8-2015

Minority College Students' Attitudes and Beliefs Regarding the Profession of Dental Hygiene in Comparison to their Oral Health and Dental Knowledge

Trina J. Morgan
East Tennessee State University

Minority College Students' Attitudes and Beliefs Regarding the Profession of Dental Hygiene in Comparison to their Oral Health and Dental Knowledge

---

A thesis

presented to

The faculty of the Department of Allied Health Sciences

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Master of Science in Allied Health

---

by

Trina J. Morgan

August 2015

Dr. Deborah Dotson, Chair

Dr. Ester L. Verhovsek

Dr. Randy L. Byington

Dr. Susan B. Epps

Keywords: oral hygiene care, access to care, dental hygiene, minority, diversity in dental hygiene, cultural diversity

ABSTRACT

Minority College Students' Attitudes and Beliefs Regarding the Profession of Dental Hygiene in Comparison to their Oral Health and Dental Knowledge

by

Trina J. Morgan

The purpose of this study was to find out the attitudes and beliefs of minority college students enrolled at Missouri College in Brentwood, Missouri in reference to the dental hygiene profession. In particular, does their oral health and dental knowledge relate to their knowledge of profession of dental hygiene? One hundred and six students gave their consent to participate in the study via Survey Monkey. The study was conducted in May 2015 for a period of four weeks. Four statements were designed to gauge minority students' knowledge of dental hygiene as a career. No differences were found based on gender, age, education and ethnicity. A difference was found based upon the respondent's program of study. Further research is needed spread the word about dental hygiene programs and to explain the role of the dental hygienist.

DEDICATION

I want to thank God for providing me with the strength to pursue this degree. I would like to take this opportunity to dedicate this manuscript my husband, Dana Morgan. If it were not for you, I would not be completing this program. You have been my rock since the very beginning, always believing in me when I couldn't see my purpose. I want to thank my family for being supportive and understanding when I spent countless hours in the library and on the computer to complete the numerous assignments. Lastly, I want to thank my daughter, April Morgan, for spending time with mommy in the library and at the table while we both worked on our homework.

ACKNOWLEDGEMENTS

First, I would like to thank Dr. Verhovsek for being here with me since the first day I began the program. You have always been that person who I turned to for questions and concerns. Secondly, I want to say thank you to Dr. Byington for helping me with the data analysis portion. I would not be at this point without your expert advice. Dr. Epps, what can I say about you? You were straight to the point and you pushed me to the limit. I needed that because you allowed me to see my potential. Lastly, Dr. Dotson, you have been a mother who has guided me, supported me, and been available to me at any time. You let me know that this was not going to be an easy process, but you told me that I could do it. You believed in me! Thank you for being such a wonderful committee. God put you all on my team.

TABLE OF CONTENTS

LIST OF TABLES

Table

Page

CHAPTER 1

INTRODUCTION

Registered Dental Hygienists (RDH) are licensed oral health professionals who focus on preventing and treating oral disease in order to protect the oral cavity, and also protect the patient's total health (ADHA, 2014). Dental hygiene programs experienced a dramatic decline in enrollment from the mid-1970s into the late 1980s (DeAngelis, Dean, & Pace, 2003). The decade of the 1990s seemed to have brought about a steady increase in dental hygiene enrollment. This in turn, led to more two-year associate degree programs opening across the United States (DeAngelis et al., 2003). In 1990, there were 202 Commission of Dental Accreditation (CODA) entry-level dental hygiene programs and 56 CODA dental programs; by 2014, there were 335 entry-level programs and 65 dental programs (American Dental Hygienists' Association (ADHA), 2014), an increase of 65.8% and 16.1% respectively. The influx of dental hygiene programs over the past 25 years has led to an overabundance of dental hygienists graduating and a lack of jobs in the dental profession (ADHA, 2014). In 1988, there were 3,892 RDH graduates and 4,581 Doctor of Dental Science (DDS) graduates (ADHA, 2014). By 2012, RDH graduates had increased 82.3% to 7,097 and DDS graduates had increased 13.5% to 5,199 (ADHA, 2014).

In 2000, the first Surgeon General's report on *Oral Health in America* revealed there was an epidemic of oral disease. Oral disease was represented disproportionately by minorities, in part because of the lack of diversity among health care workers in the United States (Oink, 2009). African Americans represented 12% of the United States population in 2004, but only 4% of dental hygienists were African American (Onik, 2009). According to the United States Department of Labor (2014), there were a total of 192, 800 dental hygienists job opportunities in

the United States in 2012 (Bureau of Labor Statistics). By 2014, the African American represented 13.2% of the population (Oink, 2009). This is of particular concern because "...not only do minorities disproportionately carry the burden of untreated dental disease, they also seek treatment from people of their own race" (Oink, 2009, p. 62). The Institute of Medicine (IOM) addressed the disparities in the quality of care provided to people of different ethnicity and race in the 2002 report "*Unequal treatment: What health care system administrators need to know about racial and ethnic disparities in healthcare*". If the doctor is not familiar with the culture or ethnicity of the patient, the medical problem may not be fully understood or easy to solve (IOM, 2002). This can make finding the right treatment plan a challenge for that doctor who is unfamiliar with the territory. This can also lead to the wrong diagnosis.

There is a disparity in our society of untreated oral disease which does have an effect on minorities as a whole. People from low socioeconomic status (SES) and/or minority populations experience increased encounters with dental disease and decreased access to dental care (Inglehart et al., 2014). The lack of knowledge of oral hygiene care affects how people view dental hygiene as a profession which likely contributes to the inability to attract minority students into the profession. Even with an increase in the number of dental hygiene programs, there is still a lack of minority representation in the graduating classes.

Statement of the Problem

According to the ADHA (2014), 95.8% of dental hygiene students are female, 4.2% are male and 72.5% are Non-Hispanic white. The underlying problem is that minorities don't recognize that dental hygiene is a career option for them. If someone has never been to a dental office to have his or her teeth cleaned, and therefore has never been introduced to a dental hygienist, how would he or she know about it as a career option? "To help meet the challenge of

increasing minority representation in the dental hygiene profession, dental hygiene program administrators and educators must increase efforts to recruit and admit qualified minority applicants" (Dhir, Tishk, Tira, & Holt, 2002, p. 194).

The lack of access to care for African Americans and the lack of information about dental hygiene being a college opportunity and the geographic distribution of dental hygienists in the United States are also contributing factors the low number of African American dental hygienist (Onik, 2009). "The Sullivan Commission reported that 62% of African American patients in the United States are treated by 5 percent of African American dentists, while only 10.5 percent of African American patients are treated by European American dentists"(Ingelhart et al., 2014, p. 423). Sandino and Rowe state "Minority health professionals historically have provided more health care for the poor and uninsured and for patients in their own racial and ethnic groups than nonminorities" (2014, p. 465).

Purpose of the Study

The purpose of this study was to investigate how minority students at Missouri College perceive the dental hygiene profession.

Research Questions

The following questions guided this research:

1. Is the lack of access to dental care for minorities attending Missouri College associated with being unsure about dental hygiene as a career?
2. Among minority students attending Missouri College, is the lack of oral hygiene knowledge associated with the connection to dental hygiene as a career?
3. Among minority students attending Missouri College, are there demographic differences related to their knowledge of dental hygiene as a career?

Significance of the Study

Some authors have suggested affirmative action in dental health education to improve the health status of minorities (Onik, 2009). Increasing diversity in dental schools can also serve as a motivator for all students to provide care to the underserved populations (Onik, 2009) especially since Tedesco (2005) found that minority professionals are more likely to engage in community service and pro-bono work than white students. The shortage of minority students entering into the profession of dental hygiene has led to a shortage of minority dental hygiene faculty (Dhir et al., 2002), not to mention that educational diversity can help to improve the health of the public as a whole. Dhikr et al. (2002) suggested the recruitment of minority students and faculty to help build a valid cultural foundation for the profession of dental hygiene. This study may contribute to a better understanding of why minorities are not entering the dental hygiene profession.

