Teaching Dental Students Motivational Interviewing Techniques: Analysis of a Third-Year Class Assignment

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Abstract: Motivational interviewing (MI) has been promoted in recent years as an effective method for engaging patients in positive health behaviors and increasing adherence to treatment regimens. The purpose of this study was to evaluate a brief training of MI techniques provided within the dental school curriculum. Third-year dental students received three hours of instruction on MI theory and techniques and then were assigned to use the method with a patient and report on their attempt in a paper. To determine if the brief training and paper assignment were effective methods for training students and assessing their understanding of MI methods, the papers were analyzed to assess aspects of the students’ self-reported use of MI-related methods. Effective use of MI techniques was demonstrated by students who appropriately matched their intervention to the patient’s stage of readiness to change, accurately recognized patient resistance, and responded to resistance. The paper assignment appeared to be an effective method to assess the students’ use and understanding of MI-related techniques.

Motivational interviewing (MI) is a counseling technique originally developed for use in addiction counseling settings. The main goal of MI is to elicit and strengthen a patient’s own motivation to change behavior. In recent years, variations of MI have been used in medical settings to address a variety of health concerns, including but not limited to smoking cessation, HIV risk reduction, diabetes management, dietary changes, and exercise. Overall, MI has been found to increase rates of treatment adherence over other methods of patient counseling. MI has been minimally studied in the dental environment, but shows promise as a useful technique to help patients change their oral health behaviors. For example, it has shown promising results in encouraging parents to prevent caries in young children. Many behaviors that are known to affect oral health, such as smoking and diet, have been shown to respond to MI behavioral counseling methods.

When MI is adapted for use in noncounseling settings, the method is often modified in order for it to be used as a brief intervention rather than a lengthy counseling process. The modifications generally include a reduction of the exploratory aspects of MI and performing MI in a more structured format. The use of MI in health settings is typically limited to brief encounters with patients focused on a specified behavior. Time available for training health care providers may be limited.

The effectiveness of training in MI methods has been demonstrated in addiction and mental health counselors as well as medical providers. Workshops and training sessions enhance providers’ knowledge about MI and self-confidence in using MI principles. Behavioral outcomes are typically measured via interview with a simulated patient. These pre- and posttests typically show that use of MI methods, such as using open questions and practicing the “spirit” of MI, increase after training. For example, first-year medical students improved their confidence and knowledge in MI as a result of a ten-hour training course, and dental students attending a twelve-hour training program showed increases in the use of brief MI techniques. Mental health therapists showed significant improvement in their use of MI counseling after a two-day training session and eight biweekly supervision sessions. General practitioners trained in MI-related behavior change counseling reported at follow-up that they used the method at least sometimes. However, initial changes in observed counseling behavior immediately after MI training for addiction counselors decreased significantly at four-month follow-up for those who had no follow-up.
supervision. Counselors who had received continuous supervision and coaching did not lose as much of their initial proficiency at follow-up. 10

When using MI in medical settings to help patients increase positive health behaviors, the practitioner must be flexible. There may be various motivational processes involved in nonaddictive behaviors, such as in the case of brushing and flossing, compared to addictive behaviors such as smoking or drinking soda. 11,12 In order to be effective, dentists need to have a wide range of skills in order to use MI methods effectively with addictive and nonaddictive oral health behaviors. 6 Given the generally positive results of MI research in nondental medical settings, further research is warranted to explore methods for teaching MI to dental students and assessing learning.

The primary goal of this study was to assess whether brief in-class training followed by a self-report evaluation paper is an effective method for introducing dental students to the use of MI techniques. Effective use of MI techniques will be demonstrated by students’ appropriately matching their intervention to the patient’s stage of readiness to change and by accurate recognition of patient resistance and response to resistance. The first hypothesis of the study was that brief advice (BA) will be used more with patients in lower stages of readiness and behavior change counseling (BCC) will be used more with patients in higher stages of readiness. The second hypothesis was that students will report more resistance by patients in lower stages of readiness than in higher stages of readiness, and the third hypothesis was that students will report that they responded to resistance.

Methods

Data were collected in two consecutive years of a third-year dental behavioral science course. Ninety-four students took the course over the two years. Students were assigned to use MI with a patient and write a short paper on their attempt. The paper requirements stated that the student was to use MI with any patient whose oral health would be improved by changing a health behavior. After the course was completed, all identifying information was removed from the papers, and an ID number was assigned.

