

2017 ADHA ANNUAL CONFERENCE RESEARCH ABSTRACTS

The American Dental Hygienists' Association (ADHA) Annual Conference Research Poster Session provides clinician researchers and educators an opportunity to present their work and exchange information and effective strategies for teaching and mentoring research with their colleagues and other oral health care professionals. The following abstracts were part of the Research Poster Session presented at ADHA's 2017 Annual conference in Jacksonville, FL .

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Experiences and Challenges of Dental Hygiene Clinicians as they Transition into Clinical Teaching

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Problem: Challenges often exist for novice clinical faculty as they transition from private practice into health professions education, and a lack of programs exist to aid and mentor novice clinical faculty as they transition into their new roles and responsibilities. Despite the research identifying challenges in many allied health education programs, the experiences of novice dental hygiene clinical instructors and any strategies they found to be helpful during their transition is unknown.

Methodology: A phenomenological qualitative study was performed using focus groups, with data collected from the responses provided from novice faculty during semi-structured interviews. Each of the focus groups were comprised of three to four novice faculty members. During the focus group interviews, study participants were asked open-ended questions regarding their experiences, and any challenges they encountered, as they entered the clinical teaching setting.

Results: Participants were both female (n=16) and male (n=1), were 25 to 60+ years of age, and had clinical teaching experience ranging from 1 to 5 years. The emergent themes, identified from the analysis performed on the participants responses, revealed many strategies and challenges novice faculty encountered as they entered their clinical teaching roles. The strategies found to be helpful during the transition into clinical teaching included: shadowing experienced faculty, the availability of resources such as textbooks and course materials as

teaching aids, and orientation sessions held prior to the beginning of each semester. The younger novice faculty members (aged 20 to 30) shared challenges in regard to being taken seriously by students due to their young age, while older faculty members (ages > 40) found relearning course content and terminology to be challenging.

Conclusion: The increased understanding of the experiences of novice clinical faculty, and the identified successful strategies and challenges they encountered, may aid in developing effective approaches and programs for novice faculty as they enter clinical teaching roles. "There was no funding provided for this project by any financial organization or institution."

A Survey of Uncivil Behaviors in the Dental Hygiene Clinical Setting

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Problem: To create and maintain an effective learning environment general social civility by all persons concerned is required. Evidence suggests incivility in colleges is a growing concern and impedes learning. When uncivil behaviors are demonstrated in the learning environment, emotions such as fear, anger, uneasiness, resentment and or hostility often develop, negatively impacting learning outcomes.

Methodology: The IRB approved survey was made available online to a convenience sample of 75 dental hygiene students and 24 faculty with a 100% response rate. The survey instrument included two demographic items, one open ended question and two quantitative questions. Participants used a four point Likert- type scale to determine the degree to which ten behaviors were considered uncivil in the

clinic and also reported how often they occurred. Descriptive statistics were used to analyze all items on the questionnaire.

Results: Most faculty (83%) and students (78%) agreed that challenging faculty credibility and dismissing patient concerns were behaviors of incivility. Two-thirds of the participants agreed that eating or drinking in clinic (66% faculty; 72% students) was uncivil and most agreed that arriving late (75% faculty; 76% students) was more of a concern than leaving early (63% faculty; 59% students). Faculty perceived some clinical behaviors to be more uncivil than students such as working on non-clinical assignments during clinic (faculty 83%; students 61%) and being unprepared (83% faculty; 71% students). All 10 behaviors had been observed by faculty and students over the past 12 months at least 1 to 3 times. The most frequently reported behavior was students being unprepared although more students (51%) than faculty (26%) reported observing this in the past 12 months. Arriving late, using a computer for social media browsing and challenging the instructors' credibility were all reported as occurring more than 3 times over the past 12 months by most participants. Making offensive gestures was the least frequent behavior observed by both faculty and students.

Conclusion: Results from this study suggest uncivil behaviors in the clinical environment are problematic and frequently occur. Fostering awareness of uncivil or disruptive behaviors is critical in order for educators to develop effective ways to target the problem and promote optimal teaching and learning.

Rethinking the Role of Technical Standards in Dental Hygiene Education Programs

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Problem: The term technical standard is often misunderstood by educators. Technical standards refer to the skills and activities that all students are required to demonstrate in order to be deemed competent to graduate from a health professions program. Frequently educators confuse technical standards with eligibility criteria or physical ability when considering applicants for acceptance into an educational program. This confusion, although unintentional, may be deemed as discrimination against otherwise qualified candidates. Appropriate technical standards establish objective criteria that does not exclude students from admission to a program based on a perceived disability. The purpose of this model is to encourage dental hygiene

education programs to rethink the role of technical standards.

