

DENTSPLY/ADHA Graduate Student Clinician's Research Program Posters

Attitudes Towards Students Who Plagiarize: A Dental Hygiene Faculty Perspective

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The purpose of this study was to examine how baccalaureate dental hygiene faculty members address students who plagiarize. The survey instrument consisted of 32 items. An email containing the survey link was sent to 52 baccalaureate dental hygiene program directors in the U.S. Faculty at 30 dental hygiene programs participated in the study. Of the 257 faculty members who received the survey link, 106 completed the survey for a response rate of 41.2%. The faculty thought that plagiarism was a rising concern within their dental hygiene program (54.5%, n=54). The majority of the faculty checked for plagiarism on student class assignment/projects (67.1%, n=53). For those faculty who did not check for plagiarism, 45.8% (n=11) stated it took "too much time to check" and it was "too hard to prove" (16.6%, n=4). The most frequent form of student plagiarism observed by faculty was "copying directly from a source electronically" (78.0%, n=39). Most faculty checked for plagiarism through visual inspection (without technological assistance) (73.0%, n=38). Of the faculty who used plagiarism detection software/services, 44.4% (n=16) always recommended their students use plagiarism detection software/services to detect unintentional plagiarism. For those faculty who caught students plagiarizing, 52.9% (n=27) reported they "always or often" handled the incident within their dental hygiene department. However, 76.5% (n=39) of the faculty did not report the student's violation to an academic review board.

Dental Hygiene Student Experiences Using Motivational Interviewing

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Motivational interviewing is a patient-centered, goal driven counseling method used in a variety of health care settings to encourage behavior changes in pa-

tients. The purpose of this qualitative study was to explore dental hygiene students' experiences using a specific technique of motivational interviewing. This study utilized a convenience sample of 6 senior baccalaureate dental hygiene students. A 2 hour training session was used to teach the participants about motivational interviewing. In particular the training emphasized open-ended questions, affirmations, reflections, and summaries (OARS). These training sessions were given before students worked with patients. The researcher used observation and interviews to assess the participants experience with the concept of motivational interviewing. Several themes supporting previous research were discovered, as well as 3 new themes: reservation, control and focus. The results indicated an overall positive student experience. Further investigation is needed to explore in-depth educational training with motivational interviewing and the student experience.

Keywords: motivational interviewing, open-ended questions, affirmations, reflections, communication, behavior change, dental hygiene education, empathy, dental behaviors

Oral Hygiene and Adherence During Orthodontic Treatment in Appalachia

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Objectives: Orthodontic intervention requires participation by the patient and parents/caregivers. In some cases, orthodontic care is terminated prematurely, either by orthodontists due to poor patient compliance, or by patients or parents/caregivers because of fatigue, disinterest, or other factors. With unique issues affecting oral health in Appalachia, there is a need to identify ones that affect the success of orthodontic treatment. This study was conducted to determine contributing factors in orthodontic adherence, hypothesizing that self-pay patients/families would have the highest completion rates.

Method: A retrospective chart review was conducted in a rural West Virginia private practice, including 278 (56% female) patients, which completed or ter-

minated treatment from 2007 to 2012. Data collected included treatment outcome, payment type, distance traveled, demographics and oral hygiene ratings.

Results: Across all payment types was a 38% successful completion rate. A Chi square test ($p < 0.0002$) revealed differences across groups, with Medicaid/CHIP group ($n=225$) having the lowest success rate (34%). The private insurance group ($n=19$) had a similar completion rate (36%), while self-pay patients ($n=34$) were much more likely to successfully complete orthodontic care (74%). Distance traveled did not differ across groups. Oral hygiene ratings recorded were associated with completion rate.

Conclusions: Significant differences in completion rates related to payment type are noteworthy. Of the patients with public funding, two-thirds did not successfully complete treatment. It is essential that psychosocial interventions be devised, along with encouraging oral health values and requiring appointment adherence to improve orthodontic completion rates in Appalachia.

