

2021 Research Poster Abstracts

The following posters were presented during the American Dental Hygienists' Association Annual Conference held in Phoenix, Arizona, June 18 – 20, 2021.

The Impact of Adjunctive Autofluorescence Imaging on the Accuracy of Oral Cancer Screening Outcomes and Triage Decisions by Dental Hygienists, Dentists and Community Screeners*

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Problem: Oral cancer outcomes are adversely affected by inaccurate screening outcomes from dental professionals, resulting in late specialist referral and diagnosis.

Purpose: The purpose of this study was to determine whether providing adjunctive autofluorescence images can improve the accuracy of oral cancer screening outcomes and triage decisions by dental hygienists, dentists, and non-specialists and compare the screening performance of each group

Methods: This was an observational study that included 20 dental hygienists, 20 dentists, and 20 healthcare students, who acted as surrogates for community health workers. After receiving standardized training in clinical oral cancer screening and autofluorescence imaging, these screeners documented screening outcome and triage decision in 19 subjects with oral lesions based on a de-identified dataset of risk factors, clinical history, and white light photographs of each subject. The screeners subsequently viewed the matching autofluorescence images for each subject and documented an additional screening outcome and triage decision considering

all data, including the additional autofluorescence images. Data collection was implemented by means of an online questionnaire, on which screeners documented in multiple choice format the screening outcome and triage decision for each subject. Oral lesions included leukoplakic, erythroplakic, ulcerated, and mixed oral lesions. All subjects had previously received a standard of care diagnosis by an in-person oral medicine specialist, which served as the gold standard for evaluating screening outcome and triage decision. The images that were utilized in the study had previously been recorded in vivo in each subject using a prototype high-resolution, polarized white light and multispectral autofluorescence intra-oral camera. Two-way ANOVA, Tukey's multiple comparisons tests, and an unpaired t-test were used to analyze the data.

Results: The screening and triage decisions made by hygienists, dentists and healthcare students respectively based on risk factors, clinical history, and white light photographs did not differ significantly ($p>0.05$) between the 3 types of testers, averaging 56%, 53% and 54%, respectively. However, screening and triage accuracy by hygienists and dentists were significantly improved using the additional autofluorescence images ($p<0.05$), averaging 68% and 67% respectively, but not for the healthcare students ($p>0.05$), averaging 53%. Dental hygienists and dentists performed similarly regarding screening accuracy and triage decision without and with the added autofluorescence images ($p>0.05$).

Conclusion: Providing adjunctive autofluorescence images may improve the accuracy of screening and triage by dental hygienists and dentists in individuals with oral lesions.

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Using Motivational Interviewing to Increase Confidence in Nutritional Counseling among Dental Hygiene Students

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Problem: Dental hygienists have the unique opportunity to educate patients on connections between nutrition and oral health. As students, they are introduced to these concepts, but struggle share this knowledge with patients. The clinician who is not confident in their skills may not perform nutritional counseling.

Purpose: This pilot study evaluated an educational module on motivational interviewing (MI) and an assessment and counseling tool to build student confidence with nutritional counseling.

Methods: The study utilized a quasi-experimental, one-group design to gather qualitative and quantitative data to evaluate change in confidence with nutritional counseling. Students participated in an educational module to review MI and introduce the nutritional risk assessment and counseling tool. Prior to the module, participants completed a pretest about confidence levels regarding MI and nutritional counseling. After three weeks of clinical practice, participants completed a post-test. Data was compared for quantitative changes with a Wilcoxon signed-rank test and qualitative themes from responses through content and narrative analysis.

Results: Twenty-two students (n=22) participated in both the pretest and posttest. There were statistically significant changes in participants' confidence ($p=0.007$) and comfort ($p=0.020$) discussing nutrition with patients. Participants struggled to become more confident in MI as demonstrated by no significant change in their feelings surrounding MI ($p=0.150$). Students reporting increased nutritional counseling sessions showed improvement in their confidence.

Conclusion: This pilot study suggests introducing motivational interviewing with an assessment and counseling tool to aid dental hygiene students may improve confidence with nutritional counseling.

Utilizing Clifton Strengths to Increase Professional Development in Dental Hygiene Students*

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Problem: Traditional dental hygiene education programs may not provide sufficient training in professional development to prepare graduates to be primary care providers in an integrated health care delivery system.

Purpose: The objective of this two-year study was to utilize results from the CliftonStrengths assessment to support entry-level dental hygiene students' professional development and learning experiences.

Methods: An exploratory research design including both quantitative and qualitative methods was used among a convenience sample of entry-level dental hygiene students (IRB-FY2019-182). CliftonStrengths assessment was used to determine the professional strengths of the participants for quantitative analysis. Faculty were trained to coach and engage students utilizing their strengths during clinic, classroom, and laboratory activities. At the end of the first year, an exploratory focus group design assessed student and faculty perceptions of professional strengths based on learning experiences. All participants used pseudonyms to protect confidentiality. Focus groups occurred through the Zoom platform, were recorded and transcribed using a professional transcriptionist. Frequencies and percentages were used to summarize the top five strengths of each participant's CliftonStrengths. For the qualitative portion of the study, the Dedoose program was used to identify parent and child codes. The investigators systematically reviewed these codes and key quotes to identify themes. Investigator triangulation and member checks were used to validate the responses.

Results: Thirty-two entry-level dental hygiene students and twenty-eight faculty agreed to participate in the CliftonStrengths assessment. Both students and faculty have strengths in the executing, strategic and relationship building domains for the top five professional strengths. All students participated in the focus groups while fourteen faculty were available to complete focus group sessions. For the student focus groups quotes were condensed into nine parent codes and fifty-two child codes. The following themes were identified: awareness, application, positive approach, successful strategies, and personal growth. For the faculty

focus groups quotes were condensed into seven parent codes and twenty-four child codes. The following themes were identified: recognition, change in perspective, personalized approach, participatory environment, and empowerment.

Conclusion: Results of year one of this study highlight the potential benefits of a strengths-based approach to undergraduate dental hygiene education. Helping students recognize their strengths and learn how to leverage those strengths in a challenging educational setting may lead to increased empowerment, and professional growth and development. Further study with year two data may offer an opportunity to learn more about how CliftonStrengths impacts students' learning experiences.

*Study funding through the ADHA Institute of Oral Health

Orofacial Manifestations of Lyme Disease: A systematic review

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Problem: Orofacial manifestations of Lyme disease can affect head and neck structures examined by dental professionals. It is important for dental professionals to be aware and have a referral plan for patients as needed.

