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New York State Dental Hygienists' Perceptions

of a Baccalaureate Degree as the Entry-Level Degree Required for Practice

by

Christine Rogers

A thesis

submitted in partial fulfillment

of the requirements for the degree of

Master of Science in the Department of Dental Hygiene

Idaho State University

Summer 2014

To the Graduate Faculty:

The members of the committee appointed to examine the thesis of Christine Rogers find it satisfactory and recommend that it be accepted.

_____
Tara Johnson, R.D.H., Ph.D.
Major Advisor

_____
JoAnn Gurenlian, R.D.H., Ph.D.
Committee Member

_____
Chris Sanford, Ph.D., CCC-A
Graduate Faculty Representative

Idaho State
UNIVERSITY

Office for Research Integrity
921 South 8th Avenue, Stop 8046 • Pocatello, Idaho 83209-8046

October 30, 2013

Christine Rogers
215 W. Mains Street
Catskill, NY 12414

RE: Your application dated 10/28/2013 regarding study number 3996: New York State Dental Hygienists; Perceptions of a Baccalaureate as the Entry-Level Degree for the Profession of Dental Hygiene

Dear Ms. Rogers:

I agree that this study qualifies as exempt from review under the following guideline: 2. Anonymous surveys or interviews. This letter is your approval, please, keep this document in a safe place.

Notify the HSC of any adverse events. Serious, unexpected adverse events must be reported in writing within 10 business days.

You are granted permission to conduct your study effective immediately. The study is not subject to renewal.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. Contact Patricia Hunter (208-282-2179; fax 208-282-4529; email: humsubj@isu.edu) if you have any questions or require further information.

Sincerely,

Ralph Baergen, PhD, MPH, CIP
Human Subjects Chair

Phone: (208) 282-2592 • Fax: (208) 282-4723 • www.isu.edu/research

# Dedication

I would like to dedicate this manuscript to my former professor, mentor, and colleague Karen M. Palleschi---Thank you for supporting me through this endeavor and for instilling in me the value of life-long learning.

Acknowledgements

The authors thank Teri Peterson, Statistician Consultant for her expert assistance and Chris Sanford, Graduate Faculty Representative, for his assistance with the thesis process.

Table of Contents

List of Tables

List of Appendices

New York State Dental Hygienists' Perceptions

of a Baccalaureate Degree as the Entry-Level Degree Required for Practice

Thesis Abstract—Idaho State University (2014)


**Purpose**

The purpose of this study was to examine practicing DHs' perceptions, within New York State, regarding the requirement of a BD as entry-to-practice for the profession.

**Methods**

A nonprobability, purposive sample of approximately 800 licensed dental hygienists comprised the sample for this study. Data were analyzed using descriptive statistics, Spearman's rank and Kruskal-Wallis test.

**Results**

Fifty-two percent of participants held an AD and 98% were members of the ADHA. Nearly a third were employed in solo practice and 43% agreed/strongly agreed the AD is sufficient preparation for DH practice. Still, more participants agreed/strongly agreed (50%) the BSDH should be considered entry-level for the discipline.

**Conclusions**

Results indicate the BSDH as entry-to-practice may be essential in elevating the status of the DH profession to that of other mid-level healthcare providers. Improving professional competence and credibility with colleagues and patients may be an important personal benefit of earn

# CHAPTER I

## Introduction

In the American Dental Hygienists' Association (ADHA) report Dental Hygiene: Focus on Advancing the Profession (2005), a recommendation was made to implement the baccalaureate degree (BD) as the entry-level degree for the profession of dental hygiene. Although the ADHA goal to incorporate the BD as the entry-level degree requirement has not been realized, efforts are underway in New York State to move forward with the ADHA recommendation (New York State Dental Hygiene Educators' Association Meeting Minutes 2010). While the consensus of dental hygiene educators nationally is divided (Okwuje, Anderson, & Hanlon, 2010), very little is known regarding the perceptions of practicing dental hygienists within New York State.

### Statement of the Problem

To date, empirical data for implementing the BD as the entry point for the dental hygiene profession has both pros (elevated credentials and alternate career options) and cons (increased educational costs, limited articulation agreements, and minimal wage increases). Opinions favoring the change to entry-level professional credentials come primarily from faculty at baccalaureate programs and the professional association, which serves both the needs of the public and members of the profession. Perceptions of practicing dental hygienists' are limited to small statewide or program specific surveys. The proposition of change in entry-level credentialing in New York provides a unique opportunity to examine the perceptions of dental hygienists faced with such change.

The opinions and attitudes of dental hygienists practicing in New York could have an impact on how the transition from an associate degree (AD) to a bachelor's degree would occur. The Center for Health and Workforce Studies (CHWS), a division of the School of Public Health at the University of Albany assessed the dental hygiene population in New York and found; over 82% of dental hygienists in New York reported an associate degree compared to 65% of dental hygienists nationwide; 18% of active New York state dental hygienists were half as likely to report a bachelor's degree or higher compared to dental hygienists nationwide (35%) (CHWS, 2012). Mandating the BD as the entry-level degree for the profession in New York could significantly impact those dental hygienists already practicing within the state since there are a proportionately higher percentage of dental hygienists with an AD as compared to a BD. Additionally, the CHWS (2012) report also noted that more than half (52%) of dental hygienists in New York work in a private practice setting. The ADHA Executive Summary (2007) noted that there is little difference in wages earned by a BD graduate versus an AD graduate. The Executive Summary identified the mean salary for a two-year graduate to be $54,315 per year and the mean salary for a BD graduate to be $58,105 per year. This small wage difference may not be significant enough to persuade potential graduates to pursue a BD.

**Purpose of the Study**

The purpose of this study is to examine practicing dental hygienists' opinions, within the state of New York, on the possibility of requiring the baccalaureate degree as the entry-level degree for the dental hygiene profession. This study will provide New York state dental hygiene educators and the Dental Hygienists' Association of the state of New

York (DHASNY) with important information that can contribute towards the planning and implementation of the BD as the entry-level degree for dental hygienists in New York.

**Professional Significance of Study**

According to the ADHA (2012) there are 335 entry-level dental hygiene programs, and of those, 290 are housed in two-year institutions. Nationwide, 53 dental hygiene programs offer a BD and 57 programs offer a degree completion. Only five community colleges noted having a bachelor degree articulation agreement in place (ADHA 2012). Mandating a BD as the entry-level degree for the profession could impact dental hygiene education since there are more AD programs compared to BD and degree completion programs.

Presently, an AD or a BD are accepted as the entry-level degree for the profession of dental hygiene with the BD devoting more clock hours to instruction in written communication, oral health education, and patient management. Both degrees prepare graduates for clinical practice (ADHA 2012).

The National Dental Hygiene Research Agenda (NDHRA) developed by the American Dental Hygienists' Association identifies five key focus areas that support the advancement of the dental hygiene profession (ADHA, 2007). One of the categories, Professional Education and Development, is concerned with "educational methods, curricula, students, and faculty; recruitment and retention of students and faculty; and promoting graduate education and career path options" (ADHA, National Research Agenda, 2007, p. 2). The first objective in this category is to "evaluate the extent to which current dental hygiene curricula prepare dental hygienists to meet the increasingly

complex oral health needs of the public" (ADHA, National Research Agenda 2007, p. 3). The data collected from the proposed study has the potential to provide further insight towards the evaluation of the aforementioned objective.

**Research Questions**

To what extent, do dental hygienists within the state of New York support the baccalaureate degree as the entry-level degree for the dental hygiene profession? and Do differences exist in perceptions based on age, educational degree attained, and membership status in the ADHA?

**Definitions**

The following operational definitions are provided for key terms of this study:

Dental Hygienists are "licensed oral health professionals who focus on preventing and treating oral diseases in order to protect the oral cavity, and also to protect the patients' total health." (ADHA, 2013, Dental Hygiene Education: Curricula, Program, Enrollment and Graduate Information, p. 1).

Associate degree (AD) refers to a degree granted by a two-year college, junior college, or technical college. "A dental hygiene education requires an average of 86 credit hours for an associate degree" (ADHA, 2013, Dental Hygiene Education: Curricula, Program, Enrollment and Graduate Information, p. 2).

Baccalaureate degree (BD) refers to an academic degree awarded for an undergraduate course or major that typically takes four years to complete. A baccalaureate degree in dental hygiene requires approximately 122 credit hours (ADHA, 2013).

Entry-level degree refers to the minimum degree required to obtain licensure as a dental hygienists and includes "certificate, associate and baccalaureate degree programs."

(ADHA, 2013, Dental Hygiene Education: Curricula, Program, Enrollment and Graduate Information, p. 2).

Degree completion programs are defined as educational programs that "are designed for licensed dental hygienists who have completed their professional education and earned a certificate or associate's degree. The baccalaureate degree awarded through these programs can be in dental hygiene or a related area." (ADHA, 2013, Dental Hygiene Education: Curricula, Program, Enrollment and Graduate Information, p. 3).

American Dental Hygienists' Association (ADHA) refers to the nonprofit professional association of dental hygienists in the United States that serves as an advocate for the advancement of the profession (ADHA, 2013).

American Dental Education Association (ADEA) is the sole national organization that represents dentistry and allied dental professions and serves as the voice of dental education (ADEA, 2013).

