Faculty perceptions of supporting students' delivery of motivational interviewing during patient care

By

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Dedication

This thesis is dedicated to my husband and sister. You are my support system and I could not have accomplished this project without you both.

My husband, Chris Arnett, thank you for understanding my commitment to this project and supporting me with your love and patience.

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In loving memory of my father-in-law, Jim Arnett, GO BLUE!

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CHAPTER I

INTRODUCTION

1.1 Problem Statement

Oral health impacts an individual's life, speech and social development, and reflects general health and well-being.[1,2] The 2000 Surgeon General's Report on oral health in America acknowledges that the oral cavity is a site for harmful microbial infections that affect general health and well-being of an individual.[1] Oral diseases include, but are not limited to, dental caries, periodontal disease, and oral/pharyngeal cancers.[1] Dental caries is the most prevalent chronic childhood disease.[1] Periodontal disease is a chronic inflammatory disease affecting 37% of adults.[1] Each year there are 30,000 diagnosed cases of oral and pharyngeal cancers.[1] In addition, there is a correlation of oral diseases to systemic diseases.[1,3]

Many of these oral diseases can be prevented or reduced, yet they are still an epidemic in the United States.[1,4] There is a complex relationship between an individual's behavior and their lifestyle that may contribute to oral diseases.[3] However, there are evidence-based approaches to support behavior change that are effective in reducing chronic diseases.[1,3–12]

Health professionals, specifically dental hygienists, need to understand health behavior theories and concepts.[3,6,11,13–15] Advice-giving educational methods to elicit a change in behavior generally will not motivate and can potentially impair a patient to

make a change.[13,15] According to Brand et al. informing the patient of negative consequences from failure of adherence to professional advice does not promote or encourage lifelong positive behavior changes.[13] Croffoot et al. states that information provided by the clinician to the patient is not substantial enough to develop a health behavior change.[14] Many behavioral science research studies indicate that effective methods to change a behavior include psychological principles and patient-centered counseling.[13]

Motivational Interviewing (MI) is a patient-centered, collaborative counseling approach, focusing on strengthening a patient's motivation for a positive behavior change.[9] It allows the provider to convey a sense of partnership, acceptance, compassion and evocation known as the 'spirit of MI'.[9] This supports the patient in becoming responsible for their own health and developing autonomy for their decisions.[9] The goal of MI is to evoke a change from within the individual to improve their health.[9] MI can be utilized by a variety of health professionals including those in oral health care.[5,9,10,13–21]

1.2 Goal Statement

The overall goal of this research project is to assess the University of Michigan (U-M) Dental Hygiene (DH) faculty members' perception of the importance of and their confidence in supporting students' delivery of MI during patient care. In addition, it will assess the impact of the U-M DH faculty's feedback and modeling of the 'spirit of MI' on students' learning.

1.3 Specific Aims

Specific Aim 1: Assess the dental hygiene faculty's perception of the importance of supporting students' MI interactions during patient care.

Hypothesis: The participation in MI professional development activities will increase the faculty's perception of importance in facilitating support of students' MI interactions during patient care.

Specific Aim 2: Evaluate the dental hygiene faculty's perception of their confidence in supporting the students' application of MI strategies during patient interactions.

Hypothesis: The participation in MI professional development activities will increase the faculty's perception of their confidence in facilitating support of students' MI interactions during patient care.

Specific Aim 3: Assess the students' perception of their faculty's feedback and modeling the spirit of MI.

Hypothesis: The faculty's feedback and their application of modeling the spirit of MI will have a positive effect on students' perceptions.

1.4 Significance

The primary role of a dental hygienist is prevention of disease and promotion of oral and overall health.[2] The dental hygienist has a unique role in the oral-systemic arena of health care. As enhanced emphasis is placed on improvement of oral health

and prevention of oral and systemic diseases, dental hygienists will need to position themselves as effective providers of behavioral counseling.[1,2]

To adequately implement MI in a dental hygiene curriculum, faculty members need training.[21–24] Curry-Chiu et al. found that faculty training and buy-in are important aspects to this process.[23] The integration of MI faculty training serves to provide them with the skills needed to support students' use during patient care.[23] Also both the "spirit" and delivery of MI has been shown to improve when training sessions occur.[22] Lastly, a combination of MI training along with coaching and feedback improves retention of MI skills.[21,24]

A significant aspect of students' ability to learn is influenced by positive role modeling from faculty members.[25] Role modeling between faculty and student is considered to be an interpersonal style of teaching.[26] An essential piece of MI education is faculty member involvement in mentoring students.[15] In addition, positive faculty role modeling can influence students' and enhance their professional growth.[26]

In 2012, the University of Michigan (U-M) Dental Hygiene Program's health behavior change curriculum was enhanced to include a special focus on MI. Concurrently, MI professional development was provided to faculty to support students' application of MI strategies during patient interactions. There currently is no available research on the impact of MI professional development activities on dental hygiene faculty's perceptions of supporting students' delivery of MI during patient interactions. According to Croffoot et al. future studies should evaluate the MI teaching background that is provided to faculty and determine its impact on the delivery of MI curricula to students.[14]

In evaluating the U-M Dental Hygiene Program MI curricular enhancement it is important to assess the faculty's perception of the importance of and their confidence in supporting students' application of MI during patient interactions. In addition, there is no available research on the impact of the dental hygiene faculty's feedback and their modeling the 'spirit of MI'. Therefore, it is important to understand the students' perception of the faculty's feedback and their modeling of the 'spirit of MI'. Overall, this study will provide information on the effectiveness and impact of MI professional development activities on faculty and students. This information will be beneficial to the U-M Dental Hygiene Program and could serve as a model for dental hygiene educators on a national level for supporting students' use of MI during patient care.

1.5 Thesis Overview

A broad overview of this thesis project is provided to assist the reader. In Chapter II, Review of Literature, the author presents a general synopsis of the impact of oral health on overall health and well-being and current health behavior change models. Following sections of this chapter will provide the reader with an understanding of MI principles, strategies and the 'spirit of MI', including MI application in health care and oral health care. The emphasis of this chapter will address education, training, coaching, feedback, modeling the 'spirit' of MI and gaps in MI research. Chapter III discusses the Materials and Methods used for this study. Chapter IV provides detailed results and Chapter V and VI offer the Discussion and Conclusions of the study.

CHAPTER II

REVIEW OF THE LITERATURE

2.1 Impact of Oral Disease on Overall Health

Oral diseases can negatively impact an individual's general health and quality of life.[1] The 2000 Surgeon General's Report on oral health in America acknowledges that the oral cavity is an entrance and site for harmful microbial infections that affect general health and well-being of an individual.[1] Oral diseases include, but are not limited to, dental caries, periodontal disease, and oral/pharyngeal cancers.[1]

The most prevalent chronic childhood disease is dental caries.[1] When dental caries is left untreated, children suffer from pain, tooth loss and potential death.[1,2] Periodontal disease is a chronic inflammatory disease affecting 14% of adults 45-54 years old, and 23% of adults 65-74 years old have severe periodontal disease.[1] In addition, there is a correlation between periodontal disease and systemic diseases such as cardiovascular disease, arthritis, diabetes, chronic obstructive pulmonary disease (COPD), and adverse pregnancy outcomes.[1,3] Furthermore, there are 30,000 diagnosed cases of oral and pharyngeal cancers each year, from which 8,000 people will die annually.[1] Oral conditions and diseases can be the initial clinical sign of systemic manifestations that can affect overall general health.[2]

Oral health impacts an individual's life, speech, social development and reflects general health and well-being.[1,2] Many of these oral diseases can be prevented or

reduced, yet they are still an epidemic in the United States.[1,4] There is a complex relationship between an individual's behavior and lifestyle that may contribute to oral diseases.[3] Determinants of health are factors that influence an individual's or a population's health.[3] Healthy People 2020 was developed by the U.S. Department of Health and Human Services to provide evidence-based objectives for improving the health of Americans and identifying health determinants.[4] The science-based evaluation of behaviors has a significant role in health outcomes.[1,3] Additionally, a positive health behavior change can reduce the occurrence of chronic diseases.[3]

2.2 Health Behavior Change Methods

Health professionals, specifically dentists and dental hygienists, have used forms of advice-giving educational methods and "tell-show-do" approaches to elicit a change in behavior to prevent diseases. These methods generally will not motivate and can potentially impair a patient to make a change.[13,15] According to Brand et al. the use of "fear tactics" and/or the use of severe ramification outcomes from failure of adherence does not promote or encourage lifelong positive behavior changes.[13] Croffoot et al. states, that providing of information from the clinician to the patient is not substantial enough to develop a health behavior change.[14] Research in cognitive psychology however, indicates that health professions can motivate patients to change a behavior and be responsible for their own health.[13]

There are numerous models and theories to explain the process of a health behavior change. The Health Belief Model and the Transtheoretical Model or the Stages of Change Model can be utilized as a framework to guide a clinician to understand the process of a behavior change for a patient.[6] Clinicians with an understanding of these

theories and concepts can identify a patient's level of readiness to change a behavior.[6,11]

The Health Belief Model, established in 1975 by Becker and Maiman, predicts health behaviors that are influenced by the individual's attitude or beliefs.[6] There are two main elements of this model, the individual's perception of the threat to their health and the perception of the treatment to decrease the outcome of the threat.[6] This model is subject to the individual's own reality and is only beneficial if it is meaningful to the individual.[6] The Health Belief Model considers an individual's demographic barriers and readiness to change as internal motivating factors for a health behavior change.[11]

The Transtheoretical Model, established in 1983 by Prochaska and DiClemente, theorizes that an individual will pass through five stages when pursing a behavior change.[6] An individual may repeatedly cycle through these stages or remain in one stage for a prolonged period without motivation to advance to the next stage of change, and/or relapse during any point of this cycle.[6] The stages are as follows: pre-contemplation, contemplation, preparation, action and maintenance.[6] The final or sixth stage is termination, however, an individual can relapse at any stage in the process.[6]

The Transtheoretical Stages of Change Model explains what occurs during the process of change for an individual with or without professional support.[11] Understanding the Stages of Change can guide a clinician to support a behavior change intervention through assessing the level of readiness of the patient.[6] During the pre-contemplation stage the patient does not recognize their behavior has a negative effect on their health.[6] The contemplation stage is where the patient has an awareness that their behavior affects their health and they have an internal debate to determine if they

desire to change their behavior.[6] The preparation stage is when the patient has a clear goal and will make a decision to achieve a change.[6] The action stage is when the patient is implementing their decision and is currently engaged in the change process.[6] The patient's motivational level is at its highest during the action stage, however also the most vulnerable for relapse during this stage.[6]

2.3 Motivational Interviewing

Motivational Interviewing (MI) is an evidence-based, patient-centered, collaborative counseling approach, focusing on strengthening a patient's motivation for a positive behavior change.[9] MI research began in 1983 and was first used in substance abuse and addiction therapy.[9,21] Since then, MI has been adapted for use in a variety of health practices to encourage and support positive behavior change.[9] It allows the clinician to convey a sense of partnership, acceptance, compassion and evocation assisting the patient in becoming responsible for their own health and developing autonomy for their decisions.[9] The goal of MI is to evoke a positive behavior change from within the individual to improve their health.[9]

2.3a Spirit of MI

Practicing MI involves a philosophy rather than a technique, which is described as the 'spirit of MI'.[5,9] The four integrated components that foster partnership and encompass the 'spirit of MI' are collaboration, acceptance, compassion and evocation.[9] Collaboration defines that MI is done "with" a person, as a partner, to reach a goal.[5,9] Complementary to the partnership of the 'spirit of MI', is acceptance of the patient's autonomy.[9] The meaning of acceptance as described by Carl Rogers, encompasses

recognizing a person's absolute worth, autonomy and internal motivation to achieve a health behavior change.[9] The third element is compassion, which involves promoting the patient's well-being and a commitment to their best interest.[9] The last element is evocation, to elicit the internal motivation a patient has to adopt what is already present within themselves.[5] These collectively, describe the mind-set of a clinician, who truly practices the 'spirit of MI' during patient-interactions.[9]

2.3b Motivational Interviewing Principles

There are four main principles of MI, which are empathy, discrepancy, rolling with resistance and supporting self-efficacy.[5,9] Applying these principles, allows a patient to maintain their autonomy during the behavior change process.[9] In addition, clinicians report these results in more pleasurable and productive patient-interactions.[5]

The principle of expressing empathy focuses on a clinician's ability to show interest in understanding the patient's perception.[5] Developing discrepancy, focuses on distinguishing between the patient's intrinsic values and behaviors that are inconsistent with their behavior change goals.[5,27] The third MI principle is rolling with resistance, which may also be referred to as avoiding conflict.[5] Identifying resistance and responding with support may minimize a patient's ambivalence and offer valuable insight in regards to the patient's internal challenges.[5,27] The fourth principle is supporting self-efficacy, which is giving encouragement and praise to build confidence in the patient's ability to change a behavior.[5,12]

2.3c Guiding Strategies

There are MI strategies that can be utilized to assist in guiding patients to achieve a behavior change. These include open-ended questions, affirmations, reflective listening and summaries (OARS) during patient interactions to support a behavior change.[14] Open-ended questions, are those that cannot be answered with yes or no statement from the patient.[5,14] Posing a question that provides an opportunity to craft a response will allow the clinician to understand the patient's perception.[5] Affirmations are achieved by giving encouragement and acknowledgment to the patient's strengthens.[5] When clinicians affirm a patient, it enhances rapport and assists the patient in building confidence in changing a behavior.[5] Reflective listening allows a clinician to display an understanding of their perceptions, ambivalence and efforts.[14] It also helps the patient hear their own statements of thoughts and feelings in a different format, which may assist in their internal motivation to change a behavior.[10] The purpose of summaries is to close the MI session, to ensure the clinician understands the patient's perspective and connects the information provided by the patient.[5] According to Croffoot et al. using OARS is important in obtaining desired goals while implementing MI during patient-interactions.[14]

2.3d Motivational Interviewing Processes

There are four processes that represent the confluence of MI when implemented by a clinician during patient interactions; these include engaging, focusing, evoking and planning.[10] The process of engaging is more than being friendly, it is the development of a relationship and rapport that involves trust and understanding.[10] Engagement is an essential foundational element of MI and is affected by factors such as perceptions,

emotional state and mind-set from both the clinician and the patient.[10] The process of focusing, will assist in defining the direction to achieve a health behavior change goal.[10] The process of eliciting the patient's internal motivation to change, is known as evoking.[10] Evocation is the heart of MI and enhances a patient's confidence to support the autonomy of their ideas, feelings and beliefs.[5,10] The last process is planning, which occurs when the patient has reached their potential level of readiness to change a behavior.[5] This requires a commitment and an action plan that may need to be revisited multiple times as the behavior change evolves.[5] These strategies are continuous and encompass the four main principles of MI, the use of OARS and the 'spirit of MI' to collaborate in support of a patient's health and wellness.[5,9,10]