Purpose: The purpose of this systematic review was to examine the literature for types and frequencies of Lyme disease orofacial manifestations documented in the United States.

Methods: This systematic review followed Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. An electronic search of the literature was conducted by a librarian and included Dentistry and Oral Sciences Source (EBSCO), PubMed, Cinahl Plus, and Medline for articles published from January 1990 to October 2019. Search term alterations were used and synonyms were cross-checked using the United States National Library of Medicine Unified Medical Language System Metathesaurus. The search strategy of databases used keywords and MeSH terms for Lyme disease, vector, pathogen, head/neck anatomical landmarks, and orofacial manifestations. The search was limited to peer-reviewed journals and articles were included if they met the following criteria: (1) studies of US populations, (2) available in full-text and English, and (3) confirmed Lyme disease diagnosis. Retrieved articles were independently reviewed based on titles and abstracts by two researchers. Risk of bias

was assessed independently, and data extraction was completed using a modified version of the Cochrane Data Collection Form for randomized control trials and non-randomized control trials. Meetings were held to resolve disagreements by consensus. An initial search of databases produced 217,381 results; 43 met inclusion/exclusion criteria and were deemed appropriate for inclusion. All were from non-dental journals and represented less than half of the Lyme endemic states.

Results: Among twelve included articles, there were 951 confirmed Lyme disease cases. Frequencies of eight orofacial manifestations were reported as: headache (n=376, 39.5%), facial palsy (n=404, 42.5%), temporomandibular joint arthralgia (n=4, .42%), altered taste N=1, .11%), stiff neck (n=129, 13.6%), sore throat (n=29, 3.0%), neck pain (n=71, 7.5%), and erythema migrans rash on the head/neck (n=49, 5.2%).

Conclusion: This systematic review revealed eight Lyme disease orofacial manifestations that could be recognized by dental professionals. Current research regarding orofacial manifestations of Lyme disease is needed so this medical phenomenon can be well understood by dental professionals to best serve their patients.

Dental Hygiene Clinical Faculty Attitudes and Willingness to Work During the COVID-19 Pandemic

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Problem: The inability or reluctance of dental hygiene clinical faculty to continue working during the COVID-19 pandemic is a major concern in keeping dental hygiene educational systems open and functioning. Therefore, it is important to determine any factors or barriers of willingness to work during the COVID-19 pandemic. Little or no scholarly research has been conducted on dental hygiene faculties' attitudes and willingness to work during a pandemic. Understanding such factors may aid in taking actionable plans to remove such barriers, identify current changes being made, and to determine appropriate planning interventions intended for the future.

Purpose: The purpose of this study was to expand the body of knowledge regarding dental hygiene clinical faculty's attitudes about working during the COVID-19 pandemic and to identify factors that may influence their ability and wiliness to work.

Methods: This quantitative study used a survey validated in the United Kingdom and modified for spelling. The survey

was emailed to dental hygiene clinical faculty in July 2020 (13.15% response rate). Three attempts were made to increase the response rate. The first section (seven questions) dealt with attitudes toward working during the pandemic. An example is as follows: “if there were a COVID-19 outbreak would you be more likely to work if...your employer provided life/disability insurance, vaccine, etc.?” Respondents were given two choices, “more likely” or “about the same.” The second section (nine items) asked participants to agree or disagree about work-related situations such as, “I have to go to work because I couldn’t manage if I lost any of my wages.” Respondents were given two choices, “tend to agree” or “tend to disagree.” SPSS V. 27 was used to describe the data using response frequencies.

Results: Respondents’ mean age was 51.71 (+/- 10.5) years; mean years of teaching experience, 13.55 (+/-9.3 years). Thirty percent were over 60 years of age. The likelihood of staying on the job if certain work-related conditions were met was 33%. Approximately 78% would remain if personal protective equipment were offered when working around and with potentially infected patients. Almost all respondents indicated that their main responsibility was to themselves/family, which took priority over work responsibilities. In addition, respondents sought more timely guidance from professional bodies/government organizations about best clinical practices during the pandemic.

Conclusion: This pandemic has placed all stakeholders in dental hygiene education under extreme strain. Personal and work-related issues are causes of unease in these respondents. The latter issues may have implications for employers as educational programs work to fully re-open and to progress students through their educational programs.

University of Hawaii Dental Hygiene Students Offer Virtual Oral Health Education to Head Start Families During the Pandemic

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Significance: The COVID-19 pandemic resulted in the closure of the University of Hawaii (UH) dental hygiene clinic and most community dental sites eliminating all live clinical experiences for dental hygiene students. An alternative clinical experience was created allowing students an opportunity to provide virtual oral health education to UH’s Head Start partners and families throughout the state.

Purpose: To develop an innovative program that provides a valuable clinical experience for dental hygiene (DH) students and an opportunity for head start families to receive oral health education during the pandemic.

Key Features: Dental hygiene students created presentations on various dental health topics, which were then shown virtually to Head Start children and families using Zoom. A questions and answer session followed the presentations, and each child was sent a dental kit for home use. Evaluation for the program included collecting data on the number of DH students participating in each session along with the number of classrooms and Head Start children reached using this virtual format. Following each session, a student self-evaluation as well as Head Start staff evaluation of the presentations were completed.

Evaluation Plan/Results: From August 2020 until April 2021, 20 DH students participated in the virtual sessions with education provided to 53 Head Start classrooms reaching 775 children and their families. Creating and providing virtual oral health education was a valuable experience for DH students, while also meeting the needs of the Head Start community. Students found this alternative clinical experience using a virtual educational platform, to be initially challenging, while also gratifying once they were able to complete each session successfully. Head Start staff appreciated the extra effort to provide separate videotapes of each session for future use in their classrooms and found the topics pertinent to the needs of their families. As dental clinics reopen, dental hygiene programs should continue to use this creative approach which allows for the provision of education regardless of location in the state.

The Profession of Dental Hygiene: Pathways to Career Choice and Influences on Professional Identity

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Purpose: The purpose of this study was to ascertain factors which influenced dental hygienists to choose the profession and identify ADHA resources which promote and sustain members’ professional identity.

Methods: This was a quantitative, cross-sectional, non-experimental study. A 48-item web-based survey was designed and pilot tested. Multiple choice, Likert-scale, and open-ended questions regarding demographics (10), career choice (4), and professional identity (34) were used. The survey was disseminated by the American Dental Hygienists' Association to student and professional members. Descriptive and inferential statistics were used to analyze data.

