March 2023

Using Motivational Interviewing to Increase Confidence in Nutritional Counseling Among Dental Hygienists: A Pilot Study

Heather M. Anderson  
*Eastern Washington University*, handers1@ewu.edu

Sarah Jackson  
*Eastern Washington University*, sjackson2@ewu.edu

Lisa Bilich  
*Eastern Washington University*, lbilich@ewu.edu

Craig Hunt  
*Eastern Washington University*, chunt@ewu.edu

Elizabeth Tipton  
*Eastern Washington University*, etipton@ewu.edu

Follow this and additional works at: https://nsuworks.nova.edu/ijahsp

Part of the Dental Hygiene Commons, Dietetics and Clinical Nutrition Commons, Interprofessional Education Commons, and the Periodontics and Periodontology Commons

**Recommended Citation**

This Manuscript is brought to you for free and open access by the College of Health Care Sciences at NSUWorks. It has been accepted for inclusion in Internet Journal of Allied Health Sciences and Practice by an authorized editor of NSUWorks. For more information, please contact nsuworks@nova.edu.
Using Motivational Interviewing to Increase Confidence in Nutritional Counseling Among Dental Hygienists: A Pilot Study

Abstract

Purpose: Dental hygienists have the unique opportunity to educate patients on connections between nutrition and oral health. Dental hygiene students are introduced to these concepts but struggle to gain confidence to share this knowledge with patients. This pilot study looked at an educational module on motivational interviewing (MI) and an assessment and counseling tool to build student confidence with nutritional counseling. Methods: Dental hygiene students participated in an educational module to review MI and introduce a 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 posttest. Data was compared for quantitative changes and qualitative themes from responses. Results: Twenty-two senior dental hygiene 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: Introducing MI with an assessment and counseling tool to aid students can improve confidence with nutritional counseling. This type of education may translate into more chairside discussions about nutrition, improving overall patient care.

Author Bio(s)

Heather Anderson, RDH, MSDH, is lecturing faculty at Eastern Washington University and practicing dental hygienist. Sarah Jackson, RDH, MSDH, is full professor at Eastern Washington University. Lisa Bilich, RDH, MEd, is full professor at Eastern Washington University. Craig Hunt, RDN, is lecturing faculty at Eastern Washington University. Elizabeth Tipton, PhD, is retired emeritus professor at Eastern Washington University.

Acknowledgements

The authors would like to thank the dental hygiene students at Eastern Washington University, Class of 2020 for their participation in this study.

This manuscript is available in Internet Journal of Allied Health Sciences and Practice: https://nsuworks.nova.edu/ijahsp/vol21/iss2/2
Using Motivational Interviewing to Increase Confidence in Nutritional Counseling Among Dental Hygienists: A Pilot Study

Heather M. Anderson
Sarah Jackson
Lisa Bilich
Craig Hunt
Elizabeth Tipton

Eastern Washington University
United States

ABSTRACT
Purpose: Dental hygienists have the unique opportunity to educate patients on connections between nutrition and oral health. Dental hygiene students are introduced to these concepts but struggle to gain confidence to share this knowledge with patients. This pilot study looked at an educational module on motivational interviewing (MI) and an assessment and counseling tool to build student confidence with nutritional counseling. Methods: Dental hygiene students participated in an educational module to review MI and introduce a 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 posttest. Data was compared for quantitative changes and qualitative themes from responses. Results: Twenty-two senior dental hygiene 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: Introducing MI with an assessment and counseling tool to aid students can improve confidence with nutritional counseling. This type of education may translate into more chairside discussions about nutrition, improving overall patient care.

Keywords: oral health, nutrition, dental hygiene education, teaching methodology, motivational interviewing
INTRODUCTION
The focus on disease prevention has been in the forefront of modern healthcare, including the more contemporary recognition of the interrelation of oral health and overall health. Nutrition positively or negatively affects health. Dental health is no exception with risks of caries, periodontal disease, and oral cancers all potentially impacted by nutrition. Oral healthcare providers, including dental hygienists, have a direct effect on the oral health of their patients and a substantial influence on patients’ overall health. Dental hygienists understand nutritional education is beneficial for their patients; however, they experience barriers, such as time constraints, lack of confidence, and insufficient knowledge, when it comes to performing nutritional counseling. Dental hygienists and other clinicians also face challenges with patient compliance. Using motivational interviewing (MI) to approach topics such as nutritional counseling can provide superior patient outcomes. As MI is practiced and used correctly, dental hygienists may actually reduce some of these barriers as well as see patient improvement.