Support means to "promote the interests or cause of" (Merriam –Webster Online: Dictionary and Thesaurus, 2013)

# CHAPTER II

## Literature Review

A century ago, Dr. Alfred C. Fones recognized the critical role preventive oral health care played in disease prevention. His vision for disease prevention led to the inception of the dental hygiene profession and, in 1906, Irene Newman became the first dental hygienist in the world (Connecticut Dental Hygienists' Association [CDHA], 2013). Their mission was to provide dental hygiene services, not only to patients residing in private practice, but also to individuals suffering from dental disparities who did not have access to care (CDHA, 2013). Since that time, the dental hygiene profession has made great gains and while the focus of the profession is still on disease prevention, the role of the dental hygienist has evolved, and now encompasses a variety of workplace settings. Clinical dental hygienists may practice in private dental offices, school-based settings, community health centers, correctional institutions, or nursing homes (ADHA, 2005). Outside of clinical practice, opportunities for dental hygienists exist in the fields of research, education, marketing, government, administration, health policy, advocacy, and consulting (ADHA, 2005).

According to the United States Department of Labor, Bureau of Labor and Statistics, dental hygiene is ranked among one of the fastest growing professions and it is estimated that it will grow 38% through 2020 (U.S. Department of Labor, Bureau of Labor and Statistics [USDBLS], 2013). Future estimates reveal that there will be an increase in the number of practicing dental hygienists with a decrease in the number of dentists (ADHA, 2005) and this shift means that fewer dentists will be available to provide care to the underserved population (ADHA, 2005). As preventive oral health care

specialists, dental hygienists are at the forefront of this crisis and in a position to provide care to those in need.

Despite the progress the dental hygiene profession has made over the years, there are deficiencies that exist within the profession in the area of educational requirements and resourceful leadership will be required to address this deficiency and assist the profession with successfully navigating the changing tide of the future.

**Educational Changes within Healthcare**

Over the years, healthcare professions have undergone increases in their education. For example, occupational therapy now requires a master's degree and physical therapy has moved from a graduate degree to a doctoral degree as the entry-level to practice. (Dembicki ,2008). Pharmacology had a tier program that allowed candidates to complete a bachelor's degree in pharmacology, but in 1997 the American Council for Pharmacy Education (ACPE) officially accepted the standard of the PharmD degree for the entry-level degree into the pharmacology profession (Kreling, Doucette, Change, Mott, & Schommer, 2010). Advocates for the PharmD degree saw the change in entry-level as an opportunity for career opportunities and better professional recognition (Kreling et al., 2010) .

The nursing profession has debated for over a century about its academic requirements (Zimmermann, Miner & Zittel, 2010). Nursing, like the dental hygiene profession, offers dual entry into the profession and has been in a degree crisis. Debates have surfaced within the nursing community as to whether or not two-year graduates are adequately prepared to meet the demands of patient care. Within the field of nursing there are various levels of degree and educational requirements. In order to become a

Registered Professional Nurse (RN) one can complete educational requirements at either a two or four year school. The minimum degree requirement for a RN is an associate degree (American Association of Colleges of Nursing, 2012). The RN parallels a registered dental hygienist (RDH) in that both professions can be practiced with either an AD or BD and the scope of practice for each is determined by the state. A Licensed Practical Nurse (LPN) has greater practice restrictions than an RN and requires approximately nine months of schooling (New York State Office of the Professions, 2013). A meta-analysis completed by Johnson (1988), assessed the difference in performance of associate degree nurses as compared to nurses with a baccalaureate degree. The study revealed that the level of performance and professionalism demonstrated by baccalaureate prepared nurses to be significantly higher in the domains of communication, problem solving and professional role as compared to nurses with an associate degree (Ellenbecker, 2010). A survey conducted by the National Council of State Board of Nursing found four-year nursing graduates to incorporate critical thinking skills into daily practice and less difficulty with the management of complex patients as compared to non-baccalaureate prepared nurses (Zimmermann, Miner, & Zittel, 2010). Currently, there is a bill in the New York state legislature mandating that nurses in New York State will be required to obtain a bachelor's degree within ten years in order to maintain licensure (Larson, 2012).

**Increased Demand for Healthcare**

Oral Health in America: A Report of the Surgeon General (U.S. Department of Health and Human Services [USDHHS], 2000) was the first-ever report that outlined the state of oral healthcare in America. The purpose of the report was to "alert Americans to the full

meaning of oral health and its importance to general health and well-being." (USDHHS, 2000, p.iii). The report also brought to the public's attention the alarming number of individuals who are without dental care and the barriers to care that prevent many Americans from obtaining appropriate care. With the increasing need for oral health care and the dentist-to-population ratio declining, a question arises as to whether or not the dental workforce will be able to effectively meet the population's demand (USDHHS, 2000). The Surgeon General's report further emphasizes how critical education and training of dentists and allied dental personnel is to the provision of oral healthcare for the public. In a more recent report compiled by the government; Healthy People 2020 emphasizes the need to improve access to preventive services and dental care. As preventive oral healthcare specialists, dental hygienists are at the forefront of the oral health crisis that is plaguing America. Within the 2020 report, seventeen oral health objectives have been established and many of these objectives can be attained through the skills of a qualified hygienist. According to The U.S. Department of Labor, Bureau of Labor and Statistics, dental hygiene is ranked among one of the fastest growing professions and it is estimated that it will grow 36 percent through 2018 (U.S. Department of Labor Bureau of Labor and Statistics [USDBLS], 2013). When this growth increase in dental hygienists is compared to the declining number of dentists, and the increasing demand for oral health care is factored in, there will be a greater need to call upon the allied dental personnel to sufficiently meet the public's demand (Haden, 2001).

**Advantages to a BD: Faculty Recruitment**

Over the last decade, recruitment of allied dental health educators has become a concern. The ADHA reports that 32% of dental hygiene program directors view recruitment of new faculty a primary concern. In addition, competition among programs for recruitment of qualified faculty was noted as a current and future issue (ADHA 2006 Dental Hygiene Education Program Director Survey, 2008). An analysis of allied dental education as reported by Haden et al. (2001) suggested that the numbers of dental hygiene programs are growing but the number of faculty has remained stable. To address the concerns of faculty shortages a task force was developed in 2000 by the American Dental Education Association (ADEA) Board of Directors to investigate the current status of allied dental educators. The report published by ADEA in 2002 noted that 68% of the dental hygiene program directors surveyed (N=188) responded there was a need to replace full-time faculty positions within the next five years with the primary reason being retirement (73%). Additionally, survey participants noted recruitment of *qualified* faculty to be a concern (38%). Seventy-one percent of participants surveyed noted a BD to be the most common institutional credential required to teach full-time. Forty-seven percent of directors reported a master's degree to be the necessary credential of their institute (Nunn, Gadbury-Amyot, Battrell, et al., 2004). The Commission on Dental Accreditation (CODA) standard 3-7 defines the minimum educational requirements for dental hygiene faculty. The standard states that faculty in an accredited dental hygiene program must hold at minimum a baccalaureate degree or higher (CODA, 2013). Attainment of a BD provides an opportunity for graduates to pursue a career in teaching and creates a more accessible path towards a master's degree.

## Barriers to a BD: Educational Costs and Articulation Agreements

While a BD as entry into the profession of dental hygiene may offer alternate career paths outside of clinical practice, the strategy to implement this change is still undefined (ADEA, 2011). Careful consideration should be given to the establishment of developing realistic guidelines for the incorporation of the BD as entry into the profession. Defining these pathways offers the potential to assist students in moving through the educational process with less confusion and a clearer goal in mind (ADEA, 2011). Raising degree requirements may help dental hygienists gain the skills necessary to meet the increased demand for oral health in both private and public settings, although, raising the degree requirements for the dental hygiene profession is not without obstacles. The role community colleges play in the process along with the economic impact of additional schooling needs to be assessed as well. Lastly, the need to incorporate articulation agreements to assist with the transition from a two-year to a four-year degree should be reviewed.

## The Role of the Community College

Community colleges have played a pivotal role in post-secondary education throughout American history. Nowhere is this more evident than with the Great Depression when community colleges provided job-training programs to many unemployed Americans. The popularity of community colleges continued to grow as enrollment doubled from 2.2 million in 1970 to 4.3 million by 1980 (Kasper, 2002-03). Health care is one of the largest and most profitable career fields for individuals with an associate degree. An associate degree is held by more than half of all RN's and dental hygienists (Crosby, 2002-03). Most allied dental education programs presently reside in

community and technical college settings and 90 percent of these programs are in public institutions (Haden, Morr & Valachovic, 2001). Besides offering advantages such as convenient locations and comprehensive course offerings, community colleges offer a cost-effective alternative for many students as compared to a university.

According to the ADHA Division of Education (2009), the estimated cost for an AD program is approximately $30,155 compared to $40,207 for a baccalaureate degree. The cost of an AD dental hygiene education versus the cost of a four-year one could influence which type of degree the student chooses. Program directors who participated in the 2008 ADEA survey perceived the increased cost of a bachelor's degree a possible disadvantage in raising the entry-level degree requirement. The "possibility students would be unable to enter programs because of increased cost" associated with a BD program was a concern to most respondents (Okwuje, Anderson & Hanlon, 2010). In a 2011 report compiled by ADEA, the pathway to a BD was examined. While ADEA supports raising the educational credentials of dental hygienists, it was noted that the additional cost of a BD may dissuade associate degree recipients from furthering their education (ADEA Bracing for The Future: Opening Up Pathways to the Bachelor's Degree for Dental Hygienists, 2011).