Results: A total of 1,983 surveys (n=1,983) were returned, response rate of 6.3%. The majority (n=1,699, 86%) of respondents were professional members. Most participants were female (n=1,940, 98%), White (n=1,668, 84%), and 55+ years of age (n=727, 37%). Both student and professional members rated a desire to work in a health field as the most influential reason for entering the profession (n=59, 21% and n=468, 28%, respectively). Both groups identified continuing education and evidence-based research resources as positively affecting their professional identity (4.11.0 and 4.11.0, p=0.41, respectively) and (4.11.0 and 4.01.0, p=0.13, respectively). Advocacy efforts, Journal of Dental Hygiene, and Access Magazine 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 (p=0.01) and support of their career (p<0.001).

Conclusion: The desire to have a career in a health field was the most influential factor for career choice. Continuing education and evidence-based research resources most positively affects all members' professional identity.

An Evaluation of a 15-Minute Yoga Intervention Prior to Entry-Level Dental Hygiene Students' Final Exams

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Problem: Stress is a physical, psychological, or emotional response to an internal or external demand. Stress can be beneficial by enhancing productivity and motivation, or stress can be crippling, reducing performance. Health science students, including entry-level dental hygiene students, have an increased source of stress due to the rigorous curriculum, high clinical expectations, and academic demands. Numerous stress reduction treatments and pharmacological interventions exist; however, little is known about the effect yoga has on entry-level dental hygiene students' stress.

Purpose: The purpose of this study was to determine the effectiveness of a 15-minute yoga intervention to reduce entry-level dental hygiene students' stress prior to final exams.

Methods: An experimental research design using a randomized controlled trial was used. Thirty-two first year entry-level dental hygiene students were randomly assigned to either the experimental or control group. The intervention was performed prior to each final exam and included gentle yoga movements, breathing, and meditation. The control group proceeded with their normal pre-exam routines. Baseline and post-trial blood pressure, pulse and 10-item PSS data were recorded for both groups. Repeated measures of blood pressure and pulse were recorded before and after yoga for the experimental group and the control group prior to each exam. Data analyses included Paired-samples t-test, Independent-samples t-test and ANOVA, (p=0.05).

Results: The main effect for yoga from pre- to post-session was statistically significant for blood pressure (p=0.02 systolic; p=0.02 diastolic) but not for pulse (p=0.23). Significant effects on blood pressure measures showed yoga sessions reduced stress but effects sizes were small. The paired t-tests indicated the 10-item PSS values were significantly lower (p<0.00). Statistical significance of differential, beneficial effects of yoga versus control were not demonstrated: systolic (p=0.35), diastolic (p=0.46), pulse (p=0.68), and 10-item PSS (p=0.54).

Conclusion: Results demonstrated statistically significant positive effects on stress measures, particularly blood pressure, within the yoga group. However, statistical significance of yoga versus control were not demonstrated. This study provides evidence of yoga's positive effects in both physiological and psychological domains within entry-level dental hygiene students. It also achieved high levels compliance and demonstrated yoga's feasibility even during a notoriously stressful time for entry-level dental hygiene students. Research on a larger sample of entry-level dental hygiene students using yoga over the course of a semester is recommended.

US Virgin Islands' Caregiver Oral Health Knowledge and Feeding Practices of Children in Their Care

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Problem: Children with low socio-economic status have been identified as being at risk for early childhood caries. In the USVI, 32% of families live at or below the poverty

level. However, the oral health knowledge and practices of USVI caregivers, and risk for early childhood caries in USVI children, has not been investigated since the 1990s.

Purpose: The objective of this study was to understand US Virgin Islands (USVI) caregivers' oral health knowledge regarding risk factors for developing early childhood caries, and the feeding practices of the children in their care.

Methods: A cross-sectional qualitative study was conducted with three focus groups, using semi-structured open-ended questions to collect data from participants (n=16). A non-probability purposive sampling technique was employed to recruit USVI caregivers (18 years of age and older) from a resource center that provides family assistance and resources for children aged 6 years and under. The ten (10) questions used to collect data centered on children's feeding habits and participants' knowledge of risk factors for dental caries. Participants' responses were audio recorded and transcribed using an online transcription software platform. Triangulation was employed in the thematic analysis with two investigators independently identifying emerging themes.

Results: Demographic data revealed the majority of participants were single (69%), female (87%), 20 to 30 years of age (44%), with a high school education or less (63%). The thematic analysis performed on the data identified three major themes; limited knowledge of etiology of dental caries, lack of understanding of influence of feeding practices on poor oral health, and lack of recognition regarding consequences of dental caries on well-being. Although participants expressed an understanding of the relationship between diet and dental caries, the majority (n=15/93%) reported that sodas and juices were the beverages most frequently given to their children. All of the participants (n=16/100%) identified snacks comprised of fermentable carbohydrates as the first choice served to their children.

Conclusion: Study results suggest caregivers from low socio-economic status backgrounds in the USVI should be educated on the risk factors for early childhood caries, and offered nutritional guidance on how to reduce the frequency of cariogenic foods and beverages for children in their care.

Tobacco Cessation Counseling Training for Medicaid Dental Providers

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Problem: There is a higher level of tobacco use among Medicaid beneficiaries than in the general population. The aim of this project was to reduce tobacco use among Medicaid beneficiaries by supporting dental professionals to initiate and promote tobacco cessation in their practices.

Purpose: The purpose of this program was to develop open access, continuing education-based Tobacco Cessation (TC) training modules for dental professionals. Through statewide promotion of the website resources, target dental providers who treat Ohio Medicaid beneficiary patients.

Key Features: The Ohio Department of Medicaid (MedTAPP) funded a two-year grant between The Ohio State University College of Dentistry and Case Western Reserve University School of Dental Medicine to create and distribute online modules, patient scenario videos and resources on tobacco related harm and tobacco cessation methods. Contributors included professionals from dentistry, dental hygiene, public health, social work, medicine and pharmacy. A website was created to host fourteen 30-minute modules, patient scenario videos, literature references and resources for TC referrals. Module topics included foundational knowledge on tobacco harm, skills for behavioral modification, pharmacological treatment approaches and TC in special populations. To receive continuing education credits, participants register, view the module presentations and satisfactorily complete module tests. Live virtual continuing education webinars, highlighting a selection of the modules and videos, were also presented in the spring and summer of 2020, at no charge, to dental professionals and community health centers. The completed modules and website resources went live

October, 2019 and are available at: <https://www.ohpenup.com/tobacco-cessation.html>. The project connected with Community Health Clinics and Federally Qualified Health Centers throughout Ohio. Additional partners included the Ohio Dental Association, the Ohio Dental Hygienists' Association, the Ohio Association of Community Health Centers and the Oral Health Improvement Through Outreach (OHIO) Project.

