The effect of Motivational Interviewing training on students' counseling skills and confidence

A systematic literature review

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Abstract
Purpose: Unhealthy behaviors and bad habits are some of the major problems modern healthcare is facing and cause serious consequences in both oral health and health in general. Therefore one important aspect of modern dental and medical training is training in health behavior change. In this field, a counseling method and technique called Motivational Interviewing (MI) has shown quite promising results. MI training is introduced and applied as a part of the students training in various dental and medical educational centers. The purpose of this systematic literature review was to study the effects of MI training on dental and medical students’ counseling skills and their confidence in health behavior change communication with the patients. Method: The study was a systematic literature review, conducted from December 2010 to May 2011. Identification of relevant individual studies for this review was made by analyzing data collected through searches in seven different databases: PubMed; Cochrane Central; Trip; PubMed Clinical Queries; Cinhal; Medline and Health Information Resources. Results: Seven relevant articles were found. Six articles showed that MI training seem to have an altering effect on the counseling skills of the students. Five articles showed improvement in the students’ confidence in using MI and behavior change communication. Conclusion: Training in MI seems to have a positive influence on the communication skills of the students leading to improved counseling techniques and better ability to counsel patients on health behavior change. Keywords: Motivational Interviewing, dental students, medical students, curriculum, counseling.
Introduction
The primary goal of dental and medical educational centers is to train future health practitioners and make them professionally qualified to examine, diagnose and treat their future patients. For modern health practitioners an important aspect of patient treatment is counseling sessions with the patient aiming to inform advice and motivate him or her towards healthy behavior. Counseling sessions as a major preventive measure requires development of special communication and counseling skills. To develop those skills and to accomplish a broader competence of future dental and medical practitioners, an emerging role in dental and medical education is given to communication and counseling training. Dental and medical educational centers are becoming more focused on enhancing students’ communications skills (1). The importance of developing communication and counseling skills for dental and medical students is closely related to health behavior education of the patients. Dentists and physicians face many health problems in their daily practice that are directly related to, or caused by, an unhealthy lifestyle of the patient. Patient's health behavior and compliance with specific oral hygiene regimes (ex. flossing, tooth brushing...) is a key solution to successful dental treatments for many diseases and other dental conditions (ex. periodontal, orthodontic or caries) (2). Advising patients and counseling them in order to change their health behaviors are major preventive measures for many diseases.

Health Behavior Change
Health behavior is a broad term that aims at the daily care of the human body and organism, and can be defined as:

"Any activity undertaken by an individual, regardless of actual or perceived health status, for the purpose of promoting, protecting or maintaining health, whether or not such behavior is objectively effective towards that end" (3, p.355).

Unhealthy habits and poor self health care have a negative impact on health and may cause serious consequences in oral health and health in general. In modern dentistry, one of the major challenges is to maximize involvement of the patient in dental care. Proper oral hygiene and specific oral health behaviors could prevent many oral diseases. Patient's non-compliance to healthy behavior and poor rates of adherence is still a significant problem for both dental and health care. Therefore, counseling sessions leading to long-term and consistent health behavior change are of major importance in preventive health care (4-5).

Traditional counseling in healthcare
Traditional counseling is one healthcare counseling approach consisting of informing and advising the patients regarding rules for oral health behavior and health in general. Traditional counseling is often not related to the patient’s individual situation. This top down approach is in many cases not very successful. The patients may feel inferior or uncomfortable to discuss the problems they have and therefore they may acquire an aversion to the doctor appointments (6). In traditional patient counseling, the counselor attempts to persuade or convince a patient
to make a significant health behavior change by offering arguments, giving advices, giving orders, and by use of judgments. According to Freeman traditional health education of patients, provided through instructions and advices by health practitioners, has shown to be ineffective and not to result in sustainable health behavior change (7). Other approaches relying on the patients’ beliefs, willingness, desire and readiness to change have been proposed as preferable to traditional counseling (8). Another, different approach is introduced in oral and medical health in patients health behavior change, is Motivational Interviewing (9).

**Motivational interviewing (MI)**
Motivational Interviewing (MI) is a method that is considered to provide a closer and deeper cooperation with the patient and today is making progress in almost all areas of medicine. MI is a direct and patient centered counseling style that helps people resolve their ambivalence and move toward a healthy change. MI is more focused and goal oriented than other patient centered therapies, known as nondirective counseling (10).