Significance: A sample review of dental hygiene programs published technical standards revealed criteria that excluded candidates based on physical ability. Well-designed technical standards benefit both applicants and dental hygiene programs. This educational model clarifies the role of technical standards for dental hygiene education program administrators and faculty emphasizing the need for implementing and utilizing technical standards appropriately.

Key features: The approach to evaluating/developing technical standards begins with identifying what is required of all students for successful completion of a program through a comprehensive review of existing program competencies, standards, and requirements. Once this is complete, the dental hygiene program can assess the appropriateness of the standards by evaluating them against a set of established criteria. Do the technical standards focus on what must be accomplished and not how it is accomplished, are they observable/measurable, is there no distinction made between individuals with or without a disability, and do they reflect the knowledge and/or skills that are taught to all students in the program. Standards that meet the criteria are deemed appropriate.

Evaluation Plan/Results: The process for establishing appropriate technical standards was initiated at the University of New Haven in response to the increasing number of students who qualified for accommodations. The intent of the process was to develop technical standards that make it clear to applicants what is expected of students in the program, that emphasize learning outcomes, to eliminate standards that could be considered discriminatory, and focus on what must be accomplished rather than how it is accomplished without compromising program standards. Four years following the implementation of the technical standards the number of applicants and enrolled students remains relatively unchanged. The key impact has been to the culture of the institution with regards to how individuals that qualify for accommodations are perceived, how standards are communicated to students, and how both didactic and clinical standards are achieved.

Erosive Effects of Frequently Consumed Juices on Primary Teeth

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Problem: The purpose of this study was to measure the erosive effects of children's beverages upon extracted primary teeth. Previous research has been conducted to determine the effects of dental erosion among children relative to the frequency and consumption time of a sugary beverage. The group of juices chosen for this study were a variation of juices utilized in other studies, as noted in literature review. Other studies utilized apple, orange-lime, and lime juices. The researchers of this study ascertained that the juices selected for this study were more appropriate of those consumed by children. For this study, the change in enamel was determined by the difference in weight to the nearest thousandth of a gram utilizing an electronic scale.

Methodology: This was primary research, experimental study design with a control group of teeth submerged in H₂O. A group of 20 exfoliated incisor primary teeth were collected, washed with nonabrasive soap, and rinsed with distilled water. The teeth were divided into five groups of 4 teeth and steam under pressure sterilized. Following sterilization and cooling, the teeth were weighed, and dried in an oven for 40 minutes at 250 degrees F. The teeth were cooled again, re-weighed, and viewed under 4x microscopy to determine visible erosion. The teeth were then immersed into either apple juice, grape juice, orange juice, a fruit-vegetable blend juice, or distilled water (control). The teeth remained immersed for four days with solution changes at 24 hour intervals. At the conclusion of the 4th day, all teeth were rinsed with distilled water and weighed. The teeth were dried, re-weighed, and examined at 4x microscopy.

Results: Results indicated that apple juice demonstrated the greatest amount of weight loss of 0.1243 grams and the fruit-vegetable juice demonstrating the least weight loss of 0.0308 grams. Further, grape juice was found to be the most acidic with a pH value of 3.0 while the control was the least acidic with a pH of 5.0. The teeth soaked in grape juice revealed crystal formations, discoloration, and a difference in weight. The crystal formation was considered a limitation due to the possibility of affecting the final weight. Visual signs of erosion on the enamel under 4x microscopy, had an etched appearance.

Conclusion: Results indicated that apple juice was found to be the most erosive of the selected beverages with visible signs of erosion of the enamel when examined by 4x microscopy. It has been concluded the consumption of grape juice leads to tooth discoloration and erosion. Without constant submersion in grape juice, it is unlikely a crystal formation would occur within the oral cavity on tooth surfaces.

Attitudes Toward Interprofessional Education: Comparing Dental Hygiene and Physical Therapy Students

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Problem: Interprofessional education (IPE) has the potential to improve student and patient outcomes. Dental hygiene educators are faced with an ever-expanding curriculum and are looking for creative ways to expose students to IPE activities in order to meet Commission on Dental Accreditation (CODA) standards. With increased IPE opportunities, future dental hygiene professionals will be better prepared to effectively participate as an interprofessional team member. There is a lack of research regarding dental hygiene student perceptions of IPE. The purpose of this study was to explore student perceptions and attitudes about IPE, interprofessional teaching, and collaborative learning following an observational job site analysis and educational session between physical therapy and dental hygiene students. The study intended to increase the understanding of student attitudes towards interdisciplinary education and readiness for IPE.