Evaluation Plan/Results: As of January, 2021, 301 individuals had registered on the website; 91 registrants completed continuing education modules, with an average of 7 modules viewed. Registrants represented 6 dental professional organizations and 12 educational institutions in Ohio, along with private practitioners. Among registrants, approximately 68% were dental hygienists, 20% dentists, 6% dental assistants and 6% others. Over 40% of registrants reported serving a population of greater than 30% Medicaid beneficiaries. A nearly equal number of participants received continuing education credits through attendance at the live virtual webinars. This project encouraged dental professionals to increase their knowledge of oral and systemic harm caused by tobacco use and to expand their skills in tobacco cessation methods.

Medical Emergency Management Training Utilizing High-fidelity Simulation: Faculty Confidence Levels and Perceptions

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Problem: Dental offices are seeing a growing number of geriatric and medically compromised patients in their practices that may increase the likelihood of medical emergencies. According to the Centers for Disease Control and Prevention (CDC), 80% of the older population have one chronic disease and 50% have two or more chronic diseases. Research has indicated a lack of confidence among dental professionals when dealing with medical emergencies.

Purpose: The purpose of this study was to determine faculty confidence in managing medical emergencies in the dental clinic utilizing high-fidelity simulation and assess their perceptions on utilizing this type of training within the dental hygiene curriculum.

Methods: This descriptive quantitative pilot study used a convenience sample of dental hygiene faculty observing student medical emergency simulation training at a small Midwest

university. Prior to simulations, a pre-survey designed by the researchers was given to supervising faculty (n=11). This survey contained 12 statements regarding confidence when performing various medical emergency skills. A 5-point Likert scale was used to assess confidence. A post survey containing the same questions plus 5 additional questions regarding student engagement, learning, and future recommendations was distributed immediately following. Research data were analyzed using Wilcoxon signed-rank tests.

Results: For 11 of the 12 statements, an increase in confidence was reflected in the faculty's mean scores. A significant increase of confidence was identified for 1) administering emergency oxygen ($p=0.038$), 2) administering emergency medications ($p=0.001$), 3) obtaining accurate blood pressure readings ($p=0.025$), 4) initiating and implementing "Code Blue" emergency protocols ($p=0.012$), 5) managing a medical emergency ($p=0.011$), and 6) communicating with the patient during a medical emergency ($p=0.026$). All faculty stated the medical emergency simulation engaged the students, enhanced their learning, and would help them remember emergency procedures better. Furthermore, faculty recommended additional emergency simulation experiences and continued implementation of this type of training to teach future dental hygiene students.

Conclusion: High-fidelity simulation provides an opportunity for students to experience real-life medical emergencies without risk to patients. This type of training may be an effective tool to enhance learning and increase confidence in medical emergency management not only for the students but also for faculty in their own dental practice.

Implementing Environmental Sustainability Educational Intervention in Dental Hygiene Instruction

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Problem: The healthcare industry, including dentistry, contributes to a large portion of national waste output. Steps should be taken to minimize dentistry's contribution to waste and improve public health outcomes.

Purpose: The purpose of this study was to implement an educational intervention and assess its usefulness on improving Dental Hygiene (DH) students' perceptions and knowledge on environmentally sustainable dentistry (ESD).

Methods: A convenience sample of thirty-five second-year DH students located at a dental institution in the southern United States were recruited for this quasi-experimental non-randomized observational mixed-methods pilot study. The intervention, an online educational module titled “Environmental Sustainability and Dentistry”, was created and incorporated the 2nd year DH course “Clinical Dental Hygiene”. Students filled out pre- and post-surveys immediately before and after completing the module. Surveys utilized Likert-scale and multiple-choice questions that ranged from self-reported level of knowledge & attitude on climate change and environmental sustainability to objective knowledge-based questions. Pre- and post-module survey scores were compared with paired t-tests. Three weeks after module completion, students were assigned a follow-up assignment and post-assignment survey to get feedback on the assignment. Univariate and qualitative analyses were conducted on the post-assignment component.

Results: Twenty-four students completed the pre- and post-module survey for a response rate of 68.57%. Most participated in the post-assignment survey component (n=22, 62.86%). There was a statistically significant ($p<0.0001$) difference between pre-survey and post-survey ESD knowledge scores following the educational module intervention. There was also a statistically significant ($p<0.0001$) positive difference between pre-survey and post-survey ESD attitude scores after module completion. Most respondents (>90%) indicated that the follow-up assignment strengthened their ESD learning experience. Qualitative analysis revealed that the reflective assignment helped students apply module concepts in the real world and adopt behavioral changes to be less wasteful in clinic.

Conclusion: Findings from this study support that instructional interventions on ESD in DH education may improve student’s knowledge of ESD and encourage behavioral changes to be more waste conscious.

Web-based Unfolding Case Study in an Interprofessional Online Class

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Significance: Collaborative Online Learning (COL) has been designated by the Health Professions Accreditors Collaborative as an interprofessional learning modality that utilizes information and communication technology to facilitate collaboration

between students from different health programs or with practitioners that represent different professions. Innovative approaches to COL have been investigated to address logistical challenges that limit the implementation of interprofessional education (such as variance in program design, resources, accreditation standards, infrastructure, financing models, policy, scheduling difficulties, and geographic locations). A combination of an unfolding case study and virtual reality simulation may solve these logistical barriers while providing students with opportunities for engaging and immersive interprofessional collaboration.

Purpose: The primary objectives were 1) determine impact of a web-based unfolding case study on the knowledge, skills, and attitudes of dental, nursing, physician assistant, medical, pharmacy, and public health students in an online, interprofessional population health course and 2) gain student feedback to modify and improve for future iterations. This pilot has been expanded to include dental hygiene students in the current cohort.