Research completed by Rowe et al. (2008) compared educational and career pathways of dental hygienists in associate and baccalaureate degree programs. Graduates from AD and BD programs were surveyed. The study revealed that the average age of the participants was 39.3 years of age at the time of graduation. Graduates of associate degree programs were older (mean = 40 years of age) as compared to graduates of baccalaureate degree programs (mean = 37.2 years of age). This study revealed a higher

mean age (39.3 years) of dental hygiene graduates compared to a 1987 survey in which the average age for baccalaureate degree graduate was 24.2 years and 25.0 for associate degree graduates (Kraemer, 1987). In the Rowe et al. study (2008), 54.3% of AD graduates (N=534) had a previous college degree and 46.5% of baccalaureate degree graduates (N=202) had a degree before entering dental hygiene. The data suggests that older adults are returning to school or possibly changing careers. The four-year career path appears to be of less interest to those pursuing dental hygiene later in life (Rowe et al., 2008). Additionally, older adults may be more established in their lives (e.g. families, homeowners, limited time commitment, etc.) and as a result opt out of the four-year career path due to the increased financial burden and time involved in obtaining a BD.

According to the National Center for Education Statistics, forty-five percent of students attending a four-year college on a full-time basis will need an additional year or more to complete their education (Clayton-Scott, 2011). Additional time spent in college equates to additional expenses. The present economic state of the country coupled with a 7.6 percent unemployment rate (USDBLS June, 2013) increases the financial burden consumers are facing. Community colleges offer a viable alternative for those seeking a profession and can serve as a gateway to higher education.

**Articulation Agreements**

Transitioning to a BD as the required entry-level degree in dental hygiene includes other obstacles outside of additional college debt. The number of two-year dental hygiene institutions far exceeds the number of BD programs. The implementation of articulation agreements between two-year and four-year schools is one way of assisting AD students with the transition from a two-year degree to a bachelor's degree. An

articulation or transfer agreement is a written agreement between a community college and a four-year institution that allows students to complete a particular BD. Articulation agreements outline for the student which courses will be accepted into the four-year program resulting in a smooth transition from the community college to the university setting.

Transfer and articulation policies are dependant upon individual guidelines set forth by each state. These state policies offer consistency and create a defined path for students who desire to attain completion of a BD (ADEA, 2011). Articulation and transfer agreements are not without challenges. For example, there is not an overall consistency between states and these transfer policies often times exclude professional programs such as dental hygiene (ADEA, 2011). These inconsistencies between states with regards to articulation agreements can make it difficult for individuals to transfer from a two-year institute to a university and often time dental hygiene courses are not accepted at the four-year institute. To get a better understanding of state articulation agreements and policies, fifty states were surveyed with regard to their policies. The analysis revealed that eight states have transfer or articulation policies in place for dental hygiene while there are thirty-one states in which no transfer agreements are offered. (ADEA, 2011). The lack of articulation agreements between two-year dental hygiene programs and universities could present as a potential barrier for two-year dental hygiene graduates aspiring to pursue a bachelor's degree.

The Commission on Dental Accreditation (CODA), an accrediting body nationally recognized by the United States Department of Education is responsible for establishing and maintaining educational standards for dental as well as dental hygiene education

programs. Standard 2-1 of CODA supports articulation agreements between two and four-year programs with the intent that students enrolled in two-year programs should be afforded the opportunity to transfer to a four-year school without the duplication of coursework. Dental hygiene programs residing in community colleges are encouraged to have articulation agreements in place with baccalaureate degree programs so that students are able to receive the maximum transfer of credits (CODA, 2013). While these articulation agreements are not necessarily specific to BSDH programs, they can incorporate other areas of study.

Although articulation agreements can assist students with making the transition from an associate to a BD with relative ease, there is additional evidence to support that many schools do not have articulation agreements in place. The 2008 ADEA survey of program directors identified that fifty-two percent of the program directors surveyed did not have any articulation agreement in place. Some of the reasons noted were not pursuing articulation agreements (35 %); some were in the process (12 %); or unsuccessful pursuit (5 %). The most frequent reason for not having an agreement was “no demand” (56 %) (Okwuje, Anderson & Hanlon, 2010).

**One Career-Two Educational Paths**

At present dual educational paths exist for entry into the dental hygiene profession, namely ADs and BDs. There is no differentiation in licensure or duties between the two degrees. An AD program requires an average number of 2,666 clock hours of instruction compared to BD, which require approximately 3,093 clock hours of instruction (ADHA, 2013). While AD programs require, on average, the same number of didactic and laboratory clock hours, BD programs devote more clinical clock hours to patient care and

provide more instruction in written communication, chemistry, oral health education, and patient management (ADHA, 2013). When prerequisites are factored in dental hygiene AD programs require approximately three years (ninety credit hours) to complete. This is approximately twenty to thirty credit hours beyond the traditional AD and only thirty credit hours less than a BD (Okwuje et al., 2010). Despite the credit hour differences, both educational paths meet the same accreditation standards and prepare graduates to obtain a license to practice in a private clinical setting or public facility (ADHA, 2010). Graduates of a baccalaureate dental hygiene program have alternative career choices outside of clinical practice in areas such as administration, public health, research and education (ADHA, 2010). According to 2013 data obtained from the ADHA, there is a total of 335 entry-level programs in the United States with fifty-three of these programs offering a BD as entry-level into the profession.

**Preferences Among Dental Professionals**

Attaining a BD can provide more opportunities outside of clinical practice. One might infer that a higher degree could equate to a higher salary, but the difference in salaries between two-year graduates and four-year graduates in clinical practice is relatively small. A 2007 survey administered by the ADHA found the mean full time dental hygiene salary by current highest level of dental hygiene education for dental hygienists holding a two-year degree to be $54,315 per year while the mean salary for hygienists holding a BD to be $58,105 per year (ADHA Executive Summary, 2007). This small difference in salary may not be enough to persuade two-year candidates to continue in a degree completion program or to choose a four-year program as entry into the profession.

Since most hygienists are employed in private practice (ADHA Executive Summary, 2007), preferences of dentists could be a determining factor in which educational path the dental hygienist chooses. A survey completed by 225 dentists practicing in Ohio revealed that fifty-six percent had no hiring preference for a two-year versus a four-year dental hygiene graduate. Furthermore, sixty-eight percent were not willing to pay a higher salary to a four-year graduate. The experience the dental hygienist possessed was a determining factor in salary and seventy percent of the dentists surveyed agreed there would be no difference between two-year graduates and four-year graduates after two years of work experience (Lalumandier, Demko, & Burke, 2008).

A majority of dental hygienists polled disagreed or strongly disagreed that a BSDH was necessary to increase one's economic status (Anderson & Smith, 2009). Anderson and Smith (2009) surveyed dental hygienists (N=184) with regard to their opinions on the BD as entry into the profession and found differences among respondents based on years since their graduation. Participants were asked to rank eight statements with regard to their perceptions about the BD in dental hygiene. A majority of respondents strongly agreed or agreed that an AD adequately prepared them for the field of dental hygiene. The data from this study also showed there to be inconsistencies among the opinions of most recent graduates (0-5 years since graduation). Over seventy-five percent of respondents in this group felt an AD sufficiently prepared them yet over fifty-percent from this group strongly agreed or agreed the BSDH should be the entry-level for the profession. A majority of respondents from all groups did not feel a BD was necessary to provide the highest level of care. Limitations of this study were the small sample size and geographic location of participants consisted of dental hygienists primarily from the

Midwest. This sample may not be an accurate reflection of the opinions and attitudes of dental hygienists living in other states.

**Opinions of Program Directors**

Not only does the literature suggest that there are differences of opinions between dentists and practicing dental hygienists regarding the need for a BD as entry into the profession, but there is also a difference between program directors of four-year and two-year dental hygiene schools as well. In the 2008 ADEA report, program directors were surveyed regarding their attitudes on the advancement of dental hygiene to a bachelor's level. Respondents were grouped into three categories based upon the educational setting they were representing (four-year, community college, or technical college). Eighty percent of survey participants employed at a four-year college viewed advancing the entry-level dental hygiene programs to a BD to be important while only thirty-seven percent of directors from community, technical or junior colleges viewed it as being important. With regard to the statement "The dental hygiene programs offered at associate degree institutions are adequate to meet the public's need for dental hygienists," responses varied depending on the educational setting. Three-quarters of participants from two-year schools agreed or strongly agreed with this statement while only thirty-three percent of participants from four-year schools agreed or strongly agreed (Okwuje et al., 2010). When these differences of opinions among those in dentistry is assessed, further investigation is warranted.