Delimitations

The study was delimited to Missouri College students attending classes on campus during the day and evening and those students on externship off campus, summer semester, 2015. The minority (non-Caucasian) students were the focus of this study. Missouri College has a total population of approximately 510 students of which 38.63% are minority students (Missouri College, 2015).

Limitations

The study was limited to those minority Missouri College students who have access to email usage on and off campus during the summer semester of 2015.

Assumptions

I assumed that all participants could read and understand the survey instrument. I also assumed that all participants would answer in an open and honest manner.

Definitions

Access to care - the availability of dental care and the willingness of the patient to seek that care.

Oral hygiene care - the practice of keeping the mouth and teeth clean to prevent dental problems, most commonly, dental cavities, gingivitis, periodontal (gum) diseases and bad breath.

Dental hygiene - the maintenance of the teeth and gums in healthy condition, especially by proper brushing, the removal of plaque

Dental hygienist - a person who is trained and licensed to clean teeth, take dental x-rays, and provide related dental services and care, usually under the supervision of a dentist.

Dental assistant - assist the dentist in providing more efficient dental treatment, by preparing the patient for treatment, sterilizing instruments, passing instruments during the procedure, holding suction devices, exposing dental radiographs and taking impressions.

Dentist - one who is skilled in and licensed to practice the prevention, diagnosis, and treatment of diseases, injuries, and malformations of the teeth, jaws, and mouth and who makes and adjusts false teeth.

Minority – the smaller of two groups within a total

Diversity in dental hygiene – the differences in the personality, culture, gender, ethnicity, socioeconomics, age, education, geographic origin, and religious beliefs of patients and coworkers

Cultural diversity – the recognition and appreciation of the characteristics that make us unique individuals

Periodontal disease – an infection of the tissues that surround and support the teeth

CHAPTER 2

LITERATURE REVIEW

Introduction

Few studies have focused on students' perceptions of dental hygiene as a profession. The Sullivan Commission reported that

> in future years, our health professions will have even less resemblance to the general population if minority enrollments in schools of medicine, dentistry, and nursing continue to decline and if health professions education remains mired in the past and –despite some improvements-inherently unequal and increasingly isolated from the demographic realities of mainstream America. Failure to reverse these trends could place the health of at least one-third of the nation's citizens at risk (2004, p. 1).

"Together, African Americans, Hispanic Americans, and American Indians make up more than 25 percent of the U.S. population but only 9 percent of the nation's nurses, 6 percent of its physicians, and 5 percent of dentists" (Sullivan Commission, 2004, p. 2)

Healthcare Disparities

In 1999, Congress solicited the IOM to assess the extent and sources of racial and ethnic disparities in health care and to suggest intervention strategies. In their review of over 100 studies, the committee found that:

- African Americans and Hispanics tend to receive a lower quality of healthcare across a wide range of disease areas (including cancer, cardiovascular disease, HIV/AIDS, diabetes, mental health, and other chronic and infectious diseases) and clinical services;

- African Americans are more likely than whites to receive the less desirable services, such as amputation of all or part of a limb;
- Disparities are found across a range of clinical settings, including public and private hospitals, teaching and non-teaching hospitals, etc.; and
- Disparities in care are associated with higher mortality among minorities who do not receive the same services as whites (e.g., surgical treatment for small-cell lung cancer) (IOM, 2002, p. 2-3).

Health care seeking behaviors vary by population and may develop as a result of poor culture match between the patient and provider. In addition, poor prior interactions within the health care system or a lack of knowledge of how to best use health care services can contribute to disparity (IOM, 2002). Another source of disparity may be a lack of trust in the provider, and finally, changes in the financing and delivery of health care services pose a greater barrier to care for racial and ethnic minorities than for non-minorities (IOM, 2002).

The Surgeon General's 2000 report, *Oral health in America: A report of the Surgeon General,* "demonstrates the need for oral health care, the impact of poor oral health on individuals, communities, and society at large, and the disproportionate burden of oral diseases and conditions among the United States population" (ADEA, 2011, p. 988). The following general principles were proposed to guide academic dental institutions in pursuit of their missions:

- Access to basic oral health care is a human right
- The oral health care delivery system must serve the common good
- The oral health needs of vulnerable populations have a unique priority

- A diverse and culturally competent workforce is necessary to meet the oral health needs of the nation (ADEA, 2011, p. 990).

"Most of the burden of dental disease rests with underrepresented minorities who face barriers of affordability, transportation, utilization, and health literacy" (Oink, 2009, p. 63). Dhir et al. (2002) suggested that increasing the number of minorities in health care professions will increase access to health care for minority populations. They went on to say that

> a strong belief exists among health care educators that increasing the number of minority health practitioners will lead to an increase in the use of preventive health care services by minority groups. The underlying assumption of this belief is that ethic and racial minorities will serve their own communities. Furthermore, increasing the presence of ethnic and racial minorities in the classroom is believed to be beneficial because it may increase the likelihood that non-minority students will become sensitive to ethic and racial minority issues and perspectives (Dhir et al., 2002, p. 194).

This was echoed in the IOM (2004) report, which stated that the lack of diversity was identified as one of the causes of racial and ethnic disparities in health care.

Diversity in the Health Workforce

According to ADEA (2011), the racial and ethnic composition of the U.S. population will significantly increase over the next fifty years. By the middle of this century, the minority populations in the U.S. will increase: Black/African Americans from 12.1 to 13.6 percent, Native Americans from 0.7 percent to 0.9 percent, Asian/Pacific Islanders from 3.5 percent to 8.2 percent, and Hispanics/Latinos10.8 percent to almost 25 percent. On the contrary, the White/Caucasian population will decrease from 73 to 53 percent (ADEA, 2011). Currently, only 14 percent of professionally active dentists are non-white. This includes 3.4 percent

Black/African American, 3.3 percent Hispanic/Latino, and 0.1 percent Native American. Thirty percent of dentists who are under 40 years of age are Black/African American, Hispanic/Latino, or Native American (ADEA, 2011). When there is a lack of diversity in the workforce, a presence of cultural and language barriers along with clinical uncertainty with the patient-provider relationship may exist (Barrow, 2010).

> According to McCann, Lacy, and Miller (2014), diversity is
>
> where people with multiple backgrounds, mindsets, and ways of thinking work effectively together and perform their highest potential. Different voices are respected and heard, diverse viewpoints, perspectives, and approaches are valued, and everyone is encouraged to make a unique and meaningful contribution (2014, p. 412).

Increasing diversity will help to improve the overall health of the nation (Sullivan Commission, 2004). The commission recommended the following steps to help expedite the inclusion of underrepresented minority (URM) groups in various health professions:

- There should be increased recognition of underrepresented minority health professionals as a unique resource for the design, implementation, and evaluation of cultural competence programs, curriculums, and initiatives.
- Health professions schools should work to increase the number of multi-lingual students, and health systems should provide language training to health professionals.
- Key stakeholders in the health system should promote training in diversity and cultural competence for health professions students, faculty, and providers (Sullivan Commission, 2004, p. 5).