Key Features: An unfolding case study was delivered within a population health class over a series of four modules relating to the topics of 1) needs assessment and quality improvement, 2) health disparities, 3) patient engagement, and 4) care coordination and collaboration. The unfolding case format utilized prototypical virtual reality to create an interactive video experience depicting a patient encounter. A total of 309 students from the listed professions were assigned to interprofessional teams of 4-5 to complete a series of activities embedded in the unfolding case

Evaluation/Results: Qualitative and quantitative data were collected to evaluate program and learner outcomes. An appraisal of activities and reflection papers was conducted to assess learner outcomes. A quantitative post-module objective-based survey, a qualitative post-course survey, and a debriefing session were used to gather data to evaluate effectiveness of the program and gather feedback for improvement of the modules. Response rates to the quantitative post-module survey varied from 57% (n=176) to 68% (n=211). Sixty-nine percent of respondents agreed that module 3 objectives were met, 79% agreed that module 4 objectives were met, 81% agreed that module 5 objectives were met, and 83% agreed that module 6 objectives were met. Qualitative data provided information about knowledge, skills, and attitudes gained from the unfolding case, feedback for further development of the virtual reality prototype, and the impact that the start of the COVID-19 pandemic had on the unfolding case.

Knowledge of HPV among Dental Hygiene Students in Illinois

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Problem: Human papillomavirus (HPV) is becoming more prevalent among individuals and manifestations can be identified in the oral cavity at routine dental visits. HPV can go undiagnosed, although patients may have symptoms present in the oral cavity. A lack of understanding exists between HPV related lesions and other intraoral conditions. Furthermore, dental hygienists must feel confident in providing education on HPV.

Purpose: The purpose of this research is to assess the knowledge of HPV and confidence in providing patient education on HPV among associate and baccalaureate dental hygiene students in the state of Illinois. Differences between seniors and non-seniors were also examined.

Methods: This IRB approved, quantitative, cross-sectional study evaluated the students' knowledge and confidence in providing patient education on HPV. A 43-item electronic survey was developed to compile data collection that consisted of demographic and polar questions. The survey was emailed to eight program directors throughout the state to forward to their students (n=69, 26% response rate). A value of 1 was assigned for each correct answer on the composite knowledge score. The highest possible composite knowledge score was 41. Composite knowledge scores and confidence questions were compared between senior students and non-seniors using an independent t-test and Mann-Whitney U test, respectively. The chi-square goodness of fit test was used to assess students' knowledge of oral manifestations of HPV. The study was approved by the SIUC's IRB (20230).

Results: The internal consistency (α) for the knowledge subscale and confidence subscale of the survey was 0.76 and 0.95, respectively, indicating adequate internal consistency for both sub-scales. There were no statistically significant differences between senior students and non-seniors for the composite knowledge scores or the confidence questions. The average confidence score for providing patient education was 3.28. Chi-square was statistically significant ($p < 0.001$) for focal epithelial hyperplasia, oral squamous papilla, and condyloma acuminatum, indicating that students identified these intraoral manifestations less frequently than expected.

Conclusions: The results indicate more education regarding HPV is indicated through the dental hygiene curriculum based on the low knowledge score and low levels of confidence in providing patient education. Dental hygiene students did not feel confident discussing HPV with their patients but felt it was important to do so. Limitations included social desirability bias and small sample size.

Implementation of the Objective Structured Clinical Examination (OSCE) in the Assessment of in Dental Materials

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Significance: The Objective Structured Clinical Examination (OSCE) is an assessment method used to measure student understanding of properties and delivery in treatment planning incorporating clinical judgement skills in clinical practice through a stepwise structure. The OSCE has been shown to be superior to written exams by fostering the learning and development of clinical competency aligning to study strategies.

Purpose: The purpose of this investigation was to compare student outcomes between the practicum and the OSCE. Prior to the OSCE introduction, only a lab practicum and examination to evaluated success. OSCE fosters learning and development using case scenarios to evaluate the student's clinical proficiency, confidence, and competence in critical thinking. In contrast, the practicum only offers practical application of the material in a laboratory setting with focus on theory.

Key Features: The learning structure uses a "tell, show, do" approach. Students attend lecture followed by positive reinforcement with a demonstration and hands on laboratory experience. The student then collects material and verbalizes the procedure and rationale to the "mock" patient. During the procedure, the student orally presents each step describing the manipulation properly and delivery of the material. The student makes the commitment to the OSCE and challenged with questions directed with temperature change and setting times appropriate to the materials. Each OSCE is built on detailed rubrics describing a step-by-step process in the manipulation and delivery of material based on a case study. Expected outcomes include patient evaluation, rationale for material use, armamentarium, patient safety, manipulation, delivery and patient post-operative instructions.

Evaluation Plan: Four cohorts of students (2017-2020) participated in the investigation comparing outcomes in dental materials. The first group (n=90, 2017 and 2018) used a traditional practicum framework. The second group (n=91, 2019-2020) used the OSCE method. Evaluation of student performance of both groups was determined through identical quizzes, and exams. The OSCE group scores reflected consistently higher performance rates, whereas the scores for groups performing practicums revealed larger difference in student understanding. Those performing OSCE's scored higher, demonstrating a significant benefit to student learning with the implementation of the OSCE.

Dental Hygiene Faculty and Student Knowledge, Psychological Health and Vaccination Behaviors Regarding COVID-19: A pilot study

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Problem: The COVID-19 pandemic has been characterized by extreme uncertainty, stress, and anxiety. Mitigating risk of contracting and transmitting COVID-19 while remaining current with the ever-changing information and guidelines has been challenging. Dental hygienists need accurate knowledge about COVID-19 in order to protect themselves and their patients. Lack of knowledge and psychological health may impact behaviors including vaccination.

Purpose: This pilot study aimed to gain insights on dental hygiene faculty and student COVID-19 knowledge, psychological health during the pandemic, and vaccination behaviors.

Methods: This descriptive quantitative pilot study used a 26-item online survey to examine the impact of COVID-19 on psychological health (10 items), decision to receive vaccination (2 items), and knowledge of COVID-19 (10 items). The validated Patient Health Questionnaire 4 (PHQ-4) screened participants for depression and anxiety. Data collected between February 26 to March 1 were analyzed using descriptive statistical methods and t-tests.

Results: The 52 participants in this convenience sample were knowledgeable about COVID-19; the faculty mean knowledge score of 8.78 out of 10 was significantly higher than students at 7.79 ($p=0.021$). Of the ten items, 69.2% of participants did not know if the Food and Drug Administration had approved any drugs to treat COVID-19, and 42.3% did not know if ultraviolet light could be used to disinfect surfaces. The PHQ-4 identified 38.5% of participants with elevated

anxiety scores and 21.2% with elevated depression scores. The mean PHQ-4 scores of students (2.57) were higher than faculty (0.89) at a significant level ($p=0.023$). Participants were significantly more anxious about contracting ($p=0.037$) and unknowingly transmitting ($p=0.002$) COVID-19 to others during normal daily activities than during clinical treatment. Of the students, 19 (46.3%) had received at least one dose of the vaccine, 13 (31.7%) intended to vaccinate in the future, and 9 (21.4%) did not plan to be vaccinated. One (11.1%) of the eight faculty did not plan to be vaccinated. Participants who did not plan to be vaccinated listed concerns about limited research regarding adverse effects.