## ADHA Focus on Advancing the Profession

### New York State Dental Hygiene Educators' Association

The New York State Dental Hygiene Educators' Association (NYSDHEA) a non-profit organization developed by the dental hygiene educators of New York was established in 1963. A main function of the organization is to provide a forum for issues related to the education of dental hygienists in New York. During a 2010 meeting of the (NYSDHEA), a recommendation was made to move forward with investigating the possibility of increasing the entry-level requirement for the dental hygiene profession in New York State to a baccalaureate level (NYSDHEA Minutes, 2010). A year later, dental hygiene educators from across the state formed an ad-hoc committee to investigate the idea of advancing the entry-level of practice for dental hygienists in New York from a two-year degree to a four-year degree. This committee supports previous recommendations made in the ADHA report Dental Hygiene: Focus on Advancing the Profession. The investigation is still in its infancy and no legislative proposals have been put forth to the state board with regard to changing degree requirements.

Additionally, educators verbalized their concerns with regard to the dental hygiene faculty shortage and supported the notion that mandating a BD could open the door for future educators. Educators from two-year dental hygiene programs discussed the need to establish articulation agreements, which would allow for a smoother transition from a two to a four-year degree. Establishing a BD as the point of entry into the profession for New York State would not only impact dental hygiene students entering the profession but also dental hygienists who are currently practicing. To date, there is no data regarding the opinions of practicing hygienists on degree elevation in a state where such a

change is being considered. In fact, the only published data on practicing hygienists' perceptions regarding mandating a BD degree come from small statewide or institution specific samples. The change to entry-level standards in NY provides a unique opportunity to examine the perception of dental hygienists faced with the proposed change in educational preparation needed for licensure.

**Summary**

If dental hygienists are at the forefront of the of the oral health crisis that is plaguing America, an AD may not sufficiently prepare the upcoming workforce to take on the challenges of delivering oral health care to a diverse and aging population. A BD would allow dental hygiene students to spend more time developing their communication skills, knowledge on oral health education, comprehensive health care, interprofessional systems, and patient management strategies thus resulting in a workforce that is better prepared in dealing with populations in need. While most dental hygienists are employed in private practice and there is little difference in salary between AD and BD graduates, obtaining a BD would allow dental hygienists to venture beyond private practice and take advantage of career opportunities in public health, academia, leadership roles, and research.

The transition to a BD as the entry-level degree requirement will not be without challenges. The number of AD entry-level programs far exceeds the number of BD programs and two-year institutes will need to employ strategies for incorporating articulation agreements to assist students with making the transition from a two to four year degree.

To date, empirical data for implementing the BD as the entry point for the dental hygiene profession has both pros (elevated credentials and alternate career options) and cons (increased educational costs, limited articulation agreements, and minimal wage increases). Opinions favoring the change to entry-level professional credentials come primarily from faculty at baccalaureate programs and the professional association, which serves the needs of the public. Perceptions of practicing dental hygienists' are limited to small statewide or program specific surveys. The proposition of change in entry-level credentialing in New York provides a unique opportunity to examine the perceptions of dental hygienists faced with such change. Therefore, the purpose of this study is to examine practicing dental hygienists' opinions, within the state of New York, on the possibility of requiring the baccalaureate degree as the entry-level degree for the dental hygiene profession.

# CHAPTER III

## Methodology

### Research Design

The purpose of this study was to examine the opinions of dental hygienists practicing in the State of New York with regard to mandating the baccalaureate degree as the entry-level degree requirement for the practice of dental hygiene in New York. An electronic survey was distributed to all licensed dental hygienists across New York as identified by the Dental Hygienists' Association of the State of New York (DHASNY) as having e-mail accounts.

### Research Context

The privacy policy as defined by the New York State Department of Education Board of Dentistry does not permit public access to mailings or e-mail listings of registered dental hygienists within New York. While the DHASNY list of registered dental hygienists does not include all licensed practitioners within New York, this organization was chosen for distribution of this survey because they have access to a large sample size of dental hygienists and were willing to collaborate with the investigator for the purpose of this study.

### Research Participants

A nonprobability, purposive sample of approximately 800 licensed dental hygienists within the state of New York comprised the sample for this study. The sample population included all email accessible registered dental hygienists, both members and non-members of DHASNY. After obtaining approval from the Human Subjects Committee

(HSC) at Idaho State University, the DHASNY electronically distributed the survey to registered dental hygienists within the state of New York.

**Data Collection**

This 22-question survey was developed and adapted from a previous study conducted by Anderson and Smith (2009). Permission to utilize the survey was obtained by the investigator via e-mail correspondence with Anderson. Some survey questions were modified from the Anderson and Smith study to fit the proposed study. Validity of the survey was established through expert review and through the distribution of a pilot survey. The types of questions included in the survey were nine Likert scale items, one ranking item, one open-ended and nine closed-ended questions. The survey was delivered to the participants in an electronic format (Appendix A). The Executive Director of the DHASNY electronically distributed the survey to registered dental hygienists within the state of New York. The survey will be delivered using Qualtrics, an electronic survey tool, available to subscribers. The initial Internet survey (Appendix A) included a cover letter and a follow-up e-mail (Appendix B*)*. Every reasonable effort was made to assure confidentiality and anonymity of the participants during this study and ensure there was no way to re-identify the participants and link the respondents back to the completed survey. The researcher received the results via an Excel file that will be created by Qualtrics. All responses were anonymous to the researcher.

The investigator did not have access to any personal identifying information (names, addresses, or e-mail addresses); only administrative personnel within DHASNY were able to access to the population's contact information. The primary investigator and all committee members associated with this project were not shown the participants' e-mail

accounts or list of their names. Survey recipients did not identify themselves in any way on the electronic survey or return mailing.

A follow-up e-mail was sent to participants, at two and three weeks, after the initial Internet survey. After the follow-up e-mail at week three, a one-week cut-off date was established and no more data was accepted after this date. The major graduate advisor at Idaho State University's Department of Dental Hygiene has stored it securely in the program office. A pilot study was carried out to test the reliability and validity of the survey instrument. Five registered dental hygienists were emailed and asked to complete the survey and score it for clarity based on an attached rubric. Approximately one week from the initial mailing of the pilot survey, participants were contacted and asked to complete the survey for a second time. The two separate responses were compared for reliability and survey question scores were reviewed for validity. Changes to the survey questions were made accordingly. Those participants of the pilot survey who are practicing dental hygienists in New York State were excluded from the study.

**Proposed Statistical Analysis**

An exploratory analysis including descriptive statistics of percentages and frequencies was completed and an independent t-test was performed to examine the relationship between the variables.

**Limitations**

Possible limitations of the study were that the listings from DHASNY of registered dental hygienists was by no means exhaustive and participation was limited to only the those hygienists with e-mail access. Additionally, DHASNY obtains its listing of dental

hygienists through continuing education courses, therefore participants were more likely to be members of the ADHA leading to potential bias favoring the BD over the AD.

**Methods Summary**

This study provided New York state dental hygiene educators and DHASNY with important information that may contribute towards the planning and implementation of the BSDH as the entry-level degree for dental hygienists in New York. There were two anticipated outcomes for this study. Dental hygienists practicing in the state of New York may be able to provide feedback with regard to their opinions and attitudes towards the BSDH as the entry-level degree requirement for the profession of dental hygiene. Second, the results of this research effort were submitted for consideration for publication in the Journal of Dental Hygiene (JDH).

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*Appendix A*

Survey Instrument

**Survey Instrument**

**Section I: General Information**

1. **Please indicate the number of years since graduation from your initial dental hygiene education program. _____**

2. **What is your age?**
   - ☐ 18-28 years
   - ☐ 29-38 years
   - ☐ 39-48 years
   - ☐ 49-58 years
   - ☐ 59 years and over

3. **What is your highest academic credential in dental hygiene studies?**
   - ☐ Associate Degree: Dental Hygiene
   - ☐ Bachelors Degree: Dental Hygiene
   - ☐ Bachelors Degree: Non-Dental Hygiene
   - ☐ Masters degree: Area of concentration _____
   - ☐ Doctorate: Area of concentration _____

4. **Did you have a post high school degree prior to entering your initial dental hygiene education program?**
   - ☐ **Yes**
   - ☐ **No**

   **If yes indicate the degree(s) held? (check all that apply).**
   - ☐ Associate Degree
   - ☐ Bachelor's Degree
   - ☐ Master's Degree
   - ☐ Doctorate

5. **I attended a dental hygiene program in New York State.**
   - ☐ **Yes**
   - ☐ **No**

6. **I am currently enrolled in a degree completion program.**
   - ☐ Yes
   - ☐ No

7. **I am interested in a degree completion program.**
   - ☐ Yes
   - ☐ No

**8. I am a member of the American Dental Hygienists' Association?**

- ☐ Yes
- ☐ No

**9. Which best describes your current primary practice setting? Please check all that apply:**

- ☐ Independent dental hygiene practice
- ☐ Group dental practice
- ☐ Solo dental practice
- ☐ Multi-specialty clinic
- ☐ Public health agency
- ☐ Community health clinic
- ☐ Long-term care/nursing home
- ☐ School based health/dental clinic
- ☐ Academic/ University/ College
- ☐ Managed care/ Insurance company
- ☐ Industry Business/ Corporation
- ☐ Not in clinical practice
- ☐ Other_____

**Section II: Views on the bachelor's degree as the entry-level degree**

For each of the following statements, check the box that most closely matches your opinion about each statement.

