Motivational Interview training for dental students

Nathalia Ribeiro Jorge da Silva*; Alexandre Emídio Ribeiro Silva**; Andreia Morales Cascaes**

* MSc student, Graduate Program in Dentistry, Federal University of Pelotas
** PhD in Epidemiology, Professor, Faculty of Dentistry, Department of Social and Preventive Dentistry, Federal University of Pelotas

ABSTRACT

Motivational Interviewing (MI) is a counseling method that seeks to intervene in an individual's lifestyle in order to promote behavioral change that is beneficial to their health. Although widespread in some countries, MI training is not incorporated into the curriculum of Brazilian universities. The objective of this study is to report on the development of a pilot project for MI training at the Federal University of Pelotas (UFPel), and the performance of dental students who participated in this project. The theoretical phase was conducted through a Virtual Learning Environment (Moodle UFPel) and the practical phase was developed with families of children enrolled at a Primary Health Care Center in Pelotas, RS, which offers internship for dental students. Student performance was assessed weekly using the Motivational Interviewing Treatment Integrity instrument (MITI 3.1.1.). Students also completed a self-assessment questionnaire. Overall, the project was effective in improving students' performance in applying MI over the study period, with variations in some specific skills. MI is an innovative educational approach that demonstrates beneficial results for dental students.
Descriptors: Motivational Interview. Dental Education. Students.

1 INTRODUCTION

Motivational Interviewing (MI) is a counseling method that seeks to intervene in an individual's lifestyle in order to promote behavioral change that benefits their health[1].

Initially described by Miller and Rollnick (1983) in the field of alcoholism, MI has been gradually demonstrating its effectiveness and spreading worldwide, being applied in various fields of health[1].

Scientifically proven in the literature in cases of eating disorders, diabetes, HIV, oral health, among others[2], research has demonstrated its beneficial effect on health by guiding patients to find their own motivations for making changes.

Studies evaluating MI teaching in various fields of health have shown increased student confidence in addressing patients' needs, as well as enhancing their interpersonal communication skills, resulting in beneficial changes such as increased adherence to treatment with medication, positive changes in diet, increased physical activity and weight loss[2,3].

Although studies conducted worldwide show the effectiveness of this method in improving general health conditions, there is still little evidence in the dental field[4]. Nevertheless, the results are promising, pointing to better oral health self-care and prevention of oral diseases such as caries, gingivitis and dental plaque[2,5]. Few studies have evaluated MI teaching and learning in the context of dentistry. Results indicate that this approach has helped students in their interpersonal relationships with patients, addressing their ambivalence and guiding them about changes in oral health behaviors[5,8].

Teaching and learning MI by means of training of students from different areas of health enables them to gain knowledge of this innovative method, expand their patient management skills, besides increasing their confidence in using it[3,5,7,8]. Empowering future professionals to use behavioral change rather than the automatic response of "fixing" the patient, allows them to understand and explore motivations, and empathize to strengthen self-esteem, encouraging a promising outcome[1].

The curricular structure of the Federal University of Pelotas (UFPel) Faculty of Dentistry contains only a few contents relating to health education and communication limited to a few activities, such as disciplines of the "Collective Oral Health Unit" module, where knowledge is gained of the reality of people who use Unified Health System (SUS) services and dialogue is encouraged with the community that attends Primary Health Care Centers (UBS). The "Psychology and Dentistry" discipline examines the psyche of human beings, how to understand them and put oneself in their place.

Although some disciplines address the issue, this practice needs to be covered throughout the course, so that future professionals know how to deal with otherness and intervene more effectively in health risk behaviors. With the aim of introducing this subject into UFPel's Dentistry degree course, a theoretical-practical pilot teaching project was developed to support the concepts that comprise MI and prerequisites for carrying out this method specifically in relation to dentistry. This article reports on the proposed methodology and on the analysis of the performance of the students who took part in the project.

2 METHODS

MI teaching and learning for graduate dentistry students at UFPel was carried out through a pilot teaching project whereby they underwent theoretical and practical training between July and October 2016. The project's target population were students who had already taken the 2nd year "Collective Oral Health Unit" module and could attend training on Friday afternoons.

Students were initially trained through the UFPel Virtual Learning Environment (AVA), using the Moodle tool as a teaching resource. Theoretical contents were made available through modules that introduced MI, its characteristics and specificities. Students did reinforcement exercises on the contents learned and were supervised and received personalized

feedback on the work they completed.