Conclusion: In this pilot study, the majority of dental hygiene faculty and students were knowledgeable about COVID-19 and willing to be vaccinated, regardless of psychological health. It is essential for faculty to know the latest information and guidelines about COVID-19, and to educate students and patients. Further research with a larger sample is needed to determine if correlations exist between knowledge scores, vaccination behaviors, and/or psychological health.

Effectiveness of Adjunct Laser Therapy on Periodontal Pathogens: A systematic review

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Problem: Dental hygienists need to offer patients the most effective treatments possible within their scope of practice. In 2015, a systematic review and meta-analysis was published in the Journal of the American Dental Association indicating the use of photodynamic therapy with diode lasers as beneficial adjuncts to NSPT. However, the use of lasers within the dental hygiene scope of practice, including as an adjunct to non-surgical periodontal therapy (NSPT) continues to be a contentious subject.

Purpose: The objective of this systematic review was to evaluate if adjunct laser treatment was more effective than traditional NSPT alone in the reduction of periodontal pathogens.

Methods: To answer the question, "what is the efficacy of the adjunct use of dental lasers (including diode, NdYAG, ErYAG, and CO2) on microbiological parameters/indices," PubMed, Google Scholar, CINAHL, and Web of Science databases were searched for literature pertaining to the effects of laser therapy on periodontal microbes. The primary outcome was the reduction of periodontal pathogens. Inclusion criteria were randomized clinical trials, human studies, and

published in English between January 2015 and December 2020. Keywords included “nonsurgical periodontal therapy”, “periodontal disease”, “laser therapy”, and “pathogens.” These terms were combined in various ways with “AND” and “OR” commands to obtain the most narrowly defined and relevant articles. A total of 1662 records were found, and after screening titles and abstracts, 187 articles were included. After full texts of the remaining studies were screened, another 174 publications were excluded. All screening was performed by three investigators. Thirteen, relevant full-text articles were read and evaluated independently. A meta-analysis was not performed because of the heterogeneity of the study designs.

Results: Overall, seven of the studies in this systematic review reported better treatment outcomes than SRP alone while six studies reported that the outcomes were comparable to SRP alone. All studies were assessed using a Cochrane review. Nine of the articles showed low risk of bias while four of the studies showed moderate risk of bias due to lack of information regarding some of the domains.

Conclusion: Within the limitations of the studies included in this systematic review, certain types of laser treatment in conjunction with NSPT are more effective at reducing the number of periodontal pathogens than SRP alone. The adjunct use of combined Nd:YAG + Er:YAG and diode lasers, including their use in photodynamic and low-level laser therapy, resulted in more improvement of microbiological parameters than SRP alone.

Stress and Coping Mechanisms of Dental Hygiene Students Before and During the COVID-19 Pandemic

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Purpose: Stress is not uncommon among students and research has demonstrated health care students, including dental hygiene (DH) students, experience high levels of stress during their education. DH students have an added stress of requiring live patients to complete their education requirements. The COVID-19 pandemic created barriers to completing these requirements causing additional stress students. The purpose of the study was to evaluate perceived stress and coping mechanisms of DH students before and during the COVID-19 pandemic.

Methods: The cross-sectional survey research was used to assess a convenience sample of DH students (n=291). Two validated survey instruments, Perceived Stress Scale 14 (PSS-14) and Brief-COPE (Coping Orientation to Problems Experienced) questionnaire along with 5 questions addressing academic related stress and needed resources were used to assess stress and coping mechanisms of study participants. The survey was distributed on DH students Facebook® pages. Participants completed the survey twice, the first time reflecting on stress and coping prior to the pandemic and the second reflecting on stress and coping during the pandemic. Data was analyzed using Spearman’s rank, independent t-tests, linear regression, and thematic analysis.

Results: Survey completion rate was 46% (n=134). Average change in PSS scores was 10.13 (SD=10.39) which represented a 7% increase in perceived stress from before COVID-19 outbreak to the time of survey completion. DH students reported higher perceived stress (M=48.1, SD=10.4) during COVID-19 compared to their before perceived stress (M=38.0, SD=7.0), $t=-11.3$, $p<0.001$. When comparing Brief-COPE responses before and during the pandemic problem focused coping was higher for during COVID-19 compared to before. Additionally, emotion focused, and perceived avoidant coping were also higher during COVID-19 in contrast to scores perceived before. Thematic analysis identified students expressed a need for counseling; more communication and clarity from faculty and institutions; and assistance with patient recruitment.

Conclusion: Dental hygiene students experience high levels of stress and anxiety trying to meet the rigorous demands of educational programs and patient recruitment needs. Results from this study demonstrated that the COVID-19 pandemic had an impact on student stress and coping methods. Moreover, there was an increase in negative problem and emotion focused methods, and avoidant coping mechanisms. Pandemics will eventually pass but student stressors and negative coping methods will remain. Dental hygiene programs should consider including stress reducing interventions and positive coping strategies into the curriculum to provide students with skills needed to maintain overall health and well-being to support academic success.

Integrating Case Management into the Dental Hygienist's Role: Improving Access to and Utilization of Oral Health Care for Pregnant Women

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Significance: In Maryland, Medicaid provides dental coverage for pregnant women yet only 28 percent of enrollees had a dental visit in 2018. Medicaid-enrolled pregnant women experience barriers to accessing dental care, which can negatively impact maternal and child health. This innovative program aims to decrease barriers to oral health care for an underserved community while providing experience for future dental hygienists in treating patients whose health outcomes are impacted by social determinants.

Purpose: In partnership with the University of Maryland Women's Health Center (UMWHC), the University of Maryland School of Dentistry's (UMSOD) Dental Hygiene program developed a case management protocol for low-income pregnant women to increase utilization of oral health care services. This program was designed to expand access to oral health care by integrating dental hygiene faculty and students into the prenatal healthcare protocol at a university-based women's health center.