**Questions 10-17, Please indicate your level of agreement with the following statements:**

**10. An associate's degree in dental hygiene is sufficient preparation for the challenges of practicing dental hygiene in today's healthcare settings.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**11. The Bachelor of Science in Dental Hygiene (BSDH) should be the entry-level degree for the practice of dental hygiene.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**12. The BSDH degree is necessary to ensure the highest standards of service delivery in the field of DH.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**13. The BSDH degree is necessary to elevate the status of the dental hygiene profession to that of other mid-level healthcare providers.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**14. A requirement for a BSDH degree might further limit diversity within the profession.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**15. Those who are financially disadvantaged may not be able to afford the BSDH degree.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**16. A BSDH degree offers more career opportunities.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**17. Clinical experience is a better indicator of clinical competency than degree held.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**18. I would not be interested in a BSDH degree completion or bridge program because of: (check all that apply)**

- ☐ The cost of four years of education
- ☐ Lack of time for further education
- ☐ No appreciable increase in clinical competency
- ☐ Other: Please specify
  reasons:_____

**<u>Questions 19-22, Please indicate your level of agreement with the following statements regarding potential benefits of the BSDH if it was required as the entry-level degree for the profession.</u>**

**<u>A BSDH would:</u>**

**19. Increase professional recognition by other professionals.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**20. Improve overall professional competency.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**21. Increase individual self-esteem.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

**22. Increase salary levels for dental hygienists.**

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

*Appendix B*

Cover Letter & Follow-up E-mail

**Cover Letter**

**Dear Registered Dental Hygienist:**

I am a graduate student at Idaho State University and a RDH working in the state of New York. I am completing a research project regarding the baccalaureate degree for dental hygiene. You have been identified as a registered dental hygienist practicing in the state of New York and therefore, you have been invited to participate in this survey. The purpose of this survey is to assess the perceptions of dental hygienists regarding the possibility of DH education moving to the baccalaureate level. This survey will be beneficial in evaluating the topic of the need for higher education. Your participation in this survey is requested, but not mandatory. Participation is both voluntary and anonymous.

The Qualtrics survey program is designed to remind non-responders about the opportunity to participate at one and two weeks after the original invitation. The questionnaires will be utilized for data collection purposes only and will be reported in aggregate form.

The survey can be completed in approximately 10 minutes and will provide useful information regarding opinions and attitudes towards the BSDH. By completing the survey you consent to participate in the study.

If you have any questions regarding this survey, please contact me at rogechr2@isu.edu. I appreciate your participation and request that your response is returned by_____.

Thank you,
Christine Rogers, BA, RDH
Graduate Dental Hygiene Student

**Follow-Up E-Mail**

Dear Registered Dental Hygienist,
One week ago, you should have received a survey regarding the bachelor's degree in dental hygiene. The Qualtrics survey management software has automatically keyed this e-mail reminder because your completed survey has not yet been returned. Your participation in this survey is requested but not mandatory. Participation is both voluntary and anonymous.

This survey can be completed in less than 10 minutes and will provide useful information regarding the BSDH. Your response is both greatly appreciated, as well as, very important to the success of this study.

If you have any questions regarding this survey, please contact me at rogechr2@isu.edu. I appreciate your participation and request that your response is returned by_____.

Thank you for your participation,
Christine Rogers, BA, RDH
Graduate Dental Hygiene Student

*Appendix C*

Journal of Dental Hygiene

Author Guidelines

# Author Guidelines



## Statement of Purpose

The Journal of Dental Hygiene is the refereed, scientific publication of the American Dental Hygienists' Association. It promotes the publication of original creative work related to dental hygiene research, education and evidence-based practice. The Journal supports the development and dissemination of a unique dental hygiene body of knowledge through scientific inquiry in basic, behavioral, clinical and translational research.

## Author Guidelines

Starting with the Summer 2004 issue, the Journal has been published online. The online format provides searching capabilities to Journal readers by establishing a link to dental hygiene research indexed through the National Library of Medicine and Medline.

## Manuscript Requirements

Manuscripts are evaluated for quality, depth and significance of research, comprehensive evaluation of the available literature and the expertise of the author(s) in the given subject. Content must provide new information and be of general importance to dental hygiene. The Journal discourages submitting more than one article on related aspects of the same research. If multiple papers are submitted from the same project, significant differences in the papers must be evident.

## Originality

Manuscripts must be original, unpublished, owned by the author and not submitted elsewhere. Authors are responsible for obtaining permission to use any materials (tables, charts, photographs, etc.) that are owned by others. Written permission to reprint material must be secured from the copyright owner and sent to ADHA when the manuscript is accepted for publication. The letter requesting permission must specifically state the original source, using wording stipulated by the grantor.

## Disclosure

Authors are obligated to identify any actual or potential conflict of interest in publishing the manuscript. This includes association with a company that produces, distributes or markets any products mentioned, or with funding provided to help prepare the manuscript. Disclosures should appear at the beginning of the manuscript.

## Manuscript Categories

The Journal publishes original scientific investigations, literature reviews, theoretical articles, brief reports, and special feature articles related to dental hygiene. Specific Categories of articles are as follows: Research, Critical Issues in Dental Hygiene, Innovations in Education and Technology, Literature Reviews and Short Reports. All submissions are reviewed by the editor and by members of the Editorial Review Board.

**Original Research Reports** – limited to 4000 words (excluding references and Tables/Figures)

Include reports of basic, behavioral, clinical and translational studies that provide new information, applications or theoretical developments. Original Research Reports include an Abstract, Introduction (including the review of the literature and ending with a statement of the study purpose), Methods and Materials, Results, Discussion and Conclusion.

**Title Page:** This page should include: 1) title of article, which should be concise yet informative, 2) first name, middle initial and last name of each author, with highest academic degrees, 3) each author or coauthor's job title, department and institution or place of employment if other than academic, 4) disclaimers/disclosures, if any, 5) name, address, all contact information of author responsible for correspondence about the manuscript and 6) funding sources for the project, equipment, drugs, etc.

**Abstract:** Approximately 250 words. Use the headings "Purpose" (purpose), "Methods" (design, subjects, procedures, measurements), "Re-

sults" (principal findings), and "Conclusion (i.e. Major conclusions.)" The abstract must be able to stand alone. References should therefore be avoided.

**Keywords:** Four to ten keywords should be chosen that are consistent with Medical Subject Headings (MSH) listed in Index Medicus. These key words will be used for indexing purposes. Keywords should be listed at the end of the abstract.

**NDHRA:** Identify how the study supports a specific topic area and related objective from the National Dental Hygiene Research Agenda. For example: This study supports the objective: Assess strategies for effective communication between the dental hygienist and the client, under Health Promotion/Disease Prevention. NDHRA statements can be found at: http://www.adha.org/downloads/Research_agenda%20-ADHA_Final_Report.pdf

**Text:** The body of the manuscript should be divided into sections preceded by the appropriate subheading. Major subheadings should be in capital letters at the left-hand margin. Secondary subheads should appear at the left-hand margin and be typed in upper and lower case and in bold face.

**Introduction (including the literature review):** Cite a variety of relevant studies that relate to the need for the current study and its significance. References should be as current as possible, unless a hallmark study is included. Compare findings of previous studies, clearly indicating all sources of concepts and data. When a source is directly quoted, use quotation marks. However, use of quotation marks should be limited. End this section with a clear statement of the purpose of the study, hypothesis or research objectives.

**Methods and Materials:** Describe the research design (e.g. randomized controlled trial) and procedures (e.g. IRB approval, target population, inclusion/exclusion criteria, recruitment, informed consent, variables to be tested, instruments, equipment, procedures and method of data analysis). Specify the measurements and statistical tests used as well as related levels of significance. Furthermore, assure an adherence to all pertinent federal and state regulations concerning the protection of the rights and welfare of all human and animal subjects.

**Results:** Summarize all relevant data and study findings. Do not repeat in the text the data reported in tables and figures verbatim, but do refer to the data and emphasize important findings (e.g. Table 1 shows that most of the subjects were African American and between the ages of 12 and 16).

**Discussion:** Evaluate and interpret the findings. Compare them with those of other related studies. Discuss how they relate to dental hygiene practice, profession, education or research. Include overall health promotion and disease prevention, clinical and primary care for individuals and groups and basic and applied science. Discuss study limitations; implications for dental hygiene practice, education, and research; and recommendations or plans for further study.

**Conclusion:** State the conclusions, theories, or implications that may be drawn from the study. This section should be 1-2 paragraphs or can be listed as bulleted points.

**Acknowledgments:** Be brief and straightforward. Example: "The authors thank Jane Smith, RDH, for her assistance in developing the survey instrument." Anyone making a substantial contribution to the conduct of the research or the resulting report should be appropriately credited as an author.

**Literature Reviews** – limited to 3000 words (excluding references and Tables/Figures)

A presentation of relevant and primary published material on a specific topic constitutes a comprehensive literature review. Such a review includes a summary and critique of the current status of the topic, and the aspects requiring further study.

**Abstract:** Literature reviews begin with a non-structured abstract—a brief statement of purpose, content summary, conclusions, and recommendations.

**Keywords:** At least four keywords should be listed following the non-structured abstract.

**NDHRA:** Identify how the literature review supports a specific topic area and related objective from the National Dental Hygiene Research Agenda. For example: This review supports the objective: Assess strategies for effective communication between the dental hygienist and the client, under Health Promotion/Disease Prevention.