NUTRITIONAL COUNSELING AMONG DENTAL HYGIENISTS

INTRODUCTION
The focus on disease prevention has been in the forefront of modern healthcare, including the more contemporary recognition of the interrelation of oral health and overall health. Nutrition positively or negatively affects health. Dental health is no exception with risks of caries, periodontal disease, and oral cancers all potentially impacted by nutrition. Oral healthcare providers, including dental hygienists, have a direct effect on the oral health of their patients and a substantial influence on patients’ overall health. Dental hygienists understand nutritional education is beneficial for their patients; however, they experience barriers, such as time constraints, lack of confidence, and insufficient knowledge, when it comes to performing nutritional counseling. Dental hygienists and other clinicians also face challenges with patient compliance. Using motivational interviewing (MI) to approach topics such as nutritional counseling can provide superior patient outcomes. As MI is practiced and used correctly, dental hygienists may actually reduce some of these barriers as well as see patient improvement.

NUTRITIONAL COUNSELING AMONG DENTAL HYGIENISTS

INTRODUCTION
The focus on disease prevention has been in the forefront of modern healthcare, including the more contemporary recognition of the interrelation of oral health and overall health. Nutrition positively or negatively affects health. Dental health is no exception with risks of caries, periodontal disease, and oral cancers all potentially impacted by nutrition. Oral healthcare providers, including dental hygienists, have a direct effect on the oral health of their patients and a substantial influence on patients’ overall health. Dental hygienists understand nutritional education is beneficial for their patients; however, they experience barriers, such as time constraints, lack of confidence, and insufficient knowledge, when it comes to performing nutritional counseling. Dental hygienists and other clinicians also face challenges with patient compliance. Using motivational interviewing (MI) to approach topics such as nutritional counseling can provide superior patient outcomes. As MI is practiced and used correctly, dental hygienists may actually reduce some of these barriers as well as see patient improvement.

NUTRITIONAL COUNSELING AMONG DENTAL HYGIENISTS

INTRODUCTION
The focus on disease prevention has been in the forefront of modern healthcare, including the more contemporary recognition of the interrelation of oral health and overall health. Nutrition positively or negatively affects health. Dental health is no exception with risks of caries, periodontal disease, and oral cancers all potentially impacted by nutrition. Oral healthcare providers, including dental hygienists, have a direct effect on the oral health of their patients and a substantial influence on patients’ overall health. Dental hygienists understand nutritional education is beneficial for their patients; however, they experience barriers, such as time constraints, lack of confidence, and insufficient knowledge, when it comes to performing nutritional counseling. Dental hygienists and other clinicians also face challenges with patient compliance. Using motivational interviewing (MI) to approach topics such as nutritional counseling can provide superior patient outcomes. As MI is practiced and used correctly, dental hygienists may actually reduce some of these barriers as well as see patient improvement.

NUTRITIONAL COUNSELING AMONG DENTAL HYGIENISTS

INTRODUCTION
The focus on disease prevention has been in the forefront of modern healthcare, including the more contemporary recognition of the interrelation of oral health and overall health. Nutrition positively or negatively affects health. Dental health is no exception with risks of caries, periodontal disease, and oral cancers all potentially impacted by nutrition. Oral healthcare providers, including dental hygienists, have a direct effect on the oral health of their patients and a substantial influence on patients’ overall health. Dental hygienists understand nutritional education is beneficial for their patients; however, they experience barriers, such as time constraints, lack of confidence, and insufficient knowledge, when it comes to performing nutritional counseling. Dental hygienists and other clinicians also face challenges with patient compliance. Using motivational interviewing (MI) to approach topics such as nutritional counseling can provide superior patient outcomes. As MI is practiced and used correctly, dental hygienists may actually reduce some of these barriers as well as see patient improvement.
for the next three weeks. After the study timeframe, the students were asked to complete a posttest to evaluate if their level of confidence changed. The pretest and posttest were designed by the authors based on research on nutritional counseling and MI.

Figure 1. Nutrition Risk Assessment

The assessment and counseling 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 counseling 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
Twenty-two students (n=22) completed both pretest and posttest, and age, gender, and education levels were similar to that of other dental hygiene programs. Likert scale data from seven questions as well as qualitative data from three open-ended questions were gathered and analyzed. To evaluate the research questions, the pretest and posttest answers were matched, and a Wilcoxon signed-rank test conducted to determine if a statistically significant difference occurred using the established significance level p < 0.05 (see Table I). The qualitative data gathered from the open-ended questions on the posttest was evaluated with content and narrative analysis focusing on themes that were frequently present in students’ answers. Thematic analysis was conducted by the authors to identify the general themes of the students’ responses.