Module I introduced MI in terms of its background, concepts, approaches and guiding principles. Module II focused on the use of MI in oral health and on evidence in the context of dental practice. Module III explained its use in reality, with guidance on how to implement it in the project's practical activities. Finally, Module IV included final guidelines to enable students to put MI into practice in the community.

Practical MI implementation was carried out in partnership with a UBS, this being part of the UFPel Faculty of Dentistry mandatory curricular Collective Oral Health internship. Families with children were selected in order to carry out the practical part of the project. Community health agents accompanied the students within the UBS catchment area, taking them to the homes to be visited and introducing them to the families. Participating families were selected at random, it being sufficient for the legal guardian and the child to be at home and to accept the invitation to participate.

Household visits lasted between 30 and 45 minutes. At the beginning of the conversation, the student explained the reason for the visit and followed a structured script that served as a guide for applying MI. Open-ended questions were used to encourage legal guardians to talk about oral health, eating habits, values related to general and oral health, and ease or difficulty in their children using and having access to health services. As the conversation progressed, the three basic MI skills (questioning, listening, and informing) were combined in order to identify behaviors related to desirable oral health changes, while also exploring beliefs, motivations, and amplifying contradictions of the child's legal guardian in relation to these changes. An illustrated album helped to provide relevant information on early childhood caries prevention, serving as a tool for discussing a

change plan. At the end, the student summarized the conversation based on reflective listening, highlighting the main aspects discussed during the visit. On the same day as the visit the child was scheduled for a routine appointment with the UBS dentist.

Dialogue during the visit was recorded, with the participant's permission. The student put the audio recording in their Dropbox and the following week received feedback on their performance based on the Motivational Interviewing Treatment Integrity (MITI 3.1.1.)[6], which is the "Motivational Interview Fidelity Assessment Tool". MITI 3.1.1. is a behavior coding system used to facilitate the gathering of MI feedback, setting parameters both for beginners and for those with experience. The recordings were listended to and evaluated by the project scholarship holder who had previous theoretical and practical experience in MI.

MITI 3.1.1. provides personalized feedback as it evaluates students according to the MI guiding principles of motivation, collaboration, respect for autonomy, guidance on change and empathy, as well as determining an overall interview performance score. The overall score is obtained by averaging the sum of the points ranging from 1 to 5 for the guiding principles. The maximum score is 5. Those who score between 3.5 and 3.9 are classified as beginners while those who score at least 4.0 are classified as experienced. At the same time, MITI 3.1.1. also assesses the basic MI skills of informing, asking and listening. These items assess the ratio of open-ended to closed-ended questions, the extent to which simple reflections as opposed to complex reflections are obtained, and the extent to which adherent information is provided, i.e. information that does not confront the patient. Observing all this provides an analysis of the profile of the interviewer and the interview.

The basic skills also have parameters for beginners and the experienced. The parameters for open-ended questions range from 50% to 69% for beginners and at least 70% for the experienced. The parameters for complex reflections range from 40% to 49% for beginners and at least 50% for the experienced, while for transfer of adherent information the parameters range from 90% to 99% for beginners and 100% for the experienced.

Students received evaluation of their performance in each interview, and were guided on facing their difficulties in practice, with a view to improving MI.

In addition to the MITI 3.1.1. feedback, at the end of the interview, students rated themelves and their degree of perception of how much the interviewee was interested and motivated. This information was collected when students completed a checklist of their home visits and answered the questions: "How do you rate your approach?" and "How do you rate the participant's level of interest / motivation in what was discussed during the visit?" Reply options ranged from 0 (very poor), 1 (poor), 2 (regular), 3 (good) to 4 (very good).

Data were collected during MI and input to Microsoft Excel version 2010 spreadsheets. Descriptive analyses of the results were performed. The study was approved by the Research Ethics Committee of the UFPel Faculty of Dentistry as per opinion number 2.517.478.

3 RESULTS

This study evaluated 27 Motivational Interviews conducted by the three students taking part in the Teaching Project.

Overall student performance

Table 1 describes the overall results for the student team. Analysis of the team as a whole showed that the overall score performance, which characterizes the entire interaction of the interview, ranged from an average of 3.9 initially to 4.2 at the end, i.e. right from the start they exceeded the minimum beginners' score of 3.5 and by the end they exceeded the minimum experienced level of 4.0. In this regard, the students developed as the project progressed.

Table 1. Progresss of the UFPel Faculty of Dentistry graduate students during the project on the use of motivational interviews.