All students previously passed a preclinical eighteen-hour course in communication skills that included the principles of adherence to medical regimens such as the health belief model and principles of persuasion; basic communication skills necessary for working with dental patients including active listening, reflection, and questioning skills; and patient education. The preclinical course included practice conducting an initial interview with a simulated patient. Three hours of MI lectures were presented as part of a course in advanced topics in behavioral dentistry taught by the author. Lectures covered the goals and spirit of MI, levels of readiness to change, assessing importance and confidence, appropriate interventions for each level of readiness, and identifying and dealing with resistance. 13,14 Readings and exercises from the book Motivate Your Dental Patients: A Workbook 15 were used. Brief role-plays were also used in which groups of three students role-played a nutritional counseling encounter.

Following the three lecture hours, students were assigned to choose one patient from their current family of patients, try some of the MI methods to help the patient change an oral health behavior, and write a paper evaluating their use of the techniques. The paper was to include a brief description of the patient, assessment of the patient’s readiness to change, examples of the patient’s level of readiness (such as statements or behaviors), description of the MI methods the student attempted, the patient’s reaction, whether the patient demonstrated resistance, what kind of resistance, and how the student responded to the resistance. Students were to discuss what worked and what did not, as well as what they might do differently in the future. They were also asked to discuss their impressions of the MI techniques they used. Grading was based on accurate use of MI terms and on critical thinking in their evaluation of their use of MI techniques, i.e., evidence that the student understood how to apply the techniques taught in lecture to a real-life clinical encounter. Students had six weeks to complete the assignment.

Of the students who completed the assignment, three papers could not be included in the analysis because those students did not follow the assignment directions. The final number was ninety-one coded papers. The course instructor/author and a trained graduate assistant coded the papers independently and compared results. Discrepancies were discussed, and consensus was obtained on all coding. See Table 1 for coding categories.

Contingency (R x C) tables were created for which column categories were BA and BCC intervention groups and row categories were oral health behavior, stage of readiness, and whether resistance was encountered. Cross tabulations of these exclusive
and exhaustive categories were used to determine cell counts for these tables. Chi-square analysis was used to determine if the BA and BCC groups differed on the targeted oral health behavior, stage of readiness, or whether resistance was encountered. For singly-ordered R x C tables, the Kruskal-Wallis test was used. For unordered R x C tables, the Fisher exact test was used. For five by seven unordered R x C tables, the P value was calculated through Monte Carlo simulation; otherwise, exact P values were calculated through data permutation. Cell counts were compared with expected cell counts. Statistical analyses were performed with JMP Statistical Software Release 8.0.1 and StatXact 7 Statistical Software for Exact Nonparametric Inference.

**Results**

Forty-seven students (51 percent) reported behaviors consistent with BCC and forty-two (46 percent) with BA. Two papers (2 percent) could not be coded into either category. Chi-square analysis determined that the BA and BCC groups did not differ on the oral health behavior, stage of readiness, or whether resistance was encountered. Students reported working on the following behaviors with their patients: smoking (N=24), flossing (N=17), brushing (N=8), flossing and brushing (N=14), soda intake (N=16), and other, such as diet change, using fluoride toothpaste, and increase appointment attendance (N=11). Nineteen patients were classified by
students as being in precontemplation, thirty-seven in contemplation, fourteen in preparation, and five in action. Three students’ reports did not state a stage. Eleven students reported an assessment of their patients’ readiness in terms of levels of importance and confidence. All of the students who noted importance/confidence were rated as correctly identifying the patients’ levels as high or low. Based on the students’ reports of patient behavior, six patients were inaccurately categorized. According to the raters, seventy-nine students (87 percent) appropriately targeted a behavioral intervention to the patient’s readiness. Forty-seven students (52 percent) reported patient resistance: thirty active and seventeen passive.

Regarding the first hypothesis (that BA will be used more with patients in lower stages of readiness and BCC will be used more with patients in higher stages of readiness), there was a statistically significant difference between stage of readiness and the intervention used by the student (p < .01). Patients in the contemplation, preparation, and action stages were more likely to receive BCC than patients in the precontemplation stage or whose stage could not be determined. This result indicates that students chose an appropriate intervention type for the patients’ stage of readiness.

Regarding the second hypothesis (that students will report more resistance by patients in lower stages of readiness than in higher stages of readiness), there was a highly significant relation between the stage of readiness and the students’ recognition of resistance (p < .0001), with students noting the presence of patient resistance in precontemplation and when the stage was not determined more than in the contemplation, preparation, and action stages. Since resistance is to be expected in lower stages of readiness, this result indicates that students recognized resistance accurately.