Key Features: Key features of the program include (1) frequent dialogue between the UMWHC prenatal providers and the UMSOD to manage dental referrals and address patient concerns and 2) a streamlined, multistep process at the UMSOD to schedule, register, and coordinate oral health care that builds patient trust and addresses patients' dental needs. Information regarding prenatal oral health care safety, importance, and coverage by Medicaid, is disseminated to pregnant women through Zoom presentations during UMWHC "baby shower" events and case management services (via text or phone). These services are integral to increasing oral health equity for vulnerable pregnant women and expands the scope of dental hygiene practice.

Plan Evaluation: Data has been collected monthly by the program coordinator since program initiation in 2018, to evaluate effectiveness. Measures include: 1) number of pregnant women referred to the UMSOD from the UMWHC, 2) number of pregnant women who report for dental appointments at the UMSOD, 3) number of pregnant women who do not show for dental appointments at the

UMSOD, and 4) number of pregnant women who complete comprehensive dental hygiene care. Current program data collected through case management of all UMWHC referrals indicates that partnering with the UMWHC and providing case management services has: 1) increased referrals from 5 to 30 per month, 2) increased the number of pregnant women who have dental appointments from 3 to 12 per month, 3) decreased the percentage of pregnant women who do not show for appointments from 75% to 31%, and 4) increased the percentage of pregnant women who completed dental hygiene care from 47% to 62%.

The Correlation between Periodontal Disease and Systemic Health in Rural Southern Illinois

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Problem: Patients who are treated in the dental practice often do not associate oral health with systemic health. Incomplete health history self-reporting confirms the lack of knowledge of current or existing health conditions. Periodontal disease can affect all individuals, although there is a higher prevalence among those living below the federal poverty level. In the southern Illinois region, approximately 1/3 of the population is covered under the medical assistance program.

Purpose: The purpose of this study was to identify the correlation between systemic health issues and periodontal disease and determine if consistencies exist with data from southern Illinois and national trends.

Methods: A convenience sample of current patients in the advanced periodontics clinic at Southern Illinois University Carbondale (SIUC) agreed to participate in this IRB approved study. An Excel data sheet was used to gather demographic information in addition to health issues and dental concerns from June 2019 to February 2020. Medical information included conditions that affect the nervous system, respiratory system, endocrine system, bone/muscle disorders, digestive system, urinary system, heart/blood vessel disorders and 'other' conditions. Patients received a periodontal screening to determine calculus deposit levels and the overall periodontal condition. Chi-square test of independence was calculated to test the relationship between systemic health issues and periodontal disease.

Results: High blood pressure was the most reported systemic health issue among all patients and among those ages 50 and older. Statistically significant relationships were found

between periodontal disease and high blood pressure, joint pain, and arthritis among all patients (n=927). No statistically significant relationships ($p < 0.05$) were identified among those age 50 and older (n=348) however, not all patients completed all portions of the health history.

Conclusion: Oral-systemic relationships between periodontal disease, hypertension and joint conditions were identified from the data collected at the dental hygiene clinic at SIUC, an access point for patients who lack health care in the region. The dental hygiene clinic is the access point for patients who lack healthcare in the region. Future research should focus on educating this vulnerable population on oral-systemic health and overall risk reduction.

Comparison of Single Operator Using Hand-held High Volume Evacuation Systems versus Slow Speed Suction During Ultrasonic Usage

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Problem: Aerosols and splatter are produced during a variety of dental procedures such as the use of ultrasonic instruments, handpieces, and air polishers. These airborne particles may contain harmful microorganisms. A common approach to contain aerosols and splatter is the use of a high-volume evacuation (HVE) system. It is unclear which HVE systems are most effective at removing aerosols and spatter.

Purpose: The purpose of this study was to measure aerosol containment when various forms of suction were utilized. The various forms included slow-speed saliva ejector, saliva ejector adapter used with HVE, HVEsolo^â, Purevac^â and Safety Suction^â.

Methods: This was an observational study. Trials were completed using a dental mannequin. Two calibrated investigators completed ultrasonic instrumentation on all surfaces of the anterior teeth. Glo Germ^â gel was placed on the cervical 1/3 of the anterior teeth and investigators were timed for 2-minutes. Purevac^â HVE instructions were utilized. Thirty trials were conducted for each system. For each trial, paper with a 175-cell grid, cells measuring 1 cm³ were placed 3 inches from the opening of the oral cavity at a 50-degree angle to the floor. Two investigators recorded readings using black light. An Intraclass Correlation Coefficient (ICC) was obtained from data retrieved from the saliva ejector results.

The ICC represents the interrater reliability. Results indicated that ICC=.98 which indicates excellent agreement. This supports the reliability of the assessment technique. Cells with Glo Germ^â were counted as contaminated. A one-way ANOVA was used to examine how the HVE groups differed on the number of contaminated cells.

Results: Results indicated that there were significant group differences, $F(4, 144) = 22.23$, $p < .001$, $\eta^2 = .38$. Post hoc pairwise comparisons indicated that the control group (saliva ejector) had a significantly lower number of contaminated cells than each of the other groups ($p < .01$). The slow speed suction, with no HVE utilized, resulted in 4.71% contaminated cells. The least number of cells contaminated when using HVE was the PureVac^â with 8.81%. The remaining HVE tested had higher percentages of contamination: HVE solo^â (11.8%), Safety Suction^â (13.9%), and Saliva Ejector Adaptor (15.9%).

Conclusion: The results indicated that using slow-speed suction alone presented with the least amount of contamination. The possible reasons for this are that the HVE suction, utilized in the anterior region, nearest the orifice, causes a disturbance in the aerosols and spatter, catapulting the contaminant into the atmosphere.

Reducing Fatigue and Musculoskeletal Burden while Improving Clinician Comfort and Efficacy During Ultrasonic Scaling using a Novel Wristband Cord-Holder*

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Problem: Ultrasonic scaling, and many forms of dental instrumentation are related to a wide range of musculoskeletal diseases, as well as intra- and postoperative discomfort and fatigue.

Purpose: The goal of this study was to evaluate the effect of a novel wearable cord-holding device (Cordeze[®], Phoenix, AZ) on muscle work, musculoskeletal symptoms, fatigue, and comfort during ultrasonic scaling.

