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Dental Hygienists' Perspectives on Four Periodontal Instrument Handle Designs

Susan L. Tolle

Old Dominion University, stolle@odu.edu

Jessica Suedbeck

Old Dominion University

Gayle M. McCombs

Old Dominion University, gmccombs@odu.edu

Martha L. Walker

Old Dominion University, mwalker@odu.edu

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Objectives: This study explored what factors motivate URM individuals to enter the profession of dental hygiene and their experiences in the profession. Understanding the reasons for choosing dental hygiene and the career experiences of URM is imperative to improving recruitment efforts. This study sample included URM dental hygienists in Ohio and Pennsylvania.

Methodology: This descriptive mixed method study included two phases of data collection. Phase one included the use of an electronic questionnaire distributed to registered dental hygienists. In January, 2016, the questionnaire was sent electronically to 1,289 dental hygienists with a response rate of 22%. The survey asked participants for basic demographic information, and then asked them both selected response and open-ended questions specifically about what motivated them to go into dental hygiene and what experiences they have had in school and since graduating, and their recommendations regarding recruitment. Data from the survey responses were evaluated in an effort to establish potential questions for follow-up in-depth interviews. The second phase of the study included confidential, personal, in-depth interviews with 17 registered dental hygienists who identify as URM dental hygienists. The transcripts from the in-depth personal interviews were analyzed manually using a coding technique to identify common themes and subthemes that emerged from the transcribed responses. IRB approval was obtained from Youngstown State University.

Results: Responses from the dental hygiene questionnaire report that the most common reason for choosing the profession of dental hygiene was referral from a dental professional or prior dental assisting experience (52.03%). The most highly recommended recruitment efforts to expose URM students to the dental hygiene profession included; increasing the public's image about the profession (7.41%) and targeting high school students (18.52%). Analysis of the in-depth interviews with URM dental hygienists revealed that visiting high schools for career day, using social media to market to millennials, and utilizing alternative admission criteria were suggested as recruitment strategies to target URM students. Results include feedback about employment prospects and job experiences that provide insights to the success and challenges experienced by the URM dental hygienists.

Conclusions: Results indicate that referrals by individuals in the dental profession impacted many of the respondents' motivation to enter the dental hygiene field. Some respondents indicate that there have been challenges with securing employment in areas with low minority populations. Lastly, recommendations for recruitment included going to high schools and efforts towards changing the image of the profession.

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*Susan L. Tolle, BSDH, MS,
School of Dental Hygiene

Jessica Suedbeck, BSDH, School of Dental Hygiene

Gayle M. McCombs, RDH, MS,
School of Dental Hygiene

Martha L. Walker, PT, PhD, School of Physical Therapy

All from Old Dominion University, Norfolk, VA

Problem: Developing new instrument designs to address the ergonomics of instrumentation and to decrease repetitive strain injuries in the dental hygienist is an ongoing area of development. Changing the weight and diameter of instrument handles has been suggested to reduce risk for trauma in the practitioner but minimal research has been conducted to determine design preferences of practicing dental hygienists.

Objective: The purpose of this study was to assess dental hygienists opinions on the weight, diameter, balance and maneuverability of four different instrument handles.

Methodology: After IRB approval, a convenience sample of 27 practicing dental hygienists from Virginia participated in the study. Four typodonts were set up for each participant with a different instrument randomly assigned for use on each. Subjects scaled first molars coated with artificial calculus using a Columbia 13/14 curet with four commercially available handle designs that varied in weight and diameter: A) 16 grams and 12.7 mm diameter; B) 23 grams and 11.1 mm diameter; C) 21 grams and 7.9 mm diameter and D) 18 grams, and 6.35 mm diameter. Following scaling participants used a 6 item survey to rate their comfort level on a 5-point scale ranging from 1 (very comfortable) to 5 (uncomfortable) with regard to balance, weight, diameter, maneuverability and overall preference. A Friedman test determined significant differences between participants' perceptions. A Wilcoxon signed rank test followed if differences were found.

Results: Handle designs had significant effects on dental hygienists' instrument preferences while performing simulated scaling. Results revealed significant differences for participants' preferences concerning diameter ($\chi^2(3)=50.584, p=0.000$), weight ($\chi^2(3)=24.650, p=0.000$), balance ($\chi^2(3)=69.504, p=0.000$) and maneuverability ($\chi^2(3)=67.728, p=0.000$). When comparing comfort based on diameter grip, results reveal instrument D was least comfortable compared to A, B and C ($p=0.000, p=0.000, p=0.000$). Instrument A was most comfortable in weight when compared to all other instruments ($p=0.008, p=0.000, p=0.000$). In regards to balance significant differences were found between instrument A when compared to both C and

D ($p=0.000$, $p=0.000$), with instrument A having the highest mean score ($x=4.7$). Finally, instrument A was rated most comfortable for maneuverability ($p=0.003$, $p=0.000$, $p=0.000$). Sixty-three percent of participants preferred instrument A, 26% instrument B, 11% instrument C and none preferred D.