2.3e Brief Motivational Interviewing

Brief MI (BMI), a derivative of MI, is intended for application by health care providers that have limited time (five to ten minutes) to discuss behavior change with patients.[12] Its focus is on the collaborative spirit of MI allowing the patient to think about the benefits and challenges of change.[12] There are three main elements of BMI that include assessment of motives, enhancement of awareness and supporting change.[7] During this type of counseling interaction, initially the provider and the patient exchange information about the proposed change.[12] The second aim is to reduce the patient's resistance to the change and build a rapport to support the patients goals.[12]

2.4 Application of MI in Patient Care

MI research was first used in substance abuse and addiction therapy.[21] According to Miller et al., the use of MI during patient interactions has been successful

for a behavior change in weight management, as well as for type 2 diabetes, hypertension, tobacco use and drug/alcohol consumption.[21] MI is adaptable for clinicians to use in a variety of health practices to encourage and support positive behavior changes.[21]

A randomized controlled study by Bertrand et al. compared MI to a brief educational intervention (EI) among 221 participants, who shared injectable drugs, increasing their risk of the Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV).[28] The results revealed at a six month follow up, that the MI group had decreased risky behaviors associated with injectable drug use by 50%.[28] In both groups, hazardous behaviors decreased significantly, however the MI group surpassed the EI group for all risky behaviors.[28]

Resnicow et al. explored the effectiveness of MI delivery from primary care providers (PCPs) and registered dietitians (RDs) to parents of overweight children.[29] Pediatric research office sites that had a structured obesity program and extensively trained MI clinicians were excluded from this study.[29] Prior to meeting with the parents, the PCPs participated in a two-day MI training and behavior therapy workshop by Resnicow, which included in-person education on MI approaches and an instructional DVD.[29] The fifteen RDs who participated in this study were MI trained.[29] The study included three groups with group one receiving standard educational material on healthy dietary habits and physical activity.[29] Groups two and three received educational materials that were MI-consistent with a focus on the child choosing behaviors along with receiving self-monitoring logs that were elective for the child and/or the parent to complete.[29] Both the MI-consistent educational material and self-monitoring logs were

given at the request of the parent and was relational to the behavior change selected by the family.[29]

During year one, group two received three MI counseling sessions from PCPs and one MI session in year two.[29] Group three received the same MI sessions from PCPs with an additional six MI sessions from RDs over the two year span of the study.[29] The results showed a statistically significant reduction in Body Mass Index percentile for group three who received MI counselling from both PCPs and RDs.[29] Group two revealed a reduction in Body Mass Index compared to group one who received standard educational material, however it was not statistically significant.[29]

A meta-analysis by Lindson-Hawley et al. included 28 randomized control trials on smoking cessation and MI.[17] The studies evaluated spanned a twenty year period that involved one to six MI sessions and were 10-60 minutes in duration.[17] The quit rate among intervention groups ranged from 0%-59.7% with MI intervention achieving the greatest results with modest variations between all of the groups.[17] The study acknowledges that the MI training ranged from 2-40 hours among a population of physicians, nurses and counsellors.[17] It is unknown if the success rates in the intervention groups can be attributed to MI techniques or to the intensity of the intervention.[17] Furthermore, the unexplored specifics of the MI training is a limitation of this study.[17]

2.4a Application of BMI in Patient Care

The application of BMI has been utilized to facilitate and support a behavior change during short intervals of appointment times during patient care.[7] A randomized control study by Louwagie et al. explored lay health-care workers (LHCWs)

implementing BMI strategies to assist tuberculosis (TB) patients in quitting smoking.[30] The LHCWs attended a three-day BMI and smoking cessation training program.[30] The intervention group (n=205) received BMI counselling for five to fifteen minutes and was referred to the TB nurse for short standardized advice-giving message.[30] The control group (n=204) received only the short standardized advice-giving message from the TB nurse.[30] After three months, the participants who received BMI self-reported sustained absence from smoking at twice the rate of the control group.[30] In addition, they had maintained abstinence at the six month follow up visit.[30]

BMI has evidence for being effective in alcohol behavior reduction strategies.[20,31] In two randomized clinical trials, Borsari et al. found that BMI was the most effective intervention for reducing alcohol use among college students.[31] The first study randomly assigned participants to a BMI or a standard education (SE) group.[31] The results revealed after follow up at one, six and twelve months the BMI group engaged in fewer drinks per week, including a decrease in binge drinking and reduction of alcohol related problems.[31] In the second study, all participants received a fifteen minute advice-giving session and were reassessed six weeks later.[31] Those who continued unhealthy alcohol behaviors attended a BMI session.[31] During follow up at three, six and nine months, the participants who received BMI significantly reduced their hazardous alcohol related behaviors.[31]

2.5 Application of MI in Oral Health

Studies have explored the use of MI for improved oral health outcomes. The Centers of Disease Control and Prevention (CDC) supported a study of educational programs by Hirsch et al. and found MI counseling reduced harmful behaviors and

decreased the occurrence of childhood tooth decay.[19] The results indicated effective application of MI can reduce the rate of tooth decay by 63% in high risk children.[19]

González-Del-Castillo-McGrath et al. implemented MI as an intervention, in a single blind, randomized clinical trial including 100 high risk caries children between six and ten years old.[18] The children were divided into two groups and the mothers in both groups received oral prevention information.[18] The experimental group, also received individualized MI sessions over a six month period.[18] The experimental group showed a 37% reduction of caries and reduced plaque scores.[18] In addition, this group had a lower number of new carious lesions at a rate of 2.12 compared to 3.51 in the control group.[18] The results indicated that MI was more effective than traditional educational programs for establishing behaviors to promote oral health.[18]

A systematic review by Gao et al. included twenty studies that explored the effectiveness of MI compare to Conventional Health Education (CHE) methods to improve oral health.[16] The sample sizes varied from 50-1,021 subjects from different age groups of dental patients, special-needs groups, disadvantaged communities, veterans and children of medical staff.[16] The majority of the studies in this review indicated that MI outperformed CHE in at least one beneficial outcome to maintain or improve oral health.[16] Most studies were investigating MI strategies used to improve periodontal health and reduce dental decay.[16] A total of seven studies explored MI in improving periodontal health, in which five studies showed improvement in at least one outcome measure.[16] Whereas, two studies revealed no significant difference among the groups.[16] In addition, the follow up time frame to measure MI effectiveness was weak in the majority of the studies ranging from eight weeks to twelve months only.[16]

Furthermore, only two trials included gold-standard methods of MITI coding system to measure the accuracy of the MI principles used in a session.[16] However, MI remains a growing area of interest in oral health care despite the inconclusive results of its effectiveness presented in this review.[16]

2.5a Application of BMI in Oral Health

Oral health professionals, specifically dentists and dental hygienists are often under time constraints during clinical care and seek effective approaches to support a behavior change with a patient.[7] There is evidence-based research that training in BMI can be effective in incorporating MI strategies during patient interactions to support a health behavior change.[22]

A single blind, randomized controlled trial by Brand et al. included 56 participants from the University of Missouri-Kansas City (UMKC) Graduate Periodontics Program, who were in the maintenance phase of periodontal therapy.[13] The participants were randomly assigned to either the BMI group or the traditional oral health education group.[13] The BMI group attended one session approximately fifteen to twenty minutes long with a trained MI counselor who was not a dental professional.[13] The traditional oral health education group was informed of areas that needed improvement and shown how to improve these areas with oral hygiene aids (tell-show-do method).[13] The study results showed both groups had a statistically significant decrease in bleeding on probing, plaque index and probing depth over time.[13] There were no differences in clinical findings for either group at six or twelve weeks follow up.[13] This study provides initial evidence that more than a single MI session may be needed to support a patient to improve their periodontal condition.[13]

Alcohol disorders are rated one of the most prevalent psychiatric conditions according to the World Health Organization.[20] In the United States, only 14.6% of individuals with alcohol disorders receive treatment, therefore, screenings for this and subsequent interventions have been suggested in alternative settings, such as dental offices.[20] Neff et al. states screening and brief interventions with referral to treatment (SBIRT) programs are beneficial in a dental setting since 60% of the public visit an dentist/dental hygienist annually.[20] Patients in this study were contacted my mail requesting participation during their routine dental hygiene visit.[20] The patients that responded were informed of the study's focus on improving oral health and screening for alcohol use.[20] The participants completed a one-page personalized normative feedback (PNF) report on their alcohol consumption prior to their appointment that was used to develop discrepancy and a guide for the dental hygienist to implement BMI during their visits.[20] The participants received a three to five minute intervention receiving their PNF report along with BMI delivered by the dental hygienist at baseline, three months and six months.[20] The dental hygienists received eight hours of MI training in FRAMES, described by Miller and Rollnick, which is giving feedback (F), supporting personal responsibility (R), giving advice (A) to change, offering a menu (M) of options, listening empathically (E) and aiding self-efficacy (S).[20] In addition, post-training recorded audio-tapes of practice interventions from the dental hygienist revealed a 71% compliance of MI strategies.[20] At the conclusion of the study, the patients completed an exit survey and indicated that all topics on the PNF report were delivered a minimum of 87% by the dental hygienist.[20]

2.6 Education and Training for MI Adherence

Education and knowledge of MI principles combined with clinician training, is required to achieve a level of competence to support a behavior change.[14,21] Research has established the effectiveness of MI training for addiction therapists, mental health counselors and general practioners.[22] Miller et al. describes how a two-day MI training workshop increased proficiency among providers and enhanced efficacy during patient interactions.[21] Training to implement MI during patient care includes education tools, coaching, feedback and follow up coaching/feedback on performance to obtain long term sustainability.[14,24]

2.6a Training and Coaching

A fundamental element of MI training involves coaching to gain practice and skill with the support of positive reinforcement.[21] Coaching often incorporates role-playing to allow the clinician to practice MI strategries.[21] Research indicates training sessions that include coaching, enhance knowledge and improve confidence in using OARS.[14,22] In addition, the ‘spirit’ and delivery of MI improves when training occurs, utilization of OARS is enhanced and leads to eliciting change conversations that foster and strengthen individual awareness of motives.[14,22,27]

2.6b Feedback on Performance

An important element within MI training is feedback on performance and support of the use of MI strategies.[21] Feedback is most effective when it is focused on knowledge and skills that match the learning goal, provided in a timely manner and connected to practice opportunities to improve performance.[32]

Feedback improves retention and when it is not provided, MI skills will decrease over time.[21,24] Miller et al. states that "systematic feedback" is critical and increases proficiency during training sessions.[21] A meta-analysis by Schwalbe et al. discusses how continuous support of MI skills will sustain its acceptance and adherence gained from training sessions.[24] Furthermore, the combination of coaching with feedback is more effective than coaching alone.[24] Katlman et al. evaluated BMI training in the Family Medicine clerkship at Georgetown University School of Medicine.[33] The students that received training, that included feedback on a recorded patient session, used more OARS and rated higher in the use of MI overall compared to the students who did not receive BMI training.[33]

2.6c Application of MI Training

Research indicates that MI training should use a multi-modal approach that includes coaching and feedback for long term retention of skills.[21,24] A study by Bray et al. explored the integration of MI within the dental hygiene curriculum at UMKC.[15] A total of 53 dental hygiene students participated in the study.[15] The class of 2011 was the intervention group used to assess the BMI curriculum integration and the class of 2010 was the comparison group, which did not have the enhanced curriculum.[15] Prior to implementation of the enhanced curriculum, the faculty were involved in multiple training sessions in MI as well as audio recorded practice with individualized feedback.[15] At the conclusion of this study, faculty members' confidence in MI adherent skills increased significantly in the areas of using affirmations, summarizing, eliciting change talk, using the importance ruler, and asking for elaboration in the clinical environment.[15]

A randomized trial was conducted by Miller et al. with five different training groups that included a two-day MI workshop (W), MI workshop with feedback (WF), MI workshop with coaching (WC), MI workshop with feedback and coaching (WFC) or self-guided training (SGT) to enhance MI skills.[21] All groups increased MI proficiency at baseline, post-training, four, eight and twelve month follow-up.[21] There were statistically significant gains in the WF, WC and WFC groups.[21] This randomized trial provided evidence that the combination of training, including a MI workshop, along with coaching and feedback improves retention and proficiency of MI application.[21]

A study by Hinz et al. of 91 dental students from a pre-clinical course that included three hours of MI training on principles, spirit of MI and readiness reported a positive response with attempting MI strategies during patient care.[22] In addition, this training enhanced the student-patient relationship and allowed for discussion of an oral health behavior change without judgment.[22]

2.6d Application of BMI Training

According to Miller et al. BMI training of medical personnel can have a positive outcome on their ability to apply MI strategies.[21] Training in BMI principles and methods to apply in patient care enhances knowledge, skill and confidence.[34] A study by Edwards et al. included 163 health care providers, in which 128 received a one-day BMI training workshop for obesity prevention interventions.[34] The results revealed participant's knowledge and confidence of BMI strategies applied during patient care increased and was maintained at three and six month follow ups.[34]

Neff et al. showed effective BMI training for dental hygienists in supporting an alcohol behavior change to improve oral health in a dental setting.[20] This included eight hours of training focusing on the use of OARS, MI-consistent dialogue, importance/confidence rulers and feedback from voice recorded role-playing.[20] After training, dental hygienists used OARS 55% and applied reflective listening 58% of the time during a BMI session.[20]

A study by Koerber et al. included a total of 22 combined junior and senior dental students from a Midwestern dental school.[35] The experimental and the control groups provided smoking cessation to standardized patients at baseline. Five domains were measured with a Likert-scale, which included BMI methods used, standardized patient's involvement during the five to ten minute smoking cessation sessions, rapport between student and standardized patient, effectiveness in promoting change and student self-rating of confidence.[35] The experimental group had BMI training in a one month time period which included three training sessions totaling twelve hours from a licensed clinical psychologist certified to teach MI.[35] The control group did not receive any BMI training.[35] The experimental group improved their use of open-ended questions and showed an increase in the patient talk/number of questions asked by the patient as compared to the control group.[35]

2.6e Patient Perception of MI

It is important to explore the patient's perception of MI with regard to health behavior change, however there is limited research in this area.[36] A recent study by Jones et al. included five therapists all with advanced education in MI and a range of 6-25 years of practice.[36] A total of nine participants with a reported misuse of alcohol

engaged in MI sessions.[36] The sessions were coded using the Motivational Interviewing Treatment Integrity coding system, version 3.1.1 (MITI 3.1.1).[36] The participants reported they maintained their autonomy and felt they were listened to in a non-judging manner.[36] In addition, the participants had trust in their therapist and felt comfortable talking.[36] This study is reflective of Miller and Rollnick's description of the 'spirit of MI' and implementation of MI principles to support a behavior change.[9]

2.7 Motivational Interviewing and Dental Hygiene

The integration of MI training within dental schools, specifically the dental hygiene curriculum can improve the use of this skill by clinicians. A pilot study by Koerber et al. evaluated dental students' use of BMI in a simulated tobacco cessation session with standardized patients.[35] The study indicated that BMI training improved the dental students' techniques and increased patient involvement.[35] Koerber et al. suggests incorporating BMI improves compliance to home care and dietary habits.[35]