Table 1. Pretest and Posttest Questions Statistical Analysis

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Respondents showing difference**</th>
<th>Statistical Power</th>
<th>Wilcoxon Statistic</th>
<th>p-value</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I currently discuss nutrition with my patients.</td>
<td>9</td>
<td>.2676</td>
<td>37.00</td>
<td>0.049*</td>
<td>.407</td>
</tr>
<tr>
<td>2. A dental hygienist should discuss nutrition with his/her patient.</td>
<td>7</td>
<td>.1330</td>
<td>17.50</td>
<td>0.306</td>
<td>.133</td>
</tr>
<tr>
<td>3. I am comfortable with nutritional counseling.</td>
<td>13</td>
<td>.4900</td>
<td>75.50</td>
<td>0.020*</td>
<td>.517</td>
</tr>
<tr>
<td>4. I lack the nutritional education to discuss nutrition with my patients.</td>
<td>17</td>
<td>.6819</td>
<td>28.00</td>
<td>0.012*</td>
<td>.581</td>
</tr>
<tr>
<td>5. I am confident discussing nutrition with patients.</td>
<td>17</td>
<td>.7620</td>
<td>128.50</td>
<td>0.007*</td>
<td>.647</td>
</tr>
<tr>
<td>6. Motivational interviewing could improve my ability to perform counseling.</td>
<td>15</td>
<td>.2578</td>
<td>82.50</td>
<td>0.106</td>
<td>.292</td>
</tr>
<tr>
<td>7. I am comfortable using motivational interviewing.</td>
<td>14</td>
<td>.2134</td>
<td>69.50</td>
<td>0.150</td>
<td>.260</td>
</tr>
</tbody>
</table>

P-values based on Wilcoxon signed-rank test. Statistical significance set at *p<0.05.
** Respondents showing difference is observed data after omitting pretest and posttest values that are equal (no difference) per the Wilcoxon test (also known as Wilcoxon N for test).

When asked if nutrition was currently discussed with their patients, a statistically significant change was noted for the students when compared before and after the module (p = 0.049). Statistically significant changes were noted as well with comfort (p = 0.020) and confidence (p = 0.007) in nutritional counseling. Once MI was mentioned in the questions, the strength in statistical significance dropped. When asked if MI could improve the ability to perform nutritional counseling, fewer students agreed with the statement (p = 0.106). Similar results occurred when asked about comfort with using MI (p = 0.150). However, with a p value of approximately 0.1, these results are approaching statistical significance (p < 0.05). Results are summarized in Table I.

Participants were asked to reflect on the number of nutritional counseling sessions completed during the three-week study. The majority (68.2%) of participants (n = 15) reported an increase in their nutritional counseling sessions compared to their clinical experience prior to the educational module. Of the participants who had a positive change in confidence from pretest to posttest (n = 14), all but three had an increase in the number of nutritional counseling sessions performed (n = 11, 78.6%).

The students finished the survey with several open-ended questions (Table 2). Despite MI being a difficult skill, the overall comments discussing ways MI influence nutritional counseling were positive. Three students directly mentioned confidence and comfort which is a direct reflection on the research questions. Another student mentioned “feeling more open to discussing their nutrition” which could show an increase in confidence. An interesting and unexpected theme noted was goal setting with patients. Two students specifically mentioned goals and several others discussed the willingness of patients. Barriers were the topic of the second open-ended question. Not surprising, insufficient time was a barrier to nutritional counseling. Based on similar research, this was a common barrier to nutritional counseling. Lack of patient interest or willingness was a greater barrier, mentioned by nine (n = 9, 40.9%) students.
The final open-ended question reviewed the assessment and counseling tool. All fourteen (n = 14) comments from students were positive. Students felt the tool was simple and easy to follow, guided the conversations appropriately and efficiently, and "increased [their] ability to talk with patients." Also, it was easy to save data and create an electronic health record for nutritional counseling performed with the patient. Further, it could be printed or emailed to the patient for a home reference of the goals discussed.

