

CLL Poster Session

Integrating Oral Health Literacy into the Dental Hygiene Curriculum—A Model.

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Oral Health Literacy (OHL) is measured as a functional literacy – a human’s ability to apply reading skills to daily tasks. Overall, all developed instruments (REALD–99, REALD–30, TOFHLID, and OHLI) measure functional literacy but do not seize the full range of skills required for health literacy. Current OHL assessments cannot distinguish among: reading ability, lack of health–related background knowledge, lack of understanding of health–related language and materials, and cultural differences in approaches to health.

The National Assessment of Adult Literacy survey revealed that 53% of the adult population in the U.S. has intermediate health literacy scores the same survey found that health literacy varies by ethnicity, race, poverty level, and level of education. Studies show that patients forget up to 80% of what their doctor tells them as soon as they leave the office and nearly 50% of what they do remember is recalled incorrectly. Lastly, low HL is costly. Recent reports estimate that the cost to the American society is now between \$106 billion and \$238 billion each year.

The assessment of oral health literacy is important to dental hygiene care outcomes. This model focuses on oral health communication and education related to age–targeted prevention, cultural competence, and access to care. Community oral health outreach initiatives and partnerships can further educate patients to enhance positive treatment outcomes. These topics are covered in the second semester clinical course and the third semester Community Oral Health course. The intent of this model is to incorporate oral health literacy into clinical and community interactions providing baseline information to assist in education and treatment strategies.

This model includes student peer collaboration to assess communication and develop effective oral health education strategies based on age, educational and cultural backgrounds in the Oral Hygiene II course. Students further apply the oral health literacy model to community oral health initiatives and a collaborative mock grant writing assignment in the Community Oral Health course. The evaluation mechanism for success for these projects is competence based measuring out-

comes related to student knowledge, performance. Patient outcomes are measured related to knowledge and treatment outcomes. Limitations include cultural belief related to health practices, language barriers and access to care.

This pilot project demonstrated that opportunities to incorporate oral health literacy into the dental hygiene curriculum with interdisciplinary activities are also increasing and should continue to be explored to expand overall health literacy for both patients and health professionals.

Survey of Dental Hygiene Journal Peer Reviewers.

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Objectives: Peer reviewers are essential contributors to quality of publications in scientific journals, yet little is known about challenges and benefits of being a peer reviewer for a dental hygiene journal. The purpose of this survey research was to examine peer review behaviors, ethical and professional concerns, and challenges encountered during the peer review process.

Methods: A nursing survey with established reliability and validity was modified to reflect the Dental Hygiene profession. IRB approval was obtained and the survey was pilot–tested for face validity. A sample of all reviewers (n=90) for a refereed dental hygiene journal were invited to participate in an electronic survey (SurveyMonkey®). Eighty three response items measured 6 constructs: level of involvement in reviewing; relationships with editorial staff; preparation for the role of reviewer; experiences and challenges; ethical conflicts; and general reviewer experiences. Responses were collected electronically and reported in aggregate. Descriptive statistics were utilized.

Results: Seventy percent responded (n=63). The majority (92%) have a masters or doctoral degree. Most (67%) are currently involved in research. One to three reviews are completed by 78% annually. Reasons for turning down invitations to review include timing of deadline (63.8%), competing work priorities (46.6%)

and lack of content expertise (44.8%). Most (68.6%) desire access to comments by other reviewers and 76% want feedback about their review. The majority (84.8%) are satisfied/very satisfied with communications with the editor/editorial staff. Most have encountered ethical conflicts with submitted papers, including insufficient protection of animal/human subjects, duplicate publication, plagiarism and legitimacy or honesty in representation of data. All report a high value of this professional opportunity.

Conclusion: Reviewers for dental hygiene journals encounter challenges, but value serving in this role and desire to improve.

Student Learning Outcomes of Oral Health Content Integration into Physician Assistant and Nursing Curricula by Dental Hygiene Faculty.

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The literature indicates many health profession students are not well prepared for oral health promotion and assessment in their educational programs. This is related to a lack of oral health related competencies in many allied health curricula. The purpose of this study was to determine the effectiveness of DH faculty delivering oral health content developed by, Nursing, PAS (Physician Assistant Studies) and dental hygiene faculty, at a not-for-profit private educational institution, based on the discipline-specific accreditation standards and course objectives for Nursing and PAS students.

A pre/post-test was developed by the investigators based on the literature and planned oral health content, and approved by the IRB. The test items consisted of the following: oral health knowledge, perceived level of confidence in assessing patients' oral health, and effectiveness of the content when delivered by dental hygiene faculty. Both nursing and PAS students (n=207) completed the pre- and post-tests with sixty-four percent (n=136) of the participants being PAS students and 36% (n=71) nursing students.