The spirit of MI lies in its collaborative nature. The counselor seeks to create a partnership with the patient and evoke the motivation for change. However, the responsibility for change is left to the patient. The MI counselor follows four general principles in order to create an atmosphere favorable to change. The first principle is empathy. The counselor expresses empathy through reflective listening and by demonstrating nonjudgmental understanding of the patient's situation and perspective. The crucial attitude that underlies the principle of empathy is respectful listening and desire to understand patient's perspective without criticizing, judging or blaming. This attitude in MI is named acceptance. The counselor understands and accepts the patient's perspective without agreeing with or approving it. This acceptance builds an alliance between counselor and patient and it generates a positive impact on the patient's self-esteem and promotes change. The second principle is developing discrepancy: the counselor helps patients to explore gaps between their current behavior and changes they would like to obtain. The counselor aims to create and amplify a discrepancy between the current state and the state patient wants it to be. When MI counseling is successfully applied, patient rather than the counselor presents reasons and arguments for change. This principle deals with the importance of change and not with the amount of behavior change to be accomplished. The third principle, rolling with resistance, deals with ambivalence and invites the patient to start resolving the problem. After accepting the situation, understanding the problem and defining the discrepancy, the next step is to deal with ambivalence and unwillingness to change. In MI, resistance to change is not directly opposed by counselor, instead it is acknowledged as natural and understandable. Once resistance is acknowledged it is easier to deal with it. The MI counselor does not provide all the answers and does not generate the possible solutions. Instead, the question or problem is turned back to the patient and the patient is actively involved in problem solving. The final principle is self-efficacy. Self-efficacy is a key element in motivation for change. It refers to the patient’s belief in his or her ability to carry out a specific task. The counselor aims to enhance the patient’s confidence and his or her capability to overcome the obstacles. MI
encourages the patient’s belief in the possibility of change while the responsibility for choosing and carrying out the change lies on the patient (10). This approach strategy aims to break patient’s ambivalence. MI and its derivative Brief Motivational Interviewing (BMI), promote and encourage the patient to overcome unhealthy behavior. BMI is a short form of MI counseling specially developed for health practitioners. It is a set of quick and concrete techniques with purpose to manifest the spirit and practice of motivational interviewing in a single session (11). Application of MI and BMI in oral health and health behavioral change has so far showed encouraging results. In 2009, Yevlahova and Satur conducted a systematic review aiming to identify and assess the effectiveness of behavior models in oral and general health promotion. After evaluating the relevant articles MI interventions was found to be the most effective method for altering health behaviors in a clinical setting (9). Positive reports regarding the use of MI in dental and medical settings, and the emerging issue of health behavior change in preventive healthcare brought MI to dental and medical schools. MI and parts of MI have been introduced and included in the curriculum of certain dental and medical educational centers (14).

**Purpose of the study and research questions**

This systematic literature review is focused on medical and dental students that have received MI training. The motivation for conducting this study lies in the importance of health behavior change as a preventive measure and in training students in MI as a new health behavior change counseling method. By summarizing and analyzing related studies, the review aims to find out if provided MI training has an influence on students counseling skills and if the students after received training feel confident to apply MI health behavior counseling.

The specific research questions this systematic literature review explores are:

Can MI improve the students' counseling skills?
Will students feel more confident in use of MI and behavior change communication due to MI training?

**Method**

The study was a systematic literature review, conducted from December 2010 to May 2011. The aim of systematic reviews is to identify all relevant individual studies, summarize the findings presented in those studies and make available evidence more accessible to researchers and decision makers (12). Identification of relevant individual studies for this review was made by collecting and analyzing data in relevant online available databases. Data was collected through searches in seven different databases: PubMed; Cochrane Central; Trip; PubMed Clinical Queries; Cinhal; Medline and Health Information Resources. Eight combinations of identified keywords relevant for the study where used. Searches were limited to articles in English and Swedish and articles without abstracts were excluded. No restriction in time period was made. Searches and analyses were conducted by one reviewer. In Pub Med
two searches were conducted. The first search was conducted based on Mesh terms selection in the PubMed search builder. The Mesh terms selection in the PubMed search builder did not correspond with identified keywords relevant for the study. Therefore, another search in PubMed’s advanced search was conducted, using eight combinations of identified relevant keywords. In all other databases searches were conducted one time only, based on the eight combinations of identified keywords. The searches are presented in table 1 and 2.