An evaluation of the outcome of MI integration within a dental hygiene program was conducted by Bray et al.[15] In preparation for the behavior change curriculum, the dental hygiene program director and Oral Health Education course director completed formal training in the counseling approach of MI.[15] Upon completion of their MI training, a program was designed for the faculty to develop skills in MI to support and coach students during patient interactions.[15] The faculty evaluated their own perceptions of the importance of MI and their confidence in applying MI and reported an increase in both after training sessions.[15] The data concluded that faculty training in MI improved their confidence and the perceived importance of MI, which enhanced the students' perception of MI and improved their skills during patient interactions.[15] In addition, it was

concluded that an important aspect of MI education is faculty member involvement in mentoring students.[15]

A study by Croffoot et al. evaluated how coaching provided by faculty influence dental hygiene students' skill and use of MI during patient interactions.[14] Dental hygiene students participated in two MI training sessions and were then audio-taped during two patient interactions.[14] The study revealed that dental hygiene students in their first recording, refrained from "giving" information and used less closed-ended questions.[14] Prior to completing their second recording, individual feedback and coaching was provided to students from a faculty member trained in MI.[14] As a result, students increased their reflective listening, use of open-ended questions and evoked more change talk.[14]

A qualitative study by Curry-Chiu et al. involved recruitment of nine practicing UMKC alumni dental hygienists that were employed full-time.[23] There were three aims to this study; 1) determining perceptions of value of MI skills after graduation, 2) barriers to incorporate MI and 3) suggestions for improving training.[23] Participants reported MI improved their communication skills, patient care and treatment acceptance.[23] The study found that barriers included time constraints to fully engage the MI strategies learned in school.[23] However, the participants reported they were able to incorporate MI to some degree during patient care.[23] In addition, the dental office environment, flexibility and the support from the dentist were all factors that were potential barriers.[23] Collectively, all participants valued MI and thought dental hygiene curricula should include MI education.[23] This study also found that faculty training and buy-in are

importance aspects to implement MI into a curriculum.[23] Furthermore, continual faculty training and support is needed for retention of MI skills.[23]

2.8 Role of Faculty Modeling

It is important to discuss the dental hygiene faculty's modeling of MI and the influence it has on students' learning. Role modeling by faculty is considered to be an interpersonal style of teaching and can be a positive influence on students.[26] Kenny et al. stated that learning is achieved when students can observe those in professional roles and then apply those observations to their own practice.[25] Bidwell et al. discusses the importance of faculty mentoring to enhance students' concept of professional practice from the experts within their chosen field.[37] A systematic review by Passi et al. identified both building rapport with students and creating a supportive learning environment as important elements of role modeling.[26] Curry-Chiu et al. found that faculty involvement in embracing the spirit of MI had an effect on dental hygiene graduates desire to implement MI in their professional practice.[23] In this study, the UMKC graduating class from 2011 reported having only two MI trained faculty members and did not express full satisfaction with having MI integrated within the curriculm.[23] Whereas, by 2013 the entire dental hygiene faculty were MI trained and the participants from that class reported an appreciation for instructors that were trained and embraced the spirit of MI.[23] Furthermore, positive faculty role modeling can influence students and enhance their professional growth.[26]

2.9 Gaps in Motivational Interviewing Research

The use of MI by dental and dental hygiene professionals is in its early stage of understanding and will require research to determine the number of sessions needed to effectively support a behavior change.[13] In addition, there is limited research to define the duration of MI training required to attain proficiency and sustainability to enhance performance of clinicians.[24] According to Resnicow et al. future research is needed on how to implement effective MI health professional training.[29]

These gaps in the knowledge in regards to training and application of MI and BMI in dental hygiene needs further investigation.[13–15] Bray et al. represents the first fully integrated curricular modification for dental hygiene faculty and students from a traditional provider-centered approach to one that is patient-centered.[15] Curry-Chiu et al. found that the integration of MI within the dental hygiene program prepared students to implement this within their professional practice.[23] Patient-centered education in the dental hygiene curriculum can have a significant impact on student performance of MI skill, however, future research is required focusing on assessment of the training.[15]

There is no available research on the impact of MI professional development activities on dental hygiene faculty's perceptions of the importance of and their confidence in supporting students during patient interactions. In addition, there is no available research on the impact of the dental hygiene faculty's feedback and their modeling the spirit of MI on students' learning. Furthermore, there is a gap in the research evaluating and assessing faculty, student and patient perceptions of patient-centered counselling during oral health care.

2.10 Education and Survey Research

Survey research is a non-experimental method used to collect information from a sample of the population.[38] It is a beneficial way to receive data to evaluate relationships between variables, attitudes, behaviors and gather information.[38] A limitation to survey research is potential errors between the true results and what is being measured that may occur from imperfections in data collection or question wording.[39]

Survey response rate is important for the quality of the project and can be affected by many factors.[40] A common problem is non-response that can occur from non-completion of a question or the entire survey.[39] It is recommended to contact respondents multiple times, keep the survey brief and know the type of delivery (electronic, postal mail etc.) that will enhance the response rate.[39] A meta-analysis by Shih et al. found a 20% less response rate in email surveys compared to paper surveys.[40] In addition, incentives provided did not factor in for a statistical difference in response rate of either survey mode.[40]

Survey research can be utilized in program evaluation and curricular change research. This assessment often determines the quality and effectiveness of a program and if it aligns with the desired mission.[41] A study by Springfield et al. evaluated the effectiveness of the University of Michigan (U-M) Dental Hygiene Degree Completion E-Learning (online) Program.[42] The first two Cohorts were assessed by utilizing a triangulation approach to analyze data from a variety of evaluation instruments including surveys.[42] This program evaluation found that the students and faculty valued the academically rigorous E-Learning experience.[42] In addition, the program enhanced

students' professional growth and faculty reported a satisfaction with student learning.[42] According to Springfield et al. evidence-based professions such as dentistry and dental hygiene need accurate program evaluation to ensure dental education is competency based and aligns with evidence-based practice.[42] A case study at the University of the Pacific Arthur A. Dugoni School of Dentistry analyzed the effectiveness of the institution's curricular change and found this reform helped achieve the goal of enhancing graduate students' critical thinking skills and integrating science and technology into dentistry.[43]

2.11 Conclusions

Oral diseases such as dental decay, periodontal disease and oral cancers dramatically impact general health and well-being.[1,2] Research has revealed oral diseases are indicators of chronic systemic diseases.[1,2] Both chronic oral diseases and systemic diseases negatively influence an individual's health, quality of life and social development.[1–3] An individual's lifestyle habits and behaviors greatly influence the prevalence of chronic oral and systemic diseases.[1,3,4] The science-based evaluation of behaviors and approaches to support a change are effective in reducing chronic diseases.[1,3–12] Health professionals, specifically dental hygienists, need to understand and apply health behavior theories and concepts to support patients with health behavior changes.[3,6,11,13–15] MI is an evidence-based collaborative counselling approach used to evoke a positive behavior change from within the individual to improve their health.[5,9,10] MI is adaptable for a variety of health professionals and has been implemented in oral health care.[5,9,10,13–21]

The primary role of a dental hygienist is prevention of disease and promotion of oral and overall health.[1,2] The dental hygienist has a unique role in the oral-systemic arena of health care. As enhanced emphasis is placed on improvement of oral health and prevention of oral and systemic diseases, dental hygienists will need to position themselves as effective providers of health counseling.[1,2]

To develop effective health counselors, MI professional development activities and training that includes faculty coaching and feedback can enhance the integration of MI within the dental hygiene curriculum.[14,22,24] Research is needed to understand faculty's perception of importance of MI and their confidence in their ability to support students' application of MI. In addition, research on students' perceptions of the faculty's feedback and their modeling of the spirit of MI will be beneficial to dental hygiene programs.

CHAPTER III

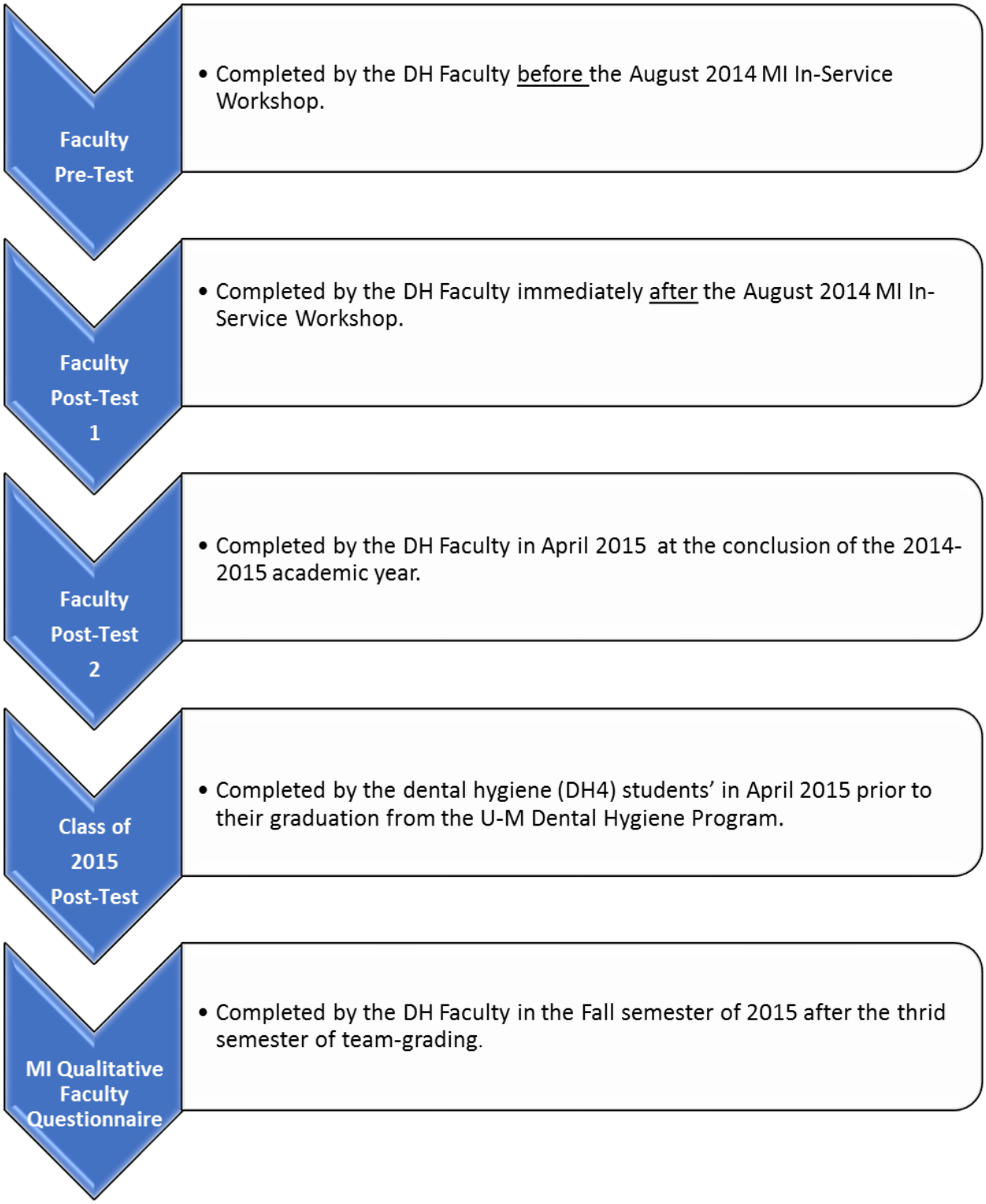
MATERIALS AND METHODS

3.1 Study Population

A convenience sample of sixteen University of Michigan (U-M) Dental Hygiene (DH) Program faculty members, who teach in the clinic, participated in this study. The dental hygiene faculty received MI training during a professional development in-service workshop in August of 2014. For this study, the dental hygiene faculty received four evaluation instruments. Three of the evaluation instruments focused on assessing their perceptions of importance and confidence in supporting students' application of MI. One evaluation instrument asked for recommendations from the faculty. All fifteen faculty members completed the first and second evaluation instruments, twelve faculty members completed the third evaluation instrument and eight completed the fourth evaluation instrument.

In addition, twenty fourth-year University of Michigan dental hygiene (DH4) students from the Class of 2015 participated in this study. The DH4 students participated in the enhanced MI curriculum throughout their three years in the U-M Dental Hygiene Program. The DH4 students completed one evaluation instrument in April 2015, prior to their graduation. Their evaluation instrument assessed the impact of faculty feedback and their modeling the spirit of MI on student learning.

MI Evaluation Instrument Timeline



3.2 MI Professional Development Activities

The MI in-service workshop in August of 2014 included speaker Delwyn Catley, Ph.D. Professor of Clinical Psychology from UMKC. This training was designed to enhance the faculty's understanding of MI and ability to support students' application during clinical care. During this session faculty participated in activities to strengthen their understanding of this counseling approach. They were also provided with opportunities to apply the MI grading rubric to example recordings and develop feedback.

3.2a Faculty Individual Grading

During patient care sessions, students were assessed on their development and implementation of a dental hygiene care plan as well as their application of clinical skills. In addition, they received an overall daily grade for their performance. Within these assessments, students were also evaluated on their overall application of the spirit of MI. The faculty used a Dental Hygiene Process of Care form (Appendix A) and a Daily Grade Form (Appendix B) for these assessments. A Daily Grade Criteria document was used to assist the faculty in standardizing their grading (Appendix C).

3.2b Faculty Team Grading

During the junior year (2014-2015) of their DENTHYG 312 and 313 Clinical Seminar coursework, students from the Class of 2016 were required to record two

patient education interactions, one in the fall and one in the winter semester. Beginning in the Fall 2014 semester and continuing through the Winter 2015 semester, the faculty, in a small team setting that included the course director as the facilitator, graded and provided feedback on student-patient MI audio recordings. Faculty graded these using the Motivational Interviewing Clinical Audio Recording Rating Form (Appendix D). These sessions occurred during the morning or the faculty lunch hour from 12:30-1:30 p.m. to accommodate varying schedules.

