eight surveys were distributed and completed for both the pre-test and the post-test. One participant's survey was missing a response on both the pre-test and the post-test. The question that was not answered was #4 in the pretest and #10 in the post-test. Therefore, in the specific constructs of Cultural Encounters and Cultural Knowledge only 27 students' surveys were utilized to gain an accurate assessment. The IAPCC-SV total scores are subdivided to provide a level of cultural competence (Table 1). Specific questions on the pre-test and post-test related to the constructs and are listed in Table 2.

The average score on the pre-test was 55.41(\pm 7.54). The average score on the post-test was 61.33(\pm 7.86) (Table 3). The averages and the standard deviations for the results are listed in table 3. No students were culturally incompetent on either the pre-test or the

post-test (Table 4). Figure 1 shows the pre-test and post-test overall scores and how many students received each score.

Two students went down in the overall score, but still stayed within the same level of cultural competency from pre-test to post-test despite the lower score. There were also two students that had the same scores for both pre-test and post-test. The most significant overall score increase was 17 points. After the post-test there were three other students that were very close to testing into the level of Culturally Proficient with one score of 73 points and two students with 74 points.

Each of the constructs and the overall scores were evaluated to decipher the changes between the pre and post-test. The mean scores for the pretest and the posttest per student and per construct are summarized in table 5. After assessing normality of the data, the paired t-test and the Wilcoxon Signed Rank tests were used to determine if there were any differences in the level of cultural competence before and after the modules were completed. There was a statistically significant difference in the pre-test to post-test in the Constructs of Knowledge ($p < 0.001$), Skill ($p < 0.001$) and Overall Sum ($p < 0.001$) (Table 6).

Chapter 4 Discussion

The dental hygiene students' mean score for the pre-test was 55.14, which falls within the level of culturally aware. The health profession students study had two samples taken from the spring of 2010 and the fall of 2010 with a total sample size of 106 students.³⁰ The health profession students had a pre-test mean score of 60.8 which is in the culturally competent category. This particular fourteen week study listed all of the categories that they analyzed the data within; i.e., age, race, gender and health care specialty. In the category of ethnic background, eighty percent of the students that participated in the study were categorized as African American, Black or Caribbean. It is possible that the higher pre-test mean scores were due to a very ethnically diverse group and the higher amount of participating students (106 versus 28). This study did not take into account the ethnic background of the dental hygiene students. The post-test means for this study

were 61.37 which elevated the mean to be in the category of culturally competent. The health profession students study had a post-test mean score of 70.6, which kept them in the culturally competent category. Both studies showed an increase in mean scores, but the changes in the test scores for the dental hygiene students was 6.23 which is an average of 2.08 points increase per week over the three week study timeframe. The health profession study showed an increase in the mean of 9.8 which is an average of 0.7 points increase per week over the fourteen week course. The significantly different changes per week might be due to the cultural competency program that the dental hygiene students completed was specifically designed for oral health professionals.³⁰

The constructs of knowledge and skill showed the most significant increases in the comparison of the pre and posttest mean scores, 0.496 and 0.56 respectively. The reasons for the significant increases could be because the Cultural Competency Program for Oral Health Professionals E- Learning program contained a variety of means to increase the knowledge of cultural competency with videos, information and ways to communicate to achieve culturally and linguistically appropriate oral health care and services (CLAS). The entire online program is focused on increasing knowledge and skills. Other studies did not differentiate between the various constructs and the changes in the pre and posttest scores for each construct. The other studies looked at overall means and standard deviations.^{28, 30} It is not clear whether this study and other studies had similar results regarding increases in individual constructs.