Health Profession Education

A 2010-11 national survey of dental hygiene educators found that students from underrepresented racial and ethnic groups (UREG) represented 13.7% of students enrolled in dental hygiene programs compared to 75.5% who were white (Sandino & Rowe, 2014). This differs from the percentage of UREG in the U.S. population which is 29.8% (Sandino & Rowe, 2014). Dental hygienists are typically Caucasian and female. They typically enter into dental hygiene programs in their twenties. "In 2002, males represented about 2.5% of dental hygienists, while 20% of dental hygiene graduates were non-Caucasian" (Monson and Cooper, 2009, p. 126). Educational opportunities for prospective dental hygiene students have increased due to the large number of dental hygiene programs offered in the United States. "Developing a profile for those attracted to the profession would facilitate recruitment efforts and potentially enhance retention and career satisfaction" (DeAngelis et al., 2003, p. 97). It is surprising that talented minority students, who succeed at all collegiate levels, and who are committed to pursuing health profession careers, still face problems getting into health profession education (Sullivan, 2004). It has been documented that improved underrepresented minority (URM) recruitment requires increased exposure to the health professions (Benitez, 2013). According to McCants (2011), the ADA found that African American patients are the only racial group seen primarily by African American dentists, however, the ADEA reported that half of the U.S dental schools have less than 1% or no African American enrollees while 40% have one or no Hispanic enrollees (McCants, 2011). The Sullivan Commission report argued that to increase diversity in the health professions, the culture of health profession schools must change (2004). According to Onik (2009), African Americans continue to be missing in the healthcare workforce because they are underrepresented in higher education health professions programs. A number of

strategies to broaden the health professions pipeline were identified, which included, but was not limited to, providing extra support for disadvantaged and minority students through mentoring, counseling, training and by including more people seeking a second career (Sullivan Commission, 2004). The Sullivan Commission (2004) recommended the following to assist in this task:.

- The U.S. Public Health Service, state health departments, colleges, and health professions schools should provide public awareness campaigns to encourage underrepresented minorities to pursue a career in one of the health professions. Such a campaign should have a significant budget, comparable to other major public health campaigns.
- Colleges, universities, and health professions schools should support socio-economically disadvantaged college students who express an interest in the health professions, and provide these students with an array of support services, including mentoring, test-taking skills, counseling on application procedures, and interviewing skills.
- The Association of American Medical Colleges, the American Association of Colleges of Nursing, the American Dental Education Association, and the Association of Academic Health Centers should promote the review and enhancement of health professions schools admissions policies to: a) enable more holistic, individualized screening processes; b) ensure a diverse student body with enhanced language competency and cultural competency for all students; and c) develop strategies to enhance and increase the pool of minority applicants.

- Diversity should be a core value in the health professions. Health professions schools should ensure that their mission statements reflect a social contract with the community and a commitment to diversity among their students, faculty, staff, and administration. (2004, p. 7-8).

Dental Hygiene Profession

"The dental hygiene profession needs to meet the demands of serving a more diverse population" (Dhir et al., 2002, p. 199) because "dental hygienists play a key role in influencing career choice for students interested in dental hygiene" (Monsoon & Cooper, 2009, p. 132). Job shadowing, career fairs, and mentorship can help promote the dental hygiene career. The University of Louisville School of Dentistry (ULSD) has increased its pool of URM applicants through three major methods: partnerships and collaborations, mentoring, and restructuring the administration (McCants, 2011). In 1996, ULSD started receiving funding from the Robert Wood Johnson and W.K. Kellogg Foundations to support academic partnerships to help improve the preparation of URM students in the health profession field (McCants, 2011). Mentoring provides assistance in the recruitment and retention of URM students and low-income students. Carr et al. (2010) defined a mentor as a person who guides another by being a teacher, role model, advisor, counselor, and coach. In 2002, ULSD hired a part-time faculty member to serve as the director of minority student affairs and admissions. Since then, ULSD's first -year class has been 10% African-Americans (McCants, 2011). Sandino and Rowe (2014) suggested the need for an increase in racial and ethnic diversity in the dental hygiene profession. This will help to develop UREG role models who can mentor the present and future generations of dental hygiene students (Sandino & Rowe, 2014).

"Career choice is a complex decision influenced by both internal and external factors"

(Monsoon & Cooper, 2009, p. 126). Dental hygiene programs are responsible for helping potential applicants to make the best career choice. Communicating comprehensive information about the dental hygiene profession will help to promote career fit and lead to increased retention (Monsoon & Cooper, 2009).

> The recruitment and retention of dental hygiene students are paramount to meeting manpower demands, as is graduating dental hygienists who are content with their career. Additionally, knowledge of students' and applicants' perceptions of the profession may be useful in determining curriculum design and teaching strategies. As the number of dental hygiene programs across the country continues to increase, educational opportunities for prospective students have flourished, resulting in increased competition among dental hygiene programs for qualified applicants (DeAngelis et al., 2003, p. 97).

The lack of African Americans in dental hygiene has been persistent over time. They have been less represented in dental hygiene than in medicine, nursing or dentistry. "Although African American dental hygiene graduation rates improved to 9% in 2003, these rates are still not keeping up proportionally with projected increases in population" (Onik, 2009, p. 67). According to ADEA (2014), in the dental hygiene class of 2012-2013 there were 11,784 white students, 726 Black/African American students, 1,709 Hispanic/Latino students, 91 American Indian/Alaskan Native students, 1, 039 Asian students, and 120 Native/Hawaiian/Pacific Islander students.

The lack of knowledge about dental hygiene as a profession may be related to access of care among minority groups (Onik, 2009). If a minority never has an encounter with a dental hygienist, he or she will not be familiar with the preventive services a dental hygienist has to offer (Onik, 2009).

Summary

As the percentage of the minority populations increase, there should be an equivalent increase in the number of minorities in the dental hygiene profession, however that is not in evidence from the data compiled by the ADA regarding dental hygienists. While there are suggestions for increasing the recruitment and retention of minority students, there remains a lack of knowledge of dental hygiene as a profession among the Black/African American population.

CHAPTER 3

DESIGN AND METHODOLOGY

Overview

According to Benitez (2013), "Adjusting the racial and ethnic diversity of the health care workforce has been in the forefront of healthcare education, including dental and allied dental education programs" (p.55). I collected data for this study using a questionnaire (Appendix A) administered via Survey Monkey. According to Cottrell and McKenzie (2011), "survey research involves the administration of a questionnaire to a sample or to an entire population of people in order to determine the attitudes, opinions, beliefs, values, behaviors, or characteristics of the group being studied" (p.195).

Research Questions

The following questions guided this project:

1. Is the lack of access to dental care for minorities attending Missouri College associated with being unsure about dental hygiene as a career?
2. Among minority students attending Missouri College, is the lack of oral hygiene knowledge associated with the connection to dental hygiene as a career?
3. Among minority students attending Missouri College, are there demographic differences related to their knowledge of dental hygiene as a career?

Research Design

I selected a cross-sectional quantitative design as the best technique to address the research questions. A cross-sectional study "…can be used to determine the current attitudes, opinions, beliefs, values, behaviors, or characteristics of a given population" (Cottrell & McKenzie, 2011, p. 196). I collected data using an electronic questionnaire. I emailed a link to

the survey to all active minority students on campus. It was available online for four weeks. The instructor of each class offered on campus reminded the students to check their emails to complete the survey during the first and fourth week of the survey period. I sent reminder emails to the students two and three weeks after the initial email.

Survey Instrument Development

I developed the questionnaire (Appendix A) using information gained from the literature review. Each survey question was related to at least one research question. Research question one was answered by data from survey questions 14-17. Survey questions 5-13 and 18-22 provided data related to research question two, and research question three was linked to data from survey questions 1-4 and 23-27. The survey questions were divided into three categories: dental profession, dental history and demographics. I used the data gathered to analyze the thoughts, knowledge and backgrounds of the minority students at Missouri College regarding dental hygiene as a career opportunity. I tested the validity of the questionnaire in a pilot study after receiving IRB approval for the study and made changes to the survey items based on feedback from the pilot study.