**Short Reports** – limited to no more than 2000 words plus references and illustrations. Illustrations should be limited to a total of no more than 2 (e.g. 2 figures or 2 tables, or 1 figure and 1 table)

The Journal publishes short reports related to dental hygiene. Short reports are limited in scope and should begin with a brief, non-structured abstract that describes the topic. The abstract should contain at least four keywords. Identify how the report supports a specific topic area and related objective from the National Dental Hygiene Research Agenda. A concise introduction; literature review; detailed description of the topic or activity; and discussion, conclusion, and recommendations must also be included. References are necessary to support the rationale and methods presented.

A short report may describe a clinical case study, an educational innovation, a research method, a concept or theory, or other current topics.

**Case Study:** A report that describes a unique aspect of patient care not previously documented in the literature. Such reports usually focus on a single patient or groups of patients with similar conditions. Suitable topics include, but are not limited to, innovative preventive methods or programs, educational methods or approaches, health promotion interventions, unique clinical conditions or pathologies and ethical issues.

**Theoretical Manuscript:** A report that provides a well-supported explanation for natural phenomena that clarify a set of interrelated concepts, definitions, or propositions about dental hygiene care or processes. Such reports provide new knowledge, insight, or interpretation; and discussion, conclusions, and recommendations. These reports begin with a non-structured abstract. At least four keywords are listed at the end of the abstract.

**Critical Issues in Dental Hygiene** – limited to 4000 words

The purpose of this section is to highlight challenges and opportunities pertinent to the future directions of the profession of dental hygiene.

**Innovations in Education and Technology** – limited to 4000 words

The purpose of this section is to feature short reports of innovative teaching applications and techniques as well as new technologies available for increased communication and learning in dental hygiene education.

## Manuscript Preparation and Style

Standard usage of the English language is expected. Manuscripts should be created in Microsoft Word with margins of at least 1 inch. Double spacing should be used throughout the manuscript. Font size is 12 point in Times New Roman style. All pages should be numbered, consecutively beginning with title page, to include references, tables and legends for illustrations. Begin each of the following sections on separate pages: title page, abstract and key words, text, acknowledgements, references, individual tables and legends. Do not embed tables and figures in the body of the text. If figures are large files, they can be submitted as separate documents. Clearly indicate who is willing to handle correspondence at all stages of the review process and publication. Ensure that telephone and fax numbers are provided for the corresponding author in addition to the email address.

Spell out abbreviations and acronyms on first mention followed by the abbreviation in parentheses. Limit the overall use of abbreviations in the text.

Throughout the text, use generic, nonproprietary names for medications, products and devices. At the first mention, state the generic name followed in parentheses by the trade name with the register® or trademark™ symbol and the manufacturer's name and city/state.

**Example:** Chlorhexidine (Peridex®; 3M ESPE, Minneapolis, MN) coded or abbreviated as CHX

## Author Biography

Please include a brief biographical sketch of each author at the beginning of the manuscript. List names, credentials, titles, affiliations and locations. Example: "Mary B. Jones, RDH, MA, is assistant professor and clinic director, Department of Dental Hygiene; Bill R. Smith, DDS, MEd, is associate professor, Department of Pediatric Dentistry. Both are at the University of Minnesota in Minneapolis."

## Visual Aids

**Tables:** All tables must have a title that is brief but self-explanatory. Readers should not have to refer to the text to understand a table. Also, the main body of text should not overly depend on the tables. Indicate explanatory notes to items in the

table with reference marks (*, #). Cite each table in the text in the order in which it is to appear. Identify tables with Arabic numbers (ex: Table 1).

**Figures:** Includes charts, graphs, photographs, and artwork. All should include a brief caption and use Arabic numerals (ex: Figure 1). Cite each figure in the text in the order in which it will appear.

**Photographs:** High-resolution digital photos are preferred, with a resolution of at least 300 pixels per inch. Submitting two positive prints of each quality photograph is also permitted. Color prints are preferred over black-and-white prints. Photographs are not returned unless requested by authors.

## References

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# New York State Dental Hygienists' Perceptions

# of a Baccalaureate Degree as the Entry-Level Degree Required for Practice

Christine Rogers, RDH, MSDH(c), Tara L. Johnson, RDH, PhD, Assistant Professor Idaho State University, JoAnn R. Gurenlian, RDH, PhD, Professor Idaho State University

Contact Information: Christine Rogers
rogechr2@isu.edu
518-755-2832

Christine Rogers, RDH, BA, MSDH(c), is a full-time faculty member in the Department of Dental Hygiene at Hudson Valley Community College, Tara L. Johnson, RDH, PhD, is Assistant Professor in the Department of Dental Hygiene, and JoAnn Gurenlian, RDH, PhD is Professor and Graduate Program Director, Department of Dental Hygiene, Division of Health Sciences at Idaho State University.

## ABSTRACT

### Purpose

Dual educational paths exist for entry into the dental hygiene (DH) profession, namely associate (AD) and baccalaureate degrees (BD). The purpose of this study was to examine practicing DHs' perceptions, within New York State (NY), regarding the requirement of a BD as entry-to-practice for the profession.

### Methods

A purposive sample of 800 dental hygienists licensed within NY, both members and non-members of the Dental Hygienists' Association of the State of New York (DHASNY), were contacted via email and asked to participate in this Web-based survey. Survey items included demographic characteristics and Likert-type questions about perceptions of the Bachelor of Science in Dental Hygiene (BSDH) being required as entry-level into the profession. Data were analyzed using descriptive statistics, Spearman's rank correlations and the Kruskal-Wallis test.

### Results

One hundred seventeen surveys were returned and 107 were valid for analysis. Fifty-two percent of participants held an AD and 98% were members of the ADHA. Nearly a third were employed in solo practice and 43% agreed/strongly agreed the AD is sufficient preparation for DH practice. Still, more participants agreed/strongly agreed (50%) the BSDH should be considered entry-level for the discipline. Participants identified professional recognition by other healthcare practitioners and increased individual self-esteem as benefits of a BSDH.

### Conclusions

Results indicate the BSDH as entry-to-practice may be essential in elevating the status of the DH profession to that of other mid-level healthcare providers. Improving professional competence and credibility with colleagues and patients may be an important personal benefit of earning a BD.

**Keywords**

associate degree, baccalaureate degree, entry-level degree, entry-to-practice

This study supports the NDHRA priority area, Professional Education and Development: Evaluate the extent to which current dental hygiene curricula prepare dental hygienists to meet the increasingly complex oral health needs of the public

## INTRODUCTION

A century ago, Dr. Alfred C. Fones recognized the critical role preventive oral health care played in disease prevention. His vision for disease prevention led to the inception of the dental hygiene profession and, in 1906, Irene Newman became the first dental hygienist in the world. Fones and Newman had a mission to provide dental hygiene services, not only to patients residing in private practice, but also to individuals suffering from dental disparities who did not have access to care.[1] Since that time, the dental hygiene profession has made great gains. While the focus of the profession is still on disease prevention, the role of the dental hygienist has evolved and now encompasses a variety of workplace settings. Clinical dental hygienists may practice in private dental offices, school-based settings, community health centers, correctional institutions, or nursing homes.[2] Outside of clinical practice, opportunities for dental hygienists exist in the fields of research, education, marketing, government, administration, health policy, advocacy, and consulting.[2]

Existing dental hygiene education in the United States is characterized by wide diversity. Programs range from two to four years at the college or university level or, more recently in proprietary school settings. The minimum entry-to-practice credential in all states is currently at the associate degree (AD) level. Within the field of dental hygiene, two types of AD can be awarded, an Associate of Science degree (AS) or an Associate of Applied Science degree (AAS). The AS degree is an undergraduate degree that is considered transferable and designed to prepare recipients with attending a 4-year degree program. The

AAS degree is designed to prepare individuals for employment in a career or technical occupation upon graduation.

An AD program requires an average number of 2,650 clock hours of instruction compared to a BD, which requires approximately 3,100 clock hours of instruction. While AD programs require, on average, the same number of clinical and laboratory clock hours, BD programs devote more didactic clock hours to patient care and provide more instruction in written communication, chemistry, oral health education, and patient management.[3] When prerequisites are factored into total curriculum credit hours, academic AD programs take approximately three years (ninety credit hours) to complete. This is approximately twenty to thirty credit hours beyond the traditional AD and only thirty credit hours less than a BD.[4] Licensure and scope of professional practice do not change whether one has a two-year AD, three-year AD, or BD. Despite the plethora of program options for associate and baccalaureate education, the entry-to-practice requirement for dental hygiene in the U.S. continues to be the AD.[3] However, compared to mid-level providers across all healthcare disciplines, dental hygiene education does not reflect advanced professional preparation.

Additionally, graduates of a baccalaureate dental hygiene program have alternative career choices outside of clinical practice in areas such as administration, public health, research and education.[3] One might infer that a higher degree could equate to a higher salary, but the difference in salaries between two-year graduates and four-year graduates in clinical practice is relatively small. A 2007 survey administered by the American Dental Hygienists' Association (ADHA) found the mean salary for dental hygienists holding a two-year degree to be $54,315 per year while the mean salary for

hygienists holding a BD to be $58,105 per year.[5] This small difference in salary may not be a significant fiscal incentive for AD candidates to continue in a degree completion program or to choose a four-year program as entry–to-practice.