Methods: This was a randomized, controlled crossover clinical study. A standardized ultrasonic scaling task was performed twice by 5 right-handed hygienists with no history or symptoms of musculoskeletal disease. Using a dental

typodont with standardized calculus load, testers spent 2 minutes scaling each lingual or buccal surface of each quadrant respectively. The entire scaling protocol was performed twice: once with and once without the novel wearable cord-holding device which attaches to the ultrasonic scaler cord to anchor it and reduce cord pull-back during instrumentation. The sequence of wristband use vs non-use was randomized, and the 2 study arms were interspersed by a 20-minute rest period. Muscle activity in four hand and arm muscles was recorded throughout scaling using four wireless surface EMG (sEMG) electrodes (FreeEMG™, BTS Engineering, Quincy, MA). Hygienists' hand, finger and arm positions were filmed during instrumentation and ultrasonic cord pullback force measured using a tensional dynamometer. Immediately after scaling, Visual analog scale (VAS) measures of comfort, hand, wrist, and arm fatigue were recorded on a scale of 0-10. The timepoints at which sensations of fatigue, discomfort and pain occurred and at which testers made non-functional grip adjustments to counter discomfort throughout scaling were recorded. sEMG traces were analyzed using multivariate ANOVA and Bonferroni post-hoc tests; t-tests for the remaining analyses.

Results: Based on sEMG measurements, work/s during scaling was reduced by 30% and total work to complete the scaling task by 25% using the wristband (sig., $p < 0.05$). VAS surveys showed that combined fatigue in all 4 muscles was reduced by 60% using the wristband, and comfort improved by a factor of 3 (sig., $p < 0.05$). Time to onset of musculoskeletal symptoms doubled (sig., $p < 0.05$), 60% fewer non-functional grip adjustments were made (sig., $p < 0.05$) and overall testers reported 80% fewer symptoms using the wristband (sig., $p < 0.05$). Cord pullback force was eliminated using the wristband, while measuring 2.3 N without it.

Conclusion: Results from this pilot study demonstrated that a novel wristband cord-holder may improve the ergonomics and reduce musculoskeletal burden of ultrasonic scaling.

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Comparison of a Novel Curette Handle Design to a Stainless-Steel Handle on Hand and Arm Fatigue when Scaling

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Problem: Musculoskeletal diseases (MSDs) affect most dental clinicians. Current instrument handle designs are linked to MSD-related variables including fatigue, reduced pinch & grip strengths.

Purpose: To compare fatigue, comfort and muscle work associated with the use of 2 periodontal curettes during scaling. One curette featured a novel, bendable adaptive handle design, the other a conventional stainless-steel design. Long-term goal is to develop, test and validate an optimized periodontal curette design that overcomes barriers to improving musculoskeletal health in dental clinicians and improves instrumentation efficacy.

Methods: This was a randomized cross-over clinical study. Twelve dental hygienists with no signs or symptoms of MSDs were recruited to scale a typodont using 2 Universal curettes with different handle design. One curette was a prototype featuring an adaptive silicone-covered handle (Curette A), the second a stainless-steel curette (Curette B). The sequence of instrument use randomized (randomizer.com). All testers completed standardized training. Teeth in a typodont model were then scaled using a standardized protocol by all testers. Four wireless surface EMG (sEMG) electrodes (FreeEMG™, BTS Engineering, Quincy, MA) were attached to each tester's dominant hand and arm to trace activity in 4 muscles during instrumentation: Extensor digitorum communis, Flexor digitorum superficialis, Extensor carpi radialis brevis, and First dorsal interosseous muscles. Correctness of a modified pen grasp, blade adaptation, operator fatigue and comfort, as well as pre- and post-instrumentation pinch and grasp strength were additionally recorded using image analysis, VAS scales and dynamometers. Paired t-tests and a repeated measures ANOVA with covariates tested for differences between instruments for each evaluation criterion. Significance level was $p < 0.05$.

Results: Curette A performed significantly better in all categories ($p < 0.05$). Muscle fatigue at completion of the set scaling task averaged 30% less for Curette A than Curette B. Instrumentation with Curette A required 25% less total muscle work and significantly less work in each of the 4 individual muscles. Curette A was rated as 80% more comfortable than Curette B. Testers implemented a correct instrument grasp 35% more often and optimal blade-to-tooth adaptation 75% more often using Curette A than Curette B. Pinch and grasp strength were significantly reduced post-instrumentation for Curette B (mean 19%) but not for Curette A (mean 9%).

Conclusion: A curette featuring a novel adaptive, silicon-surfaced handle design demonstrated significantly improved ergonomic performance as compared to a conventional stainless-steel curette. Additional clinical studies are needed to evaluate the potential short- and long-term benefits of the novel curette handle design.

An Oral Health Viewpoint of Grandparent Caregivers Raising their Grandchildren

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Problem: Approximately 2.7 million children are being raised full-time by their grandparents in the United States. Children living with their grandparents often reside in racial and ethnically diverse, low-income households, where oral health disparities continue to exist. The rate of caries in primary teeth of Mexican American, non-Hispanic black, and low-income children was one to two times greater than non-Hispanic white and higher-income children. Limited research has been conducted investigating the grandfamily dynamic as it relates to children's oral health.

Purpose: This study had two aims, first to investigate grandparent caregivers' perceptions, behaviors, and knowledge of oral health for the grandchildren they are raising; and, secondly to explore potential influences of the caregiver's knowledge, perceptions, and behaviors held regarding their grandchild's oral health.

Methods: This descriptive, cross-sectional survey study recruited grandparents who were the primary caregiver of their non-adult grandchild(ren) at various public health centers in Ohio and on various online grandparent support forums. The

questionnaire was initially validated from previous studies and further developed in this study through content validity. The questionnaire contained 26 items: knowledge (6), perceptions (5), values (5), behavior intent (2), and demographics (8). Lastly, before implementation, the questionnaire was pilot tested for readability and comprehension with an individual who met the study inclusion.

Results: Seventy-five grandparents participated in the study. Of the 75 participants, 72.6% ($n=53$) identified as White/Caucasian and 19.2% ($n=19.2$) identified as Black/African American. Approximately 47% ($n=34$) of participants reported having a high school diploma or less. Results indicated that grandmothers were primarily responsible (76.7%, $n=56$) for their grandchild's dental care and understood the significance of preventive dental care; with 26.9% ($n=21$) reporting that they were not confident in recognizing early dental caries. Most participants (52%, $n=42$) answered the oral health knowledge questions correctly. The study showed a relationship between low-income grandparents ($M=3.94$, $SD=1.02$) having greater pediatric oral health knowledge than their higher-income counterparts. Additionally, grandparent caregivers' knowledge may influence the oral health of their grandchildren.

Conclusion: While not generalizable, this study found that regardless of a grandparent caregiver's socioeconomic status, oral health knowledge does influence oral health-related behaviors and values, which can positively motivate their grandchild's oral health behaviors. Further exploration of this topic with variable associations using a larger sampling and broader region of the country is warranted.