Instrument Validity

Eighteen students from Harris -Stowe State University located in St. Louis, Missouri participated in the pilot study. They reviewed the survey for validity and readability. The participants were asked to review the informed consent document and to recommend any changes needed to make the document more understandable. The participants were also asked to make a note next to any question they did not understand and to explain what confused them about that particular question. The participants were asked to respond as openly and honestly as possible. To determine the amount of time required of respondents, those participating in the

pilot study were asked to record the exact amount of time (in minutes) that was required for them to complete the survey. Those participating in the pilot study were asked three questions regarding the survey's content:

What, if any, items should be reworded? What, if any, items should be deleted from the survey? What, if any, items should be added to the survey? One participant recommended to clarify survey question 10 as referring to tooth pain and not general pain in the body. The average time the pilot study participants need to complete the survey was 10-15 minutes.

Strengths and Limitations of the Design

One of the advantages of administering the survey instrument electronically was the ability to obtain a large amount of data in a short period of time. A disadvantage was that participation in the study depended on students checking their emails and not all participants had access to a computer at home, or did not check their emails on a regular basis. However, since the school does not provide mail boxes for the students, the student body is accustomed to keeping an eye on their email as official school communication comes to them via email. Other advantages to electronic data collection were that students could complete the surveys at their convenience, and they could feel more assured that their answers were anonymous. A limitation to this cross-sectional study is this is a broad picture of the attitudes and opinions of the students at the time they completed the survey. Another limitation to this study was that of the 510 students enrolled in classes at Missouri College, 78 were listed as unknown ethnicity, 82 did not disclose of this information and seven students requested that their ethnicity not be disclosed.

Population

The population for this study was minority students enrolled in any classes during the summer term at Missouri College located in Brentwood, Missouri. Of the total enrollment of

510 students, 197 students self- identified as minorities, two of Asian descent, two as American Indian/Alaska Native, 189 as Black/African American, one as Hispanic, one Native as Hawaiian/Other Pacific Islander, and two identified with two or more races (Missouri College, 2015).

Informed Consent

According to Cottrell and McKenzie (2011), "Your consent to participate is implied by your decision to complete the survey" (p. 109), therefore, the study participants gave implied consent by completing and submitting the survey.

Data Collection Procedure

This study was approved as Initial Exempt on May 5, 2015 by the Institutional Review Board of East Tennessee State University and was approved as study c0415.25e. Nicole Gramlich, Director of Education at Missouri College, granted permission to contact students via their email accounts (Appendix B). I provided potential participants information about the study and all relevant points for informed consent in an email to the students using their school e-mail accounts (Appendix C). I collected data via Survey Monkey from May 7, 2015 to June 3, 2015.

Data Analysis Procedure

The responses to the questionnaire provided data for variables defined in the Statistical Package for the Social Sciences (SPSS), version 22.0. I used an independent samples t-test (t) and ANOVA to determine if respondents answers differed by demographic variable. I used nominal and interval scales as forms of measurement for the data collected (Cottrell & McKenzie, 2011).

CHAPTER 4

ANALYSIS OF DATA

Overview

The purpose of this study was to investigate how minority students at Missouri College perceive the dental hygiene profession. I sought answers to the following questions:
Is being unsure or uninformed about dental hygiene as a career associated with lack of access to dental care? Is the lack of oral hygiene knowledge associated with the connection to dental hygiene as a career? Are there demographic differences related to their knowledge of dental hygiene as a career?

Participants

The population for this study included 197 students enrolled at Missouri College in day and/or evening courses on campus during the spring 2015 semester. Of the 197 members of the population, 106 responded (53.8%). Of the 106 study participants, 97 were female, eight were male and one participant did not answer this question. The largest percentage of participants (32.4%) were enrolled in the Medical Office Administration program, followed by 21.9% in Dental Care, 18.1% in Allied Health, 17.1% in Massage Therapy, 5.7% in Physical Fitness Technician, and 4.8% in Healthcare Management (see Figure 1). The participants identified their ethnicity as African-American/Black (84.5%), two or more races (9.3%), Hispanic/Spanish (5.2%), and Asian (1.0%) (Figure 2). As seen in Figure 3, the ages of the respondents were as follows: 10.48% were 18 to 19 years old, 67.62% were 20-29, 9.52% were 30 to 39, 8.57% were 40-49, and 3.81% participants were 50 or older. Of the total participants, 6.7% had a GED, 61.0% had a high school diploma, 18.1% had a certificate or diploma, 11.4% had an Associate's Degree, and 2.9% had a Bachelor's Degree.