For identifying relevant articles, the guidelines proposed by the Centre for Reviews and Dissemination were used (12). The participants, interventions, outcomes and study designs of interest, were defined as follows:

Participants:
Dental and medical students, and standardized patients (actor/person trained to simulate a patient's illness).

Interventions:
Any types of interventions involving Motivational Interviewing or Brief Motivational Interviewing training of dental and medical students.

Outcomes:
Counseling skills and confidence of students with and without Motivational Interviewing or Brief Motivational Interviewing training.

Study design
All types of studies were included.
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<th>Selected articles</th>
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Results
The flow chart of the study selection process is presented in figure 1. The searches resulted in a total of 4,608 hits. The first selection of articles was conducted based on reading titles and abstracts. Articles clearly indicating in the title or abstract that the study did not include MI/BMI training or did not involve dental/medical students were dismissed as irrelevant for the review (ex. MI studies focused on dental practitioners; medical practitioners; counselors; psychology students; pharmacy students, children, adolescents). After the first screening, 4,373 publications were dismissed as irrelevant for the review. The remaining 235 hits from different databases were compared and screened further, according to the stipulated criteria. After the second screening, a further 220 hits were excluded. After reading the full text of the final 15 publications, 7 articles provided the relevant information and were selected for this review, see table 3.

Figure 1: Flow chart of study selection process

- Total number of hits identified through database searching: 4,608
  - Excluded publications: n = 4,373
    - Clearly indicating in title or abstract non-relevance to the study: n = 4,373
  - Publications selected for further screening: 235
    - Excluded publications: n = 220
      - Not fulfilling one or more of inclusions criteria: n = 29
      - Duplicate publications: n = 191
  - Publications meeting inclusion criteria: 15
    - Excluded publications: n = 8
      - Not relevant to the study: n = 8
  - Number of studies included in the review: n = 7
MI and counseling skills of the students
Koerber et al. (15) conducted a pilot study to explore the effects of BMI training on dental students counseling techniques. In this study, 22 dental students voluntarily participated, randomly assigned to the control or the experimental group. All students attended a two to three hours seminar on the impact of tobacco use on oral health and the principles of smoking cessation. In addition to the smoking cessation seminars, the experimental group attended three sessions with BMI training over a one month period. Both groups of students conducted two smoking cessation counseling sessions with standardized patients, the first at baseline and the second after the experimental group had received additional BMI training. An experimental pretest and posttest was used to measure students counseling technique: assessing students’ behavior from videotapes, patients’ involvement in the treatment, and establishment of good doctor patient rapport, perceived efficacy in promoting patient change and students’ confidence and interest in the task. The study found that BMI training altered the counseling techniques of the students. The students from the experimental group showed increased use of MI techniques during counseling, which resulted in increased patient involvement. No other significant differences in counseling skills were found.

Poirier et al. (16) conducted a study with the objective “to examine the effectiveness of MI training on improving medical students’ knowledge of and confidence in their ability to counsel patients regarding health behavior change.”(16, p.327). The students received five training sessions on learning and practicing motivational interviewing techniques using lectures, class activities, role-plays and simulated patients. Precourse and postcourse questionnaires were used to measure their confidence in and knowledge of providing counseling to patients regarding health behavior change. Results from the study showed significantly improved confidence in and understanding of MI counseling skills.

A BMI curriculum to teach medical students behavior change counseling was developed and tested by Martino et al (1). The curriculum was delivered within two hours training. Pretest, posttest and a four week follow up was designed and used to evaluate the students’ BMI skills. The study aimed to determine the effect of the curriculum on the students' communications skills and its effect on their knowledge and attitudes regarding BMI. The counseling skills of the participating students received some altering elements after only two hours of training in BMI. After receiving MI training, participating students showed decreased use of MI-inconsistent behaviors, such as communication roadblocks (e.g. confrontation, unsolicited advice), closed ended questions (questions that can be answered with a single word or short phrase) and increased use of BMI behaviors (reflection frequency and number of open ended questions).