MITI 3.1.1. evaluation criteria	Initial	Midway	Final
Overall score (mean)	3.9	4.0	4.2
Evocation (mean)	3.5	3.7	4.3
Collaboration (mean)	4.1	4.0	4.4
Respect for autonomy (mean)	4.3	4.1	4.2
Guidance on change (mean)	3.8	3.8	4.0
Empathy (mean)	3.8	4.4	4.1
Open-ended questions (%)	50.9	37.0	46.9
Complex reflections (%)	28.6	37.3	29.6
Adherent information (%)	90.4	83.5	87.6
Self-assessment (mean)	2.4	3.0	3.3
Interview perception (mean)	3.5	3.3	3.7

The number of open-ended questions analyzes the interviewer's behavior in allowing a wide range of possible replies to detect harmful habits. The students achieved a reduction from 50.9% to 46.9% in this proportion. The expected proportion for beginners is 50%. The MITI 3.1.1. frequency for complex reflections of is 40% for beginners and 50% for the experienced. The team showed an increase from 28.6% to 29.6%, while reaching 37.3% midway through the project. Transfer of adherent information achieved by the team was between 90.4% and 87.6%. The parameter for beginners is 90% and this was achieved at times.

Self-assessment regarding the approach used during interviews was rated by the students themselves, as was their perception of the interview based on the interviewee's degree of interest and motivation. Students moved from "regular" to "good" self-assessment while the level of perception of the interviewee's interest / motivation remained "good".

Individual student performance

Table 2 shows individual student results. Student 1 made progress with the overall score, achieving the score for experienced users (4.0) several times. The number of open-ended questions ranged from 57.6% to 38.8%, achieving the 50% parameter for beginners in parts of the interviews, although their final rating was 45.7%.

Complex reflections progressed from the beginning to the middle of the process, but at the end there was a decrease and the final percentage was 0%. Adherent information ranged from 97.3% to 88.6%, reaching the 90% beginner's parameter and ending with 92.3%. Self-assessment of the interview went from "poor" to "regular" and perception about the interview showed that interviewees' interest was good, with an improvement in the intermediate and final interviews.

Table 2. Progress of each UFPel Faculty of Dentistry graduate student with the use of motivational interviewing

Evolution	Student 1			Student 2			Student 3		
	Initial	Midway	Final	Initial	Midway	Final	Initial	Midway	Final
Overall score (mean)	3.8	4.1	3.9	4.2	4.1	4.5	3.8	4.0	4.2
Evocation (mean)	3.3	4.0	4.0	4.0	3.6	4.6	3.3	3.6	4.3
Collaboration (mean)	40	4.3	4.0	4.3	4.3	4.3	4.0	3.6	5.0
Respect for autonomy (mean)	4.0	3.6	4.0	4.3	4.3	4.6	4.6	4.6	4.0
Guidance on change (mean)	3.6	4.0	3.6	4.3	3.6	4.6	3.6	4.0	4.0
Empathy (mean)	4.0	4.6	4.0	4.3	4.6	4.3	3.3	4.0	4.0
Open-ended questions (%)	57.6	38.8	45.7	55.6	36.3	52.7	39.7	36.1	42.3
Complex reflections (%)	24.3	38.1	-	43.3	44.5	48.3	28.3	30.6	41.6
Adherent information (%)	97.3	88.6	92.3	80.7	89.6	80.6	93.2	72.4	89.9
Self-assessment (mean)	1.6	2.6	2.6	3.0	3.6	4.0	2.6	3.0	3.3
Interview perception (mean)	3.0	3.6	3.6	4.0	3.3	4.0	3.6	3.0	3.6

Student 2 began the interviews with an experienced person's score, i.e., the evaluated interviews obtained scores higher than 4.0. As for open-ended questions he started at the beginner's

level with 55.6%, went down to 36.3% and ended at the beginner's level with 52.7%. Complex reflections evolved from 43.3% to 48.3% before reaching the beginner's level of 40%. Their adherent information score increased from the beginning to the middle of the interviews, from 80.7% to 89.6%, but ended with 80.6%. The parameter for beginners is 90%. Self-assessment was rated "good" initially and ended up as "very good", as did respondents' degree of interest which was largely "very good".

Student 3 started with an overall beginner's score and ended with an experienced score, ranging from 3.8 to 4.2. The number of open-ended questions increased from 39.7% to 42.3%, failing to reach the beginner's level. Complex reflections achieved a significant improvement from 28.3% to 41.6%, and exceeded the beginner's level of 40%. At times adherent information was above the beginner's score of 90%, with 93.2%, however it fluctuated to 72.4% and ended with 89.9%. Student self-assessment changed from "regular" to "good" and interview perception remained constant at the "good" level.