The mean score for the PA and nursing students on the oral health knowledge questions was 77% on the pre-test, and 88% on the post-test. Questions related to the students' perceived level of competence in oral health assessment on the pre-test indicated that 33% (n=68) of the PAS and nursing students felt competent in their oral health assessment skills, while on the post-test 86% (n=177) felt competent in their assessment skills. In regard to the post-test questions, measuring the effectiveness of the dental hygiene faculty in pre-

senting oral health content, 96% (n=198) of the PAS students and nursing students felt the involvement of the dental hygiene faculty enhanced their learning.

Comparison of the outcomes of the pre- and post-tests demonstrated a marked improvement in students' understanding of oral health and disease and in their confidence in identifying and assessing oral health issues. In addition, student responses indicated dental hygiene faculty were successful in delivering oral health content and in enhancing the students' ability to use this knowledge. The success of this interdisciplinary experience serves as a building block in the development of a model for integrating oral health content in other health professions.

Building Online Learning Communities in a Graduate Dental Hygiene Program.

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The literature abounds with research related to building online communities in a single course; however, limited evidence is available on this phenomenon from a program perspective. The intent of this qualitative case study inquiry was to explore student experiences in a graduate dental hygiene program contributing or impeding the development and sustainability of online learning communities. Approval from the IRB was received (HSC #3618).

Participants were recruited from a stratification of students and graduates. Informed consent procedures were followed and 17 participants completed semi-structured interviews; the interaction was audio recorded, transcribed and verified to ensure verbatim transcription. Data analysis was completed through two rounds; one for coding responses and the second to develop common themes.

The participants' collective definition of an online learning community was a complex synergistic network of interconnected people who create positive energy. The findings indicated the development of this network began at the hybrid program orientation. This experience was beneficial for building a foundation for the community and was important for understanding how to contribute to online learning and getting connected.

Factors promoting the learning community were based on the commonality of being dental hygienists and graduate students, yet different experiences provided opportunities for learning. Students felt socially connected through the development of personal relationships, mutual appreciation and communication that

was respectful and encouraging. A supportive network was experienced as being a contributor, receiving positive feedback, and mentoring each other. Course design was another important factor; communicating in Coffee Shops and weekly discussions, and participating in group and peer review activities. Instructors were viewed as active participants in the community, offering helpful feedback and being a facilitator in discussions, attentive to adult learning principles and available for consultation.

The findings indicated that factors impeding the development of online learning communities related to the performance of peers and instructors. Student factors included low quality postings by peers or nonparticipation in discussions, feeling isolated and vulnerable with technology, and spending a significant amount of time completing coursework. In addition, instructor factors included the lack of course organization, online teaching experience and technology skills; unrealistic expectations for assignments and weekly activities; and lack of support for students.

Specific factors supporting and impeding the development of online learning communities related to the program itself, course design, students and faculty. These factors are important to consider to maximize student learning potential in this environment.

Self-Selecting When to Take the National Board Dental Hygiene Exam.

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In 2010, the National Board Dental Hygiene Exam (NBDHE) switched from a written exam to a computer based exam. This allowed candidates who had applied to take the NBDHE and were approved by their Program Director, the ability to self-select the date they take the exam. Prior to this, the NBDHE was administered three times a year on a designated day in the Spring, Summer or Fall. The change of the format of this exam has presented the student with the dilemma of self selecting when they perceive themselves to be most prepared to take and pass the exam.

The purpose of this study was to determine if a student's personality type (MBTI) and the student's self-selection of the date an exam is administered increases the candidate's ability to prepare, take and pass the exam. The Myers-Briggs Type Indicator (MBTI) was administered over a two year period (2008 and 2009) to students (n=46) during the first semester of the program. In this study, "Early" is defined as students (n=25) who

took the exam in either late March through April and who were still attending classes. "Late" is defined as students (N=21) who took the exam in the months of May through July and had completed classes. Exit interviews of student's perception of their preparedness to take the NBDHE were conducted at the end of the program. The MBTI data was analyzed using frequency distribution and chi square analysis. Personality types were identified and strength of individual preferences reported. On the Extrovert (E) / Introvert (I) scale 61% of the E's and 44% of the I's took the exam early. On the Sensing (S) / Intuitive (N) scale 53% of the S's and 66% of the N's took the exam early. On the Thinking (T) / Feeling (F) scale 46% of the T's and 58% of the F's took the exam early. On the Judging (J) / Perceiving (P) scale 61% of the J's and 30% of the P's took the exam early. The distribution of individual personality types in the early and late groups were relatively equal except on the individual P scale (total n=10) where there was a greater number of students in the late group (n=7) or 70%. This is consistent with previous MBTI data and P type behavior.

NBDHE scores were analyzed. Twenty-one of the forty-six students, or almost 50% of this group took the exam in the "Late" period. Six of these twenty-one students were strongly recommended or released by the Program Director to take this exam in the "Late" period; the remaining 15 self-selected to wait.