**Educational Changes within Health Care**

Over the years, healthcare professions have undergone increases in their education. For example, occupational therapy now requires a master's degree and physical therapy has moved from a master's level graduate degree to a doctoral degree as the entry-level to practice.[6] The degree previously required to practice pharmacy in the U.S. was the Bachelor of Science in Pharmacy, but in 1997 the American Council for Pharmacy Education (ACPE) officially adopted the Doctor of Pharmacy (PharmD) as the entry-level degree for practicing pharmacists.[7] The changes made were based on healthcare provider competencies identified by the Institute of Medicine (IOM). As the profession, and medical care in general, evolved so did pharmacy education in order to fit into the new healthcare model of inter-professional care and expanding roles of pharmacists.[7]

The nursing profession has discussed its academic requirements for over a century [8] and like the dental hygiene profession, nursing offers dual entry into the profession. Debates have surfaced within the nursing community as to whether or not two-year graduates are adequately prepared to meet the demands of patient care. The registered nurse (RN) parallels a registered dental hygienist (RDH) in that both professions can be practiced with either an AD or BD and the scope of practice for each are determined by the state. A survey conducted by the National Council of State Boards of Nursing found four-year nursing graduates to incorporate critical thinking skills into

daily practice and have less difficulty with the management of complex patients as compared to non-baccalaureate prepared nurses.[8]

**Increased Demand for Healthcare**

Oral Health in America: A Report of the Surgeon General was the first-ever report that outlined the state of oral healthcare in America. The purpose of the report was to "alert Americans to the full meaning of oral health and its importance to general health and well-being." [9] The report also brought to the public's attention the alarming number of individuals who are without dental care and the barriers to care that prevent many Americans from obtaining appropriate care. With the increasing need for oral health care and the declining dentist-to-population ratio, a question arises as to whether or not the dental workforce will be able to effectively meet the population's demand.[9] The Surgeon General's report further emphasized how critical education and training of dentists and allied dental personnel are to the provision of oral health care for the public. In a more recent report compiled by the government, Healthy People 2020 emphasized the need to improve access to preventive services and dental care.[10] As preventive oral health care specialists, dental hygienists are at the forefront of the oral health crisis that is plaguing America. Within the 2020 report, seventeen oral health objectives have been established. Capitalizing on the skills of a qualified dental hygienist can achieve many of these objectives. According to The U.S. Department of Labor, Bureau of Labor and Statistics, dental hygiene is ranked among one of the fastest growing professions and it is estimated that it will grow 33% through 2022.[11] When this increase in the number of dental hygienists is compared to the declining number of dentists, and the increasing demand for oral health care is factored in, there will be a greater need to call upon dental hygienists to

sufficiently meet the public's demand.[12] The additional education required for a BD may better prepare dental hygienists to assume the role of mid-level provider to meet the increasing demand for oral health care.

**Barriers to a BD**

The cost of an AD dental hygiene education versus the cost of a BD could influence which type of degree the student chooses. Program directors participating in a 2008 American Dental Education Association (ADEA) meeting were surveyed and perceived the increased cost of a BD as a possible disadvantage in raising the entry-level degree requirement. However, Owuje et al also reported three-quarters of those survey participants supported advancing DH entry-level educational requirements to a BD[4]. In a 2011 report compiled by ADEA, the pathway to a BD was examined. While ADEA supports raising the educational credentials of dental hygienists, it was noted that the additional cost of a BD may dissuade AD recipients from furthering their education.[13] According to the National Center for Education Statistics, 45% of students attending a four-year college on a full-time basis will need an additional year or more to complete their education.[14] Additional time spent in college equates to additional expenses.

**Preferences Among Dental Professionals**

Since most hygienists are employed in private practice, preferences of dentists could be a determining factor for which educational path the dental hygienist chooses. A survey completed by 225 dentists practicing in Ohio revealed that 56% had no hiring preference for a two-year versus a four-year dental hygiene graduate. Furthermore, 68% were not willing to pay a higher salary to a four-year graduate. Extent of clinical experience was a determining factor in salary and 70% of the dentists surveyed agreed

there would be no difference between two-year graduates and four-year graduates after two years of work experience.[15]

In the 2005 ADHA report Dental Hygiene: Focus on Advancing the Profession, a recommendation was made to implement the BD as the entry-level degree for the profession of dental hygiene.[2] To date, empirical data for implementing the BD as the entry point for the dental hygiene profession has both pros (elevated credentials and alternate career options) and cons (increased educational costs, limited articulation agreements, and minimal wage increases). According to the ADHA, there are 332 entry-level dental hygiene programs with 287 of them offering an AD. Nationwide, 53 dental hygiene programs offer a BSDH and 57 programs offer a degree completion.[3] Mandating a BD as the entry-level degree for the profession could impact dental hygiene education since there are more AD programs compared to BD and degree completion programs. Opinions favoring the change to entry-level professional credentials come primarily from faculty at baccalaureate programs and the professional association, which serves both the needs of the public and members of the profession.

Reporting of perceptions of practicing dental hygienists regarding entry-level degrees is limited in scope to either regional or program specific surveys. Specifically, we aimed to identify to what extent dental hygienists within the state of NY support the BD as the entry-level degree for the dental hygiene profession. Therefore, the purpose of this study was to survey practicing dental hygienists in the state of New York to determine their perceptions regarding changing the entry-to-practice degree from the AD to the BD. In addition, this study explored the relationship between participants' level of education with their support of the BD as the entry-level credential.

## METHODS AND MATERIALS

This descriptive study utilized a survey instrument adapted from a previous study conducted by Anderson and Smith to assess the opinions and attitudes of dental hygienists.[16]. The types of questions included in the electronic survey were demographic, Likert scale (12 items) and ranking (1item) questions. Approval for the survey was secured from the Idaho State University Institutional Review Board (#3996). Validity of the survey was established through expert review. The content experts who reviewed the survey were comprised of three individuals experienced in dental hygiene education, research and statistics. A nonprobability, purposive sample of 800 licensed dental hygienists within the state of New York comprised the population for this study. A list of all email accessible registered dental hygienists, both members and non-members, was obtained from the Dental Hygienists' Association of the State of New York (DHASNY). The DHASNY initiated all correspondence with potential participants that included a cover letter, informed consent and a link to the survey. A follow-up e-mail was sent to participants, at two, and three weeks after the initial email.

Data were collected with Qualtrics© and downloaded into an excel file, then imported into SPSS 20.0 for analysis. Descriptive statistics were computed to show frequency distributions, percentages and measures of center. Bivariate relationships (ordinal level participant demographics and entry-level BD perceptions) were analyzed using Spearman's rank correlation coefficient. The Kraskal-Wallis test was used to identify differences among degree held by participants and opinions about the BD as entry-to-practice.

## RESULTS

### Demographics

Of the 800 hundred electronic surveys mailed, 117 were returned, resulting in a 15% response rate. One hundred seven of those were valid for analysis. The majority of respondents (n=67) were 49 years of age or older and more than a third of respondents graduated over 30 years ago. Fifty-two percent (n=56) of respondents had an AD as their highest academic credential, and a high majority of participants (88%) had attended a dental hygiene program in New York State. Nearly all respondents (n=98) were members of the ADHA. Table 1 provides additional demographic characteristics of participants.

### Perceptions of the BSDH as Entry-level for the Profession

Agreement that an AD sufficiently prepares a candidate for practicing dental hygiene, was almost evenly split between agree/strongly agree (43 %) and disagree/strongly disagree (40%). More than half (51%) agreed or strongly agreed a BSDH should be the entry-level degree requirement for the practice of dental hygiene and 32% disagreed/strongly disagreed.

A majority of respondents (n=75, 71%) agreed/strongly agreed that a BSDH would increase professional recognition by others, as well as increase self-esteem (n=70, 66%). Slightly over half of respondents (n=55, 52%) perceived a BSDH as a benefit by improving professional competency. Seventy-three percent agreed or strongly agreed that a BSDH degree offers more career opportunities, however, 44 % of participants disagreed/strongly disagreed that a BSDH would increase salary levels. Table 2 further summarizes respondents' level of agreement to statements regarding the BSDH as an entry-to-practice for dental hygiene.

**Perceptions Correlated with Age, Years in Practice and Highest Level of Education**

Perceptions about the BD as entry-to-practice did not correlate to participants' demographics of age, or number of years in practice (data not shown). Table 3 summarizes statistical analysis of participants' perceptions of the BD as entry to practice by education level. As can be seen from this table the following two statements were statistically significantly different among the different levels of education: *The BSDH is necessary to ensure the highest standards of service delivery in the field of dental hygiene* ($p$ =.024) and *A BSDH would improve overall professional competency* ($p$ =.001). Table 3 further summarizes participants' perceptions regarding the BD as entry-to-practice based on their reported highest level of education achieved.

**Discussion**

Recently, the ADHA, in collaboration with the Santa Fe Group held a conference on transforming dental hygiene education.[17] The Santa Fe Group is comprised of scholars, business leaders and members of the profession who share a common desire to improve oral health. During this conference, considerable discussion ensued concerning advancing the minimum entry-to-practice. Advocates discussed the need to consider both BSDH and graduate level education as options for entry to practice. The need to support a higher entry-level degree requirement for the profession can be seen with the attention both the ADHA and ADEA have been giving to the topic. Although this study did not address an advanced degree for entry-to-practice, results did support the Santa Fe Group's option of the BSDH.