Factors Associated with Clinical Skill Remediation in Dental Hygiene Education Programs

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Evaluation of students in a clinical environment can be difficult for a variety of reasons including faculty calibration, patient conditions and institutional guidelines. Early identification of skill deficits is critical in order for remediation to begin early in the educational process before deficiencies become complex. Dental hygiene programs must follow standards for student skill progression as set by the Commission on Dental Accreditation (CODA). Clinical skill acquisition is one of the most complex aspects of dental hygiene education. The purpose of this study was to examine the challenges related to formal clinical remediation in dental hygiene programs. A 23 item investigator-designed survey was electronically distributed to 303 entry-level dental hygiene program directors in the United States. A response rate of 36% was achieved. Descriptive statistics and Chi-square analyses were utilized to evaluate relationships between responses and the degree awarded from each institution. Results indicate the majority of programs have clinical remediation policies. The majority of respondents (67.8%) reported identifying students with clinical deficiencies in the pre-clinical semester, and 15.5% of respondents identified students in the second year, second clinical semester. One of the greatest

challenges recognized by respondents (25.2%) was finding time in the curriculum to deliver remediation. These findings indicate respondents are aware of the need for clinical remediation policies in dental hygiene programs but varied as to when in the curriculum the need for remediation was identified.

Assessing Critical Thinking Outcomes of Senior Dental Hygiene Students Utilizing Virtual Patient Simulation

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Dental hygiene, as well as dental, education has been charged with the task of determining which educational practices promote critical thinking, a quality necessary to translate knowledge into sound clinical decision making. The purpose of this pilot study was to determine the effects of virtual patient simulation on critical thinking in dental hygiene students. Virtual patient simulation is an active learning strategy that uses computer based virtual patients to create a simulated patient experience in a controlled environment. Virtual patients are designed to replicate as authentically as possible real-life clinical scenarios.

A pre- and post-test design utilizing the Health Science Reasoning Test evaluated the critical thinking scores of second year dental hygiene students at The University of Texas School of Dentistry Dental Hygiene Program who participated in virtual patients during their senior year. Quantitative data were analyzed using descriptive statistics to compare the data.

A paired t-test was conducted to compare the pretest and posttest scores. There was an observable gain in the critical thinking scores, although the paired t-test did not demonstrate a statistically significant gain in this relatively small sample from pre- to post-test. Analysis included the difference in scores from each individual from pretest to posttest. While the mean difference score was only 0.77, some test takers improved their scores as much as 6 points.

The results of this pilot study may have implications to support the use of virtual patient simulations in dental hygiene education. Further research is needed to validate the findings of this study.

Dosimetry Using Three Intraoral Radiologic Device/Collimator Combinations

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Concern with the increase in potential risks associated with dental radiography following the ICRP's 2007 modification of weighting factors for calculating effective dose has renewed interest in the concept and principles of ALARA (As Low As Reasonably Achievable).

Hypothesis: There is no difference in effective dose (E) among 3 collimator modalities.

Methods: Simulated full mouth series (FMX) were exposed on adult (18 projections) and child (12 projections) phantoms using a 6 cm diameter circular collimator, universal rectangular (standard) collimator, and an enhanced rectangular (test) device for both child (with and without thyroid shielding) and adult phantoms. Dosimetry was acquired using optically stimulated luminescence (OSL) dosimeters at 24 anatomical sites in the head/neck region. Exposures were made using 70 kVp, 8 mA (adult: 0.20 and 0.32, child: 0.16 and 0.25). E (μSv) was analyzed using ANOVA and Tukey HSD.

Results: Mean adult E was significantly different ($p=0.001$) among the three modalities: circular (95 μSv), test rectangular (76 μSv), standard rectangular (59 μSv). Child doses were significantly different ($p=0.0005$) between standard rectangular (48 μSv) and circular (80 μSv) as well as between standard rectangular and test rectangular (70 μSv). Child with thyroid shielding resulted in a statistically lower equivalent thyroid dose ($p=0.004$) with the standard (271 μGy) as compared to circular (558 μGy) and test (519 μGy).

Conclusion: Rectangular collimation (standard and test) appeared to significantly reduce dose in the adult exposures. In the child, significant dose reduction was achieved only with the standard rectangular collimator when compared to the circular collimator. Dose differences may be attributed to the size of the rectangular field and thyroid shielding used.

Perception of Hearing Loss Associated with Ultrasonic Instrumentation: A Survey

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Objectives: The primary purpose of this study was to determine if there was a relationship between ultrasonic use and dental hygienists' perception of hearing loss.