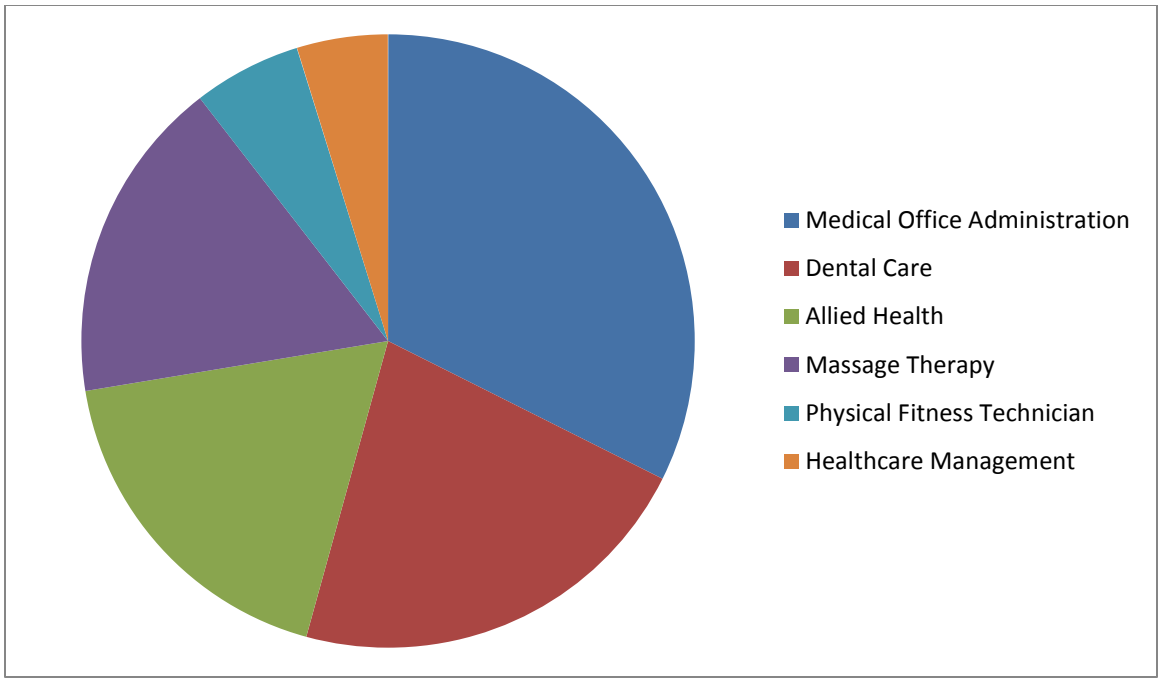

Figure 1: Program of Study

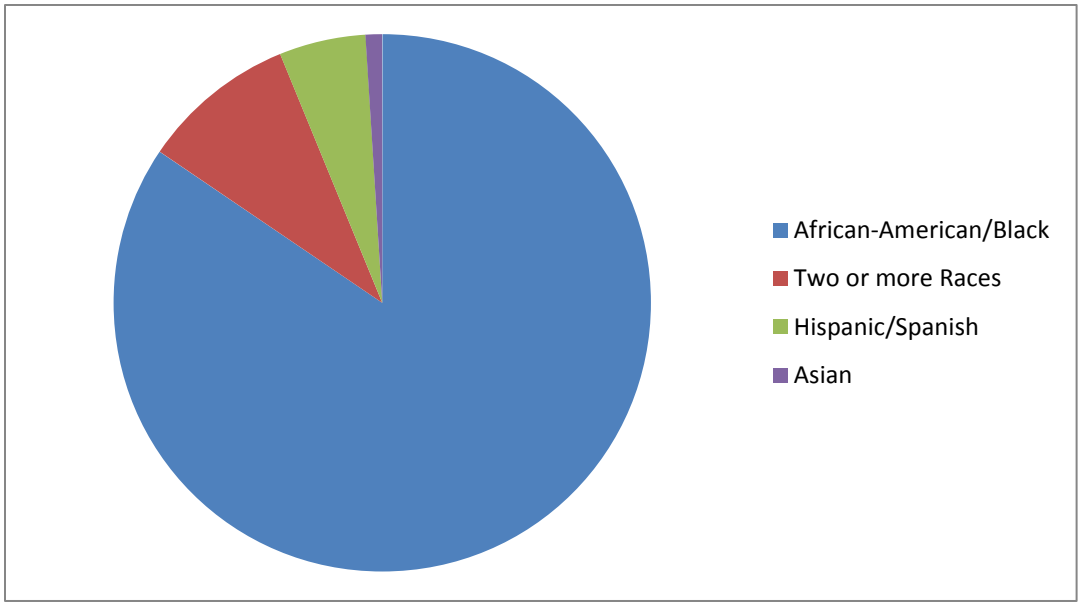

Figure 2: Ethnicity

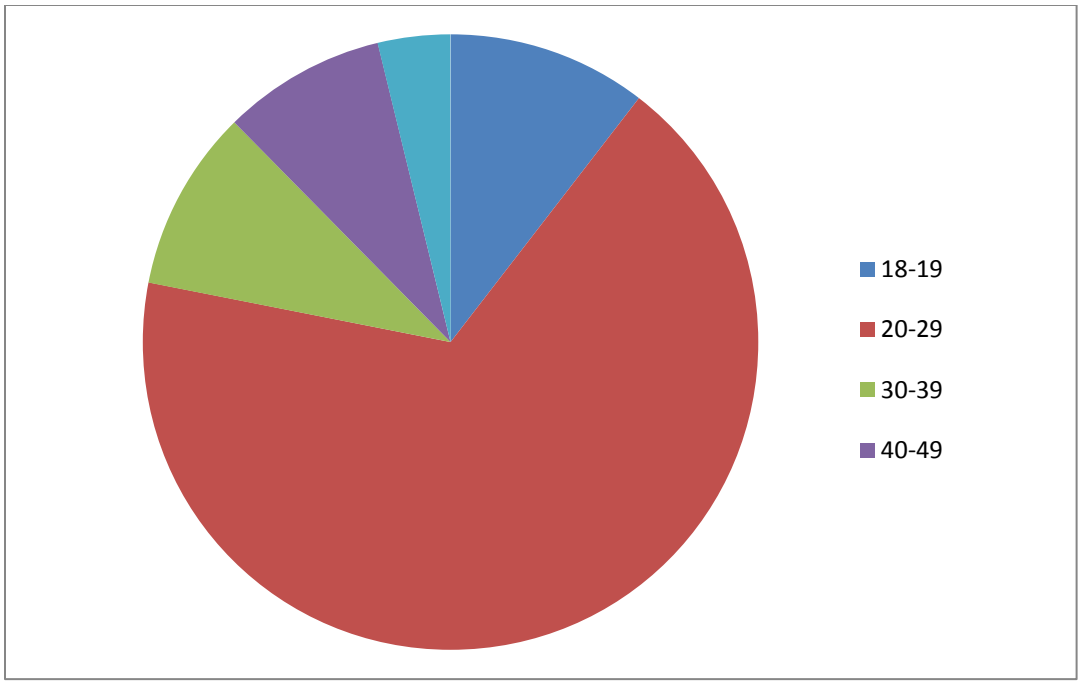

Figure 3: Age Range

Results

The majority of the participants were African American/Black females, age ranging from 20-29; they have a high school diploma, and are enrolled in the Medical Office Administration Program. The majority of the study participants have been to the dentist in the last five years, they realize the importance of going to the dentist and pain is not the only reason for going to the dentist. The respondents know there is a connection with the health of your mouth and body, they know about oral hygiene instruction, and they also know that going to the dentist is important.

Research question one asked: Is the lack of access to dental care for minorities attending Missouri College associated with being unsure about dental hygiene as a career? The data from survey questions 14-17 answered this research question. Question 14 asked participants if they considered cost as a determining factor for not visiting the dentist. Of the study participants, 40% strongly agreed, 30.5% agreed, 14.3% neither agreed nor disagreed, 11.4% disagreed, and

3.8% strongly disagreed with cost being a deciding factor in not visiting the dentist. Question 15 asked if fear was a determining factor for not visiting the dentist. Of the study participants, 13.3% strongly agreed or agreed, 11.4% neither agreed nor disagreed, 35.2% disagreed, and 26.7% strongly disagreed with fear being a deciding factor in not visiting the dentist. Question 16 asked if transportation was a determining factor for not visiting the dentist. Of the study participants, 4.7% strongly agreed, 7.5% agreed, 12.3% neither agreed nor disagreed, 47.2% disagreed and 28.3% strongly disagreed with transportation was a determining factor for not visiting the dentist. Question 17 asked if the location of the dental office was a determining factor for not visiting the dentist. Of the study participants, 1.9% strongly agreed, 7.5% agreed, 11.3% neither agreed nor disagreed, 48.1% disagreed and 31.1% strongly disagreed with location of the dental office being a determining factor for visiting the dentist.

Research question two asked: Among minority students attending Missouri College, is the lack of oral hygiene knowledge associated with the connection to dental hygiene as a career? The data from survey questions 5-13 and 18-22 helped to answer this research question. Questions five through seven asked who informed the participants about the dental profession. Question five asked if they learned of the dental profession from a dental professional. Question six asked if they learned of the dental profession from a family member. The possible responses to both questions were yes, no, or I don't know. In response to question five, 21.7% answered yes, 63.2% answered no, and 13.2% said I don't know. In response to question six, 23.6% answered yes, 67.0% answered no and 5.7% said I don't know. Only 5.7% answered "other" to these questions and the responses were cousin, TV commercial, friend, advisor, Forest Park, or experience.

The participants indicated that it was important to go the dentist for a yearly check-up (72.64%); 52.38 % have visited the dentist in the last year, while 41.90% visited the dentist for a reason other than a toothache. Survey questions 11-13 asked if the participants knew who cleaned their teeth. Of the study participants, 29.25% said the dental assistant, 40.57% said the dental hygienist and 31.43% said the dentist cleaned their teeth. Questions 18-22 asked the participants about their oral hygiene habits, health, and disease. The majority (78.10%) said they should brush twice a day, 39.05% said they should floss once a day, and 72.64% said it was important for them to see the dentist. The majority (70.19%) also understood the health of the mouth and body are related to each other and 29.52% strongly agreed that periodontal disease will lead to the loss of your teeth.

Research question three asked: Among minority students attending Missouri College, are there demographic differences related to their knowledge of dental hygiene as a career? Question 1 asked if the study participants would consider a career in the dental profession. Of the respondents, 27.4% strongly agreed, 18.9% agreed, 22.6% neither agreed nor disagreed, 23.6% disagreed, and 7.5% strongly disagreed with considering a career in the dental profession. Question two asked if the participants knew about the dental hygiene program at Missouri College. Of the participants, 89.5% answered yes, 7.5% answered no, and 2.8% said I don't know to knowing about the dental hygiene program at Missouri College. Question three asked if the students were aware of the dental assistant program at Missouri College. Of the study participants, 94.3% answered yes and 5.7% answered no to knowing about the dental assistant program at Missouri College. When asked if they were knowledgeable about careers in the dental field, 49.5% answered yes, 33.3% answered no, and 17.1% were not sure about careers in the dental field.

