

# 2020 Dentsply Sirona/ADHA Graduate Student Research Abstracts

The following abstracts are from the participants of the 2020 Annual Dentsply Sirona/ADHA Graduate Student Clinician's Research Program. The purpose of the program, generously supported by Dentsply Sirona for the past 13 years, is to promote dental hygiene research at the graduate level. Dental hygiene post-graduate programs may nominate one student to participate and present their research at the Annual Conference of the American Dental Hygienists' Association. The following posters were submitted to the ADHA Annual Conference, held virtually, June 26-28, 2020.

\* Indicates first author

## Factors Associated with Burnout in California Dental Hygienists

\*Laurie Bercasio, RDH, MS  
Dorothy Rowe, RDH, PhD  
Alfa Yansane, PhD  
University of California  
San Francisco, CA

**Purpose:** To quantify the distribution of burnout, as identified by the Maslach burnout inventory (MBI), and to assess the key occupational factors associated with burnout in dental hygienist members of the California Dental Hygienists' Association.

**Methods:** A 36-item survey, consisting of questions assessing burnout, demographic information, clinical care and occupational environment, was electronically sent to dental hygienists who were members of the California Dental Hygienists' Association (n=2,211). Mean scores for each of the burnout subscales (emotional exhaustion-EE, depersonalization-DP, and personal accomplishment-PA) were computed using the MBI manual guidelines, and statistically related to the occupational factors.

**Results:** The response rate was 20.9% (n=443). Thirty percent (30.9%) of respondents reported burnout, as identified by the MBI guidelines; 30.0% of respondents reported high emotional exhaustion (scores $\geq$ 27) and 11.3% reported high depersonalization (scores $\geq$ 10). Only 41.1 reported low personal accomplishment. Emotional exhaustion and depersonalization decreased with increasing age categories (EE: F=5.78,  $p$ <0.05; DP: F=9.26,  $p$ <0.05). Respondents between the ages of 35-44 had the highest emotional exhaustion (EE=24.7) and depersonalization (DP=6.34). Respondents reporting higher levels of self-perceived appreciation at work

were more likely to have lower EE and DP (EE: F=5.12,  $p$ <0.05; DP: F=8.66,  $p$ <0.05).

**Conclusion:** Approximately 3 in 10 dental hygienists in this sample experienced burnout. Data indicate the importance of expressing well-deserved appreciation to colleagues and the need to develop educational programs to teach practicing dental hygienists as well as dental hygiene students, ways to prevent and alleviate the symptoms of stress that often lead to burnout.

## Dental hygienists' role in the opioid syndemic: Assessing attitudes, perceptions, and practices

\*Michelle DeMoss RDH, MS  
Carol A. Nguyen, RDH, MS  
Robert C. Wood, MPH, DrPH  
James W. Tysinger, PhD  
Lynn A. Smiley, RDH, MEd  
UT Health  
San Antonio, TX

**Purpose:** The purpose of this study was to assess dental hygienists' role in recognizing opioid use disorder (OUD) and to determine the relationship between attitudes and perceptions, interprofessional collaboration, and level of training in evidence-based screening tools.

**Methods:** This cross-sectional study was conducted using the validated Drug and Drug Problems Perceptions Questionnaire (DDPPQ). The survey was distributed to a convenience sample of dental hygienists (n=197) using Texas Dental Hygienists' Association components' Facebook® pages, for seven weeks. Survey items included demographics, professional characteristics and employment, DDPPQ subscales related to attitudes and perceptions, interprofessional relationships, and training in evidence-based screening tools. Responses

collected in Qualtrics® were imported into SPSS® Version 25 for data analysis. Descriptive and inferential statistics were used to associate the data.