In another study, Haeseler et al. (17) worked further on assessing and evaluating the MI curriculum introduced by Martino et al. (1). In this study researchers examined the impact of the curriculum on students’ ability to use MI in a medical interview with a standardized patient. The assessment was made by comparing the MI skills of 80 students who received two hours MI training with 19 students who had not participated in MI training. Researchers developed a rating scale with eight items corresponding to the MI skills taught in curriculum
(Open ended questions; Reflections; Affirmations; Empathy; Avoid MI inconsistent actions; Importance ruler; Confidence ruler and Change plan). Students were rated on those eight MI related items. The MI group showed significantly better results in Importance ruler and Confidence ruler, motivational ruler techniques used to increase importance of behavior change and confidence of the patients in behavior change. The study concluded that students who participated in a brief MI curriculum had improved ability to counsel patients for health behavior change.

Bell & Cole (14) designed a curriculum to teach medical students the principles of MI. The aim was to improve knowledge, skills and confidence of the medical students in counseling patients for health behavior change. The curriculum consisted of four two-hour sessions, and fifty three medical students participated. Pre- and post-questionnaires were used for measuring confidence and knowledge in behavior change counseling while the Video of Assessment Simulated Encounters-Revised tool (VASE-R) was used for performance assessment. The study showed significantly improved knowledge and counseling skills in the area of behavior change.

In a recent study, Opheim et al. (18) explored the effects of four hours MI training on medical students. Two independent raters used the Motivational Interviewing Skill Code (MISC) to rate video recordings of consultations between students and simulated patients. Half of the students received four hours MI training and the other half did not. Students who received MI training scored significantly better on five of six global MISC variables (Acceptance; Egalitarianism; Empathy; Warmth; Spirit.). On the sixth global variable “Genuineness” both groups scored high. This variable indicates openness, responsiveness and honesty of the therapists. The categorization system proposed by Cichetti was used to grade the scores (19). The study concluded that brief, four hours MI training does have a measurable effect on medical students’ communication style and behavior.

Based on the findings of these six articles it seems that MI training does have a positive influence on the counseling skills of the students. After receiving MI training, students altered their counseling approach and communication style. The use of MI counseling techniques lead to increased patient involvement, and better communication with less roadblocks and fewer closed questions.

**MI training and confidence in use of MI and behavior change communication**

In the previously presented study by Koerber et al (15), the researchers also studied the students' confidence and interest in the task. They found no differences in confidence between the group that had received BMI training and the control group. However, in the other of the above presented studies, differences in confidence have been found. The study conducted by Poirier et al (16) showed significant improvement in confidence and understanding of MI counseling skills; Martino et al. (1) found that students obtained confidence in their ability to use BMI; and the study of Bell & Cole (14) showed significantly improved confidence in the area of behavior change.
In another study, White et al. (20) introduced a MI curriculum for first and third year medical students and evaluated the effect of the curriculum on the third year students' skills. The researchers used the Motivational Interviewing Treatment Integrity (MITI) scoring tool to assess empathy, MI spirit, MI adherence, MI non-adherence, types of questions (open or closed) and number of reflections. Students scores where compared to MITI suggested proficiency behavior count and summary score thresholds. The assessment showed that students achieved a proficiency in reflections rate, were slightly below proficiency in empathy and MI spirit, while the students scored significantly below proficiency in number of open ended questions. The study found that MI training can improve students’ confidence in behavior change related communication with patients.

In five of the studies, results showed improved students’ confidence in use of MI and behavior change communication after received MI training. Only one study did not find any difference in confidence between MI trained students and students not trained in MI.
Table 3. Descriptions of the studies included in the review