Methodology: This study used a primary quantitative cohort study design. The data sample consisted of first year dental hygiene students (n=11) and third year physical therapy students (n=39). Data was collected using a paper version of the Readiness for Interprofessional Learning Scale (RIPLS) survey. The RIPLS is a 19 question validated instrument designed to assess students attitudes towards IPE. It uses subscales including teamwork and collaboration, professional identity, and roles and responsibilities. Nonparametric tests were used for statistical analysis through SPSS software. Institutional Review Board approval was obtained.

Results: The demographics of the samples were fairly representative of corresponding populations of students enrolled in physical therapy and dental hygiene programs throughout the United States. A majority of participants were female, dental hygiene students (73%) and physical therapy students

(66%). Few dental hygiene students (27%) reported prior IPE experiences. Whereas, more (46%) of the physical therapy students reported prior IPE experiences. Overall, the difference in the RIPLS scores between the two groups of students were not statistically significant. However, there was statistically significant differences ($p < .01$) in the student perceptions of the roles and responsibilities and sense of professional identity scales of the RIPLS. Overall, data analysis showed students from both groups perceived themselves as being ready to engage in IPE learning activities.

Conclusion: Results suggest dental hygiene and physical therapy students expressed a high level of satisfaction regarding IPE activities. The students from both programs valued these shared learning experiences with students from other health professions. The findings of this study can contribute to future efforts to help dental hygiene programs engage in meaningful IPE and contribute to developing interprofessional health care teams. Further research is necessary.

Dental Hygiene Student Perspectives on Utilizing Magnification Loupes and LED Headlights

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Problem: Magnification loupes and LED headlights are increasingly used in dentistry during patient care. Although research has demonstrated positive effects of this technology on ergonomics and dental treatment, many dental hygiene programs do not require the use of this equipment. This study evaluated the perspectives of dental hygiene students regarding the impact that utilizing loupes and headlights have on their patient care experiences.

Methodology: This IRB approved study was conducted using an online survey developed, collected and analyzed with Qualtrics software. The 24-question survey was distributed through university email to all students within the 2016, 2017 and 2018, dental hygiene classes at The Ohio State University, where loupes are mandated. The responses from this convenience sample were collected anonymously.

Results: Of the 92 surveys distributed, 54 were completed for a return rate of 59% ($n=54$). Respondents who agreed or strongly agreed that loupes improve efficacy and efficiency of patient care were 98% and 96%, respectively, with a slight drop to 93% for both questions when a headlight was considered. 100% perceived an improvement in

ergonomics with loupes, 84% with a headlight. Only 5.6% felt that they would be as comfortable providing patient care without loupes while 18.3% indicated they would be as comfortable without a headlight. 78% agreed or strongly agreed that loupes should be required of students, 93% of whom indicated that this equipment should be introduced during pre-clinical instrumentation courses. The number of positive responses dropped to 50% regarding a mandate for headlights. Less students felt strongly, at 69%, that faculty be required to use loupes and only 35% responded that headlights should be required of faculty.

Conclusion: Dental hygiene students within a program mandating loupes felt that this technology contributed to improved ergonomics, efficacy and efficiency of patient care. Respondents supported the loupes mandate for dental hygiene students and, to a lesser extent, for clinical faculty. Loupes were perceived as more valuable for patient care than headlights and the respondents were evenly split regarding a headlight mandate for students. Respondents indicated that they would feel compromised in providing patient care without magnification or a headlight.

Comparison of two manual toothbrushes in effectiveness of plaque removal: A pilot study

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Problem: A novel toothbrush designed to facilitate the use of the Bass tooth brushing technique had not been tested for efficacy in plaque removal. Effective plaque removal is important to maintain optimum oral health. As new products are developed, it is important to conduct research to evaluate their effectiveness.

This quantitative pilot study evaluated the effectiveness of plaque removal of this novel manual toothbrush and obtained qualitative feedback on the ease and comfort of its use. The significance of the study was to provide scientific evidence to support toothbrush recommendations by oral health professionals.

Methodology: Primary quantitative research was conducted with a convenience sample (n=38) of first year dental hygiene students. Students meeting specific criteria consented to participate and were randomly assigned to one of two groups. A reference toothbrush was used as the control vs. the novel toothbrush.