4 DISCUSSION

UFPel Dentistry students' training in MI proved to be effective considering that the overall score criterion increased between the initial and final interviews when they achieved the score of experienced users. This performance is what provides the overall impression of the interviewer's profile.

Some fluctuations in the performance of open-ended questions, adherent information and complex reflections were observed throughout the study, highlighting the importance of continually reinforcing the basic skills of this approach. On the other hand, students' self-assessment evolved over the course of the interviews, demonstrating confidence in applying MI. Perception of interviewees' interest

also evolved.

The overall quality of the evidence from studies using MI indicates the relevance of using this innovative method for training future professionals. Published studies have described MI training using various pedagogical strategies. Pharmacy students at the University of Missouri (USA) were trained to perform MI and met once a week for three hours for four months. They had individual supervision as they learned MI skills and also had doctoral co-advisors. The logistics of the course involved mandatory reading, interactive lectures, video demonstrations, group or individual practice, as well as individualized supervision and completion of reflection forms. The practical part of MI included a questionnaire to promote interaction during a 5 to 20-minute conversation with patients. The conversation was recorded and afterwards they made a written summary. Assessment took place through the public domain Health Care Climate questionnaire to assess patients' perceptions of student counseling skills. The supervisors provided students with feedback and guidance after listening to the recording and reading the reflection forms and grading them according to the approach. In addition, they stimulated confidence to improve the application of the method, resulting in students having the skills necessary for performing the method and being highly motivated to put it into practice after the end of the course[7]. Our study, as well as the study described above, presented MI using various pedagogical strategies to better exemplify the method to students. The use of a structured questionnaire to stimulate dialogue, interview recording and feedback to interviewers were common points found between the two studies.

Students in the 2nd year of the Dental Hygiene course at the Midwestern Community College (USA) were invited to participate in a pilot MI study. Students' dialogue with patients

was recorded during two sessions. At first, the recording was done without the student having knowledge of MI techniques. Following this they received feedback and learned about MI. The training content involved mandatory reading, two sessions (one four-hour and one three-hour session) in which students discussed the subject, practiced exercises and learned some forms of communication. Individual assessment was performed using MITI 3.1.1., as in our study[8]. When comparing interviews before and after MI training the students improved their scores, however there was no improvement in the ratio of reflections and questions[8]. The logistics used in the Midwestern study and our study differed with regard to testing students before and after knowledge of MI, but the evaluation method was similar when using MITI 3.1.1. to provide individualized feedback on each student and each interview.

The training of dental students through this pilot project, even with a sample of only three students, allowed us to identify where we should focus to improve learning, since several scores oscillated during the study. The basic skills of asking, listening and informing should be continually improved and reinforced for students, perhaps with more theoretical and mainly practical training. Thus, the likelihood of returning to the traditional educational approach, common in the context of the UFPel Faculty of Dentistry, may be reduced. Students who participated in this teaching project also performed other patient contact activities within the Faculty. Therefore, some confusion in applying the method could be due to the duplicity of approaches, this being a possible explanation for the oscillations that occurred throughout the study.

A difference in learning between students was observed. Students 2 and 3 performed more regularly during the project and even improved in some aspects, while student 1 apparently had greater difficulty in performing the method. One possible reason is that student 1 is more inexperienced in contact with patients, as he was just beginning his practice at the clinic. Students 2 and 3 were from more advanced semesters and already had this contact, generating a greater experience of interpersonal communication with patients.

The methods used by the project (AVA, Dropbox and face-to-face discussion with students) can be enhanced with face-to-face discussions and practical workload, precisely to build confidence and reinforce the importance of each of MI's guiding skills and principles. According to Bray et al. (2013)[5] the integrated approach to didactic and practical training is the best MI teaching method. In their study, the authors used lectures and application during the Faculty of Dental Hygiene's curricular clinical practice to implement MI, which resulted in a positive impact on the students' MI skills performance[5].

As this is a pilot project, it is possible to analyze the results and enhance the pedagogical strategies to improve the quality of dental student teaching and learning, mainly based on the literature that reports how effective MI is and demonstrates positive results in interventions in health problems.