The students who took the exam in the "Early" group all received higher scores on average compared to the "Late" group with the exception that the Perceiving (P) students in the "Late" group scored better.

Mentoring, strong counseling and advising to optimally select and make wise choices as to when to take the exam may need to be implemented to increase students' success. Even though the students who took it later didn't score as well as the earlier group, all of the "at risk" and the remaining 15 students that self-selected to wait reported that they felt better prepared and more confident than they would have, if they had taken it earlier.

Precision Grip Strength in Dental Hygiene Students.

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Background: Precision grip is utilized in hand-activated instrumentation and is accepted as an objective index for the functional integrity of the upper extremity. Normative data are given as a range that is typical for a

population group. This information is helpful in interpreting evaluation data and assessing a person's workability. Establishing baseline data for pinch grip strength in dental hygiene students could lead to future findings that help identify instrumentation risk factors for musculoskeletal disorders.

Problem: Upper extremity musculoskeletal disorders are prevalent among dental hygienists; however, no normative data exist for precision grip strength.

Purpose: The purpose of the study was to establish normative data for precision grip strength in first year students. Upon receiving IRB approval, the study compared grip strength at the beginning and end of the fall semester of a preclinical course. Also, precision grip strength was compared to normative data for the general population.

Null hypotheses: There is no statistically significant difference in maximum precision grip strength: 1) at the beginning and end of the first semester for first year dental hygiene students, and 2) between dental hygiene students and the normative values.

Methods: A pretest/posttest design was used to compare the precision grip strength at the beginning and end of the first semester ($n=23$). Three maximum palmar pinch grip readings with a B & L pinch gauge were taken for each subject's dominant hand and an average reading was determined.

Results: The assumption of Normality was computed using a Shapiro-Wilk test for the pretest and posttest scores and no violation of assumption was found (pretest $p=.996$, posttest $p=.956$); therefore, a parametric analysis followed. A paired t -test was used to test for a difference in average pretest and posttest scores. No statistically significant difference was found ($t=-0.257$, $df=22$, $p=.800$) and the first null hypothesis was accepted ($p\leq.05$). Subsequently, a z -score was computed for each participant using the average measurement and score recorded by Mathiowetz et al. to adjust for age, gender, and dominant hand. Pretest and posttest z -scores were compared using a paired t -test and no statistically significant difference was revealed ($t=-0.107$, $df=22$, $p=.916$). This analysis confirmed the t -test results. The second null hypothesis also was accepted ($p\leq.05$).

Discussion: A trend was noticed, although not statistically significant, that many students increased precision grip strength. Future research is needed to establish whether this strength increases as instrumentation skills develop providing clinical care in the curriculum and practice.

Engaging Students in the Provision of Dental Care to Patients Residing in Long Term Care Facilities.

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The purpose of this long term care outreach program is to prepare students to function as integral members of the health care team managing and providing dental patient care in long term care facilities for institutionalized and/or geriatric populations. Commission on Dental and Dental Hygiene Accreditation standards state, "Graduates must be competent in assessing the treatment needs of patients with special needs." A University of Detroit Mercy School of Dentistry long term care facility outreach program was implemented to provide dental ($N=85$) and dental hygiene students ($N=25$) experiences addressing these standards and to engage students in service learning increasing access to care for special populations.

Program objectives are to provide students an opportunity to: 1) assess the dental needs of residents in institutionalized and/or geriatric settings in order to plan and implement appropriate dental care; 2) function as an integral member of the health care team; 3) use mobile dental equipment and modify dental skills to meet specific patient needs; and 4) correlate and apply dental and biomedical scientific knowledge with medical conditions observed. Clinical rotation sessions include teams of both second year dental hygiene and fourth year dental students supervised by both a dental and dental hygiene faculty member. Experiences are designed to reinforce concepts presented in the classroom.

Students review and analyze patient records including medical status, initial admission reports, DNR directives, and physician orders. Extra/intraoral examinations are performed, care is then delivered and oral hygiene instructions are provided for patients and/or care givers. Students also learn medical acronyms and protocols in writing medical consults associated with the patient's oral care. The treatment is often performed in a difficult environment warranting modification of traditional management techniques.

Initial dental hygiene long term care rotation survey results revealed that while some students find the rotation to be uncomfortable, there was a 71.8 % agreement rate for objectives 1 and 2, 74.1 % for objective 3, and 72.9 % for objective 4. Students also noted that they feel good about the care they are able to provide for this vulnerable population. By engaging the students in this model of community outreach, their didactic learning is enhanced by way of real life hands on experience. They also experience the concept of increasing access to care which will hopefully inspire them to provide care in this setting in their professional careers.

