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foundation for nutritional counselling to find a place within the dental hygiene practice of care. Also; developing an approach to nutritional

counselling which encourages patient compliance can help eliminate barriers both of the patient and the clinician. Motivational interviewing (MI) can encourage positive change for patients in a friendly and unobtrusive manner. Motivational interviewing is versatile and can be used in a wide range of health care settings; including tobacco cessation; weight management; and other healthy habit interventions [19-21]. The basis of MI is finding the patient's intrinsic motivation and attaching that to the healthy behavior [20]. There are often opposing feelings within the patient about change. Motivational interviewing is designed to help guide patients through this conflict and focus on perception and motivation [22]. The goal must be meaningful to the patient rather than the clinician; relying on "reflective listening and positive feedback for guiding the patient toward change" [20]. This can be challenging to the clinician to perform correctly; but can achieve greater patient success [23]. When dental hygienists find ways to incorporate MI into their interactions with patients; improved conversations about challenging subjects can happen successfully. Simply knowing how to question patients in a way to encourage positivity can impact patient health choices.

This pilot study examined if introducing an assessment and

increased their confidence in providing nutritional counselling to their patients. The assessment and counselling tool was developed to guide the student through an MI inspired nutritional counselling session.

## Methodology

After approval from XXX University's Institutional Review Board (HS-5836); 39 senior dental hygiene students were invited to participate in the pre-test, post-test study. The study utilized a quasi-experimental; one-group design to gather qualitative and quantitative data to evaluate change in confidence with nutritional counselling after an educational module and use of an assessment and counselling tool. Students willing to participate completed a pre-test to measure current confidence level and experience with nutrition and MI. After a mandatory educational module about nutrition and MI with an introduction to the assessment and counselling tool; the students were asked to practice these skills with their patients for the next three weeks. After the study timeframe; the students were asked to complete a post-test to evaluate if their level of confidence changed.

The assessment and counselling tool was designed to be interactive between the clinician and patient. The study focused on patients with increased caries risk; are diabetic; and/or have undergone periodontal treatment; but could be used with anyone benefiting from improved nutrition. The patient was asked a series of questions using a script in the spirit of MI; shedding light on some of the risks involved with their nutritional choices and encouraging reasonable goals to set. Focusing on simple nutrition changes such as drinking more water; decreasing processed foods and sugar; or increasing fruits and vegetables were valuable initial goals made collaboratively with the patient. The Healthy Eating Plate created by nutrition experts at Harvard's T.H. Chan School of Public Health was the nutritional guide used in the assessment and counselling tool due to its quality components such as choosing whole grains over refined grains; quality proteins other than processed meat; including a variety of fruits and vegetables (not including potatoes or fruit juices); encouraging healthy fats and oils; and opting for water and limiting dairy and milk servings [24].

## Results

After the study time frame; the pre-test and post-test results were gathered and compared. Twenty-two students (n=22) completed both pre-test and post-test and age; gender; and education levels were similar to that of other dental hygiene programs. Likert scale data from seven

open with and focused on the patients' desires. One student (n=1) mentioned patients seemed more comfortable with this approach. Students also explained the barriers they experienced when attempting nutritional counselling with their patients. The main barrier involved a lack of patient interest. Only two students (n=2) stated a lack of time while nine (n=9) described the reluctance of patients to discuss nutrition. Finally; when asked specifically about the assessment and counselling tool students reported the ease and effectiveness of the tool. Of the 14 responses (n=14) for this question; 100% were positive and half of those responses (n=7) mentioned the ease of the counselling tool. Table II provides examples of student responses to the open ended questions in the post-test.

## Discussion

Nutrition can be an important yet delicate subject to examine with patients. All but one student (n =21) agreed or strongly agreed in the pre-test with the statement "A dental hygienist should discuss nutrition with his/her patient" and that student strongly agreed in the post-test. Students demonstrated no statistical change regarding their feelings about nutrition's place in dental hygiene care. Research agrees with this and establishes that dental hygienists know nutrition is important for oral health [5,17,18]. However; when asked if the student currently discussed nutrition with his/her patients there was a statistically significant change (p=0.049) after the educational module and practice with the assessment and counselling tool. There was a positive change in current nutrition discussions from the students attending the module and utilizing the tool; showing more nutritional counselling sessions happening among students. The nutritional counselling exposure to the students during the educational module could have made students more sensitive to chair side opportunities to discuss nutrition with their patients. This demonstrates the need for more exposure not only for dental hygiene students but also practicing clinicians through continuing education opportunities who may need more nutrition education and experience.

When asked about comfort level and confidence in nutritional counselling; students demonstrated a significant increase in both (p=0.020 and p=0.007; respectively). When asked about a lack of nutritional training; fewer students felt inadequately educated after the module (p=0.012). Through the educational module; introduction of the assessment and counselling tool; and practice using the tool with patients; students were able to increase their confidence with nutritional counselling. Some of their confidence may have resulted from being in the last semester of their dental hygiene education with some past nutritional counselling and MI experience as well as a greater overall confidence in patient care. Introducing nutritional counselling and MI skills early in curriculum could increase the opportunities to practice and gain more confidence. Introducing concepts; particularly around MI; even during prerequisite courses could positively influence students' confidence with these challenging skills. Gaining this confidence early could be instrumental in these skills being maintained throughout one's career. Ultimately; this would mean greater patient care and improved health for individuals; societies; and beyond.

Two Likert scale questions included MI and neither showed statistical significance. This was not surprising as MI is a difficult skill to master and being comfortable and confident with this skill is challenging; even for seasoned clinicians [19,26]. However; both questions had a p value of just over 0.10 which shows approaching statistical significance of p<0.05. This could signify that with greater emphasis on MI skills and practice; comfort and confidence could improve. The educational

module presented to the students was only one hour in duration. Research indicates MI is a skill that takes a significant amount of time to master [19,26]. Despite the role play during the educational module and the experiences with patients during the study time period; MI requires continual training and reinforcement [19,23,27]. Furthermore; using MI as a mode to deliver nutritional counselling can be more effective in creating lasting changes for the patient that will improve patient health more quickly [6,19,23,28]. Completing nutritional counselling with patients is certainly more rewarding when improvements are seen. When positive results are observed with patients; clinicians are more likely to continue with nutritional counselling with other patients. This may not have been appreciated by the students in the short time frame of the study. Incorporating these concepts and approaches early in education provides more time

with patients. Further; more education and exposure to practicing clinicians could enhance patient care outside of the educational setting and for those not exposed to these concepts while in school.

Barriers were the topic of the second open-ended question. Not surprising; insufficient time was a barrier to nutritional counselling. Based on similar research; this was a common barrier to nutritional counselling [5,14]. However; in this study; time was not as frequently mentioned as expected. This could be as students tend to have extra

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