In a longitudinal study of nursing faculty there was a pre-test mean score of 52.17 and a post-test mean score of 55.35.²⁸ This study did use the original IAPCC which only measures four constructs Cultural Awareness, Cultural Knowledge, Cultural Skill and Cultural Encounters. The original version created by Dr. Campinha-Bacote is no longer available for use. The revised version meant for healthcare professionals, IAPCC-R, incorporated the construct of Cultural Desire in 2002. The longitudinal study was published in 2010. The reasons for the faculty having a low mean pre-test score of 52.17 may be due to the actual tool they choose to use. When the measurement tools are not the same it is difficult to make a comparison between this dental hygiene student study and the nursing faculty study (IAPCC versus the IAPCC-SV). If the nursing faculty study had used the IAPCC-R, instead of the IAPCC, the results would have been a better comparison to this study of the senior dental hygiene students because both tools measure five constructs of cultural competence. Even though the longitudinal study did show an increase in the mean scores over the year of the study (59.17), the mean score was still lower at the one year mark compared to this study after a three week span of time given to complete the online training modules (61.37). The IAPCC that was used for the longitudinal study and the IAPCC-SV used for this study are not as comparable as the IAPCC-R and the IAPCC-SV.²⁸

This study used the Cultural Competency Program for Oral Health Professionals e-learning program created by the US Department of Health and Human Services, Office of Minority Affairs. This e-learning training module was initiated in April of 2014. There

are no other studies to date that have used this training module in order to compare its effects on oral health professionals.

Limitations

Limitations to this study include the sample was only comprised of senior level dental hygiene students and within the 28 students that participated, only 27 students' scores were used to measure three of the five measurable constructs. The dental hygiene students attended only one institution. This is a limitation because it is a small, homogenous group. Having a small homogenous sample makes the results difficult to generalize to all dental hygiene programs. Tracking the students' level of cultural competence over time and not just a two week post-test following the training modules would show how the levels of cultural competence can improve with ongoing training. There was no control group within the 28 students. Even though students submitted the email stating they completed the online training modules there was no real way to measure how much time the students spent on the website. If the students did not take their time working through the information and then took the post test at the end of each module, the full impact of the training modules may not have affected the students. Using the training modules in the dental hygiene curriculum would ensure that the students thoroughly participated in all aspects of the training modules and the full impact from the training tool might change the overall scores and level of cultural competency. The students were instructed to work on the online training modules independently. The

students completed the modules outside the classroom, therefore there was no way to understand the process that each student utilized while absorbing the information within each of the modules.

Future research would include a larger sample size, a control group and the ability to track the amount of time spent on the training modules possibly by incorporating the training modules into the dental hygiene curriculum.

Conclusions

Due to the established statistical significance by using the Wilcoxon Signed Rank Test, the online training module created by the US Department of Health and Human Services did help to improve the overall Cultural Competence levels of the senior year dental hygiene students at Ohio State University.

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Appendix A: Tables

| Level of Cultural Competence | Scores |
|------------------------------|--------|
| Culturally Proficient | 75-80 |
| Culturally Competent | 60-74 |
| Culturally Aware | 41-59 |
| Culturally Incompetent | 20-40 |

Table 1: IAPCC-SV Scores and Levels of Cultural Competence

| Constructs | Reflected Items |
|---------------------|------------------|
| Cultural Awareness | 1,3,15 |
| Cultural Knowledge | 4,6,8,9,12 |
| Cultural Skill | 7,17,18 |
| Cultural Encounters | 10, 11,13, 14,19 |
| Cultural Desire | 2, 5, 16, 20 |

Table 2: IAPCC-SV Cultural Constructs and Related Question Numbers

| | Mean Score | Standard Deviation | Lowest Total Score | Highest Total Score |
|-----------|------------|--------------------|--------------------|---------------------|
| Pre-Test | 55.41 | ± 7.54 | 44 | 71 |
| Post-Test | 61.33 | ± 7.86 | 46 | 75 |

Table 3: Means, Standard Deviations and Scores from the IAPCC-SV

| Level | Pre-test | Post-test |
|------------------------|----------|-----------|
| Culturally Proficient | | 1 |
| Culturally Competent | 7 | 15 |
| Culturally Aware | 21 | 12 |
| Culturally Incompetent | | |