Evaluation of the Addition of a Water Flosser to Sonic Toothbrushing: Effect on Plaque, Bleeding and Gingivitis.

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Finding an effective oral care regimen that is easy, fast, and effective can be challenging. This study evaluates the oral care regimen of a water flosser and sonic toothbrush on bleeding, gingivitis and plaque.

The primary objective of this study was to compare the effectiveness of a water flosser plus sonic toothbrush to a sonic toothbrush alone on the reduction of bleeding, gingivitis, and plaque. The secondary objective was to compare the effectiveness of different sonic toothbrushes on bleeding, gingivitis, and plaque.

One hundred and thirty-nine subjects completed this randomized, four-week, single-masked, parallel clinical study. Subjects were randomly assigned to one of four groups: Group 1 used a water flosser plus sonic toothbrush (WFS), Group 2 used a sonic toothbrush (SPP), Group 3 used a sonic toothbrush (SF), and Group 4 used a manual toothbrush (MT). Subjects were provided written and verbal instructions for all power products. MT users continued with their normal brushing method. Data were evaluated for whole mouth, facial, and lingual surfaces for bleeding on probing (BOP) and gingivitis (MGI). Plaque data were evaluated for whole mouth, lingual, facial, approximal, and marginal areas of the tooth using the Rustogi modification of the Navy Plaque Index (RMNPI).

All groups showed significant reduction from baseline in BOP, MGI, and RMNPI scores for all areas measured at four-weeks ($p < 0.001$). The reduction of whole mouth BOP scores was significantly higher for the WFS group; 34% more effective than the SPP group ($p = 0.008$), 70% more effective than the SF group ($p < 0.001$) and 1.59 times more effective than the MT group ($p < 0.001$) at four-weeks. The whole mouth reduction of MGI was significantly higher for the WFS group; 23% more effective than SPP, 48% more effective than SF, and 1.35 times more effective than MT at four-weeks ($p < 0.001$). The WFS group showed significantly better reductions for whole mouth RMNPI scores; 18% more effective than the SPP group ($p = 0.003$), 52% more effective than SF ($p < 0.001$), and 1.34 times more effective than

the MT group ($p < 0.001$). The SPP sonic toothbrush was significantly higher than the SF sonic toothbrush for whole mouth BOP scores (26%), MGI scores (20%) and RMNPI scores (29%) ($p < 0.001$).

The water flosser plus sonic toothbrush is an effective regimen for improving oral health indices and significantly more effective than sonic brushing alone. The SPP toothbrush is significantly more effective at improving oral health indices than the SF toothbrush.

Superior Plaque and Gingivitis Efficacy of an Essential Oil-Containing Mouthrinse Compared to a 0.07% Cetylpyridinium Chloride Mouthrinse.

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The antiplaque and antigingivitis benefit of adding an antimicrobial rinse to toothbrushing has been clinically proven in numerous long term studies. There is substantial evidence that a marketed mouthrinse containing a fixed combination of essential oils significantly reduces and inhibits supragingival plaque and gingivitis. The objective of this six month clinical study was to compare the effectiveness of rinsing with Cool Mint LISTERINE® Antiseptic and Crest® PRO-HEALTH™ mouthrinse, in reducing dental plaque and gingivitis in a six-month period. A 5% hydroalcohol control rinse served as a negative control.

This was a randomized, controlled, observer-blind, parallel group, IRB approved, 6-month clinical trial. At baseline, subjects presented to the clinical site having refrained from oral hygiene for at least 8 hours. Qualified subjects were randomized to one of three treatment groups: Cool Mint LISTERINE® Antiseptic (CML), Crest® Pro-Health™ (CPH) rinse or 5% hydroalcohol control rinse. Subjects brushed their teeth twice daily with Crest Vivid White toothpaste and rinsed with their assigned rinse for 30 seconds. At the three- and six-month visits, the Modified Gingival Index (MGI), Turesky Modification of the Quigley-Hein Plaque Index (PI) and the Bleeding Index (BI) were scored and oral tissue examinations performed.

The primary efficacy variables were mean MGI and mean PI at 6 months. Statistical comparisons were based on a one-way analysis of covariance model with treatment as factor and corresponding baseline value as a covariate. A total of 356 subjects completed the study. Both CML and CPH, were significantly better than the

negative control, ($p < 0.001$) and CML was significantly better than CPH for both MGI and PI, with 12.6% and 32.3% reductions, respectively, at 6 months ($p < 0.001$). At six month, mean difference from baseline was 0.84 and 0.67 for CML and CPH, respectively. With respect to plaque, six month PI mean difference from baseline was

1.77 and 1.42 for CML and CPH, respectively.

In this six-month, randomized, controlled clinical study Cool Mint LISTERINE® provided superior anti-plaque and antigingivitis benefits compared to Crest® Pro-Health™ rinse.