**Results:** The survey completion rate was 90.9% (n=179). Respondents' attitudes and perceptions were assessed by measuring the DDPPQ subscale results of role adequacy, role legitimacy, role support, and role motivation/ self-efficacy ( $p<0.01$ ). Only 3% of respondents reported working closely with other professionals; exhibiting significance to each subscale ( $p<0.01$ ). 13% of participants reported training in evidence-based screening tools for opioid abuse; group statistics found significant relationships to subscales of role adequacy, support, and motivation/ self-efficacy ( $p<0.05$ ).

**Conclusion:** Results from this study combined with existing research, indicate the need for increased interprofessional involvement and OUD education amongst practicing dental hygienists. Dental hygienists who perceive themselves as knowledgeable, prepared, and supported, are shown to exhibit increased security and commitment toward their evolving role; further promoting patient-centered comprehensive care.

### Patients' Perspectives of Dental Hygienists' Social Intelligence on Self-Care Commitment: A person-centered model

\*Jennifer Evans, RDH, MS  
Ellen J. Rogo, RDH, PhD  
Kathleen O. Hodges, RDH, MS

Idaho State University  
Pocatello, ID

**Purpose:** The purpose of this study was to examine patients' perspectives regarding the Social Intelligence of dental hygienists that influence self-care commitment. Three null hypotheses were tested to determine differences between patient perspectives and recare interval, generation, and gender.

**Methods:** The University of Idaho's Human Subjects Committee approved this descriptive comparative study (IRB-FY2019-131). In the spring of 2019, patients (n=108) were surveyed at a bachelor's degree dental hygiene program's clinic after at least one 15-minute self-care education session. The self-designed questionnaire was tested for reliability and validity and required participants to rate two Social Intelligence abilities, Social Awareness and Social Skills, on a 7-point Likert scale. Thirteen related capabilities defined the two abilities.

**Results:** The means ranged from 6.4 to 6.6 for the Social Awareness capabilities of empathy, service orientation,

developing others, leveraging diversity and political awareness. Means ranged from 6.0 to 6.55 for the Social Skills capabilities of influence, communication, leadership, change catalyst, conflict management, building bonds, collaboration and cooperation, and teamwork. Participants agreed or strongly agreed that all capabilities were highly influential on commitment to self-care. There was a statistically significant difference for gender ( $p=0.013$ ); females scored the capabilities higher than males. Thirteen definitions of the capabilities were constructed based on patients' perspectives.

**Conclusion:** A new Social Intelligence Self-Care Commitment Model was created by combining the study's results, the Client Self-Care Commitment Model, and person-centered care concepts. Educators should consider incorporating the capabilities and the new model into curricula for oral healthcare students to increase the potential for patient commitment to oral self-care.

### Validation of a Grading Rubric Designed to Evaluate Reflective Ability of Predoctoral Dental Students

\*Angela K. Heathman, RDH, BSDH  
Tanya Villalpando Mitchell, RDH, MS  
Christopher Van Ness, PhD  
Lance W. Godley, DMD  
Caryn J. Ehrenberger, DDS  
Meghan Wendland, DDS, MPH  
Cynthia C. Gadbury-Amyot, RDH, EdD

University of Missouri, Kansas City  
Kansas City, MO

**Purpose:** The ability to reflect and self-assess are critical skills for healthcare providers. The Commission on Dental Accreditation (CODA) includes critical thinking in dental and dental hygiene accreditation standards and states that graduates must be competent in the use of critical thinking skills. Without the ability to reflect and self-assess, lifelong learning is less likely to be effective. However, self-reflection does not come naturally for students and is a skill that must be taught and learned. To assist dental and dental hygiene educators with reflective writing and self-assessment assignments, this study aimed to validate a grading rubric designed to measure students' reflective ability.

**Methods:** Dental students at the University of Missouri-Kansas City (UMKC) develop e-portfolios throughout their four years of dental school, completing assignments that require development of reflection and self-assessment skills. The final piece of the portfolio includes a global reflection discussing the achievement of program competencies.