For familiarization, subjects were given both study toothbrushes eight (8) days prior to data collection to use on alternate days for two (2) minutes twice daily. Subjects refrained from any oral hygiene procedures for twenty-four (24) hours prior to data collection when a baseline plaque score was recorded using the O'Leary Plaque Control Record. A split mouth experimental design was used for gathering plaque scores. Timed brushing was supervised by a research assistant, followed by a post-brushing plaque score. All plaque scores were recorded by the same examiner blinded to group assignment. Additionally, satisfaction data was gathered using a survey. Pre- and post-brushing scores were compared using t-tests and analysis of variance (ANOVA) to determine differences.

Results: In comparison of overall plaque scores, no significant differences were found between the two brushes or when comparing all interproximal surfaces, all smooth surfaces and left vs. right sides. Both brushes performed better on the left side. The control brush was shown to be slightly more effective than the novel toothbrush at removing plaque in the mandible (ADA, -0.29 vs MD, -0.21, p=0.0222) and on the lingual surfaces (ADA, -0.27 and MD, -0.21, p=0.0169). Results of the survey showed that the subjects significantly favored the novel brush. (p<0.0001). Survey comment results showed that the novel brush handle was the most liked characteristic (Chi-square p-value <0.001).

Conclusion: Both brushes were effective, although the reference brush was slightly more effective in plaque removal than the novel brush in the mandible and on lingual surfaces; however, the novel brush was preferred by participants. Upon completion of the study, participating students, then in their second year of dental hygiene school, learned about hypothesis, results, statistical tests and the differences in the quantitative and qualitative results.

Older Adult Oral Health Education Curriculum

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Problem: Oral Health America (OHA) has piloted Tooth Wisdom: Get Smart About Your Mouth, an oral health education curriculum for community-dwelling older adults to be delivered in settings where they congregate, designed to empower them with knowledge and a sense of self-efficacy to care for their mouths. The workshop covers oral hygiene care basics and modifications that can be made to overcome barriers that are encountered with age.

Significance: The oral health of older Americans is in a state of decay. Limited access to dental services, affordable dental insurance, and programs that support oral health prevention and education are significant factors that contribute to the unmet dental needs among older adults. Concern is warranted for the 10,000 Americans retiring daily, as it is estimated that only 9.8 percent of older adults retire with dental benefits. Daily oral hygiene, ability to access professional services, and oral health education are all key factors that can improve the oral and overall health of older Americans.

Key features: The implementation model consists of identifying three partners in each market. The older adult workshops are coordinated by 1) an aging organization; 2) presented by registered dental hygienists, recruited in partnership with the American Dental Hygienists' Association and promoted through the oral health community by 3) the states oral health coalition. Before leading the workshops, dental hygienists are required to attend a curriculum training to build skills in effectively communicating with older adults and to deliver the material with sensitivity to cultural competency. The oral health knowledge of workshop participants is assessed by use of a pre- and post-questionnaire.

Evaluation Plan/Results: The initial 2014 pilot workshops, implemented in Chicago, exceeded the goal to reach 100 older adults, instead educating 238. OHA expanded the workshops in five markets throughout the country in 2015: Nashville, Chicago, Minneapolis, Portland, and Michigan. The results of the 2015 expansion illustrated the need for the curriculum and its impact on participants and continued in these markets in 2016. To date, OHA has trained 237 hygienists, delivering the curriculum to approximately 2,750 older adults. 2016 questionnaire data reveals 94% of participants felt more confident to manage their oral health after attending the workshop. The 2017 pilot is set to begin in the existing markets with improvements to the implementation model.

Assessing and Impacting Research Utilization among Dental Hygiene Educators in Georgia

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Problem: As calls for incorporation of evidence-based practice (EBP) have increased, the concept of research utilization (RU) is gaining awareness in the dental hygiene (DH) profession. RU is the dissemination and translation of learning into practice, and an important component to implementing EBP. However, barriers thwart knowledge uptake. The aim of this intervention study was two-fold. First, to assess RU types—overall, conceptual, direct, and persuasive—among DH educators in Georgia (GA). Second, to improve the relationship between RU and GA DH educators through implementing an intervention addressing barriers and access to information sources.