3.2c MI Curriculum: Class of 2015

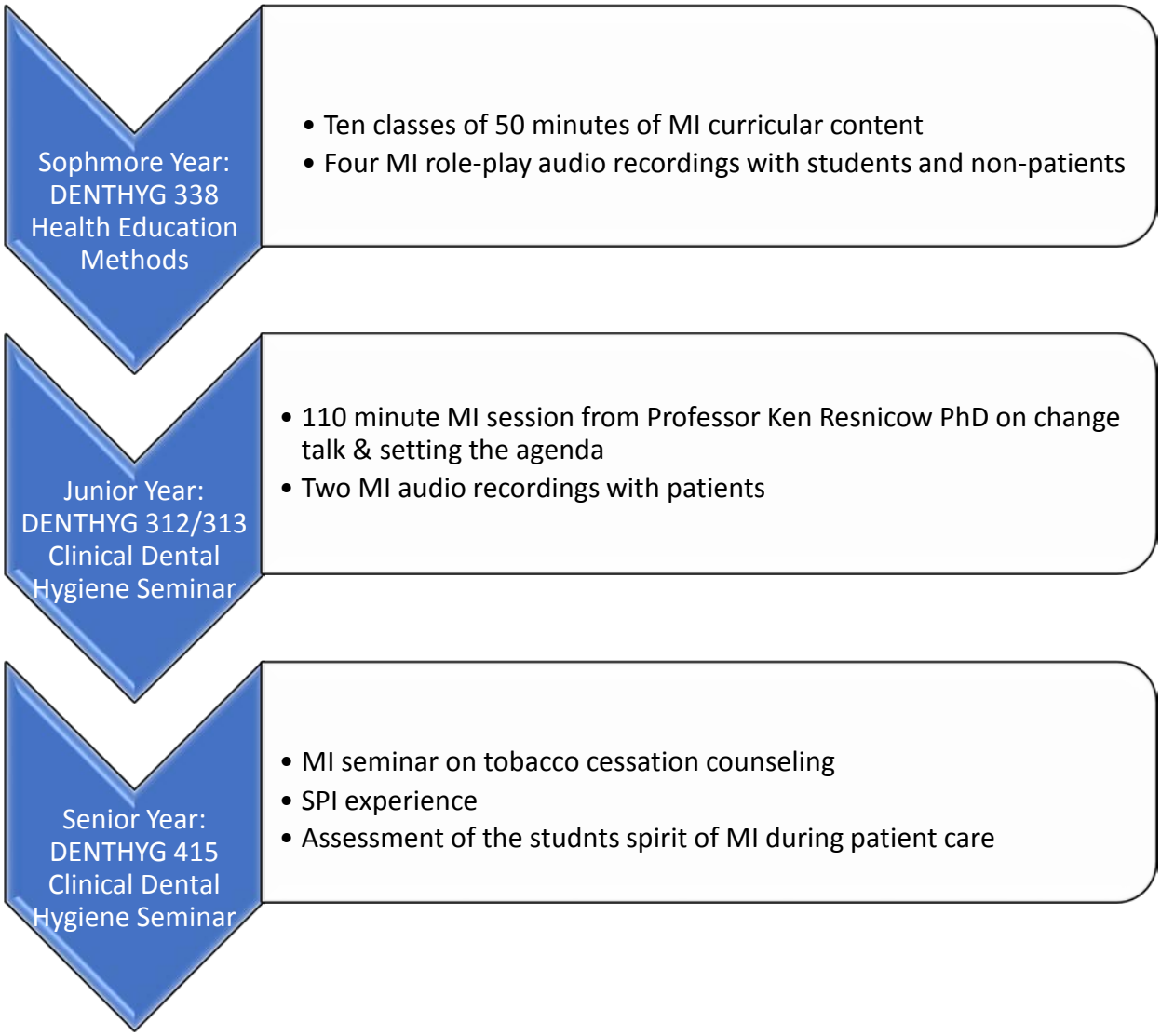
The Class of 2015 participated in the following MI learning activities during the three years in the U-M DH Program:

- Sophomore Year DENTHYG 338-Health Education Methods: Ten class sessions that included fifty minutes of MI curricular content was introduced during February through March of 2013. This also included four practice role-play audio recordings with fellow students and non-patient colleagues. Each recording was graded and received feedback from the course director and another MI trained faculty member.
- Junior Year DENTHYG 312/313-Clinical Dental Hygiene Seminar: Ken Resnicow, PhD and Professor in the department of Health Behavior & Health Education in the School of Public Health delivered a 110 minute session focusing on eliciting change talk and setting the agenda for change with patients during the Fall 2013 semester. In addition, students recorded two MI patient interactions

(one in the Fall of 2013 and one in the Winter of 2014). These audio recordings were graded and received faculty feedback by the course director only.

- Senior Year DENTHYG 415-Clinical Dental Hygiene Seminar: During January 2015, students participated in a MI seminar sponsored by GlaxoSmithKline concentrating on the application of MI in tobacco cessation counseling. That same month, they participated in a standardized patient instructor (SPI) experience applying MI with a tobacco cessation focus. In addition, throughout their DH4 year, students were assessed on their application of the 'spirit of MI' during patient care sessions. In addition, Motivational Interviewing Questionnaire Class of 2015 End of Winter 2015 Semester (DH4 Year) Post-Test evaluated the students' perception of their own application of the 'spirit of MI' as well as faculty modeling of the 'spirit of MI'.

MI Curriculum: Class of 2015 Timeline



3.3 Evaluation Instruments

There were five evaluation instruments for this study. Four of the evaluation instruments were adapted from the UMKC Division of Dental Hygiene. Modifications were completed in consultation with U-M's Center for Research on Learning and Teaching (CRLT). Pilot-testing then took place by two faculty members who had been involved with MI faculty professional development training. The dental hygiene faculty completed four evaluation instruments. Three of the faculty evaluation instruments included a Pre-Test, Post-Test 1 and Post-Test 2. The fourth evaluation instrument was the Motivational Interviewing Qualitative Faculty Questionnaire. The Dental Hygiene Faculty Pre-Test was completed prior to the MI in-service in August 2014. The Dental Hygiene Faculty Post-Test 1 was completed immediately following the MI in-service. The Dental Hygiene Faculty Post-Test 2 was completed in April 2015 by the faculty at the conclusion of the 2014-2015 academic year. The fourth faculty evaluation instrument, the Motivational Interviewing Qualitative Faculty Questionnaire was completed in November 2015 at the conclusion of the third semester of team-grading. In addition, there was a fifth evaluation instrument that focused on the students. The Class of 2015 End of Winter 2015 Semester Post-Test was completed by the senior students in April 2015, just prior to their graduation.

Dental Hygiene Faculty Pre-Test: (Appendix E)

A Pre-Test was delivered to the dental hygiene faculty in August 2014 before the MI in-service workshop facilitated by Delwyn Catley, Ph.D. This Pre-Test evaluated the faculty's perception of importance and confidence in supporting and facilitating MI strategies with students during patient care that include: using open-ended questions,

listening reflectively, making affirmations, summarizing, eliciting change talk, using the importance ruler, asking for elaboration, and enhancing self-efficacy. A Likert scale rating importance (0= unable to answer, 1= not very important, 2= of little importance, 3= neutral, 4= somewhat important, 5=very important) and a Likert scale rating confidence (0=unable to answer, 1=not at all confident, 2=little confidence, 3= neutral, 4=somewhat confident, 5=very confident) were used to measure the faculty's perceptions.

Dental Hygiene Faculty Post- Test 1: (Appendix F)

Post-Test 1 was completed immediately after the MI in-service workshop that took place in August of 2014. This Post-Test utilizes the same questions and Likert scale rating of importance and confidence as the Dental Hygiene Faculty Pre-Test. In addition, there were questions pertaining to the faculty's perception of the material covered during the MI in-service which include: importance of topics, sufficient detail for understanding, activities for relevance, presenter responsive to questions and level of interest in MI training sessions.

Dental Hygiene Faculty Post-Test 2: (Appendix G)

Post-Test 2 was completed in April 2015 following the two semesters of assessing the students' 'spirit of MI' daily in clinic and participating in two team grading sessions. This test utilizes the same questions and Likert scale rating of importance and confidence as the Dental Hygiene Faculty Pre-Test and Dental Hygiene Faculty Post-Test 1. Post-Test 2 also assessed the faculty's perceptions of the MI speaker during the August 2014 in-service, MI discussions during monthly clinical faculty meetings and MI

faculty team-grading. In addition, this Post-Test included questions to evaluate the faculty's own perception regarding modeling the spirit of MI.

Motivational Interviewing Qualitative Faculty Questionnaire: (Appendix H)

The Motivational Interviewing Qualitative Faculty Questionnaire was completed in November 2015 at the conclusion of the third semester of faculty team-grading. This evaluation instrument asked for recommendations on how to maintain faculty confidence in supporting students' application of MI, identify time management strategies to provide feedback in clinic, assist students in recognizing faculty modeling of MI and enhance their influence on students' use of the spirit of MI.

Class of 2015 End of Winter 2015 Semester Post-Test: (Appendix I)

The Class of 2015 End of Winter 2015 Semester Post-Test was delivered to the dental hygiene (DH4) students and completed prior to their graduation from the U-M Dental Hygiene Program. This Post-Test assessed the students' perceptions of importance and confidence regarding their own MI skills with a Likert scale rating of importance (0= unable to answer, 1= not very important, 2= of little importance, 3= neutral, 4= somewhat important, 5=very important) and a Likert scale rating of confidence (0= unable to answer, 1= not at all confident, 2= little confidence, 3= neutral, 4= somewhat confident, 5=very confident). This test also evaluated the students' perceptions of the MI course material throughout the curriculum, their audio recordings and MI skills during patient interactions and the impact of faculty feedback. In addition, this Post-Test evaluated the students' perception of their own application of the 'spirit of MI' as well as faculty modeling of the 'spirit of MI'.

3.4 Data analysis

The initial data collection began in August 2014 and the final data was collected at the end of the Winter 2015 semester. Data analysis utilized Statistical Package for the Social Sciences (SPSS) version 22 for both descriptive statistics including frequency distributions, means and standard deviations to provide an overview of the date. The Wilcoxon signed-rank test, median, semi-interquartile range, z-statistic and effect size was used for statistical significance. In addition, open-ended questions were coded by theme for this project.

3.5 Human Subjects

This project did require the involvement of human subjects. The Institutional Review Board at the University of Michigan approved the Dental Hygiene Health Behavior Curricular Evaluation study, of which evaluation of the faculty's perception is a component, as exempt. The faculty members and students were informed that their participation is voluntary and their identity will remain confidential.

3.6 Consultants/Collaborators

There was two consultants in this study, Associate Professor Janet Kinney, RDH, MS, Director of Dental Hygiene in the Department of Periodontics and Oral Medicine (U-M) and Assistant Professor Associate Research Scientist L. Susan Taichman, RDH, PhD in the Department of Periodontics and Oral Medicine (U-M). (Appendix J). Professor Janet Kinney's involvement included development of evaluation instruments, assistance with their distribution and coordination of in-service training. Professor L.

Susan Taichman’s involvement included data analysis for interpretation, assistance with format of data and design.

CHAPTER IV

RESULTS

4.1 Demographic Information

The convenience samples in this study included sixteen U-M DH Program faculty members, who teach in the clinic and twenty U-M students from the Class of 2015. Descriptive statistics for these groups are provided in Table 1 and Table 2. The U-M DH faculty (Table 1) consisted of 100% (n=16) female participants. The faculty's ages ranged from 60 years and older (n=5, 31%), 41-50 years (n=4, 25%), 31-40 years (n=3, 19%), 21-30 years (n=13, 19%) and 51-59 years (n=1, 6%). Years of clinical practice fell into the categories of more than fifteen years (n=10, 62.5%), 11-15 years (n=2, 12.5%), 5-10 years (n=2, 12.5%) and less than five years (n=2, 12.5%). Employment status included 81% (n=13) part-time and 19% (n=3) full-time. With regard to years of clinical teaching, 40% (n=6) had been teaching less than five years, 33% (n=5) had been teaching 5-10 years, 20% (n=3) more than fifteen years and 7% (n=1) had been teaching 11-15 years. The twenty U-M student participants from the Class of 2015 (Table 2) consisted of 95% (n=19) female and 5% (n=1) male participants.

4.2 U-M DH Faculty Descriptive Analysis

Descriptive statistics of the mean and the standard error (SE) for the U-M DH faculty's perceptions of the importance of and their confidence in supporting students embracing the spirit of MI is provided in Figure 1. On a Likert-scale 0-5, the faculty rated

their importance a mean and SE of 4.9±0.07 at the Pre-Test (PT), 5.0±0.06 at Post-Test 1 (PT1) and 4.8±0.12 at Post-Test 2 (PT2). The mean of all three ratings was 4.9 for the faculty's perception of importance. The faculty's lowest rating of confidence mean and SE was 3.6±0.44 at PT and the highest (4.5±0.13) occurred at PT1. By PT2, the faculty rated their confidence at 4.0±0.26. The faculty rated their confidence on average lower (4.0) than their importance of supporting students embracing the spirit of MI.

The faculty's mean and standard deviation (SD) for the importance in facilitating each of the eight MI strategies with students during patient care is provided in Table 3 and Figure 2 provides the trend overtime. The MI strategies of the "use of open-ended questions" and "make affirmations" both increased overtime. The faculty rated the importance of the "use open-ended questions" a mean and SD of 4.8±0.41 at PT with an increase of 0.2 (5.0±0.00) occurring at PT1 and remaining there at PT2. The strategy "make affirmations" mean and SD was 4.73±0.46 at PT, it increased by 0.02 (4.75±0.45) at PT1 and increased again by 0.08 (4.83±0.39) at PT2. The faculty rated "listen reflectively" a mean and SD of 5.0±0.00 at PT, PT1 and PT2. The "using the importance ruler" mean and SD was 4.13±0.91 at PT and 4.13±0.72 at PT1, but then decreased by 0.46 (3.67±1.37) at PT2.

The remaining four strategies increased from PT to PT1, but then decreased from PT1 to PT2. The strategy "summarize" mean and SD was 4.87±0.35 at PT, it increased by 0.07 (4.94±0.25) at PT1 then decreased by 0.27 (4.67±0.49) at PT2. The strategy "elicit change talk" mean and SD was 4.73±0.59 at PT, it increased by 0.15 (4.88±0.34) at PT1 then decreased by 0.71 (4.17±1.12) at PT2. The strategy "ask for elaboration 'what else'?" mean and SD was 4.67±0.49 at PT, it increased by 0.02

(4.69±0.70) at PT1 then decreased by 0.27 (4.42±1.17) at PT2. The “enhance self-efficacy” mean and SD was 4.20±1.74 at PT, it increased by 0.42 (4.62±0.62) at PT1 then decreased by 0.04 (4.58±0.79) at PT2. The faculty’s mean of importance for facilitating all eight MI strategies during patient care for all three evaluation instruments (PT, PT1 and PT2) was 4.6.

The faculty’s mean and SD for confidence in facilitating each of the eight MI strategies with students during patient care is provided in Table 4 and Figure 3 provides the trend overtime. The faculty rated their confidence in the “use of open-ended questions” a mean and SD of 4.47±0.64 at PT. This increased by 0.34 (4.81±0.40) at PT1 then decreased by 0.26 (4.55±0.93) at PT2. The strategy “listen reflectively” mean and SD was 4.67±0.49 at PT, it increased by 0.14 (4.81±0.40) at PT1 then decreased by 0.26 (4.55±0.93) at PT2. The strategy “make affirmations” mean and SD was 4.67±0.49 at PT, it increased by 0.02 (4.69±0.48) at PT1 then decreased by 0.33 (4.36±1.03) at PT2. The strategy “summarize” mean and SD was 4.47±0.83 at PT, it increased by 0.28 (4.75±0.45) at PT1 then decreased by 0.75 (4.0±0.41) at PT2. The “elicit change talk” mean and SD was 3.80±1.01 at PT, it increased by 0.39 (4.19±0.98) at PT1 then decreased by 0.79 (3.40±1.35) at PT2. The “using importance ruler” strategy mean and SD was 3.50±1.16 at PT, it increased by 0.49 (3.94±1.18) at PT1 then decreased by 0.49 (3.45±1.51) at PT2. The “ask for elaboration ‘what else’?” mean and SD was 4.20±0.86 at PT, it increased by 0.24 (4.44±0.81) at PT1 then decreased by 0.62 (3.82±1.32) at PT2. The “enhance self-efficacy” strategy mean and SD was 3.93±1.1 at PT, it increased by 0.20 (4.13±1.20) at PT1 then decreased by 0.58 (3.55±1.57) at PT2. The faculty’s mean of confidence for facilitating all eight MI

strategies during patient care for all three evaluation instruments (PT, PT1 and PT2) was 4.2.