Table 2. Thematic Analysis: Student Comments Regarding MI, Nutritional Counseling Barriers, and the Use of an Electronic Assessment and Counseling Tool

<table>
<thead>
<tr>
<th>In what ways, if any, did MI influence nutritional counseling with your patients?</th>
<th>What were barriers experienced when attempting nutritional counseling with your patients?</th>
<th>How did the electronic tool affect your nutritional counseling?</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;More confidence in how I speak to my patients and why it matters&quot;</td>
<td>&quot;Some were just not interested&quot;</td>
<td>&quot;Made things much more simple with a better flow&quot;</td>
</tr>
<tr>
<td>&quot;Feeling more open to discussing their nutrition&quot;</td>
<td>&quot;Patients felt it wasn’t necessary&quot;</td>
<td>&quot;Increased my ability to talk with patients giving… ideas of what is good to eat and [what] may be affecting their teeth&quot;</td>
</tr>
<tr>
<td>&quot;They got to set goals to actually achieve them&quot;</td>
<td>&quot;Many of my patients are older and not as willing to change&quot;</td>
<td>&quot;Loved it! I actually wanted to do it with my patients&quot;</td>
</tr>
<tr>
<td>&quot;It had my patients think about what they had been eating and drinking and helped them realize it could be improved&quot;</td>
<td>&quot;A lot of them said they ate ‘healthy’ and didn’t need or want counseling&quot;</td>
<td>&quot;I loved the new form it helped to guide the conversation by asking questions and having prompts to use for goals&quot;</td>
</tr>
<tr>
<td>&quot;It made it less uncomfortable to ask questions and continue the conversations. I think that it made the patients feel more at ease as well&quot;</td>
<td>&quot;I had a diabetic patient who said that they were not interested because they were just going to die by 65 anyways…”</td>
<td>&quot;It was great! It helped me to remember leading questions that I could ask my patients&quot;</td>
</tr>
<tr>
<td>&quot;Motivational interviewing made it more comfortable for me to introduce nutritional counseling to my patients and better communicate with them to promote into their diet&quot;</td>
<td>&quot;Time, patient interest&quot;</td>
<td>&quot;Easy to save data&quot;</td>
</tr>
</tbody>
</table>

DISCUSSION

Nutrition can be an important yet delicate subject to examine with patients. Introducing nutritional counseling 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. Research indicates MI is a skill that takes a significant amount of time to master. 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. As the students used the assessment and counseling tool to evaluate and discuss nutrition with their patients, they gained confidence through each experience. Continuing education could reinforce these skills for graduates as well as expose practicing clinicians with new ideas to treat the whole patient.

Building on encouraging experiences during school could be instrumental in these students using these skills beyond graduation. The generally positive comments within the survey indicate with more experience and education, students could gain more confidence to use MI effectively 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.

When barriers were discussed, time and patient compliance were among the most reported. However, in this study, time was not as frequently mentioned as expected. This could be as students tend to have extra patient time waiting for faculty. More commonly mentioned than lack of time was the lack of patient interest or willingness. While somewhat unexpected, in the research done by
Hayes, Wallace et al patient compliance was another top barrier along with time. Limited positive experiences with nutritional counseling could have long term negative effects on students pursuing nutritional counseling further in their career. Encouraging nutritional counseling early in dental hygiene education and helping students to understand the complexity of the subject could create more willingness to continue pursuing nutritional counseling in their career. More research is needed to explore the notion of using MI for nutritional counseling among practicing dental hygienists, including how to educate clinicians on these concepts.

The assessment and counseling tool provided a step-by-step way to approach nutritional counseling and could reinforce nutritional counseling and MI skills for future use. Especially for students learning the steps of MI and becoming more comfortable and confident in nutritional counseling, using a tool like the one developed for this study can help reinforce these concepts. While the tool may not be as useful for practicing clinicians, the idea of using MI for nutritional counseling can still be approached with the tool in mind. This could continue to support a holistic approach to oral and overall health.

CONCLUSION
As obesity rates climb, diabetes escalates, and other diet related health concerns heighten, the need for nutritional counseling is evident. Since oral health is related to diet as well, dental hygienists are in a unique position to educate their patients about nutrition to increase oral health as well as overall health. However, this has historically been challenging for dental hygienists. With the recent health issues emerging with COVID-19, it is apparent immune systems are as important as ever. Quality nutrition can fortify one’s immune system and dental hygienists can help educate their patients about the implications of nutrition on oral health and beyond. Educating our dental hygiene students on nutritional counseling could broaden the scope of healthcare providers having an influence on patients. This research demonstrated the importance of laying a foundation in dental hygiene education of using MI to complete nutritional counseling. While limitations are present due to small convenience sample, there is potential for advances in nutritional counseling incorporation in dental hygiene training that could enhance the students’ education and improve the clinical care of patients. Furthermore, utilizing an assessment and counseling tool can be instrumental in building our future healthcare providers’ confidence. Ultimately, this can lead to increased patient care and overall health. Healthcare is multifaceted. Open communication with patients and other healthcare providers about nutrition can affect all aspects of health. By intertwining the care we give to patients through interprofessional experiences, we can create the optimal care for patients.

REFERENCES