Regarding the third hypothesis (that students will report that they responded to resistance), raters found that of those students who reported that they encountered resistance, a majority (77 percent) took appropriate action according to MI principles to roll with the resistance. Primarily, the students backed off and reduced pressure on the patient to change.

Anecdotally, students reported that their attempts to use MI methods were generally positive. Several noted that they felt the use of MI methods helped enhance their relationship with the patient by helping them express concern about the patient’s behavior and talk about oral health behavior change in a nonjudgmental manner.

**Discussion**

Overall, brief training appears to be effective for teaching the basic MI techniques of BA and BCC. Having students reflect on their performance in using MI techniques during a patient encounter appears to be a useful tool to assess student understanding of MI-related methods. The majority of students used MI concepts accurately to label the patients’ level of readiness and reported appropriate interventions based on the level of readiness and resistance encountered, using BA when the patient was in lower stages of readiness and BCC when the patient was in higher stages of readiness. Students generally recognized resistance, particularly in the lower stages of readiness, and accurately labeled it active or passive.

There are a few caveats to consider in interpreting these results. The self-report nature of the course assignment allowed for no observation of the students’ actual use of MI strategies or in their long-term retention of knowledge or skills. The fact that the source for the data was a graded class assignment may have encouraged students to use the methods taught in class with more diligence than they normally would. However, without the assignment, they may not have attempted to use MI methods at all. Students also may have distorted reports of their use of the methods in order to influence their grade, even though they were informed that their understanding of how MI methods are used in the dental clinic would be graded, not the success of its use. Solutions to these issues for future research include having the students tape a patient encounter in which MI methods are used or by testing their skills with a standardized patient role-play, ideally before and after instruction. Both solutions have benefits and drawbacks for research and teaching purposes. The main drawbacks of taping actual patient encounters are that students find taping cumbersome and it interrupts the natural flow of the patient encounter. Previous research has found that the use of simulated patients or role-plays with colleagues are useful learning tools, but that participants may view those methods as “fake” and the methods may lack transferability to day-to-day practice.

MI can be time-consuming and requires many hours of specialized training and supervision. In fact, Burke et al. reviewed variations of MI and found that none of the studies that met their inclusion criteria were actually MI. Presenting three lecture hours plus reading is just enough training to attain basic
knowledge and skills in the MI techniques including BA and BCC. It is possible that BA or BCC is adequate for most encounters in settings in which time, training, and focus of treatment circumscribe what the provider can do with a patient. One question to be explored in the future is whether patients benefit from brief advice or brief counseling about health change in medical settings rather than longer forms of behavioral counseling.

The benefits of this method of teaching and assessing dental students’ use of MI techniques is that it is integrated into the regular curriculum and utilizes their own clinic patients. It also helps the students learn the benefit of planned, deliberate communication with patients. Most students reported a positive experience using MI methods, so they may be more likely to use elements of MI with future patients. Another benefit of this teaching method is that it is relatively brief. A drawback is that there is no longer term follow-up to assess retention of knowledge or skills. Studies of follow-up training components, such as ongoing supervision and coaching, show that the follow-up work is effective, but that there is a very low rate of compliance with the follow-up regimen. Previous research on training medical providers and mental health counselors in MI has indicated that long-term retention of skills and accurate use of the method appear to require continued supervision over time.  

Further research on efficient methods of training dental students and other medical providers to use MI-related strategies and the use of outcome measures is necessary. Previous research has found that MI training changes dental students’ counseling behavior, but the effectiveness of MI techniques on dental patient behavior and oral health outcomes has not been studied. Outcome studies in medical settings have shown promising but mixed results. The primary problem with most of the studies in health care settings is weak methodology that does not allow for a clear conclusion that the intervention was MI or that the intervention was the cause of the outcomes measured. Including a control group that does not receive the training in order to assess whether the untrained students would appropriately counsel patients on positive health behavior change would be ideal. Further research on effective applications of MI adapted to the dental setting and efficient training methods is warranted. Future studies should include methods of evaluating successful implementation of MI methods, effective and efficient supervision methods, and oral health outcomes.

Conclusion

The brief training and evaluation paper assignment was effective in teaching dental students the basic techniques of motivational interviewing. Further research is required to find out if the types of motivational interviewing techniques that can be reasonably taught within the dental school curriculum are effective in helping patients change oral health behaviors and improve oral health outcomes.

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REFERENCES