Methodology: A cross-sectional study design employed a previously developed RU questionnaire as a pretest/posttest to the intervention, and contained 33 questions related to the following areas: demographic characteristics, RU types, and items regarding knowledge and information sources. The intervention, a problem-focused, online continuing education (CE) course incorporated five modules: (a) publications and research terminology, (b) information sources and databases, (c) searching techniques, (d) accessing findings, and (e) document formatting style. The theoretical framework of Rogers' Diffusion of Innovations guided intervention assessment. To measure diffusion of innovations five perceived attributes, a 14-item survey was developed using construct scales modified for DH and administered after each CE module. DH educators' email addresses (n=112) were acquired from GA DH program's (n=16) website or requested from directors if not listed. All educators were invited to participate in the CE course.

Results: Twenty-two DH educators (10.2%) completed the pretest and eight (36.4%) completed the posttest. RU mean responses were highest for overall (4.41) followed by conceptual (3.91), direct (3.57), and persuasive (3.19). Posttest RU responses were not statistically significant. Direct RU had a negative correlation with education ($p=0.04$) and employment setting ($p=0.026$). Post-hoc power analysis revealed the sample size required exceeded the total number of GA DH educators to detect smaller statistical differences. Respondents' knowledge mostly derived from attending in-services or conferences (100%) and information learned about patients (100%). Fifteen DH educators

(68.2%) progressed to the intervention. Respondents attribute agreement level remained positive for each CE module as means ranged from 3.87 to 4.8.

Conclusion: DH educators integrate differing RU types teaching practice and most commonly utilize conceptual RU. An intervention aimed at providing knowledge and materials to promote action had subtle impact to shift RU type. Rogers' theory has applicability to assess an interventions rate of adoption by measuring perceived attributes. Potential limitations to conclusions exist based on sample size and number of respondents.

A Cross-Sectional Analysis of Dental Hygiene Students and Registered Dental Hygienists Professional Identity Perceptions

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Problem: Professional identity is uniquely developed by each profession and separates it from other professions. Given the fact that dental hygiene is a profession and that dental hygienists are taught professional traits, ethics and skills, it is crucial to develop a better understanding of how dental hygiene students develop their professional identity. This research project fills a void in the literature concerning how dental hygiene students develop professional identity.

Methodology: This study was determined to be exempt by the University of Michigan IRB (HUM00100425). A convenience sample of N=215 DHSs and N=352 RDHs in Michigan participated in this cross-sectional survey. DHSs were recruited electronically, RDHs via postal mail and electronically through the professional organization. The surveys consisted of demographic information followed by questions regarding 19 professional identity characteristics that fell into four major domains. The DHS survey asked questions regarding the current and prospective importance of their professional identity/role. The RDH survey asked subjects to assess the importance of these aspects currently as professionals and retrospectively as a DHS. Descriptive and inferential statistics were used to analyze the data.

Results: Students rated the importance of their future professional pride even higher than the current importance while attending a dental hygiene program (future: 4.83 vs. current: 4.77; $p < .001$). RDHs rated the importance of professional pride higher in the current time than as students (past: 4.24 vs. current 4.45; $p < .001$). Comparing the four domains, the current Professional pride and Patient relations were higher than the mean retrospective responses for RDHs importance ratings of their current versus student professional role perceptions. Furthermore, RDHs rated being a member of the ADHA higher as a student than as a licensed hygienist (past: 3.43 vs. current 2.66; $p < .001$).

Conclusion: While the data indicated that the majority of the nineteen characteristics were important to both groups, significant differences exist between RDHs and DHSs perceptions of professional identity. Professional association membership, providing community service, and advocating for the profession were highly valued by DHS respondents but undervalued by RDHs respondents. Future studies should explore the devaluing of these particular characteristics by licensed hygienists once they complete their education.

Saudi Dental Hygienists Attitudes and Opinions Regarding Establishing a Professional Association

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Problem: Professional associations provide resources for members to support and enhance their careers. Even though dental hygiene has been a licensed profession in Saudi Arabia since 1980, there is no professional association.

Methodology: A cross sectional electronic survey using Qualtrics was developed by the investigators to assess dental hygienists' professional needs in different regions of Saudi Arabia, and their opinions and attitudes about establishing a professional association. IRB exemption was obtained. The survey was pilot tested by five Saudi dental hygienists and revised prior to distribution. Email addresses were available for 101 licensed Saudi dental hygienists, obtained by direct contact. Subjects were emailed a link to the survey and asked to participate. An email reminder was sent to non-respondents two weeks after the initial email. Descriptive statistics were generated for each survey item using Fishers Exact test. Level of significance was set at 0.05.