I used an independent samples *t*-test or ANOVA using Tukey's post-hoc testing to determine if there were significant differences between demographic groups in response to four statements designed to gauge minority student knowledge of dental hygiene as a career. Those statements were: I would consider careers in the dental profession (Dentist, Dental Hygienist, and Dental Assistant), I was aware of the dental hygiene program at Missouri College, I was aware of the dental assistant program at Missouri College, and I am knowledgeable about careers in the dental field.

Using a 95% confidence level, there were no differences in the responses to these four statements based upon the gender of the respondent. See Table 1.

Table 1: *Independent Samples Test*

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
I would consider careers in the dental profession (Dentist, Dental Hygienist, and Dental Assistant).	Equal variances assumed	1.397	.240	1.711	103	.090
				1.837	8.423	.102
I was aware of the dental hygiene program at Missouri College.	Equal variances assumed	1.437	.233	-.821	103	.414
				-.747	7.955	.476
I was aware of the dental assistant program at Missouri College.	Equal variances assumed	2.372	.127	.719	103	.474
				2.516	96.000	.014
I am knowledgeable about careers in the dental field.	Equal variances assumed	1.730	.191	-1.242	102	.217
				-1.236	8.197	.251

Using a 95% confidence level, a difference between age groups was found in the response to the statement *I was aware of the dental hygiene program at Missouri College* based upon the age of the respondent (f=2.896, *df*=4,100, alpha=.026). The mean response of the 50 or older age group was higher, indicating that those over 50 were more aware of the dental hygiene program at Missouri College. However, because only four respondents were greater than 50 years of age, the group sizes are unequal and type I level errors are not guaranteed. See Tables 2 and 3.

Table 2: *Responses Based on Age*

		Sum of Squares	df	Mean Square	F	Sig.
I would consider careers in the dental profession (Dentist, Dental Hygienist, and Dental Assistant).	Between groups	3.133	4	.783	.457	.767
	Within groups	171.381	100	1.714		
	Total	174.514	104			
I was aware of the dental hygiene program at Missouri College.	Between groups	1.883	4	.471	2.896	.026
	Within groups	16.251	100	.163		
	Total	18.133	104			
I was aware of the dental assistant program at Missouri College.	Between groups	.223	4	.056	1.028	.397
	Within groups	5.434	100	.054		
	Total	5.657	104			
I am knowledgeable about careers in the dental field.	Between groups	3.421	4	.855	1.536	.197
	Within groups	55.108	99	.557		
	Total	58.529	103			

Table 3: *Responses Based on Those 50 and Older*

	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
I was aware of the dental hygiene program at Missouri College.	.659*	.235	.047	.01	1.31
	.609*	.207	.032	.03	1.18
	.750*	.238	.018	.09	1.41
	.750*	.242	.021	.08	1.42

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

Using a 95% confidence level, there were no differences in the responses to these four statements based upon the education level of the respondent. Because only three respondents held Bachelor's degrees, the group sizes are unequal and type I level errors are not guaranteed. See Table 4.

Table 4*: Results Based of Education Level*

		Sum of Squares	df	Mean Square	F	Sig.
I would consider careers in the dental profession (Dentist, Dental Hygienist, and Dental Assistant).	Between groups	12.391	4	3.098	1.911	.114
	Within groups	162.123	100	1.621		
	Total	174.514	104			
I was aware of the dental hygiene program at Missouri College.	Between groups	.324	4	.081	.455	.768
	Within groups	17.809	100	.178		
	Total	18.133	104			
I was aware of the dental assistant program at Missouri College.	Between groups	.092	4	.023	.412	.800
	Within groups	5.566	100	.056		
	Total	5.657	104			
I am knowledgeable about careers in the dental field.	Between groups	1.437	4	.359	.623	.647
	Within groups	57.092	99	.577		
	Total	58.529	103			

Using a 95% confidence level, there were no differences in the responses to these four statements based upon the ethnicity of the respondent. Because only one respondent selected Asian as his or her ethnicity, that demographic category was excluded from the analysis. See Table 5.

Table 5: *Results Based on Ethnicity*

		Sum of Squares	df	Mean Square	F	Sig.
I would consider careers in the dental profession (Dentist, Dental Hygienist, and Dental Assistant).	Between groups	.731	3	.244	.152	.928
	Within groups	149.083	93	1.603		
	Total	149.814	96			
I was aware of the dental hygiene program at Missouri College.	Between groups	.122	3	.041	.220	.882
	Within groups	17.136	93	.184		
	Total	17.258	96			
I was aware of the dental assistant program at Missouri College.	Between groups	.268	3	.089	1.552	.206
	Within groups	5.360	93	.058		
	Total	5.629	96			
I am knowledgeable about careers in the dental field.	Between groups	.861	3	.287	.532	.662
	Within groups	49.639	92	.540		
	Total	50.500	95			

Using a 95% confidence level, a difference was found in the response to the statement *I would consider careers in the dental profession (Dentist, Dental Hygienist, and Dental Assistant)* based upon the respondent's program of study (f=13.911, *df*=5, 99, alpha<.001). Because only five healthcare management students and six physical fitness technician students responded, it is noted that the group sizes are unequal and type I level errors are not guaranteed. Students who were enrolled in a dental care program were significantly more likely to consider careers in the

dental profession than all other groups (alphas for this comparison ranged between <.001 and .004). See Tables 6.

Table 6: *Results Based on Program of Study*

		Sum of Squares	df	Mean Square	F	Sig.
I would consider careers in the dental profession (Dentist, Dental Hygienist, and Dental Assistant).	Between groups	72.014	5	14.403	13.911	.000
	Within groups	102.501	99	1.035		
	Total	174.514	104			
I was aware of the dental hygiene program at Missouri College.	Between groups	.992	5	.198	1.146	.341
	Within groups	17.141	99	.173		
	Total	18.133	104			
I was aware of the dental assistant program at Missouri College.	Between groups	.448	5	.090	1.703	.141
	Within groups	5.209	99	.053		
	Total	5.657	104			
I am knowledgeable about careers in the dental field.	Between groups	4.212	5	.842	1.520	.191
	Within groups	54.317	98	.554		
	Total	58.529	103			

Summary

The findings from the research revealed the cost of going to the dentist is a concern for the study participants. The majority of participants knew about the dental hygiene program at Missouri College and they would consider a dental career. The majority of the study participants had been to the dentist in the previous five years, they knew the importance of going to the dentist, they didn't go only because of tooth pain and they knew about the health of the mouth and body being related.

CHAPTER 5

CONCLUSIONS, DISCUSSIONS, AND RECOMMENDATIONS

Research Questions

1. Is the lack of access to dental care for minorities attending Missouri College associated with being unsure about dental hygiene as a career?
2. Among minority students attending Missouri College, is the lack of oral hygiene knowledge associated with the connection to dental hygiene as a career?
3. Among minority students attending Missouri College, are there demographic differences related to their knowledge of dental hygiene as a career?