4.3 Bivariate Analysis

The Wilcoxon signed-rank test was used to measure the faculty's perception of the importance of and their confidence in facilitating each of the eight MI strategies with students during patient care from PT to PT1 (T_1), PT to PT2 (T_2) and PT1 to PT2 (T_3). Significance was set at $p<0.05$. Table 5 provides the Wilcoxon signed-rank test, the median (Md) and the semi-interquartile value (SIV) of PT, PT1 and PT2. In addition, the z-statistic (z) and effect size for T_3 are provided.

The faculty's importance of the "use of open-ended questions" Md was 5.0 and the SIV was 0.5 at PT and the Md (5.0) and SIV (0) was constant at PT1 and PT2. There was no significance at T_1, T_2 or T_3 (0.08/0.08/1.0). The z was 0 and there was no effect size due to constant variables. The "listen reflectively" Md (5.0) and SIV (0) was constant at PT, PT1 and PT2. There was no significance at T_1, T_2 or T_3 (1.0/1.0/1.0). The z was 0 and there was no effect size due to constant variables. The "make affirmations" Md was 5.0 and the SIV was 0.5 at PT and PT1. The Md remained the same (5.0) at PT2 and the SIV decreased to 0. There was no significance at T_1, T_2 or T_3 (0.66/0.31/1.0). The z was 0 and there was no effect size due to constant variables. The "summarize" Md was 5.0 and the SIV was 0 at PT and PT1. The Md remained 5.0 at PT2, but the SIV increased to 0.5. There was no significance at T_1, T_2 or T_3 (0.56/0.10/0.18). The z was -1.3 and the effect size was 0.10.

"Ask for elaboration 'what else'?" and "enhance self-efficacy" both had an Md of 5.0 and a SIV of 0.5 at PT, PT1 and PT2. There was no significance at T_1, T_2 or T_3 for

“ask for elaboration ‘what else’?” (0.94/0.48/0.59) or for “enhance self-efficacy” (0.67/0.79/0.78). The z was -0.54 and the effect size was 0.02 for “ask for elaboration ‘what else’?.” The z was -0.28 and effect size was 0.04 for “enhance self-efficacy”. The “elicit change talk” Md was 5.0 and the SIV was 0.5 at PT, 5.0 (0) at PT1 and 5.0 (1) at PT2. There was no significance at T_1, T_2 or T_3 (0.48/0.23/0.06). The z was -1.9 and the effect size was 0.17. The “use of the importance ruler” Md was 4.0 and the SIV was 1 at PT and PT1. The Md remained 4.0 at PT2, but the SIV increased to 1.5. There was no significance at T_1, T_2 or T_3 (1.0/0.37/0.33). The z was -.98 and the effect size was 0.20.

The faculty’s confidence for both the “use of open-ended questions” and “listen reflectively” Md was 5.0 and the SIV was 0.5 at PT, PT1 and PT2. There was no significance at T_1, T_2 or T_3 for either the “use of open-ended questions” (0.13/0.86/0.48) or for “listen reflectively” (0.48/0.74/0.48). The z was -0.71 for both “open-ended questions” and “listen reflectively.” The effect size for “open-ended questions was 0.13 and 0.10 for “listen reflectively”. The “make affirmations” Md was 5.0 and the SIV was 0.5 at PT and PT1. The Md remained at 5.0, but the SIV increased to 1 at PT2. There was no significance at T_1, T_2 or T_3 (1.0/0.38/0.38). The z was -0.88 and the effect size was 0.16. The “summarize” Md was 5.0 and the SIV was 0.5 at PT and PT1. The Md remained at 5.0, but the SIV increased to 1.5 at PT2. There was no significance at T_1, T_2 or T_3 (0.33/0.36/0.07). The z was -1.8 and the effect size was 0.14. The “ask for elaboration ‘what else’?” Md was 5.0 and the SIV was 0.5 at PT, 5.0 (1) at PT1 and 4.0 (1.5) at PT2. There was no significance at T_1, T_2 or T_3 (0.55/0.32/0.13). The z was -1.5 and the effect size was 0.01.

"Enhance self-efficacy" Md was 5.0 and the SIV was 1 at PT and PT1. The Md decrease to 4.0 and the SIV increased to 1.5 at PT2. There was no significance at T_1, T_2 or T_3 (0.64/0.51/0.30). The z was -1.0 and the effect size was 0.20. The "elicit change talk" Md was 4.0 and the SIV was 1 at PT and PT1. The Md remained at 4.0, but the SIV increased to 1.5 at PT2. There was no significance at T_1, T_2, or T_3 (0.39/0.57/0.11). The z was -1.6 and the effect size was 0.09. The "use of the importance ruler" Md was 4.0 and the SIV was 1.5 at PT, 4.0 (1) at PT1 and 4.0 (1.5) at PT2. There was no significance at T_1, T_2 or T_3 (0.47/0.77/0.49). The z was -0.69 and the effect size was 0.15.

In all three evaluation instruments there were questions posed to the faculty in regards to their perspective of students' ability to use MI strategies and the amount of time in clinic to incorporate MI. In addition, the faculty were asked their perspectives regarding their own skills and ability to be a positive influence to facilitate students' use of MI strategies in clinic. The Md and SIV for PT, PT1 and PT2 are provided in Table 6. In addition, the Wilcoxon signed-rank test for T_1, T_2 and T_3, the z and effect size for T_3 are provided. Significance was set at $p<0.05$.

The question, "I believe students have enough time in clinic to incorporate MI strategies with their patients," Md was 3.0 and the SIV was 0.5 at PT, 4.0 (1) at PT1 and 3.0 (1) at PT2. There was significance at T_1 ($p=0.03$). There was not significance at T_2 ($p=0.57$) or T_3 ($p=0.08$). The z was -1.7 and the effect size was 0.28. For the question "I can have a positive influence with my students and their use of MI strategies in clinic," Md was 4.0 and the SIV was 0.5 at PT, 5.0 (0.5) at PT1 and 4.0 (1) at PT2. There was

significance at T_3 (p=0.04). For T_1 (p=0.59) and T_2 (p=0.15) there was no significance. The z was -2.1 and the effect size was 0.03.

The question, “I believe MI will help students achieve behavior change with their patients,” Md was 4.0 and the SIV was 0.5 at PT, 5.0 (0.5) at PT1 and 4.5 (1) at PT2. There was no significance for T_1, T_2 or T_3 (0.08/0.94/0.29). The z was -1.0 and the effect size was 0.00. The question, “With proper education and training, I believe students have the ability to use MI strategies with their patients,” Md was 5.0 and the SIV was 0.5 at PT and PT1. The Md decreased to 4.0 and the SIV remained the same (0.5) at PT2. There was no significance for T_1, T_2 or T_3 (0.36/0.41/0.20). The z was -1.3 and the effect size was 0.08. The question, “I have the skills needed to facilitate students’ use of MI strategies in clinic,” Md was 4.0 and the SIV was 1 at PT, 4.5 (0.5) at PT1 and 4.0 (0.5) at PT2. There was no significance for T_1, T_2 or T_3 (0.17/0.55/0.62). The z was -0.50 and the effect size is 0.02.

4.4 Team Grading Descriptive Analysis

The faculty team grading of MI student/patient interactions break down per semester is provided in Table 7. During the Fall 2014 semester there were fourteen faculty (n=14) working in clinic. Fifty percent (n=7) of the faculty did not participate and 36% (n=5) of the faculty participated in one session. Faculty participation in two sessions was 7% (n=1) and three sessions was 7% (n=1).

The Winter 2015 semester offered twelve team-grading sessions. During this semester there were fourteen faculty (n=14) in clinic. Of those, 57.2% (n=8) of the faculty did not participate in team grading. There were 21.4% (n=3) that participated in two sessions and 21.4% (n=3) that participated in three sessions.

During the Fall 2015 semester there were fourteen faculty (n=14) working in clinic. Forty three percent (n=6) of the faculty participated in two sessions of team grading, and 36% (n=5) of the faculty did not participate in team grading. There were 21% (n=3) that participated in one session and no faculty that participated in three sessions (0%, n=0).

The overall faculty participation in team grading over three semesters is provided in Figure 4. Over these semesters there was a total of sixteen clinical faculty who could have participated in team-grading. During the Fall 2014 there were fourteen clinical faculty employed. By Winter 2015 two of those faculty had left the University and two new faculty were hired. There were no changes in clinical faculty from Winter 2015 to Fall 2015. Of these 56% (n=9) participated in team-grading and 44% (n=7) did not.

4.5 Post-Test 2 Descriptive Analysis

In Post-Test 2, questions relating to participation in assessing students' application of the "spirit of MI", team grading, MI activities, feedback and modeling were presented to the faculty and provided in Table 8. The faculty reported (n=11) a mean and SD of 2.64±1.6 with regard to their ability to assess the students' application of the 'spirit of MI' during clinic. The ability of faculty to provide feedback to support students' application of the spirit of MI was reported by the faculty (n=12) with a mean and SD of 3.1±1.6. The faculty (n=10) reported a mean and SD of 4.0±1.6 that participation in the MI in-service enhanced their ability to model the spirit of MI behavior change counseling. In addition, the faculty (n=11) reported a mean and SD of 3.5±1.1 that the assessment of the "spirit of MI" in clinic enhanced their ability to model MI strategies and techniques. A mean and SD of 3.2±2.1 was reported (n=11) regarding faculty

involvement in team grading enhancing their ability to model the “spirit of MI’ and a mean and SD of 3.5±.97 reported (n=10) that they routinely modeled this.

4.6 Qualitative Analysis

Qualitative data from seven open-ended questions in Post-Test 2 were categorized into themed responses. The faculty responses for the question relating to their perspective of the MI activities and training that were most helpful in enhancing faculty support of student delivery of the “spirit of MI” during patient care are provide in Table 9. There were nine respondents and fourteen responses by the faculty. The top responses reported by faculty were team grading 50% (n=7) and MI in-service 36% (n=5). Ken’s Resnicow’s class session followed with 7% (n=1) and 7% (n=1) indicating other.

The faculty were asked to explain why or why not regarding their ability to assess the students’ application of the “spirit of MI” in clinic (Table 10). There were eleven respondents and thirteen responses by the faculty. The 69% (n=9) of the responding faculty reported that time constraints posed the largest challenge in assessing students’ application of the “spirit of MI.” However, 23% (n=3) reported they were able to assess students’ application of the “spirit of MI” and 8% (n=1) reported being unsure of the effectiveness of MI.

The faculty’s responses regarding their ability to provide general MI feedback to the students’ are provided in Table 11. There were nine respondents and nine responses by faculty. The responding faculty (44.5%, n=4) reported providing feedback to students on a limited basis. Time was reported as a constraint by 22.2% (n=2) of the

faculty as the reason they were unable to provide feedback to students and 33.3% (n=3) indicated “other.”

The faculty responses regarding why or why not participation in the MI in-service may have enhanced their ability to model is provided in Table 12. There were seven respondents and seven responses by the faculty. Fifty-seven percent (n=4) reported that participation in the MI in-service enhanced their ability to model and 29% (n=2) reported that the in-service was a positive experience. There were 14% (n=1) of the respondents to this question that did not attend the MI in-service.

Table 13 provides the faculty responses to the question asking whether or not assessing the “spirit of MI” in clinic enhanced their own ability to model MI. There were five respondents and five responses by the faculty. Forty percent (n=2) of the respondents to this question reported that assessing the students enhanced their ability to model MI. There were 40% (n=2) that indicated “other” and 20% (n=1) reported time constraints impacted their ability to assess.

Faculty’s responses to the question asking whether or not involvement in team-grading enhancing their ability to model MI are provided in Table 14. There were seven respondents and seven responses by the faculty. Forty-three percent (n=3) reported that team-grading had a positive impact on their ability to model MI. There were 29% (n=2) that indicated “other”. Fourteen percent (n=1) of the faculty that responded to this question indicated they did not attend team-grading during the first two semesters it was offered and 14% (n=1) reported team-grading was more beneficial compared to the MI in-service.

The faculty's responses to the question regarding their ability to routinely model the "spirit of MI with students and patients in clinic is provided in Table 15. There were five respondents and six responses by the faculty. Sixty-six percent (n=4) reported that they model the "spirit of MI" on a limited basis. Time constraints (17%, n=1) were reported as a challenge to modeling the "spirit of MI" with "other" being reported by 17% (n=1).

The faculty responses from the Motivational Interviewing Qualitative Faculty Questionnaire are provided in Tables 16-20. There were 8 faculty who completed this evaluation. The faculty suggestions for maintaining their confidence in supporting students' delivery of MI is provided in Table 16. Fifty percent of the faculty (n=4) suggested professional development and in-service. Team-grading followed with 25% (n=2) of the faculty suggesting this to maintain their confidence. Also, there were 12.5% (n=1) of the faculty who suggested MI video examples and 12.5% (n=1) that suggested a student MI test case.

The faculty suggestions for maintaining a positive influence on students use of MI during clinic are provided in Table 17. There were 37.5% (n=3) that suggested faculty apply MI strategies with students during patient care and 37.5% (n=3) that suggested a student MI test case (non-recorded) requirement. There were 25% (n=2) that suggested a MI dialogue example for faculty.

The faculty suggestions to assist students in recognizing modeling the "spirit of MI" are provided in Table 18. There were 37.5% (n=3) of the faculty recommending that MI occur throughout the appointment. Twenty five percent (n=2) suggested an enhancement to the DHPOC form to have a MI strategy section and 25% (n=2)

suggested “other”. One faculty member (12.5%) suggested that the faculty informing students when they implement MI strategies.

The faculty suggestions on how feedback can be better incorporated when reviewing the DHPOC form and/or providing the Daily Grade is provided in Table 19. Enhancing the DHPOC form to have a MI strategy section was suggested by 37.5% (n=3) of the faculty. Twenty five percent (n=2) suggested providing immediate MI feedback. There were 25% (n=2) that suggested “other” and 12.5% (n=1) that suggested a student MI test case (non-recorded) requirement.

The additional suggestions from the faculty are provided in Table 20. Of the eight respondents to this questionnaire there were two faculty (n=2) that responded to this question. Fifty percent (n=1) suggested having the students focus their MI strategies during patient education and 50% (n=1) of the faculty suggested reminding the students to utilize MI strategies.

4.7 Class of 2015 Descriptive Analysis

Descriptive statistics for the Class of 2015 rating of importance of each MI strategy and their confidence in applying them in the delivery of health education are provided in Table 21. On a Likert-scale 0-5, the students rated their overall importance of using all MI strategies at a mean of 4.4 (n=19) and their overall confidence applying all MI strategies at a mean of 4.27 (n=20).