Results: Seventy-seven subjects responded to the survey, 6 only provided demographic information, yielding a response rate of 70.3% ($n=71$). Of the respondents 91.5% favored the establishment of a Saudi Dental Hygiene professional association. Additionally, 88.1% ($n = 59$) agreed that an association would promote development of the profession in the country and 86.6% agreed that their professional needs could be met by its establishment. Sixty-two individuals (92.5%) indicated that they would become members of the future dental hygiene association, and (82.1%) indicated interest in potential leadership positions. Interestingly, half of those who did not support the creation of the professional association believed it would promote development of the profession and meet professional needs.

Conclusion: Dental hygienists in Saudi Arabia support the establishment of a professional association and feel that it would advocate and promote the dental hygiene profession in the country while meeting their professional needs.

Dental Hygienists Knowledge, Attitudes, and Comfort Level in Treating Patients with Dental Anxiety

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Problem: Dental anxiety has been ranked as the 5th most common fear in the general population and affects approximately 20% of adults in the United States. It is a common cause of delayed dental care, resulting in declining oral health and oral health related quality of life. Dental hygienists are in a paramount position to educate patients on the causes, risks, and treatment of a patient with dental anxiety.

Methodology: Institutional Review Board (IRB) granted exemption status for this study. A survey was developed, pilot tested, and administered to participants at the University of North Carolina (UNC) Annual Dental Hygiene Lecture continuing education (CE) course in April 2016. The survey consisted of five main domains: 1) demographics; 2) practice setting; 3) practice behaviors; 4) dental anxiety awareness; and, 5) opinions and attitudes. The quantitative survey utilized a Likert Scale ranked from extremely frequent to never and strongly agree to strongly disagree. Descriptive statistics for each response item were produced.

Results: Of the 157 participants of the study, 153 met the inclusion criteria (97.5%). Approximately 1/3

of the participants had been practicing for <10 years (N=30.3%). When participants were asked how to identify a patient's dental anxiety, only 19.7% Often or Always use dental anxiety questionnaires. Only 43% of participants knew all of the common signs and symptoms of a patient suffering from dental anxiety. Most (92%) were confident in their ability to perceive patient stress. Many (78%) are interested in learning about dental anxiety questionnaires and 82% want information about treatment options and referral for patients with severe dental anxiety. Over half (58%) reported their dental hygiene education prepared them for treating patients with mild dental anxiety, 37% with moderate dental anxiety, 22% with severe dental anxiety.

Conclusion: Although the majority of dental hygienists felt confident in identifying anxiety in patients, few utilized validated questionnaires to determine the level of anxiety. Dental hygiene education programs should include content on anxiety management for patients with all levels of dental anxiety. Dental hygienists are in a pivotal position for discussing the risks, characteristics, and treatment options

Assessing Temporomandibular Disorder in Music Performance Students

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Problem: There is a lack of evidence in the literature on the incidence of temporomandibular disorder (TMD) in voice students undergoing a rigorous program of study. A risk assessment may be useful to evaluate this population.

Methodology: All subjects, 23 voice majors and 14 non-voice majors, were students (mean age = 20.3 years) enrolled full-time in a university setting. Instruments administered at the start of the semester, and again 5 months later, included the Oral Behaviors Checklist to determine the presence of parafunctional behaviors and the Jaw Functional Limitation Scale of the masticatory system. The Research Diagnostic

Criteria for Temporomandibular Disorders (RDC/TMD) exam was implemented by a calibrated dental hygienist to determine self-reported pain in the previous 30 days and current pain on palpation in the temporalis, masseter, other muscles of mastication, and the TMJ. Incidence of headache, comorbid to TMD, was also recorded as part of the exam.

Results: Voice majors reported singing 4-7 nights/week (52%), 1-3 nights/week (39%), 1-3 nights/month (8.7%), while none of the controls sang more than 1-3 nights/month. Days of reported pain in the previous 30 days pre-semester for voice students was M=4.26 (SD=5.10) and post-semester M=4.65 (SD=7.77), while controls pre-semester reported M=1.14 (SD=2.79) and post M=0.85 (SD=1.83). Data limitations occurred because the distribution was non-normal. Controls were negative for arthralgia pain on palpation, while 43.5% of singers were arthralgia positive both pre and post-semester. Only one control responded positively for myalgia pain on palpation, however, 56.5% of singers reported myalgia pain from various locations. When looking at overall females from both groups (N=26), 50% reported incidence of facial pain in the last 30 days, representing a higher rate than males both pre and post-semester. The highest rate of days of pain were reported by 7 female singers with 10 or more days in the previous 30 days, however, there was variance in whether the worst pain occurred before or after the semester.