Conclusion: When performing simulated scaling, results indicate most participants preferred using a lighter weight, larger diameter instrument handle. Diameter affected preference more than weight. The smallest diameter handle was always ranked the lowest with regards to balance, weight, diameter and maneuverability although it was not the heaviest.

“An Interprofessional Collaboration to Implement and Evaluate an Adult Diabetes Screening Program in a Dental/Dental Hygiene School Clinic”

Gary Hack, DDS
Shannon Idzik, CNP, CRNP, FAANP
Claire Bode, MS, DNP, CRNP
Marion C. Manski, MS, RDH
Deborah L. Cartee, MS, RDH

All from the University of Maryland, Baltimore, MD

Purpose: The purpose of this project was to collaborate with the School of Nursing and School of Dentistry to determine the feasibility of screening patients for diabetes/prediabetes during their hygiene appointments at the UM dental school clinic.

Significance: Diabetes is an epidemic in the United States and is associated with significant morbidity and mortality. Currently, about 18.8 million Americans have diabetes and of those about one third are undiagnosed. 86 million have prediabetes and 90% are unaware. The U.S. Preventative Task Force recommends screening adults who have risk factors for diabetes. Most adults with periodontal disease have at least one risk factor for diabetes. The literature revealed there is a bidirectional relationship between diabetes and periodontal disease. Of, people who are at risk for diabetes, 50% have seen a dentist in the last year. This makes the dental clinic an ideal site for diabetes screening. Dental visit screening enhances the role dental providers' play in the overall health of their patients. Specifically screening in a dental hygiene clinic and at a dental hygiene appointment appear to be a perfect fit between medicine and dental interventions. Interprofessional collaboration among dental hygiene, dental and nurse practitioner faculty toward integrating diabetes screening procedures during dental hygiene care, will be a seamless routinization toward care.

Key features: The University of Maryland IRB determined the project was exempted. The dental

hygiene clinic was chosen for the screening program. An orientation session was initially provided to the faculty and students by the Dental School and Nursing School faculty and diabetes risk factors were reviewed. During the clinic session those patients with risk factors were offered screening testing with a glucometer. All patients with risk factors were offered written materials about diabetes prevention and the students provided lifestyle recommendations. From those patients who consented to the screening a fingerstick blood glucose sample was obtained. Patients with a fasting result > 100 mg/dL or random result > 140 mg/dL were referred to their primary care provider. If the patient did not have a primary care provider the patient was referred to the academic center's outpatient diabetes clinic.

Currently in Maryland, dental hygienists are NOT allowed to do this screening, thus a dentist within the Dental School faculty along with a Nurse Practitioner, tested the patients.

Evaluation Plan / Results: Descriptive statistics were utilized to evaluate the data. A total of 67 patients were seen, 4 were excluded for age; they were under 19 years old. The remaining 63 patients were screened for diabetes risk factors. They ranged in age from 21 to 89 the mean age was 55. Of these 63 patients, 49 (73.1%) had at least one risk factor for diabetes, and 14 (20.9%) did not have any identifiable risk factors. The remaining 45 people were offered a blood glucose evaluation for diabetes with glucometer. Over 50% of the patients (24/55%) agreed to the glucometer evaluation. Of the patients who were screened, 1 patient had an abnormal screen and was referred to the University outpatient diabetes clinic. The remaining 23 screened within normal limits.

Conclusion: The screening process flowed easily as part of the dental appointment as many components were already in place. Medical history review was already part of the existing dental hygiene appointment and the dental hygiene students routinely provide health promotion education, as part of the clinic visit. The diabetes screening was well received by faculty, students, and patients. More than half of the patients who with risk factors agreed to be screened. Of those who declined screening, most reported they had been screened elsewhere. However, the numbers were small, thus the next step is to expand the diabetes screening to all of the dental hygiene clinics, and to have the dental hygiene faculty maintain the glucometers and perform the glucometer reading. Ultimately, diabetes screening should be part of the assessment conducted by dental professionals during the medical history/dental assessment visit. The study showed that it was innovative, easily implemented and patients were very open to being tested.

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