With regard to importance, the Class of 2015 rated a mean and SD for “listen reflectively” 4.74±0.56, the “use of open-ended questions” was 4.68±0.58, “summarize” was 4.58±0.61 and “elicit change talk” was 4.53±0.60. The remaining four MI strategies were rated slightly lower by the students. The “enhance self-efficacy” mean and SD was

4.42±0.84, “make affirmations” was 4.37±0.83, “ask for elaboration ‘what else’?” was 4.11±0.88 and “using the importance ruler” was 3.74±0.93.

With regard to confidence, the Class of 2015 rated the “use of open-ended questions” at a mean and SD of 4.55±0.76. Their mean and SD for “listen reflectively” was 4.40±0.68 and “summarize” was 4.40±.60. The “using the importance ruler” mean and SD was 4.30±1.03. The remaining four MI strategies were rated slightly lower by the students. The “make affirmations” mean and SD was 4.25±0.85, “enhance self-efficacy” was 4.15±0.81, “ask for elaboration ‘what else’?” was 4.15±0.88, and “elicit change talk” was 4.0±0.97.

The Class of 2015 End of Winter 2015 Semester Post-Test had questions relating to the students’ perceptions of MI being valuable, their ability to help patients with a behavior change, time to incorporate MI and their skills on a Likert-scale 0-5. Table 22 provides the mean and SD of the student (n=20) responses. The students rated, “MI is a valuable strategy that can be used during clinical care to assist patients in achieving behavior change” 4.10±0.79. The students rated, “I have the skills I need to use MI strategies in the clinic” 4.05±0.87. The students rated, “Using MI, I am able to help my patients achieve behavioral change that will assist in enhancing their oral health” 3.90±0.85. The students rated, “I have enough time in clinic to incorporate MI strategies” 2.95±1.36.

There were also questions regarding the curriculum, self-assessment of their recordings, faculty feedback and the SPI tobacco cessation experience on a Likert-scale 0-5. Table 23 provides the mean and SD of the student responses (n=20). The students rated the material in DH 338-Health Education Methods, 4.30±0.80 and

DH312-Clinical Dental Hygiene Seminar 3.85±0.88 the highest with regard to providing an understanding of the application of MI. They rated the faculty feedback on their recorded MI interactions with patients 3.45±1.64 and their self-assessment of those recordings 3.25±1.37. The students rated the SPI tobacco cessation experience 2.95±1.43.

Qualitative data from three open-ended questions were categorized into themed responses. Table 24 provides the students responses regarding the value of their self-assessments on their MI recordings during DH312-Clinical Dental Hygiene Seminar. There were seventeen respondents and eighteen responses. Thirty-nine percent (n=7) reported self-assessment was valuable with 33% (n=6) reporting the combination of self-assessment and feedback was valuable. Twenty-eight percent (n=5) reported that self-assessment was repetitive and unnatural.

Table 25 reports the students' responses regarding the perceived value of faculty feedback on their MI recordings during DH312-Clinical Dental Hygiene Seminar. There were fifteen respondents and sixteen responses. Fifty-six percent (n=9) of the students reported that the faculty feedback was valuable and 38% (n=6) reported they did not receive feedback. Six percent (n=1) reported that the faculty feedback was not constructive.

Table 26 provides the students responses in regards to the SPI MI tobacco cessation experience. There were fourteen respondents and fifteen responses. Of the students who responded 53.4% (n=8) indicated they did not received feedback or the SPI was not a helpful experience. Twenty percent (n=3) of the students reported that the SPI experience did not allow them to demonstrate their MI skills. Whereas, 13.3%

(n=2) reported that the SPI experience did allow them to demonstrate their MI skills. There were 13.3% (n=2) of the students that reported “other”.

There were questions regarding the students’ perception on how frequently they implement their MI skills and how often they exhibit the “spirit of MI.’ In addition, the students were asked their perception of the clinical faculty’s modeling the “spirit of MI” and faculty’s application of this spirit and its motivation to students. The mean and the SD of the student (n=19) responses are provided in Table 27. The students reported they exhibited the “spirit of MI” (2.58±1.0) more often than their use of MI skills (1.84±0.83). The students reported the clinical faculty modeled the “spirit of MI” throughout the appointment a mean and SD of 2.37±1.1. However, the students reported a mean and SD of 2.21±0.92 that the faculty’s application of the “spirit of MI’ motivated them to do so as well.

The students were asked their suggestions on what the faculty could do to improve upon their facilitation of their use of the “spirit of MI”. Qualitative data from the students is provided in Table 28. There were ten respondents and ten responses by the students. Thirty percent (n=3) of the students suggested starting the MI curriculum earlier. There were 30% (n=3) that suggested more faculty involvement with the “spirit of MI”. Twenty percent (n=2) of the students responded that the MI curriculum was appropriate, and 20% (n=2) reported “other.”

Qualitative data from the successes reported by the student’s using MI during patient care were categorized into themes and provided in Table 29. There were sixteen respondents and twenty responses by the students. Twenty percent (n=4) felt successful using MI during patient interactions, 20% (n=4) indicated success with

patient behavior change and 20% (n=4) reported improved health behaviors that include oral hygiene instructions and diet. There were 10% (n=2) that reported success with smoking cessation and 10% (n=2) with regard to patient motivation. Ten percent (n=2) reported success with the MI strategy of reflective listening and 10% (n=2) reported "other."

Qualitative data from the challenges reported by the students' using MI during patient care were categorized into themes and provided in Table 30. There were fifteen respondents and seventeen responses. Fifty-three percent (n=9) reported patient resistance as a challenge. Twenty-nine percent (n=5) reported that MI felt unnatural or forced during patient interactions with 12% (n=2) reporting time constraints and 6% (n=1) indicating that MI strategies were challenging.

Nineteen students responded to the questions regarding to additional MI training. Table 31 provides the student responses. Eighty-four percent (n=16) reported no interest in additional MI training sessions with only 16% (n=3) indicating that they would like additional training. When asked what training would be preferred 33.3% (n=1) identified smoking cessation, 33.3% (n=1) indicated treatment plans and 33.3% (n=1) reported "other."

CHAPTER V

DISCUSSION

The overall goal of this research project was to assess the U-M DH faculty members' perception of the importance of and their confidence in supporting students' delivery of MI during patient care. Also, the assessment of the impact of the U-M DH faculty's feedback and modeling of the 'spirit of MI' on students learning was done. There were three specific aims for this study. The first aim was to assess the dental hygiene faculty's perception of the importance of supporting students' MI interactions during patient care. The second aim was to evaluate the dental hygiene faculty's perception of their confidence in supporting the students' application of MI strategies during patient interactions. The third aim assessed the students' perception of their faculty's feedback and modeling the spirit of MI.

5.1 Faculty

The majority of the faculty expressed that is was important to personally embrace the overall spirit of MI during patient care and they were confident supporting students as well. The faculty's rating increased from PT to PT1, but slightly decreased by PT2. This trend also remained evident with the faculty's assessment of importance and confidence in facilitating the eight MI strategies except for importance of "using

open-ended questions" and "make affirmations" which both increased over time. The mean of importance of the eight MI strategies over all time three time points was 4.6 and their confidence was 4.2.

The hypotheses for Specific Aims 1 and 2 were that the faculty professional development activities would enhance their perceptions of both importance and confidence. This was affirmed by the increase in their scores immediately following the MI in-service (PT1) held right before the start of the academic year. This aligns with Bray et al. that the importance and confidence in applying MI both increase after training.[15] However, the general decrease in the faculty's perception of both importance and confidence by the end of the academic year needs further exploration.

Research indicates that MI training should use a multi-modal approach that includes coaching and feedback for long term retention of skills.[21,22] Professional development activities throughout the academic year included a class session in the fall semester facilitated by MI expert, Ken Resnicow, PhD and Professor in the department of Health Behavior & Health Education in the School of Public. In addition, faculty were also invited to participate in team grading of student-patient MI recordings in the fall and winter semesters. For these activities however, faculty were not required to participate and for those that did not, it was due to either scheduling constraints or a personal decision to not be involved. With regard to team grading, over 50% of the faculty did not participate the first two semesters this was offered and 44% did not participate during all three semesters that were studied. Interestingly, of those that did, all found these sessions very helpful in supporting student delivery of MI.

For the nearly half of the faculty not participating, there was an eight month gap in MI professional development activities which aligns with a decrease in their perceptions of importance and confidence at the end of the academic year (PT2). These results supports Miller et al. that training with coaching and feedback improves retention, and when feedback is not provided MI skills will decrease overtime.[21] Curry-Chiu et al. found that faculty training and buy-in are important aspects of implementing MI into a curriculum.[23] Also, continual faculty training and support is needed for retention of MI skills.[23]

In all three evaluation instruments, there were five questions that dove into the faculty's perspective of students' ability to use MI strategies and the amount of time in clinic to incorporate MI. In addition, the faculty were asked their perspectives regarding their own skills and ability to be a positive influence to facilitate students' use of MI strategies in clinic. For the question, "I believe students have enough time in clinic to incorporate MI strategies with their patients," there was statistical significance at T_1 ($p=0.03$). Initially, the Md of the faculty's perception was 3.0 in regards to there being enough time for students. By the end of the MI in-service the faculty's perceptions increased to an Md of 4.0 on a Likert-scale 0-5. This perception of having enough time in clinic was unexpected and may be related to the momentum of the faculty feeling successful to support students immediately following the MI in-service.

For the question "I can have a positive influence with my students and their use of MI strategies in clinic," there was significance at T_3 ($p=0.04$). The faculty's Md regarding their perception of being a positive influence on students following the MI in-service was 5.0 on a Likert-scale 0-5. By the end of the academic year the faculty's

perceptions decreased to an Md of 4.5. These findings compare to the research indicating implementation of MI in a dental hygiene curriculum requires faculty member training.[21–24] The faculty's perceptions peaked immediately following the MI in-service, which supports the integration of MI faculty training serving to provide skills needed to support students' use during patient care.[23]

In PT2, the questions relating to participation in assessing students' application of the "spirit of MI," team-grading, MI activities, feedback and modeling were presented to the faculty. The faculty responses averaged 2.64 with regard to their ability to assess the students' application of the 'spirit of MI' during clinic and 3.1 regarding their ability to provide feedback. These findings indicate that the faculty disagreed or were neutral regarding their perceptions of their ability to support and provide feedback. Rollnick et al. suggested that BMI be utilized by providers with limited time; this may enhance the faculty's perceptions to support and provide feedback to students.[12]

The faculty were asked to explain why or why not regarding their ability to assess the students' application of the "spirit of MI" in clinic and 69% reported that time constraints posed the largest challenge in assessing students' application of the "spirit of MI." However, there were 23% of the faculty that reported they were able to assess students' application of the "spirit of MI". This group of faculty may have participated in team grading session and felt better equipped to assess the students' application of MI.

The majority of the faculty reported they modeled the "spirit of MI" on a limited basis. However, time constraints (17%) were reported by the faculty as a challenge to modeling the "spirit of MI". The decrease in the faculty's perceptions of the importance

of and their confidence in facilitating the eight MI strategies may be attributed to reported time constraints by faculty.

Just under half of the faculty reported they had the ability to provide general MI feedback to the students' and 22.2% reported time was the reason they were unable to provide feedback. The faculty's ability to assess and provide feedback to students is important because feedback is most effective when it is focused on knowledge and skills that are connected to practice opportunities.[32] Also, feedback improves retention, and when it is not provided, MI skills will decrease over time.[21,22] Enhancing opportunities for faculty to provide feedback to students may increase their perception of importance and their confidence facilitating MI strategies with students.

The Motivational Interviewing Qualitative Faculty Questionnaire provided valuable information for this study. However, the fact that half of the faculty did not complete the questionnaire was unexpected. Overall, faculty confidence in facilitating the eight MI strategies, and supporting the students' embracing the spirit of MI decreased overtime in this study. Faculty's recommendations for maintaining their confidence was professional development activities, in-service and team grading. These results align with other research suggesting that training to implement MI should include education tools, coaching, feedback and follow up coaching/feedback regarding performance in order to obtain long term sustainability.[14,22]

There were 37.5% of the faculty that suggested faculty apply MI strategies with students during patient care. This recommendation supports other research that has shown that positive faculty role-modeling also positively influences student learning.[25] The combination of faculty role-modeling and supporting students' delivery of MI during

patient care may improve faculty confidence. In addition, this may enhance the faculty's perception of being a positive influence for students by being actively involved in their facilitation of MI during patient care.

Time constraints were frequently mentioned by the faculty in this study. Enhancing the DHPOC form to have a MI strategy section was suggested by 37.5% of the faculty as a strategy to better incorporate feedback when reviewing the DHPOC. Twenty five percent suggested providing immediate MI feedback to the students. These suggestions may improve the faculty's ability to provide support to students. Furthermore, this aligns with other research indicating that feedback improves retention and increases proficiency during training sessions.[21,22]

5.2 Class of 2015

The Class of 2015 on average expressed it was important (4.4) to implement MI strategies and they rated their confidence (4.27) relatively high. The MI strategies for which the students reported the highest rating of importance were, "listen reflectively" (4.74), "use of open-ended questions" (4.68), "summarize" (4.58) and "elicit change talk" (4.53). This was the first cohort of students that had been involved with the enhanced behavior change curriculum and the enhancement of their responses was comparable to those achieved by students in the Croffoot et al. study.[14] Croffoot et al. found that coaching provided by faculty positively influenced both dental hygiene students' skills and the use of MI during patient interactions.[14]

It is interesting that the students were less confident using MI strategies compared to their perception of importance during patient care. Curry-Chiu et al. found

that UMKC alumni dental hygienists reported an appreciation for instructors that were trained in and embraced the spirit of MI.[23] This may improve student learning and ultimately their application of MI strategies with patients after graduation.

Overall, the students reported that MI is a valuable strategy (4.10) and they have the skills to use MI (4.05). However, the students' perception that they can help patients achieve behavioral change was rated slightly lower at 3.90. This shows a lack of confidence in the students' ability to support patients. Student also frequently reported time requirements to be a common concern. Again, the use of BMI by both faculty and students may improve their ability to focus on the collaborative spirit of MI with limited time.[12]

Specific Aim 3 assessed the students' perception of their faculty's feedback and modeling of the spirit of MI. It was hypothesized that both faculty feedback and modeling of the spirit of MI would have a positive effect on student perceptions.

The students rated the faculty feedback on their recorded MI interactions (3.45) higher compared to their self-assessment of those recordings (3.25). According to Katlman et al. students that receive feedback on a recorded patient session use more MI strategies compared to students that do not receive training with feedback.[33]

With regards to faculty feedback in DH 312/313-Clinical Dental Hygiene Seminar, 56% of the students reported that the faculty feedback was valuable and 38% reported they did not receive feedback. Feedback improves retention and proficiency of the application of MI.[21] Furthermore, faculty modeling MI behaviors can be a springboard for discussion with students. Conversations about these interactions can serve to enhance students' understanding of MI.[37]

The students' perception of the SPI experience was unexpected. The qualitative responses indicated there was a lack of faculty feedback by 53.4% of the students. However, the students were not supposed to receive faculty feedback for this experience, only feedback from the SPI. There was a misconception about this on the students' part so the responses to this question are not meaningful.