Conclusions

In reference to research question one, the cost of going to the dentist is a major concern for the study participants at Missouri College. The fear of going to the dentist, the lack of transportation and the lack of dental offices in the study participant's area were not of concern to most of them. Transportation ranked low on their list of concerns regarding dental care; 47.17% disagreed and 28.30% strongly disagreed that transportation was a concern. This is likely because these participants have access to public transportation, which includes the public buses and the metro link system. Many students at Missouri College use this mode of transportation to get to campus on a daily basis. Because of this mode of transportation, the students are able to travel to various locations in the St. Louis area to visit the dentist. Onik (2009) stated the burdens of dental disease can be found in URM who face barriers such as transportation. While this was not the case with the participants in this study, if this study were conducted in an area where public transportation was less available, transportation could be a reason for the lack of

access to care. In reference to research question two, the study participants would consider a career in the dental profession, and they knew that Missouri College has a dental assistant and dental hygiene program, although it is worth noting that more knew about the dental assistant program. The participants did not get this information from a dental professional or a family member. Monsoon and Cooper (2009) make reference to the need of sharing detailed information about the dental hygiene profession. This puts an emphasis on the need to get into the high schools to inform the students about their career options. Monsoon and Cooper (2009) also found that the public doesn't know the difference between the dental professionals. This lack of public awareness led to a national marketing campaign by the American Dental Hygienists' Association in 2006. Institutions that have dental related programs can improve their own marketing campaign in the communities they serve, particularly in the minority communities by getting involved in community and high school events.

Conclusively, the cost of dental care is the primary reason for the lack of access to care for the study participants (40.00%). The dental hygiene clinic at Missouri College offers preventive services at no charge to the public. The only services the dental hygiene clinic charges for are mouth guards and whitening kits. The focus needs to be geared toward getting the information out to our student body. Students are given the option to tour our campus before or after they enroll in a program on campus. Student centered marketing needs to be amplified to get the word out about our free services. The dental hygiene clinic is located on the first floor of the campus and the only students who see the clinic are those who have classes on the first floor. We have hundreds of new patients wanting to be seen by our students, but we do have a low number of students who take advantage of our services. Getting the word out to our students will help to increase the number of student seen as patients.

Onik (2009), found the lack of knowledge of dental hygiene was related to access of care. On the contrary, the students at Missouri College did see the dentist within the previous five years, and they did know about dental hygiene. This could be explained by the fact that the participants are enrolled in health related programs of study and they learn about the mouth and body during their course of study. The study also revealed 32.38% of the study participants are in the Medical Office Administration program. These students learn about the various diseases of the mouth and body and that could explain the high percentage of students who knew that the health of the mouth affects the health of the body.

Discussion

The study participants were more knowledgeable about the dental assistant program than the dental hygiene program. This is because the dental assistant students at Missouri College have more general education courses with the remainder of the population at Missouri College that are offered on campus. The required general education courses offered on campus at Missouri College for dental hygiene students are only required for the dental hygiene program. The lack of interaction with other students could be the reason why more students are knowledgeable about the dental assistant program at Missouri College. The dental assistant students were more interested in pursuing a career in dental hygiene. This is due to the students being exposed to the various aspects of the dental profession. Once these students graduate, they often do apply for the dental hygiene program. Study participants age 50 and over did know more about the dental hygiene program. These participants could know more about our student dental hygiene clinic on campus. The dental hygiene students offer free preventative services to the general public. The dental hygiene students frequently participate in community events and service learning events throughout their time in the program. Effort needs to be put into getting

the dental hygiene faculty into career fairs held on high school campuses. As stated by Monsoon and Cooper (2009), dental hygienists play an important role in influencing future students. The sooner we get the information out the high school students, the sooner they realize they have other options available to them.

Recommendations

I would suggest future researchers look for a more diversified population to help obtain more accurate representation of the national population. The majority of the study participants at Missouri College were of the African-American/Black population. I would also recommend that future research to include a less educated student population, perhaps only including students in the first semester of their programs, or high school graduates who have not enrolled in post-secondary education.

I would suggest the researcher to proctor the study in person. The researcher can give the students access to a computer lab and discuss the study in person during that time. The students didn't read the email or respond until the instructors told them to go to the computer lab and check their emails. The students could have been directed to use their smartphones to access their emails for the electronic survey. This is something I did not think about with modern technology. Without the assistance of the instructors during time in the class, the response rate would not have been so high.

Further research among minority student populations could answer the following questions not addressed by my study:

1. Why wouldn't you consider a career in dental hygiene?
2. What would make you give more consideration to a career in dental hygiene?
3. Why do you go to the dentist?

4. When do you go to the dentist?
5. Where did you learn about dental hygiene?
6. Does the cost of the dental hygiene program make a difference?

This study has alerted the dental hygiene program at Missouri College to the need to make their program more visible among the student body, and perhaps among potential students in minority communities. Participating in career fairs in high school will be a start. Although it is good to know that students are aware of the dental assisting program, more effort should be made to assure that students know about the availability of the dental hygiene program and are better informed about the role of the dental hygienist. More education is also needed in the minority communities about services students can offer in the dental care program.

REFERENCES

American Dental Education Association. (2011). American Dental Education Association position paper: Statement on the roles and responsibilities of academic dental institutions in improving the oral health status of all Americans. (As approved by the 2004 ADEA House of Delegates). *The Journal of Dental Education, 75*(7), 988-995.

American Dental Education Association. (2014). *2000-2013 Surveys of allied dental education*. Retrieved January 24, 2015 from http://www.adea.org/publications/tde/Pages/Students/allied-dental-students.aspx

American Dental Hygienists' Association. (2014). *Dental hygiene education: Curricula, program, enrollment and graduate information*. Chicago, IL: American Dental Hygienists' Association Education Division.

Barrow, S.L. (2010). Treating patients from diverse populations. *Access 24*(8), 30-31.

Benitez, H. (2013). *An analysis of graduates from a non-traditional model of dental hygiene education* (Unpublished doctoral dissertation). Saint Louis University, Missouri.

Biltucci, M.T. (2015). The challenges of diversity. Retrieved on April 10, 2015 from http://www.rdhmag.com/articles/print/volume-31/issue-4/features/the-challenges-of-diversity.html

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2014-15 Edition*, Dental Hygienists, Retrieved March 26, 2015 from http://www.bls.gov/ooh/healthcare/dental-hygienists.htm

Carr, E., Ennis, R., & Baus, L. (2010). The dental hygiene faculty shortage: Causes, solutions and recruitment tactics. *The Journal of Dental Hygiene, 84*(4), 165-169.

Cottrell, R.R., & McKenzie, J.F. (2011). *Health promotion & education research methods:*

Using the five-chapter thesis/dissertation model. (2nd ed.). Sudbury, MA: Jones and Bartlett Publishers.

DeAngelis, S., Dean, K., & Pace, C. (2003). Career choice and perceptions of dental hygiene students and applicants. *The Journal of Dental Hygiene*, *77*(11), 97-104.

Dhir, I., Tishk, M.N., Tira, D.E., & Holt, L.A. (2002). Ethnic and racial minority students in U.S. entry-level dental hygiene programs: A national survey. *The Journal of Dental Hygiene*, *76*(III), 193-201.

Guay, A.H. (2004). Access to dental care: Solving the problem for underserved populations. *Journal of the American Dental Association*, *135*, 1599-1605. Retrieved on February 7, 2015 from http://www.mohc.org/files/accesstodentalcare.pdf

Ingelhart, M.R., Habil, P., Stefanac, S.J., Johnson, K.P., Gwozdek, A.E., May, K.B., Piskorowski, W., & Woolfolk, M.W. (2014). Recruiting underrepresented minority and low-income high school students into dentistry while educating dental and dental hygiene students about academic careers. *The Journal of Dental Education, 78*(3), 423-436.

Institute of Medicine. (2002). *Unequal treatment: What health care system administrators need to know about racial and ethnic disparities in healthcare*. Retrieved on January 21, 2015 http://iom.nationalacademies.org/~/media/Files/Report%20Files/2003/Unequal-Treatment-Confronting-Racial-and-Ethnic-Disparities-in-Health-Care/DisparitiesAdmin8pg.pdf

McCann, A.L., Lacy, E.S., & Miller, B.H. (2014). Underrepresented minority students' experience at Baylor College of Dentistry: Perceptions of cultural climate and reasons for choosing to attend. *The Journal of Dental Education*, *78*(3), 411-422.