<table>
<thead>
<tr>
<th>Author</th>
<th>Population</th>
<th>Training/Interventions</th>
<th>Duration of training</th>
<th>Aim</th>
<th>Type of study</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koerber et al.</td>
<td>Dental students (22 students, junior and senior classes)</td>
<td>Brief Motivational Interviewing/ Tobacco</td>
<td>3 Sessions (4 hour each) over a one month period</td>
<td>To explore the changes that occurred in dental students’ counseling techniques as result of training in BMI</td>
<td>A randomized pretest and posttest</td>
<td>The training increased the patient involvement variables &amp; the variables measuring use of MBI technique, but the effect on other variables was not significant.</td>
</tr>
<tr>
<td>Poirier et al.</td>
<td>Medical students (42 students, year one)</td>
<td>Motivational Interviewing/ Tobacco</td>
<td>Five 2-hour sessions</td>
<td>To examine the effectiveness of MI training on improving medical student’s knowledge of and confidence</td>
<td>Pre-course and post-course questionnaire</td>
<td>Participation in the Health Behavior Change Counseling course significantly improved students’ confidence in &amp; understanding of MI counseling techniques.</td>
</tr>
<tr>
<td>Martino et al.</td>
<td>Medical students (45 students, year three)</td>
<td>Brief Motivational Interviewing</td>
<td>A single 2-hour</td>
<td>Developed and tested a curriculum to teach year 3 medical students a behavior change counseling approach called BMI</td>
<td>Pre and posttest, 4 Week follow-up</td>
<td>Students showed increases in their knowledge about BMI, interest in the approach, confidence in their ability to use BMI.</td>
</tr>
<tr>
<td>Bell and Cole</td>
<td>Medical students (53 students, year three)</td>
<td>Motivational Interviewing Curriculum</td>
<td>Four 2-hour sessions</td>
<td>To design and evaluate a formal curriculum to teach medical students the principles of MI that improve knowledge, skills and confidence</td>
<td>Pre- and Post-assessment</td>
<td>There was an improvement in MI-related knowledge with pre-mean 7.04, post-mean 11.54.</td>
</tr>
<tr>
<td>White et al.</td>
<td>Medical students (46 students, year one &amp; three)</td>
<td>Motivational Interviewing Curriculum</td>
<td>2003-2004 with four-week rotation</td>
<td>To evaluate the effect of MI curriculum on third year students counseling skills</td>
<td>Assessment of Videotaped Interview, knowledge exam</td>
<td>83% Students felt that the MI curriculum helped them be comfortable in discussing behavior change, 98% felt it was important skill for physicians to have.</td>
</tr>
<tr>
<td>Opheim et al.</td>
<td>Medical students (113 students, final year)</td>
<td>Motivational Interviewing training</td>
<td>Four hour workshop</td>
<td>To explore the effect of brief training in Motivational Interviewing for medical students</td>
<td>Assessment of video-recordings of consultations</td>
<td>In five of six global scale measured MI variables, MI trained students scored higher.</td>
</tr>
<tr>
<td>Haeseler et al.</td>
<td>Medical students (99 students, year three)</td>
<td>Motivational Interviewing Curriculum</td>
<td>A Single 2-hour Training</td>
<td>To evaluate a year 3 Motivational Interviewing Curriculum using a standardized patient case</td>
<td>Clinical skills assessment test.</td>
<td>Improvement in students ability to counsel patients for behavior change.</td>
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Discussion
The articles reviewed in this study indicate changes in students’ communication techniques after received MI or BMI training. After attending MI course, students use more of MI consistent behaviors in the counseling sessions. Students with MI knowledge attempt to increase number of open ended questions and use of reflection frequency while at the same time they avoid closed ended questions, confrontations, unsolicited advice and other types of communication roadblocks. Even a limited two hours respectively four hours BMI training (1, 18) had effect on medical students’ communication style and behavior. This change in communication style reflects positively on patient–counselor relation and increase patient’s involvement in sessions.

The second objective of this review was to analyze the possible impact of MI training on students’ confidence in use of MI and behavior change communication. This review found that MI training seems to have a positive influence on students’ confidence. It improves students’ confidence in understanding and applying MI counseling techniques and it can improve students’ confidence in behavior change related communication with patients. However one of the analyzed studies in this review (15) found no differences in confidence between BMI trained students and students who did not received MI training. This dissimilar outcome can perhaps be explained by the fact that participating students where volunteers and perhaps more interested and better skilled in health behavior counseling then the average dental students. In this study all participating students received a prior training in tobacco cessation counseling and students from the experimental group (with MI training) may have discussed the training with their colleagues from the control group (without MI training). This may have improved students’ confidence of both participating groups.

Assessment of study quality
The articles that met the eligibility criteria for this review where quality assessed by using Downs and Black checklist (13). The assessment was made by the author and her supervisor.