UMKC faculty raters independently evaluated 106 dental student global reflections from the graduating class of 2018. Reflections were scored against a grading rubric adapted from the work conducted by O'Sullivan and Bain. The rubric ranged from Level 0 (does not respond to the assignment) to Level 5 (reconstructing).

**Results:** After multiple rounds of calibration, evaluation, and a final focus group, the analysis resulted in an intraclass correlation of .708. Collectively, ratings of the 106 global reflections ranged from 1.3 to 5.0 ( $M=3.1$ ,  $SD=0.66$ ).

**Conclusion:** Results from this study show that even with calibration, it is difficult to acquire consensus regarding students' levels of reflection and further supports the need to have a reliable instrument for measuring reflective ability.

### The Profession of Dental Hygiene: Pathways to career choice and influences on professional identity

\*Shani L. Hohneck, RDH, BS  
Iwonka Eagle, RDH, MS  
Stefanie VanDuine, RDH, MS  
Mark Fitzgerald, DDS  
Janet S. Kinney, RDH, MS  
The University of Michigan  
Ann Arbor, MI

**Purpose:** The purpose of this study was to ascertain factors that influenced dental hygienists to choose the profession and identify the resources from the American Dental Hygienists' Association (ADHA) that promote and sustain members' professional identity.

**Methods:** A 48-item survey was designed and pilot tested. The survey included demographic, Likert-scale, and open-ended questions. The survey was disseminated on ADHA's website via Qualtrics® to Student and Professional Members. Descriptive and inferential statistics were used to analyze the data.

**Results:** A total of 1,983 completed surveys ( $n=1,983$ ) were returned, response rate of 6.3%. The majority (86%,  $n=1,699$ ) of respondents were Professional Members. Most participants were female (98%,  $n=1,940$ ), White (84%,  $n=1,668$ ), and 55+ years of age (37%,  $n=727$ ). Both Student and Professional Members rated a desire to work in a health/dental field as the most influential reason for entering the profession (21%,  $n=59$ , and 28%,  $n=468$ , respectively). Both groups identified continuing education and evidence-based research resources as positively affecting their professional identity ( $4.1\pm 1.0$  and  $4.1\pm 1.0$ ,  $p=0.41$ , respectively) and ( $4.1\pm 1.0$  and  $4.0\pm 1.0$ ,  $p=0.13$ , respectively). Advocacy efforts, Journal of Dental

Hygiene, and Access had a significantly greater positive influence on Professional Members' professional identity ( $p=0.001$ ,  $p=0.028$ , and  $p=0.001$ , respectively). Student Members reported greater influence on their professional identity in the areas of patient care resources and support of their career ( $p=0.01$ ,  $p<0.001$ , respectively).

**Conclusion:** The desire to have a career in the health/dental field was the most influential factor for selecting the dental hygiene profession. ADHA's continuing education and evidence-based research resources most positively affects both members' professional identity.

### Attitudes of Virginia Dentists Toward Mid-Level Dental Providers

\*Adaira Howell, RDH, MS  
Susan L. Tolle, RDH, MS  
Denise Claiborne, RDH, PhD  
Emily Ludwig, RDH, MS  
Old Dominion University  
Norfolk, VA

**Purpose:** The purpose of this study was to determine perceptions of Virginia (VA) dentists toward mid-level dental providers, specifically dental therapists (DT), and determine whether membership in the American Dental Association (ADA) affected attitudes.

**Methods:** After IRB approval, data was collected with an online survey sent to 1,208 VA dentists. Participants responded to 11 Likert type scale questions ranging from 1 (strongly disagree) to 7 (strongly agree) assessing their attitudes toward DTs. Participants also responded to questions regarding the appropriate level of education and supervision of a DT, as well as five demographic questions. Statistically significant differences for Likert type scale questions were determined using a one-sample t-test.