Table 4: The Pre-test and Post-test Total in Levels of Cultural Competence

| | Pre-test | Post-test |
|------------|----------|-----------|
| Awareness | 3.17 | 3.35 |
| Desire | 3.18 | 3.30 |
| Encounters | 2.96 | 3.09 |
| Knowledge | 2.32 | 2.83 |
| Skills | 2.37 | 2.93 |

Table 5: Mean Score per Construct and Per Student

| Construct | Median | Mean | P-value (Wilcoxon Signed Rank Test) | Paired T-test |
|-----------------------|--------|--------|---|---------------|
| Awareness | 0.3333 | 0.1786 | 0.0543 | 0.0572 |
| Desire | 0.0 | 0.125 | 0.1184 | 0.0947 |
| Encounters | 0.2 | 0.156 | 0.0827 | 0.0544 |
| Knowledge | 0.4 | 0.4963 | <0.0001* | <0.0001* |
| Skill | 0.6667 | 0.5595 | <0.0001* | <0.0001* |
| Overall Sum Change | 4.5 | 5.786 | <0.0001* | <0.0001* |

Table 6: Difference Between Pre-test and Post-test Scores (post-test-pre-test)

*indicates statistically significant

Appendix B: Figures

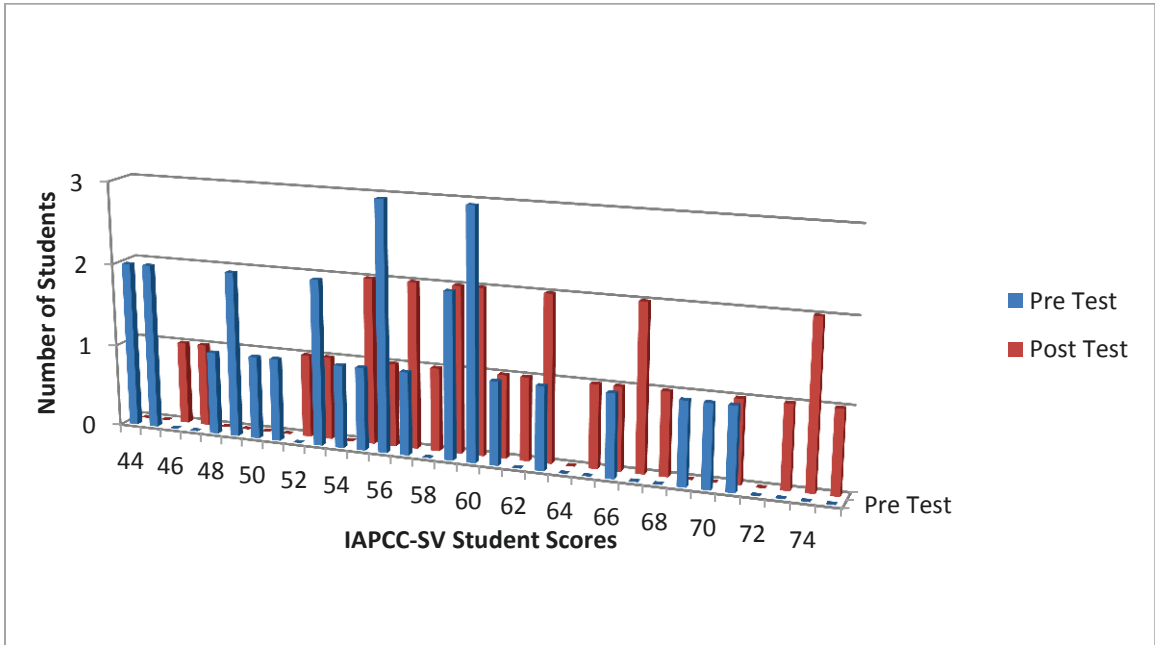


Figure 1: Number of Students Related to Pre-test and Post-Test Scores