McCants, J.B. (2011, December). Methods to increase underrepresented minority student enrollment and retention at the University of Louisville School of Dentistry. *The Journal of Dental Education*, *75*(12), 1542-1547.

Monson, A.L., & Cooper, B.R. (2009, Summer). Career influences and perceptions of pre-dental hygiene students. *The Journal of Dental Hygiene*, *83*(3), 126-133.

Onik, E. (2009, Spring). Missing persons: African Americans in dental hygiene. *The Journal of Dental Hygiene*, *83*(2), 62-69.

Sandino, A.H., & Rowe, D.J. (2014). Students from underrepresented racial and ethnic groups entering the dental hygiene profession. *The Journal of Dental Hygiene*, *78*(3), 465-472.

The Sullivan Commission. (2004). *Missing persons: minorities in the health professions* (Executive Summary). Atlanta, GA: Sullivan Commission.

APPENDICES

Appendix A: Student Questionnaire Instrument

There is no right or wrong answer to each question. Choose the best answer for each question.

Dental Profession

1. I would consider careers in the dental profession (Dentist, Dental Hygienist, and Dental Assistant).
    - o Strongly Agree
    - o Agree
    - o Neither Agree or Disagree
    - o Disagree
    - o Strongly Disagree
2. I was aware of the dental hygiene program at Missouri College
    - o Yes
    - o No
    - o I don't know
3. I was aware of the dental assistant program at Missouri College.
    - o Yes
    - o No
    - o I don't know
4. I am knowledgeable about careers in the dental field.

- Yes
- No
- I am not sure

If you answered no to this question, please skip to question 8.

5. I learned of the dental profession from a dental professional
    - Yes
    - No
    - I don't know
6. I learned of the dental profession from a family member
    - Yes
    - No
    - I don't know
7. I learned about careers in the dental profession from_____.

    Please fill in the blank or leave blank

Dental History

8. I visited the dentist in the last ___
    - 1 year
    - 3 years
    - 5 years
    - Never

9. It's important that I go to the dentist for a regular check-up

- o Strongly Agree
- o Agree
- o Neither Agree or Disagree
- o Disagree
- o Strongly Disagree

10. I only go to the dentist because of pain

- o Strongly Agree
- o Agree
- o Neither Agree or Disagree
- o Disagree
- o Strongly Disagree

11. The dental hygienist cleans my teeth

- o Strongly Agree
- o Agree
- o Neither Agree or Disagree
- o Disagree
- o Strongly Disagree

12. The dental assistant cleans my teeth

- o Strongly Agree
- o Agree
- o Neither Agree or Disagree
- o Disagree
- o Strongly Disagree

13. The dentist cleans my teeth

- o Strongly Agree
- o Agree
- o Neither Agree or Disagree
- o Disagree
- o Strongly Disagree

14. Sometimes I have to consider cost when visiting the dentist

- o Strongly Agree
- o Agree
- o Neither Agree or Disagree
- o Disagree
- o Strongly Disagree

15. My fear sometimes keeps me from visiting the dentist office.

- o Strongly Agree
- o Agree
- o Neither Agree or Disagree
- o Disagree
- o Strongly Disagree

16. I don’t visit the dental professional because of lack of transportation

- o Strongly Agree
- o Agree
- o Neither Agree or Disagree
- o Disagree

- Strongly Disagree

17. I don't visit a dental professional because there are none or very few dental offices in my area where I live
    - Strongly Agree
    - Agree
    - Neither Agree or Disagree
    - Disagree
    - Strongly Disagree

Dental Knowledge

18. It is important for me to go to the dentist
    - Strongly Agree
    - Agree
    - Neither Agree or Disagree
    - Disagree
    - Strongly Disagree
19. I believe the health of the mouth and body are related
    - Strongly Agree
    - Agree
    - Neither Agree or Disagree
    - Disagree
    - Strongly Disagree
20. I should brush my teeth twice a day
    - Strongly Agree

- Agree
- Neither Agree or Disagree
- Disagree
- Strongly Disagree

21. I believe that periodontal disease will not lead to the loss of my teeth

- Strongly Agree
- Agree
- Neither Agree or Disagree
- Disagree
- Strongly Disagree

22. I should floss my teeth once a day

- Strongly Agree
- Agree
- Neither Agree or Disagree
- Disagree
- Strongly Disagree

Demographic Information

23. What is your gender?

- Female
- Male

24. What is your age?

- 18-19
- 20-29

- 30-39
- 40-49
- 50 or more

25. What is the highest level of education you have completed?

- GED
- High School Diploma
- Certificate/Diploma
- Associates Degree
- Bachelor's Degree
- Master's Degree
- Doctoral Degree

26. What is your ethnic origin or race?

- African-American/Black
- Asian
- Hispanic/Spanish
- American Indian /Alaska Native
- Native Hawaiian
- Two or More Races
- Other

27. What program are you enrolled in?

- Massage Therapy
- Physical Fitness Technician
- Allied Health

- Physical & Occupational Therapy
- Healthcare Management
- Medical Office Administration
- Dental Care

Appendix B: Permission Letter

1405 S. Hanley Road, Brentwood, MO 63144: (314) 768-7800 Fax (314) 768-7900

January 1, 2015

Dear Trina,

Please consider this letter as permission to distribute your electronic survey to the students of Missouri College via their student email accounts. You will be allowed the necessary amount of time to collect your data. Please work closely with our IT department to assist you with distributing the electronic survey when you are ready. Should you need any further assistance, please don't hesitate to contact me.

With Regards,

Nicole Gramlich
Director of Education
Missouri College

Appendix C: Cover Letter

Dear Missouri College Student,

I am the Missouri College Dental Hygiene Program Chairperson/Interim Dental Assistant Program Chairperson and currently enrolled in the Masters of Science in Allied Health program at East Tennessee State University, a doctoral research university located in Johnson City, Tennessee. I am conducting my master's thesis research on student attitudes and beliefs regarding dental hygiene as a career and am asking you to participate in this research study by completing the study survey. Your participation in this research study is completely voluntary and you must be at least 18 years of age in order to participate.

There are no direct benefits or risks associated with your voluntary participation in this survey. Your participation in this research study will not affect your course grade or future plans for enrolling in the dental hygiene program at Missouri College. The results are confidential and the data collected is totally anonymous. There is no way to track answers to any individual and of course your contact information and my contact information. The survey should take approximately 10 to 15 minutes to complete. Your completion of the survey is your consent to participate. Please click on the link below to begin the survey.

Thank you very much for helping me with my study!

Sincerely,

Trina J. Morgan, RDH, BA
MSAH Student
Department of Allied Health
East Tennessee State University
314-768-7904
tmorgan@missouricollege.edu

VITA

TRINA J. MORGAN

Education:	B.A. English, Tennessee State University, Nashville, Tennessee 1996
	A.S. Dental Hygiene, Tennessee State University, Nashville, Tennessee 1998
	M.S. Allied Health (Concentration in Education and Administration), East Tennessee State University 2015
Professional Experience:	Dental Hygiene Program Chair, Missouri College, Brentwood, MO 2010-Present
	Dental Hygiene Program Faculty, Missouri College, Brentwood, MO 2010
	Dental Hygienist, Eric J. Aubert, St. Louis, Missouri 63108
Honors and Awards:	Who's Who Among Students in American Universities & Colleges
	All-American Scholar Collegiate Award
	Alpha Kappa Mu Honor Society
	The National Dean's List
	Hinman Scholar Award
	Most Outstanding Freshman Student, Tennessee State University