Methods: This study used a non-experimental survey design to question Minnesota dental hygienists on their work history and ultrasonic practices. A randomized sample of 205 currently registered dental hygienists was obtained from the Minnesota Board of Dentistry. Twenty-eight subjects were excluded, allowing for 177 dental hygienists to receive the descriptive questionnaire.

Results: The response rate was 57.6% allowing 84 surveys to be analyzed. Descriptive statistics indicated a high percentage of female subjects working in a general practice dental office. Two subgroups of subjects were compared: those who indicated they had experienced hearing loss vs. those who did not. Inferential statistics indicated age, use of hearing protection, awareness of hearing loss, and utilization of hearing testing were all statistically significantly different between the 2 subgroups ($p<0.05$). Those who had a perception of hearing loss were older ($p=0.0173$), placed higher importance on using earplugs ($p=0.0188$), on awareness of hearing loss occurring ($p=0.0301$), and on hearing testing ($p=0.0117$).

Conclusions: Results concluded that a significant relationship between perceived hearing loss and ultrasonic use was not found and that employer education and provision of hearing protection may be motivational to dental hygienists in incorporating auditory protective devices into their current protocol. This research will potentially aid in the implementation of annual auditory examinations and use of proper auditory protective devices to be worn by dental hygienists.

Impact of Adjuvant Techniques in Oral Cancer Screenings on Motivation to Quit Tobacco Use

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The impact of oral cancer (OC) screenings and brief tobacco cessation education with or without adjunctive techniques (ATs) on motivation to quit tobacco use was explored. Subjects ($n=60$) were randomly assigned to positive control (PC) or intervention groups. Participants completed pretests and posttests evaluating motivation to quit. Both groups received standard and AT OC screening and brief tobacco cessation education. The PC group completed posttests before AT. The intervention group completed posttests after AT. There was a significant difference between pre- to post-likely to quit scores in

PC ($p=0.025$) and intervention ($p=0.014$) groups. There was a significant difference in pre- to post-confidence scores across both groups ($p=0.000$) but no significant interaction between groups ($p=0.090$). Screening for OC and brief tobacco cessation education with and without AT improved subjects' likely to quit and confidence scores which have predictive validity for cessation. Professional OC screening with related education are encouraged.

Oral Education for Nursing Home Staff: Minimum Data Set 3.0

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This research study is based on an educational module presented to nursing home staff addressing assessment criteria of the Minimum Data Set 3.0 (MDS) dental section, a tool used by staff to evaluate residents' overall health. Relationships were tested between educating nursing home staff on the dental section and accurate completion of the MDS; between educating staff on correct oral assessment and resulting subsequent referrals for dental treatment; and between dental education and staff perceptions regarding the provision of oral assessment and home care. MDS assessments for nursing home residents ($n=176$) were collected pre- and post-implementation of the educational module, showing an increase in oral conditions identified by nursing staff but a decrease in total assessments completed. Referral rates were collected and statistically significant difference was found using McNemar's test ($p=0.0018$) between the pre-implementation referral rate of 16% and post-implementation referral rate of 30%. Nursing home staff were given pre-implementation and post-implementation Likert surveys. Wilcoxon Signed Rank Test found the education module made them feel more comfortable performing oral assessments ($p=0.0009$) and referring for subsequent dental treatment ($p=0.0313$). These results suggest educating nursing home staff on identification of oral conditions and completing the MDS 3.0 dental section increases their knowledge and perceptions in providing oral assessments. Additionally, referrals to an oral health care provider may increase. Further longitudinal studies may determine best practices for educating nursing home staff to increase their ability to assess the oral cavity and provide appropriate measures to improve oral health of nursing home residents.

Impact Crescent Community Health Center's Dental Department on Utilization of Oral Health Care For Low Socioeconomic and Medicaid Populations

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Clinical setting: Crescent Community Health Center a FQHC, located in Dubuque, Iowa, a population of 57,637, serves a rural tri-state region comprised of Iowa, Illinois and Wisconsin. CCHC recognizes barriers in oral health care lay in socioeconomic status (SES), race, payer type, gender, age and region.

Objectives: FQHCs with a dental component serve populations with the greatest health disparities: ethnic and racial minorities, the uninsured, underinsured, rural residents and Medicaid. However, there are no nationally accepted, oral health measures required by HRSA grantees to report to the Uniform Data System (UDS). The purpose of this study is to report on oral health performance measures recommended by Health Resources and Services Administration's (HRSA), and US Department of Health and Human Services (DHHS) over 5 fiscal years.