5 CONCLUSIONS

Considering the fact that the students had no previous knowledge of the method, they were able to develop basic MI skills, even if not fully meeting the parameters established by MITI 3.1.1. This fact also makes us reflect on items that can be reinforced to obtain better scores, such as the ability to ask open-ended questions and avoid asking closed-ended questions, so as to obtain more complete data about the patient's reality. As for the reflections, students need to be

encouraged to stop and think about what is being reported, listen in a reflexive and qualitative manner, so as to be able to reflect about it later.

The development of the project with the aid of AVA facilitated learning, since this tool is provided by UFPel and used in some graduate subjects. MITI 3.1.1. was chosen as the evaluation method given its practicality in providing feedback, besides being a method previously recommended in the literature.

The inclusion of the project was carried out at an appropriate stage of the course, since it is in the 2nd and 3rd years that contact with patients begins. Over the course of the interviews, students developed more confidence and improved their interpersonal relationships. MI is an innovative educational approach that demonstrates beneficial results for dentistry teaching.

RESUMO
Entrevista Motivacional no ensino de graduação em Odontologia
A Entrevista Motivacional (EM) é um método de aconselhamento que busca intervir no estilo de vida do indivíduo, com a finalidade de promover uma mudança comportamental benéfica à sua saúde. Embora bastante difundido em alguns países, o ensino da EM não é incorporado ao currículo da graduação das universidades brasileiras. O objetivo deste estudo é relatar a metodologia de desenvolvimento e a análise do desempenho de estudantes de graduação em Odontologia que participaram de um projeto piloto para o ensino teórico e prático da EM da Universidade Federal de Pelotas (UFPel). A etapa teórica foi conduzida por meio do Ambiente Virtual de Aprendizagem (Moodle UFPel) e, a prática foi desenvolvida junto a famílias de crianças cadastradas em uma Unidade Básica de Saúde, em Pelotas, RS, que oferece estágio curricular obrigatório para estudantes da Faculdade de Odontologia da UFPel. O desempenho dos estudantes era avaliado semanalmente por meio do instrumento *Motivational Interviewing Treatment Integrity* (MITI 3.1.1.). Os estudantes também preenchiam um questionário de autoavaliação. No geral, o projeto mostrou-se efetivo na melhoria do desempenho dos estudantes na aplicação da EM ao longo do estudo, com oscilações em algumas habilidades específicas. A EM é uma abordagem educativa inovadora e que demonstra resultados benéficos ao ensino da graduação em Odontologia.
Descritores: Entrevista Motivacional. Educação em Odontologia**.** Estudantes

REFERENCES
1. Rollnick S, Miller WR, Butler CC. Entrevista motivacional no cuidado da saúde: ajudando pacientes a mudar o comportamento. Porto Alegre: Artmed, 2009.
2. Martins RK, Mcneil DW. Review of Motivational Interviewing in promoting health behaviors. Clin Psy Rev. 2009; 29: 283-93.
3. Gecht-silver M, Lee D, Ehrlich-jones L, Bristow M. Evaluation of motivational interviewing training for third-year medical students. Fam Med. 2016; 48(2): 132-5.
4. Cascaes AM, Bielemann RM, Clark VL. Effectiveness of motivational interviewing at improving oral health: a systematic review. Rev Saúde Púb. 2014; 48: 142-53.
5. Bray KK, Catley D, Voelker MA, Liston R, Williams KB. Motivational interviewing in dental hygiene education: Curriculum modification and evaluation. J Dent Educ. 2013; 77(12): 1662-69.
6. Moyers TB, Martin T, Manuel JK, Miller WR, Ernst D. Revised Global Scales:

Motivational Interviewing Treatment Integrity 3.1.1 (MITI 3.1.1) [Draft Manuscript]. Albuquerque (CASAA): University of New Mexico; 2010.

7. Goggin K, Hawes SM, Duval ER, Spresser CD, Martínez DA, Lynam I, Barnes A, Hinton-dampf AM, Murphy ME, Marken PA, Catley D. A motivational interviewing course for pharmacy students. Amer J Pharm Educ. 2010; 74(4 Suppl 70).

8. Croffoot C, Bray KK, Black MA, Koerber A. Evaluating the effects of coaching to improve Motivational Interviewing skills of dental hygiene students. J of Dental Hyg. 2010; 84(2): 57-64.

Correspondence to:
Andreia Morales Cascaes
e-mail: andreia.cascaes@ufpel.edu.br
andreiacascaes@gmail.com
Faculty of Dentristry
Department of Social and Preventive Dentistry
Federal University of Pelotas
Gonçalves Chaves, 457/402b
96015-560, Pelotas/RS Brazil