**Results:** A response rate of 12% was obtained ( $n=145$ ). Most participants were males (73%), members of ADA (84%), and over the age of 40 (65%). Results suggest most participants did not perceive ( $M=1.90$ ,  $p<0.001$ ) that a DT was needed in Virginia, and did not support ( $M=2.08$ ,  $p<0.001$ ) legislation for a DT model. Most participants ( $M=2.01$ ,  $p<0.001$ ) were not comfortable having a dental therapist perform authorized procedures or ever employing one in their practice ( $M=1.82$ ,  $p<0.001$ ). Comfort having a DT perform authorized procedures ( $\beta=.63$ ,  $p<0.001$ ), but not years of practice ( $\beta=-.09$ ,  $p=0.18$ ), was significantly associated with support for a DT. A lower tolerance towards DTs was associated with an increased likelihood of membership in the ADA ( $\beta=.14$ ,  $p=0.04$ ).

**Conclusions:** VA dentists surveyed have negative attitudes toward DTs. Findings support the need for more research with a larger, more diverse sample population.

### **Student Incivility in Dental Hygiene Education: Faculty perceptions**

\*Jennifer McCarthy, RDH, MS;  
Lori Giblin-Scanlon, RDH, DHSc  
Kristeen Perry, RDH, MS  
Linda Boyd, RDH, RD, EdD  
Jared Vineyard, PhD  
  
MCPHS University  
Boston, MA

**Purpose:** Conflict and discourtesy between college students and faculty have become increasingly common in higher education. Fallout from uncivil student encounters can have numerous effects on educators' overall health and has been shown to negatively impact learning environments. This research assessed the severity and frequency of student incivility in dental hygiene education and explored the relationship uncivil behavior has on faculty feelings of confidence, career satisfaction, and longevity.

**Methods:** Cross-sectional survey research was conducted among dental hygiene educators (n=601) in the US and Canada using purposive and snowball sampling. The survey (47-item) was developed based on the literature and validated prior to administration. Spearman's correlation coefficient was used to assess the relationship between variables and mean item category scores and thematic analysis was used to identify themes for the open-ended questions.

**Results:** The survey completion rate was 78% (n=469). Behaviors ranked mildly uncivil like eating/drinking in class occurred more frequently and incivility had less impact on faculty confidence with increased age ( $r=-.19$ ,  $p\leq 0.01$ ). The level of severity of behaviors did not impact educators; however, how often certain behaviors occurred had some effect. Contemptuous behaviors like using a disrespectful/sarcastic tone ( $r=.34$ ,  $.32$ ,  $.31$ ,  $p\leq 0.01$ ) had the most impact.

**Conclusion:** This study determined student incivility exists within dental hygiene education. The day-to-day, minor uncivil behaviors seemingly take a greater emotional toll than the occasional, highly uncivil encounter. Understanding how faculty perceive these behaviors may influence the development of management strategies, fostering a sense of career satisfaction for educators.

### **Dental and Dental Hygiene Students' Knowledge and Attitudes Regarding Teledentistry**

\*Caroline McLeod, RDH, MS  
Reuben Adatorwovor, PhD  
Jennifer L. Brame, RDH, MS  
Alex White, DDS, DrPH  
Jane A. Weintraub, DDS, MPH  
  
University of North Carolina  
Chapel Hill, NC

**Purpose:** To identify the knowledge and attitudes about teledentistry among UNC Adams School of Dentistry (UNC ASoD) dental (DDS) and dental hygiene (DH) students in North Carolina (NC) where teledentistry is less developed in part because of policy restrictions.

**Methods:** A faculty presentation and video demonstration regarding teledentistry was followed by small group discussions and a large group debriefing session for an audience of dental and dental hygiene students at the UNC ASoD. Participants completed an optional electronic survey before and after the session. McNemar's matched pair test and Fishers exact test were used to compare the participants' pre- and post-intervention responses.

**Results:** Participants (n=44) included 30 DH and 14 DDS students. A significant increase in the participants self-reported knowledge of teledentistry ( $p<0.01$ ) was found however there was no change in attitudes about adoption of teledentistry into the curriculum. There was a significant difference in regards to attitudes of DHs' role using teledentistry ( $p=0.04$ ) and 89% of students identified DH restricted scope of practice as a barrier to its implementation.