Conclusion: The RDC/TMD Axis I examination and Axis II self-report instruments are used routinely in TMD research. This pilot study demonstrated an overall greater incidence of TMD pain in voice students over controls, but without a significant increase post-semester. Consistent with the literature on gender, females in general had a greater incidence of pain than males. Future analyses with larger sample sizes, onset of pain, years of voice study, with possible inclusion of professional singers, may be feasible.

Compensation and Job Characteristics of Dental Hygiene Program Directors

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Problem: There has been a high rate of turnover in program director positions in recent years. Research suggests a large number of anticipated retirements in the coming years, which could potentially lead to an administrative void in dental hygiene education.

Purpose: The purpose of this cross-sectional study was to collect information about program directors to create a comprehensive job profile for the profession and add to the current literature regarding trends in dental hygiene education positions and compensation.

Methodology: An electronic survey was sent to all directors of accredited dental hygiene programs in the United States (n=314) in October 2015. The survey instrument was submitted for approval by the Pacific University Institutional Review Board (IRB). The IRB determined that the project was outside of their jurisdiction and did not require approval. The survey consisted of 38 items which addressed the following areas: job characteristics; required duties and expectations of program director positions; compensation of program director positions; anticipated retirement of program directors; and demographics, including geographic region. The survey was developed using Qualtrics software (Qualtrics, Provo, UT) and administered via email. Descriptive and inferential analyses were completed using SPSS (version 23, IBM).

Results: Responses were received from 122 program directors (response rate of 39%). Seventy-one percent of respondents were ages 50-59 and 46% of respondents have held the program director position for 3 years or less. Thirty-five percent of participants plan to retire from their program director position in the next five years. Forty-seven percent of respondents indicated making between \$60,000 and \$79,999, while 3% answered less than \$40,000 and 4% over \$100,000. Total number of teaching years and degree held had a positive impact on adjusted monthly salary ($p=0.001$). Directors working in university settings were significantly more likely to have requirements for scholarly activity ($p<0.0001$). Respondents spent the majority of their work week on administrative duties (mean=22.5 hours), with other responsibilities including teaching, scholarly activity, and committee work, with an average workweek of 40-50 hours.

Conclusion: A job profile has now been created and will serve to inform potential program directors and to support the recruitment of program directors. Those considering a program director position should expect the majority of their workload to be administrative, followed by teaching and scholarly activity, and could likely expect a salary between \$60,000 and \$80,000.

Access to Oral Health for a Homebound Population in an Oral Healthcare at Home Pilot Program

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Problem: Evidence shows significant disparities in access to oral health care for the homebound population. This population continues to suffer from more chronic health conditions, disabilities, and a worse current health status than the general population. The homebound also struggle with lower socioeconomic status, therefore contributing to challenges in access to oral health care. Understanding comorbidities and barriers the homebound population, while evaluating the oral health needs will help guide future research.

Methodology: A mixed methods design was used to gather qualitative data through in-depth interviews and quantitative demographic and retrospective data. Participants for this study were individuals who received dental care through the Oral Healthcare at Home pilot program with the Certified Public Health Dental Hygienist (CPHDH), met the Medicare definition of being homebound, and provided informed consent. A retrospective review of an intake survey (16 items), initial oral health assessment survey (14 items) and post oral health assessment (8 items) was conducted for each participant. In-depth interviews were conducted with participants, audio-recorded, and a thematic analysis was conducted. Descriptive analysis was done for retrospective assessment and intake survey data.

Results: Of the 17 eligible participants, 94% agreed to take part in the evaluation (n=16) and of these 88% completed the demographic surveys (retrospective chart review, intake survey) and the in-depth interview (n=15). The mean age of the participants was 59.87 years old. The majority (73%) suffered from co-morbidities. The average number of medications was 10. Caries risk was high, a mean of 22.2 teeth were present, mean number of coronal caries 2.5 and root caries 2.3. Approximately 26.7% exhibited moderate periodontitis and 6.7% had severe periodontitis. Forty percent had oral infection that could not be treated by the CPHDH. The themes identified from the qualitative data included: lack of

dental care, oral health status, resources (costs and transportation), positive experience with program, satisfaction of care from the CPHDH, and improved access (convenience and comfort).