Methods: This report used descriptive statistics extrapolated from CCHC's databases HealthPro, and Centricity, analyzed by SPSS to report percentages, and proportion of national dental performance measures from 2007 to 2011.

Results: National performance measure #9, the use of sealants of third graders (aged 8 to 9) over a 5 year period, revealed out of 3,373 procedures, 319 (9.5%) were sealants. Health systems capacity indicator #7b, number of dental visits by Medicaid children (aged 6 to 9); showed Medicaid with 85% ($n=6207$) visits, uninsured 9% ($n=648$) and privately insured 6% ($n= 421$).

Conclusion: Medicaid (aged 6 to 9) received majority of procedures, uninsured and privately insured percentages were significantly smaller. These results show, while CCHCs dental department provides effective access to dental care for Medicaid patients, evidence of low utilization for uninsured populations still exist.

Fluorescence Technology Versus Visual and Tactile Examination in the Detection of Oral Lesions: A Pilot Study

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Purpose: The purpose of the study was to compare the effectiveness of the VELscope®, versus traditional (visual and tactile) oral examination in detecting oral lesions in an adult high risk population. **Methods:** A convenience sample of 30 participants (17 cigarette smokers and 13 dual addiction smokers) was enrolled. For the purpose of this study, dual addiction was defined as tobacco plus Hookah. Two trained and calibrated dental hygienists conducted all examinations. Traditional oral cancer examinations were conducted, followed by fluorescence examinations. All subjects received an inspection of the lips, labial mucosa, buccal mucosa, floor of the mouth, dorsal, ventral and lateral sides of the tongue, and hard and soft palate. Both evaluations took place in 1 visit. All participants received oral cancer screening information, recommendations and referrals for tobacco cessation programs and material on the 2 types of examinations provided. **Results:** Thirty subjects, between the ages 18 to 65 were enrolled (23 males and 7 females). The duration of tobacco use was significantly higher in cigarette smokers (14.1 years) than dual addiction smokers (5 years). The average numbers of cigarettes smoked per day were 13.5 compared to 14.2 cigarettes for dual addiction smokers. Neither the traditional oral cancer screening nor the VELscope® examination showed any positive lesions. No lesions were detected; therefore, no referrals were made. **Conclusion:** Study participants were considered high risk based on demographics (current smokers and males). Results support data from the American Cancer Society, which indicates that males smoke more cigarettes than females and that males are at a higher risk of oral cancer. Furthermore, individuals who have dual smoking addictions (Hookah and cigarettes) are on the rise, which increases the oral cancer risk. Results from this study suggests that the traditional visual and tactile oral cancer screening produced comparative results to the VELscope® examination. Neither technique revealed any positive oral lesions.

The Licensed Dental Practitioner: A Study of Perceived Need and Public Acceptance

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Problem Statement: Currently, many people are having difficulty affording and/or accessing dental treatment in Vermont. The state faces dental shortages indicated by the 23 dental shortage areas and the lack of affordable oral health care.

Purpose: This study sought to identify Vermont's public perception of access to dental care in the state and the proposed need and acceptance of a midlevel dental provider the Licensed Dental Practitioner (LDP). The study focused on variables, such as support for the LDP, types of insurance benefits, types of dental treatment regularly sought, delayed dental treatment due to unaffordability, and the level of difficulty accessing dental treatment at Vermont dental clinics.

Methods: A descriptive research design was conducted that included a researcher designed survey. The instrument was distributed to patients at 4 Vermont dental clinics which provide dental or dental hygiene services at no charge or at reduced rates to underserved populations.

Results: Two hundred and eighty-seven (287) surveys were returned yielding a 57% response rate. Results revealed that most patients (90.7%) would receive dental services from an LDP. Over half (63.6%) of the respondents stated they have delayed dental treatment due to cost.

Conclusion: The figures show strong correlations between people who support the LDP and people who have an access to dental care need. In addition, creating the LDP in the State of Vermont would increase the number of providers trained to treat the underserved and decrease the population's dental disparities.

Keywords: Dental Health Profession Shortage Area, Licensed Dental Practitioner, Mid-level provider, Workforce modeling

NDHRA: This study supports the NDHRA priority area, Health Services Research: Identify how public policies impact the delivery, utilization, and access to oral health care services.