**Conclusion:** The educational session resulted in significant increase in knowledge and demonstrated positive attitudes toward the adoption of teledentistry into multiple facets of DDS and DH curriculum. A major barrier to its adoption into practice is the DH restricted scope of practice in NC.



### Digital Scan to Enhance Patient Education

\*Dana Tasche RDH, MSDH

Lisa Bilich RDH, MSED

Mary Jones, RDH, MSDH

Eastern Washington University  
Spokane, WA

**Purpose:** The purpose of this pilot study was to evaluate whether the use of a 3D intraoral scan as a visual aid, improves a patient's communication self-efficacy and risk-literacy concerning their periodontal disease status.

**Methods:** This pilot study used a parallel experimental research design and collected quantitative data through a pre-test and two post-tests for both groups. The Ask, Understand, Remember Assessment (AURA) survey was used to collect quantitative data pertaining to patient communication self-efficacy and the Protection Motivation Survey (PMS) was used to evaluate each patient's risk-literacy of their periodontal disease. The addition of four Likert-scale questions concerning experience with the periodontal chart was added to the control group. An additional eight questions were added to the experimental group's post-test concerning experience and understandability with the periodontal chart and 3D digital intraoral scan.

**Results:** Participant communication self-efficacy (AURA survey) in the 3D intraoral scan experimental group did not statistically improve compared to the control group. The change in risk-literacy (PMS questionnaire) for the pre- and post-tests and individual questions between the control and experimental groups was not statistically significant. A high correlation ( $p < 0.03$ ;  $n=21$ ) was found between an elevated PMS post-test #1 score and elevated experience post-test score for the whole group, indicating that a high risk-literacy score is correlated to a high level of comprehension. Although no significant differences were found in AURA and PMS scores, anecdotal discussion and a post survey follow up with the experimental group found that communication between provider and patient was enhanced and the 3D digital scan was seen as a helpful visual aid in communicating severity of recession.

**Conclusion:** Statistical significance was difficult to achieve due to a small sample size and the high education level of participants. There were no significant findings regarding whether the use of a 3D digital scan as a visual aid, can improve patient communication self-efficacy and risk-literacy concerning periodontal disease. This pilot study did however show an increase in patient to provider communication concerning gingival recession.

### Implant Maintenance Curriculum Among Dental Hygiene Programs in the United States

\*Sarah J. Youssef, RDH, MDH

Rachel C. Kearney, RDH, MS

Damian J. Lee, DDS, MS, FACP

Brian B. Partido, RDH, MSDH

The Ohio State University  
Columbus, OH

**Purpose:** There is a range of clinical practices that dental professionals use to maintain implants, revealing a need for a more standardized approach. The purpose of this study was to determine the curricular content for dental hygiene programs in the United States (US) regarding implant maintenance. This research aimed to find out if the curricular content aligned with the CPG published by the ACP.

**Methods:** This descriptive research study utilized a survey to explore the implant maintenance curriculum in US dental hygiene programs. Descriptive statistics were used to examine the data.

**Results:** A total of 53 participants responded to the survey ( $n=53$ ). All of the programs (100%) felt that implant maintenance was important to include in the curriculum and 98.1% teach implant maintenance. This study helped identify the curricular content for implant maintenance: 94.3% teach preventative care techniques, 90.6% teach appropriate tools/materials, 92.5% teach patient education, 88.7% teach radiographic interpretation, and 83.0% teach recall frequency. This research has helped recognize where the curricular content aligns with the current CPG published by the ACP and that most programs are not utilizing the CPG as a resource for curricular development.

**Conclusions:** Dental hygiene programs are teaching dental implant maintenance but there is variety among the content and the resources used to develop that content. If more programs were to standardize their content, there could be less variety in treatment modalities in clinical settings for implant maintenance.