Another group that has taken an interest in the degree requirements for dental hygiene education is The New York State Dental Hygiene Educators' Association

(NYSDHEA). The NYSDHEA, established in 1963, is a non-profit organization developed by the dental hygiene educators of New York. A main function of the organization is to provide a forum for issues related to the education of dental hygienists in New York. During a 2010 meeting of the NYSDHEA, a recommendation was made to move forward with investigating the possibility of increasing the entry-level requirement for the dental hygiene profession in New York State to a baccalaureate level. The investigation is still in its infancy and no legislative proposals have been put forth to the state board with regard to changing degree requirements. To date, there is no data regarding the opinions of practicing hygienists on degree elevation in a state where such a change is being considered. Results from this survey reinforce the NYSDHEA's recommendation of the BD as the entry-level degree for the profession as a majority of participants perceived it would improve professional competency.

Additionally, our results parallel those from two Canadian studies showing support of a BD as the entry-to-practice credential and identifying it as a perceived benefit to dental hygiene practice. Kanji et al (2010) explored the perceptions of diploma dental hygienists in Canada, who had continued with a BD completion program. Participants perceived that obtaining a BD increased their self-confidence and gave them more credibility as a dental professional. Respondents also felt the BD offered them more career opportunities outside of the traditional clinic practice setting.[18] Imai and Craig (2005) conducted a survey of 28 dental hygienists who graduated from the University of British Columbia's Bachelor of Dental Hygiene Program from 1994-2003 and explored motivating factors for pursuing a BSDH. Of the motivating reasons for pursuing a BSDH, the following were noted as being very important to survey participants: personal

satisfaction (92.6%); increase knowledge (85.2%); work outside of traditional dental hygiene practice (44.4%); for the status of the degree (37.0%). Although most participants viewed professional recognition as being "very important" it was much lower (22.2%) than the other categories.[19]

Across other allied health professions, there is information to support the advantages to a BD. Presently there is bill in the New York State Assembly that if passed will require AD prepared RN's to obtain a BD within ten years of initial licensure.[20] This slow but steady change in nursing arises from a need to better prepare nurses for the challenges of providing better patient care to a more diverse and aging population. Within the nursing community, there is a growing body of research to support that BD prepared nurses equate to better patient outcomes. A meta-analysis completed by Johnson (1988), assessed the difference in clinical performance of associate degree nurses as compared to nurses with a baccalaureate degree.[21] The study revealed that the level of performance and professionalism demonstrated by baccalaureate prepared nurses to be significantly higher in the domains of communication, problem solving and professional role as compared to nurses with an associate degree.[22] These findings correspond to ours in that perceptions of New York State dental hygienists indicated the BSDH is necessary to provide the highest standards of care as well as increased professional competency.

This study has several limitations that must be considered. The sample size was limited to only dental hygienists practicing in the State of New York who were accessible by email. While convenient for accessing dental hygienists, this process may have excluded other dental hygienists from the state who might have provided a different perspective. In addition, the response rate for the study was low, and results cannot be

generalized to the entire population of practicing dental hygienists within the state of New York or across the U.S. Furthermore, the vast majority of respondents were members of the ADHA and the dental hygienists who participated were self-selected. Therefore, the positive findings in this study may be attributed to the participants' inherent biases.

**Conclusion**

To prepare dental hygienists for future roles in the changing healthcare system, dental hygiene education must prepare graduates with skills comparable to those of other mid-level healthcare providers. Overall, respondents in our study held positive views regarding the BD as entry-to practice for the dental hygiene profession. The results from this survey may help with advancing initiatives and policies keeping in line with the goal of the ADHA. Establishing a BSDH as the point of entry into the profession for New York State would not only impact dental hygiene students entering the profession but also dental hygienists who are currently practicing and it is vital to understand the objectives and interests of all those involved. The transition to a BD as the entry-level degree requirement will not be without challenges, and resourceful leadership will be required to address this deficiency and assist the profession with successfully navigating the changing tide of the future.

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Table1: Demographic profile of participants

| Age | n=113 | % |
|---|---|---|
| 18-28 years | 13 | |
| 29-38 years | 17 | |
| 39-48 years | 16 | |
| 49-58 years | 38 | |
| 59 years & greater | 29 | |
| **Years Since Graduation** | **n=99** | **%** |
| 1-10 years | 30 | 30 |
| 11-20 years | 20 | 20 |
| 21-30 years | 12 | 12 |
| >30 years | 37 | 37 |
| **Highest Academic Degree** | **n=114** | **%** |
| Associate Degree: Dental Hygiene | 56 | 52 |
| Master's Degree | 20 | 19 |
| Bachelor's Degree: Non-Dental Hygiene | 16 | 15 |
| Bachelor's Degree: Dental Hygiene | 12 | 11 |
| Doctorate Degree | 3 | 3 |
| **Primary Practice Setting** | **n=107** | **%** |
| Solo/Group dental practice | 53 | 50 |
| Academic/University/College | 19 | 18 |
| Multiple practice settings/Multi-specialty clinic | 12 | 12 |
| Community health clinic/Public health agency | 10 | 10 |
| Independent dental hygiene practice | 5 | 5 |
| Not in clinical practice | 5 | 5 |
| *Other<br>*School based dental clinic; business; managed care/insurance* | 3 | 3 |
| **Member of the ADHA** | **n=106** | **%** |
| Yes | 105 | 99 |
| No | 1 | 1 |

*Percentages may not total 100% due to rounding*

Table 2: Combined Level of Agreement with Statements of Perceptions on the BSDH

| Statement | Strongly Agree/Agree | | Neutral | | Disagree/Strongly Disagree | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| AD is sufficient preparation for practice challenges of in today's health care settings. | 46 | 43 | 18 | 17 | 42 | 40 |
| BSDH should be the entry-level degree for practice | 54 | 51 | 18 | 17 | 34 | 32 |
| BSDH is necessary to ensure the highest standards of service delivery | 49 | 46 | 22 | 21 | 35 | 32 |
| The BSDH degree is necessary to elevate the status of the dental hygiene profession to that of other mid-level healthcare providers. | 76 | 71 | 13 | 12 | 17 | 16 |
| A requirement for the BSDH degree might further limit diversity within the profession. | 37 | 35 | 26 | 24 | 43 | 40 |
| Those who are financially disadvantaged may not be able to afford the BSDH. | 52 | 49 | 23 | 22 | 31 | 29 |
| A BSDH offers more career opportunities. | 78 | 73 | 18 | 17 | 10 | 10 |
| Clinical experience is a better indicator of clinical competency than degree held. | 69 | 65 | 19 | 18 | 19 | 18 |
| A BSDH would increase professional recognition by other professionals. | 75 | 71 | 24 | 22 | 7 | 7 |
| A BSDH would improve overall professional competency. | 55 | 52 | 30 | 28 | 21 | 20 |
| A BSDH would increase individual self-esteem. | 70 | 66 | 25 | 23 | 11 | 10 |
| A BSDH would Increase salary levels for dental hygienists | 31 | 29 | 28 | 26 | 47 | 44 |

*Percentages may not total 100% due to rounding*

Table 3: Means and Results of Kruskal-Wallis Test Comparing Levels of Agreement Across Highest Academic Degrees

| Statement | Assoc. DH | Bach. DH | Bach. Other | Master's | Doctorate | **p-value |
|---|---|---|---|---|---|---|
| AD is sufficient preparation for the challenges of practicing in today's health care settings. | 2.65 | 3.58 | 2.94 | 3.15 | 4.33 | .488 |
| BSDH should be the entry-level degree for practice | 2.82 | 1.67 | 3.06 | 2.5 | 1.0 | .0.065 |
| The BSDH is necessary to ensure the highest standards of service delivery in the field of dental hygiene. | 3.05 | 1.75 | 2.81 | 2.40 | 1.0 | .0.024 |
| The BSDH degree is necessary to elevate the status of the dental hygiene profession to that of other mid-level healthcare providers | 2.29 | 1.42 | 2.38 | 1.75 | 1.0 | 0.1 |
| A requirement for the BSDH degree might further limit diversity within the profession. | 2.93 | 3.67 | 3.06 | 3.15 | 4.0 | 1.0 |
| Those who are financially disadvantaged may not be able to afford the BSDH. | 2.47 | 2.92 | 2.81 | 3.10 | 3.33 | 1.0 |
| A BSDH offers more career opportunities. | 2.16 | 1.83 | 2.25 | 2.15 | 2.0 | 1.0 |
| Clinical experience is a better indicator of clinical competency than degree held. | 2.02 | 2.92 | 2.63 | 2.75 | 2.33 | 0.146 |
| A BSDH would increase professional recognition by other professionals. | 2.27 | 1.50 | 1.81 | 1.79 | 1.67 | 0.575 |
| A BSDH would improve overall professional competency. | 2.95 | 1.58 | 2.06 | 2.05 | 2.33 | .001 |
| A BSDH would increase individual self-esteem. | 2.36 | 1.50 | 2.19 | 1.90 | 1.67 | 0.5 |
| A BSDH would Increase salary levels for dental hygienists | 3.24 | 2.83 | 3.0 | 3.0 | 3.67 | 1.0 |

**Bonferroni Corrected p-value