Koerber et al. conducted a randomized control study. The objective, intervention and findings are comprehensively presented in the article. The methods of measurement were checklist and Likert scale. The rater was trained in measurement and blind to the study objects. Factors that could reduce the reliability of this study are: all of participating students received some training in tobacco-cessation counseling; participating students may have been more interested in smoking-cessation counseling; the students from experimental group may have discussed the training with their colleagues from the control group and students were not equally assigned to two standardized patients.

Poirer et al. (15) conducted a cohort study without a control group. The strong sides of this study are that the study included the entire population (all first year class participated in the study), that the participating students received 5 two-hours sessions in MI from a multidisciplinary team, the content of the sessions is described in the article, and that the
studies objective and statistical findings are clearly presented in the article. The limitations are that from the 42 participating students who completed the precourse questionnaire, 6 students did not complete the postcourse questionnaire and that the students counseling behaviors were assessed based on questionnaire and were not objectively measured.

The study by Martino et al. was a non randomized study without a control group. The participating students were volunteers. The objective, intervention process and findings are described clearly in the article. The statistical analyses are clear and suitable for the study. The weak sides of the study, besides lack of control group, are that the study assessed students’ responses to hypothetical vignettes to determine their basic BMI skills and study had a short follow-up period completed only by 22 students (49%).

The Haeseler et al. study had a several limitations: students were not randomized, baseline levels of MI skills were not assessed, the follow up period was not standardized, only one standardized patient encounter was used to evaluate students MI skills and there was a large disproportion in number between the experimental and the control group, 80 and 19 students respectively. Strong side of the study is that standardized patient rating of the students MI skills, based on interviews and by using MI performance rating scale, was additionally reviewed. Three independent expert raters reviewed randomly selected videotapes of 6 student interviews, equally balanced between students who did and did not received MI training. Objective, intervention process and findings of the study are clearly described in the article and suitable statistical tools were used.

The Bell et al. (14) article clearly describes the objective, intervention and findings of the study. Pre and post assessments consisting of both questionnaire and VASE-R tool were used for measuring results. Statistical results and findings are clearly presented in the article. The results from each student were analyzed individually by both authors. Missing a control group as comparison and using the only portion (one of three vignettes) of the Vase-R assessment tool are the main limitations of this study. Another limitation and a risk for bias is that only 45% of students responded to the online follow up survey.

The study by Opheim et al. was a randomized control study. The objective of the study, intervention and findings are clearly defined and presented in the article. Video recordings of consulting sessions between students and simulated patients were scored by two independent raters. The raters used the Motivational interviewing Skill Code (MISC) to blind score counseling sessions. Appropriate statistical tools were used to insure the reliability of the scores. The study did not have any significant limitations.

The strong sides of the White et al. study were that the study included the entire population the third year students received extended MI training, reliable statistical tools were used and coders trained in the Motivational Interviewing Treatment Integrity scoring tool (MITI) evaluated basic motivational interviewing skills. The limitations of the study are that the main outcomes were not clearly described in the introduction or methods, lack of baseline data and that first-year student evaluation of the MI curriculum were optional.

Articles reviewed in this study have some strong sides but also considerable limitations. Major problem for conducting this review was a lack of consistency in MI training throughout reviewed studies. Each study used its own MI course and its own MI training model. Length of offered MI training in the reviewed studies varied from short two hours training (1) to
extended four weeks curriculum (20). Tools for assessment of the MI skills in the reviewed articles were different. These variations made comparison of the studies and data extraction very difficult.

**Conclusion**
The results from this review show some encouraging effects of MI training on students’ counseling techniques and confidence. In six of seven reviewed studies MI training showed positive altering effects on the counseling skills of the students while in five studies MI training led to improvement in the students’ confidence in using MI and behavior change communication. However, due to up mentioned limitations of the reviewed studies and due to lack of consistency in MI training and MI skills evaluation we cannot draw any final conclusion. There is a need for further research in this field.

**Future research**
There is a need for more concrete and MI focused studies that will analyze the possible effects of extended MI training on dental and medical students counseling skills, and research studies that will compare the counseling skills of the students without MI knowledge to those of students with sufficient MI knowledge, in both standardized cases and in clinical trials.

**References**
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