The students reported they exhibited the "spirit of MI" about half of the time compared to seldom using their MI skills. The students also reported the clinical faculty modeled the "spirit of MI" about half of time and that they were neutral that the faculty's application of the "spirit of MI" motivated them to do so as well. Faculty role modeling builds rapports with students and influences student learning.[26] It is important to note that faculty modeling during student and patient interactions may enhance student's understanding and concepts of MI.[25,37]

Despite some of these unexpected responses by the students in regards to faculty facilitation, feedback and role modeling, there were overwhelming student successes reported by students using MI during patient care. These successes were related to feeling successful using MI during patient interactions, observing positive patient behavior changes and improved health behaviors that included oral hygiene instructions and diet.

The student challenges were expected. Fifty-three percent reported patient resistance as a challenge. Twenty-nine percent reported MI felt unnatural or forced during patient interactions. This unnatural feeling reported by the students may be attributed to having conversations recorded with patients. Interestingly, 6% of the students also reported time constraints as a challenge.

The limitations to this study include the lack of control or comparison groups for the dental hygiene faculty and/or the students. The “n” for the dental hygiene faculty (16) and the students from the Class of 2015 (20) were small. However, the faculty’s wide range in their ages, years in teaching and years of clinical practice provided this study with valuable responses.

Longitudinal research is needed to fully understand faculty’s perception of the importance of and their confidence in supporting students’ application of MI. In addition, research involving allied health programs, including dental hygiene, should be conducted to determine the type and length of professional development activities needed to enhance faculty proficiency and calibration with facilitating MI within curricula. This, in tandem with research on best practices for educating and sustaining student use of MI, could solidify this patient-centered counseling approach as the standard of care.

CHAPTER VI

CONCLUSIONS

In 2012, the U-M DH Program's health behavior change curriculum was enhanced to include a special focus on MI. MI professional development activities were provided to faculty, including MI in-service and team grading to support students' application of this during patient interactions. In 2014, the faculty began assessing the students' application of the "spirit of MI" in clinic and evaluating student-patient audio recorded MI interactions during team grading sessions.

The overall goal of this research project was to assess the faculty members' perceptions of the importance of and their confidence in supporting students' delivery of MI during patient care. In addition, evaluating the impact of the faculty's feedback and modeling of the 'spirit of MI' on students' learning. The study had three aims. The first aim sought to assess the faculty perception regarding the importance of supporting students' MI interactions during patient care. The second aim evaluated the faculty's perception of their confidence in supporting students' application of MI strategies during patient care. The third aim assessed the students' perception of faculty's feedback and modeling the spirit of MI.

Dental hygienists have traditionally used forms of advice-giving educational methods and "tell-show-do" approaches to elicit a change in behavior to prevent diseases. These methods generally will not motivate and can potentially impair a patient

to make a change.[13,15] Motivational Interviewing (MI) is an evidence-based, patient-centered, collaborative counseling approach, focusing on strengthening a patient's intrinsic motivation for positive behavior change.[9] The goal of MI is to evoke a positive behavior change from within the individual to improve their health.[9]

To adequately implement MI in a dental hygiene curriculum, faculty members need training.[21–24] The integration of MI training serves to provide the faculty with the skills needed to support students' use of MI during patient care.[23] Also both the "spirit" and delivery of MI has been shown to improve when training sessions occur.[22] In addition, the combination of MI training along with coaching and feedback improves retention of MI skills.[21,24]

A significant aspect of students' ability to learn is influenced by positive role modeling and feedback from faculty members.[25,44] Role modeling between faculty and student is considered to be an interpersonal style of teaching.[26] In addition, positive faculty role modeling can influence students' and enhance their professional growth.[26] Faculty feedback is a critical aspect of student learning.[44]

The faculty survey data revealed an immediate increase in their perception of both the importance of and their confidence in supporting students embracing the spirit of MI from PT to PT1. There was a slight decrease overtime from PT1 to PT2, but these results were not statistically significant. In regards to the faculty perceptions of their importance facilitating the eight MI strategies, these increased immediately following the MI in-service (PT1), but all decreased overtime (PT2) with the exception of two strategies. The faculty's perceptions of their confidence facilitating the eight MI strategies all increased following the MI in-service training (PT1) and all decreased

overtime (PT2). Also, there was no statistical significance in regards to the faculty confidence facilitating the eight MI strategies.

Professional development activities including the MI in-service and team grading were reported as the most helpful activities to enhance the faculty's ability to support students' use of MI during patient care. The faculty's non-participation in team grading for just under half of the sample was unexpected. The faculty that did not participate in team grading had nearly an eight month gap in professional development activities. This fact combined with time constraints in clinic may have contributed to the decrease in the faculty's perception of their confidence.

Faculty responses indicating that students had enough time to implement MI strategies during patient care were statistically significant immediately following training (PT1). However, over time the faculty reported time constraints as the biggest challenge to assess and provide feedback to students. There was also a statistically significant decrease over time (PT2) in faculty believing they were a positive influence on students' use of MI during patient care. Again, some faculty's diminished perceptions of their confidence and being a positive influence may be attributed to non-participation in team grading, resulting in an eight month gap in professional development activities for these faculty members.

Determining ways to encourage and/or require that the faculty participate in MI professional development activities and team grading should be considered. Exploring options for faculty incentives or modifying schedules to allow participation is recommended. In addition, the utilization of technology for team grading conference calls may reduce or eliminate the requirement for faculty to be physically present on

campus to participate in these sessions. In regards to faculty feedback, it is suggested that the faculty make efforts to increase students' understanding that MI can be utilized beyond patient care. It is recommended that faculty help identify when MI strategies are used during faculty-student interactions.

The Class of 2015, overall indicated that MI is a valuable strategy during patient care. They reported that it is important to implement the eight MI strategies and they felt confident in applying their skills during patient care. However, the students' perception of their ability to help patients achieve a behavioral change was slightly lower. Students were involved with self-assessment of their MI skills but reported faculty feedback to be more beneficial. In addition, the students reported that the faculty modeled the spirit of MI about half the time during clinic.

Increasing opportunities for faculty to provide feedback to support students' confidence in assisting patients with a behavior change should be considered. The addition of role-playing activities between faculty and students may also be helpful. In addition, it is recommended that video resources could be created to assist students in gaining an understanding of how faculty model the spirit of MI during both student and patient interactions.

In this study, both the faculty and students perceived that MI strategies were important. The inclusion of more BMI activities for both faculty and students should be considered. It is recommended that a focus in clinic should be utilizing one to three of the eight MI strategies during each patient interaction. It is suggested that the student identify the MI strategies that they plan to implement on the DHPOC form.

Limitations of this study include the small sample sizes and the lack of a control and/or a comparison groups. A larger sample size for both the faculty and the students would increase the validity of the results. In addition, a comparison group for the faculty and the students from a different institution implementing the same professional development activities would enhance the validity of this study.

It is recommended that longitudinal studies on the impact of MI professional development activities, including team grading be explored. The addition of faculty incentives and modifying schedules to increase participation in professional development activities should be considered. Also, a faculty MI refresher in-service should be provided periodically. In addition, continuing to assess the role of faculty feedback, role-modeling, and specific teaching strategies on student learning should be considered.

This study may help support the integration of MI in the dental hygiene curriculum because there is no available research on the impact of MI professional development activities on faculty's perceptions of the importance of and their confidence in supporting students during patient interactions. This information could be beneficial for faculty to incorporate MI into their teaching to prepare students for their professional roles.

TABLES

Table 1. U-M DH Faculty Demographic Information										
Gender n=16 Frequency (%)		Age n=16 Frequency (%)		Years Practicing n=16 Frequency (%)		Employment n=16 Frequency (%)		Years Teaching n=15 Frequency (%)	
Female	16 (100%)	21-30 years	3 (19%)	< 5 years	2 (12.5%)	Part-time	13 (81%)	<5 years	6 (40%)
Male	0 (0%)	31-40 years	3 (19%)	5-10 years	2 (12.5%)	Full-time	3 (19%)	5-10 years	5 (33%)
		41-50 years	4 (25%)	11-15 years	2 (12.5%)			11-15 years	1 (7%)
		51-59 years	1 (6%)	> 15 years	10 (62.5%)			> 15 years	3 (20%)
		60 years (>)	5 (31%)						

Table 2. U-M Class of 2015 Demographic Information	
Gender n=20	Frequency (%)
Male	1 (5%)
Female	19 (95%)

Table 3. U-M DH faculty mean of importance facilitating MI strategies with students			
Strategy	Likert-Scale 0-5 Mean ± SD		
	Pre-Test (PT, n=15)	Post-Test 1 (PT1, n=16)	Post-Test 2 (PT2, n=12)
Use open ended questions	4.80±.41	5.0±.00	5.0±.00
Listen reflectively	5.0±.00	5.0±.00	5.0±.00
Make affirmations	4.73±.46	4.75±.45	4.83±.39
Summarize	4.87±.35	4.94±.25	4.67±.49
Elicit change talk	4.73±.59	4.88±.34	4.17±1.12
Using importance ruler	4.13±.91	4.13±.72	3.67±1.37
Ask for elaboration "what else?"	4.67±.49	4.69±.70	4.42±1.17
Enhance self-efficacy	4.20±1.74	4.62±.62	4.58±.79
Average	4.64	4.75	4.54
Mean of importance of all strategies over all time points (PT, PT1 and PT2)			**4.6**

The responses ranged from: 0= unable to answer, 1= not very important, 2= of little importance, 3= neutral, 4= somewhat important, 5= very important.

Table 4. U-M DH faculty mean of confidence facilitating MI strategies with students			
Strategy	Likert-Scale 0-5 Mean ± SD		
	Pre-Test (PT, n=15)	Post-Test 1 (PT1, n=16)	Post-Test 2 (PT2, n=12)
Use open ended questions	4.47±.64	4.81±.40	4.55±.93
Listen reflectively	4.67±.49	4.81±.40	4.55±.93
Make affirmations	4.67±.49	4.69±.48	4.36±1.03
Summarize	4.47±.83	4.75±.45	4.0±1.41
Elicit change talk	3.80±1.01	4.19±.98	3.40±1.35
Using importance ruler	3.50±1.16	3.94±1.18	3.45±1.51
Ask for elaboration "what else?"	4.20±.86	4.44±.81	3.82±1.32
Enhance self-efficacy	3.93±1.1	4.13±1.20	3.55±1.57
Average	4.21	4.47	3.96
Mean of confidence of all strategies over all time points (PT, PT1, PT2)			**4.2**

The responses ranged from: 0=unable to answer, 1= not at all confident, 2= little confidence, 3=neutral, 4=somewhat confident, 5= very confident.

Table 5. U-M DH faculty perception of the importance of and their confidence facilitating MI strategies with students

Variable	Pre-Test Median (SIV)	Post-Test 1 Median (SIV)	Post-Test 2 Median (SIV)	Wilcoxon Signed Rank Test $T_1/T_2/T_3$	Z Statistic T_3	Effect Size T_3
Importance+						
Use open ended questions	5.0 (0.5)	5.0 (0)	5.0 (0)	.08/.08/1.0	.00	**
Listen reflectively	5.0 (0)	5.0 (0)	5.0 (0)	1.0/1.0/1.0	.00	**
Make affirmations	5.0 (0.5)	5.0 (0.5)	5.0 (0)	.66/.31/1.0	.00	**
Summarize	5.0 (0)	5.0 (0)	5.0 (0.5)	.56/.10/.18	-1.3	.10
Elicit change talk	5.0 (0.5)	5.0 (0)	5.0 (1)	.48/.23/.06	-1.9	.17
Use the importance ruler	4.0 (1)	4.0 (1)	4.0 (1.5)	1.0/.37/.33	-.98	.20
Ask for elaboration 'what else?'	5.0 (0.5)	5.0 (0.5)	5.0 (0.5)	.94/.48/.59	-.54	.02
Enhance self-efficacy	5.0 (0.5)	5.0 (0.5)	5.0 (0.5)	.67/.79/.78	-.28	.04
Confidence++						
Use open ended questions	5.0 (0.5)	5.0 (0.5)	5.0 (0.5)	.13/.86/.48	-.71	.13
Listen reflectively	5.0 (0.5)	5.0 (0.5)	5.0 (0.5)	.48/.74/.48	-.71	.10
Make affirmations	5.0 (0.5)	5.0 (0.5)	5.0 (1)	1.0/.38/.38	-.88	.16
Summarize	5.0 (0.5)	5.0 (0.5)	5.0 (1.5)	.33/.36/.07	-1.8	.14
Elicit change talk	4.0 (1)	4.0 (1)	4.0 (1.5)	.39/.57/.11	-1.6	.09
Use the importance ruler	4.0 (1.5)	4.0 (1)	4.0 (1.5)	.47/.77/.49	-.69	.15
Ask for elaboration 'what else?'	5.0 (0.5)	5.0 (1)	4.0 (1.5)	.55/.32/.13	-1.5	.01
Enhance self-efficacy	5.0 (1)	5.0 (1)	4.0 (1.5)	.64/.51/.30	-1.0	.20

The responses ranged from:

[+]0= unable to answer, 1= not very important, 2= of little importance, 3= neutral, 4= somewhat important, 5= very important.

[++]0=unable to answer, 1= not at all confident, 2= little confidence, 3=neutral, 4=somewhat confident, 5= very confident.

SIV: semi-interquartile value. Effect size determined by r-squared (** Variable Constant).