Conclusion: The homebound population in this study reported a positive experience and satisfaction with care by the direct access dental hygienist (CPHDH) suggesting this is an approach to effectively providing preventive oral health services and identifying those in need of referral for more complex dental needs.

Interleaving So They Don't Leave without Understanding: Using Interprofessional Examples and Theoretical Content to Foster Development & Transfer

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Problem: The purpose of this research was to examine the viability of participatory instructional techniques (graduated prompting and alternative modeling) in promoting retention of theoretical material, critical thinking, and application of course material to professional practices scenarios.

Significance: Addressing the preconceptions first- and second-year allied health professional students bring with them is an instructional challenge. These preconceptions may influence students' ability to understand and apply theoretical course material and perceive how such material relates to their future careers. Their limited clinical experience compounds the challenges of associating current learning with their future practices.

Key features: Data were collected through written student reactions to real-life clinical stories presented by a registered dental hygienist. This in-class activity was conducted over seven semesters in a medium-sized human development class of aspiring health care professionals from various disciplines (dental hygiene, nursing, pharmacy, health psychology, and radiological sciences), n = >350, and with limited clinical experience. Qualitative analysis of the students written reactions examined their use of theoretical material and their ability to construct a patient-centered response (students' choice of words, students' tone of their responses).

Evaluation Plan/Results: The instructional techniques did make the students thinking visible, allowing the instructors to quickly grasp students understanding and providing opportunities to immediately address student misconception. The

instructional techniques also provided students with alternative models and opportunities to think critically. The sequential nature of the activities in each class stimulated some students' ability to relate the stories to the theories they were learning and expand their understanding of the scope of practice for a dental hygienist. But, students varied in their ability to effectively incorporate course material in their responses to a real-life clinical scenario. Furthermore, many students initially could not accept that patients would discuss specific medical conditions outside of their perceptions of the scope of practice for a dental hygienist. Notably, some students felt that discussion of anything not related to the dental appointment was inappropriate. Helping students grasp theoretical content and develop their metacognitive and transfer skills is challenging. Exposing health professions students to real life scenarios, early in their education, may help foster the importance of developing their metacognitive and transfer skills to their future practice.

California Dental Hygienists' Knowledge, Attitudes and Practices Regarding Polypharmacy and Off-label Drugs

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Problem: Off-label prescribing of medications gives freedom to healthcare practitioners to utilize therapeutic options based on the latest evidence. Due to the increasing number of patients and professionals utilizing polypharmacy and drugs off-label, it is imperative that dental hygienists are able to recognize and evaluate these situations for comprehensive patient assessment and education. To date, there have been insufficient studies published concerning the knowledge, attitudes and practices of dental hygienists regarding polypharmacy and off-label drug recognition and use. This study addressed the U.S. Department of Health and Human Services Healthy People 2020 initiative specifically related to the goal of ensuring the safe use of medical products. Objectives MPS-4 and MPS-5 for this health initiative included increasing the number of safe and effective drugs and reducing the numbers of drug related medical emergencies. Additionally, this study supports the National Dental Hygiene Research Agenda created by the American Dental Hygienists' Association by examining the dental hygienists' role in oral health care, specifically as it relates to patient assessment and safety related to polypharmacy and off-label drug use.

Methodology: In a cross-sectional design, knowledge, attitudes, and practices (KAP) related to

off-label drugs and polypharmacy were assessed via an online survey tool. The sample included licensed dental hygienists who were registered with the Long Beach and Tri-County Dental Hygienists Associations in Southern California (N=360). Participant characteristics were calculated using descriptive statistics. ANOVA was used to assess differences in knowledge, attitudes and practices when compared to three key variables: highest academic/professional degree, experience and license type.

Results: One hundred seven surveys were returned for a 34% response rate. Over half of respondents (53%) held an Associate degree for their license, most (72%) worked in a general dentistry setting and 46% had practiced 15 years or less. Results revealed very low knowledge levels with 25% of respondents answering zero knowledge items correctly. Furthermore, no significant differences in knowledge and practices related to off-label drugs or polypharmacy were found based on type of licensure, highest degree achieved, or years of experience. However, participants holding a Bachelor degree or higher were significantly more confident ($p=.011$) in discussing polypharmacy with patients and colleagues.

Conclusion: Participants showed a general low-level of knowledge related to off-label drugs and polypharmacy regardless of their level of education, years of experience, or type of dental hygiene licensure. These results indicate a grave need for increasing content in pharmacology in both entry-level programs and continuing education courses.