*Statistically significant at $p<0.05$ (two tailed)

T_1= Pre-Test to Post-Test 1

T_2=Pre-Test to Post-Test 2

T_3=Post-Test 1 to Post-Test 2

Table 6. U-M DH faculty perspective of time in clinic, their skill, influence on students and the belief students have the ability to support a health behavior change using MI strategies						
Questions	Pre-Test Median (SIV)	Post-Test 1 Median (SIV)	Post-Test 2 Median (SIV)	Wilcoxon Signed Rank Test T_1, T_2,T_3	Z Statistic T_3	Effect Size T_3
I believe MI will help students achieve behavior change with their patients.	4.0 (0.5)	5.0 (0.5)	4.5 (1)	.08/.94/.29	-1.0	.00
I believe students have enough time in clinic to incorporate MI strategies with their patients.	3.0 (0.5)	4.0 (1)	3.0 (1)	.03*/.57/.08	-1.7	.28
With proper education and training, I believe students have the ability to use MI strategies with their patients.	5.0 (0.5)	5.0 (0.5)	4.0 (0.5)	.36/.41/.20	-1.3	.08
I have the skills needed to facilitate students' use of MI strategies in clinic.	4.0 (1)	4.5 (0.5)	4.0 (0.5)	.17/.55/.62	-.50	.02
I can have a positive influence with my students and their use of MI strategies in clinic.	4.0 (0.5)	5.0 (0.5)	4.0 (1)	.59/.15/.04*	-2.1	.03

The responses ranged from 0=unable to answer, 1= strongly disagree, 2= disagree, 3=neutral, 4=agree, 5= strongly agree.
SIV: semi-interquartile value. Effect size determined by r-squared.
*Statistically significant at $p<0.05$ (two tailed)
T_1=Pre-Test to Post-Test 1
T_2=Pre-Test to Post-Test 1
T_3=Post-Test 1 to Post-Test 2

Table 7. U-M DH faculty participation in the 2014-2015 MI team grading					
Fall Semester 2014 n=14 (4 Sessions Offered)		Winter Semester 2015 n=14 (12 Sessions Offered)		Fall Semester 2015 n=14 (4 Sessions Offered)	
	Frequency (%)		Frequency (%)		Frequency (%)
0 sessions	7 (50%)	0 sessions	8 (57.2%)	0 sessions	5 (36%)
1 session	5 (36%)	1 session	0 (0%)	1 session	3 (21%)
2 sessions	1 (7%)	2 sessions	3 (21.4%)	2 sessions	6 (43%)
3 sessions	1 (7%)	3 sessions	3 (21.4%)	3 sessions	0 (0%)

Table 8. U-M DH faculty responses to the assessment of students, feedback and modeling	
Questions	Mean ± SD
I was able to assess students' application of the "spirit of MI" in the clinic (i.e. DHPOC, Daily Grade criteria)	2.64±1.6 (n=11)
I was able to provide general feedback supporting students' application of the "spirit of MI" with patients in clinic.	3.1±1.6 (n=12)
Participation in MI in-service enhanced my own ability to model MI.	4.0±1.6 (n=10)
Assessing "spirit of MI" (i.e. DHPOC, Daily Grade criteria) in clinic enhanced my own ability to model MI.	3.5±1.1 (n=11)
Involvement in team grading of MI student/patient recordings enhanced my own ability to model MI.	3.2±2.1 (n=11)
I routinely modeled the "spirit of MI" with students and patients in the clinic.	3.5±.97 (n=10)

The responses ranged from 0=unable to answer, 1= strongly disagree, 2= disagree, 3=neutral, 4=agree, 5= strongly agree.

Table 9. U-M DH faculty responses to the MI activities and training that were most helpful in enhancing faculty support of student delivery of the "spirit of MI"		
Themes	Selected Responses (Some faculty provided more than one response)	Respondents=9 Total Responses=14
Team-Grading	• MI in service session in 2014 and in 2012 when we were able to practice using the MI techniques • Team grading of MI recordings • Faculty team grading allows for collaboration and calibration	50% (n=7)
MI In-Service	• The examples of good MI videos and role-playing • MI in-service	36% (n=5)
Resnicow class session	• DH3 Seminar class session by Ken Resnicow	7% (n=1)
Other	• I feel it is all important for students to learn	7% (n=1)

Table 10. U-M DH faculty responses to their ability to assess the students' application of the "spirit of MI"		
Themes	Selected Responses (Some faculty provided more than one response)	Respondents=11 Total Responses=13
Time constraints	• We don't always have the time to listen to each student's conversation with patients • It is difficult to witness the delivery of patient education due to time constraints • I am the only instructor in two clinics so I do not have time to monitor MI adequately on a daily basis • I am not able to spend the time necessary to listen to MI as usually I am needed by other students	69% (n=9)
Was able to assess	• I believe that assessing whether or not the student was able to incorporate MI is easy by looking at how the patient education was delivered and asking the student what recommendations were discussed and why • The clinic I am at students saw a lot of patients who expressed concerns re: unhealthy lifestyle and bad oral hygiene habits. It was easy for patients to at least apply a few of the strategies	23% (n=3)
Unsure about effectiveness of MI	• I am not sold on "teaching" MI to the students	8% (n=1)

Table 11. U-M DH faculty responses to their ability to provide feedback		
Themes	Selected Responses	Respondents=9 Total Responses=9
Provided feedback on limited basis	• Occasionally able to provide feedback in terms of student ability to build rapport and actively listen to pts if I am around to hear and see • When able to observe the students/patients interactions	44.5% (n=4)
Other	• I believe I can work on doing this! • MI is an attitude and approach-asking permission to share OHI is paramount	33.3% (n=3)
Time constraints	• We don't always have the time to listen to each student's conversation with patients • Generally, you are not in the cubicle with them during these times. I hear snippets here and there, but never the whole process	22.2% (n=2)

Table 12. U-M DH faculty responses to the participation in MI in-service enhanced the faculty's ability to model MI		
Themes	Selected Responses	Respondents=7 Total Responses=7
In-Service enhanced ability to model MI	• Being able to practice using MI • It gave me a better understanding of how to do it • Learned principles	57% (n=4)
In-service was a positive experience	• It was a good session. • Good review and discussion	29% (n=2)
Did not attend in-service	• Did not attend in-service	14% (n=1)

Table 13. U-M DH faculty responses to the assessment of the "spirit of MI" in clinic enhanced my own ability to model MI		
Themes	Selected Responses	Respondents=5 Total Responses=5
Assessing student's "spirit of MI" enhanced own ability to model MI	• Evaluating students' use of MI in clinic routinely exposes me to the MI techniques helping me to build my knowledge of the principals • They made me pay close attention to the interaction between the students and patients and gave me the opportunity to model questions and responses with patients for the students	40% (n=2)
Other	• It re-emphasized in my mind why MI works • Haven't had training	40% (n=2)
Time Constraint	• Clinic is very busy and multiple assessments don't permit listening and assessing	20% (n=1)

Table 14. U-M DH faculty responses that team-grading enhanced their own ability to model MI		
Themes	Selected Responses	Respondents=7 Total Responses=7
Faculty team-grading enhanced my ability to model MI	• Discussing with other faculty helps to familiarize me with using the MI techniques • Able to listen to MI skills and learn from faculty discussion • Different examples and levels of modeling of MI allows us to identify techniques that successfully work	43% (n=3)
Other	• I have complete understanding • Helped me remember what to "listen" for	29% (n=2)
Did not attend team-grading	• The one I was signed up to attend had to be cancelled	14% (n=1)
Team-grading was more beneficial compared to MI in-service	• Talking through the recordings and how the criteria were or were not met was much more beneficial than the in-service	14% (n=1)

Table 15. U-M DH faculty responses for their ability to model the "spirit of MI" with students and patients in the clinic		
Themes	Selected Responses	Respondents=5 Total Responses=6
Model the 'spirit of MI' on a limited basis	• I definitely incorporate some MI techniques into my interactions with students and patients • Very briefly and occasional • Whenever I have the opportunity	66% (n=4)
Time Constraints	• I am focused on medical history, oral exam, assessments, instrumentation, etc. I have other students waiting	17% (n=1)
Other	• I have complete understanding	17% (n=1)

Table 16. U-M DH faculty suggestions for maintaining their confidence in supporting students' delivery of MI		
Themes	Selected Responses	Total Responses n=8
Professional development/In-service	• Continue giving support during faculty in-service, including sharing MI experiences • Continue workshops on best practices	50% (n=4)
Team-grading	• Continue opportunities for faculty group grading of student MI audio recordings	25% (n=2)
Student MI test case	• Create a patient education test case that includes MI where faculty have to be present to evaluate	12.5% (n=1)
MI video examples	• Provide MI video examples for faculty and students to critique	12.5% (n=1)

Table 17. U-M DH faculty suggestions for maintaining a positive influence on students' use of MI during clinic		
Themes	Selected Responses	Total Responses n=8
Application of MI strategies	• Ask clinical faculty to implement one MI strategy of per patient/per clinic session	37.5% (n=3)
Student MI test case (non-recorded) requirement	• Require students to have a clinical faculty present during informal (non-recorded) MI conversation with patient • Assign a MI proficiency requirement	37.5% (n=3)
Provide MI dialogue examples to faculty	• Provide a few key positive feedback sentences to use in Foliotek or in person • Provide a one page example of MI dialogue	25% (n=2)

Table 18. U-M DH faculty suggestions to assist students in recognizing faculty modeling the 'spirit of MI'		
Themes	Selected Responses	Total Responses n=8
MI should occur throughout the appointment	• Letting students know that MI doesn't have to be a separate formal session and have faculty model the spirit of MI throughout the entire appointment • Assist students by using MI phrases and discussing techniques with students	37.5% (n=3)
Enhance DHPOC form to have a MI strategy section	• DHPOC form needs to have a specific area available that contains MI strategy used during that appointment • Review DHPOC with student and identify health behavior change and MI strategy	25% (n=2)
Other	• Unable to give a suggestion • Time constraints make this difficult	25% (n=2)
Inform students when they implement MI strategies	• The instructor needs to actually point out when MI strategy was utilized	12.5% (n=1)

Table 19. U-M DH faculty suggestions on how feedback can be better incorporated when reviewing DHPOC form and/or providing the Daily Grade		
Themes	Selected Responses	Total Responses n=8
Enhance DHPOC form to have a MI strategy section	• Add an MI section on the DHPOC to have student fill in and we discuss	37.5% (n=3)
Provide immediate MI feedback	• Provide feedback at the end of clinic when going over their daily grade • Suggest clinical faculty point out to the students when MI techniques are being used	25% (n=2)
Other	• Unable to give a suggestion • Time constraints make it difficult to provide a solution	25% (n=2)
Student MI test case (non-recorded) requirement	• Provide a specific requirement where faculty are able to observe the student's interaction	12.5% (n=1)

Table 20. U-M DH faculty responses for additional suggestions to improve student retention		
Themes	Selected Responses	Respondents=8 Responses=2
Have students focus their MI strategies during patient education	• There are many clinical faculty who do not see basic homecare instructions happening in the clinic.	50% (n=1)
Faculty can remind student to utilize MI strategies	• At oral exam check, we can remind students to ask patients if they can discuss a health behavior	50% (n=1)

Table 21. U-M DH Class of 2015 mean of importance and their confidence of MI strategies Likert-Scale 0-5		
Strategy	Importance, n=19 Mean ± SD	Confidence, n=20 Mean ± SD
Use open-ended questions	4.68±.58	4.55±.76
Listen reflectively	4.74±.56	4.40±.68
Make affirmations	4.37±.83	4.25±.85
Summarize	4.58±.60	4.40±.60
Elicit change talk	4.53±.61	4.00±.97
Using importance ruler	3.74±.93	4.30±1.03
Ask for elaboration "what else?"	4.11±.88	4.15±.88
Enhance self-efficacy	4.42±.84	4.15±.81
Average mean/all strategies	**4.4**	**4.27**

The responses ranged from: 0= unable to answer, 1= not very important, 2= of little importance, 3= neutral, 4= somewhat important, 5= very important. 0=unable to answer, 1= not at all confident, 2= little confidence, 3=neutral, 4=somewhat confident, 5= very confident.

Table 22. U-M DH Class of 2015 mean of importance of and their confidence in applying MI strategies	
Question	Mean ± SD (n=20)
MI is a valuable strategy that can be used during clinical care to assist patients in achieving behavior change.	4.10±.79
Using MI, I am able to help my patients achieve behavioral change that will assist in enhancing their oral health.	3.90±.85
I have enough time in clinic to incorporate MI strategies.	2.95±1.36
I have the skills I need to use MI strategies in the clinic.	4.05±.87

The responses ranged from: 0= unable to answer, 1= strongly disagree, 3= disagree, 4= neutral, 5= agree.

Table 23. U-M DH Class of 2015 mean for questions on their perceptions on course work, assignments and faculty feedback	
Question	Mean ± SD (n=20)
The material covered in DH 338-Health Education Methods, was sufficient in detail for me to understand the application of MI.	4.30±.80
The material covered in DH312-Clinical Dental Hygiene Seminar built upon DH 338 to provide a deeper understanding of the application of MI.	3.85±.88
The self-assessment of my recordings of MI interactions with patients in clinic during my DH3 year was valuable.	3.25±1.37
The faculty feedback on my recorded MI interactions with patients in clinic during my DH3 year was valuable.	3.45±1.64
The SPI tobacco cessation experience during my DH4 year was an effective way for me to demonstrate my MI skills.	2.95±1.43

The responses ranged from: 0= unable to answer, 1= strongly disagree, 3= disagree, 4= neutral, 5= agree.

Table 24. U-M DH Class of 2015 responses on the value of the self-assessment of their MI recording during their DH3 year		
Themes	Selected Responses	Respondents=17 Responses=18
Self-assessment was valuable	• Being able to see how the conversation went makes it easier to improve and identify weakness. • To be able to hear myself and use techniques. • Good to determine for myself what I need to work on	39% (n=7)
Self-assessment and feedback	• First time we did it we didn't get feedback, second time it took very long to get feedback, not very organized. • We did not always get own recording back promptly (or at all), so self-assessment there was difficult. • We never got more than pass or fail for our self-assessment	33% (n=6)
Self-assessment was repetitive and unnatural	• We self-assessed several times it was a bit repetitive • It was very unnatural way of assessing oneself	28% (n=5)

Table 25. U-M DH Class of 2015 response on the value of faculty feedback on their recorded MI interaction during their DH3 year		
Themes	Selected Responses	Respondents=15 Responses=16
Faculty feedback was valuable	• Without the feedback-I would not have known the improvements I needed to make for DH4 SPI. • I appreciate the faculty feedback because it helped to see things I might not have noticed otherwise. • The faculty provided very good feedback on my strengths and weaknesses with MI after the audio recorded interviews in clinic	56% (n=9)
Did not receive faculty feedback	• There was no feedback provided for the MI experience. • I never received instructor feedback from my MI SPI experience.	38% (n=6)
Faculty feedback was not constructive	• I felt that I was being criticized for things that seemed unnatural	6% (n=1)

Table 26. U-M DH Class of 2015 responses to the SPI tobacco cessation experience during their DH4 year being an effective way to demonstrate their MI skills		
Themes	Selected Responses	Respondents=14 Responses=15
Did not receive feedback for my SPI experience or it was not helpful	• I feel like I never got the feedback on time and it never seemed valuable after a really long time • Feedback would be nicer if it was more detailed. • We did not get feedback yet.	53.4% (n=8)
SPI tobacco cessation experience did not allow me to demonstrate MI skills	• It was awkward and staged • I feel that the other MI experiences we had prior to own DH4 year were more than adequate for me to demonstrate my MI skills.	20% (n=3)
SPI tobacco cessation experience did allow me to demonstrate MI skills	• It was not simple, I was given a different situation where I had to use my MI skills. • It was good practice	13.3% (n=2)
Other	• Tobacco cessation was good to learn, but I will most likely not use MI. • It is still challenging to talk to patient about this	13.3% (n=2)

Table 27. U-M DH Class of 2015 mean to questions on their use of MI skills, the spirit of MI and the DH faculty modeling the spirit of MI	
Question	Mean ± SD (n=19)
How frequently do you use MI skills (i.e. readiness ruler, evocative questions, elicit-provide-elicit) with your patients in clinic?	*1.84±.83
How often do you exhibit the "spirit of MI" (collaboration, showing empathy, supporting autonomy, acceptance, and client-centeredness) throughout a patient care appointment?	*2.58±1.0
Clinical faculty modeled the "spirit of MI" in their interactions with students and patients	*2.37±1.1
Faculty's application of the "spirit of MI" motivated me to do so as well	**2.21±.92

*Responses ranged from 0-4: never, seldom, about half the time, most of the time or all of the time.
** Responses ranged from 0-5: strongly disagree, disagree, neutral, agree, strongly agree or agree.

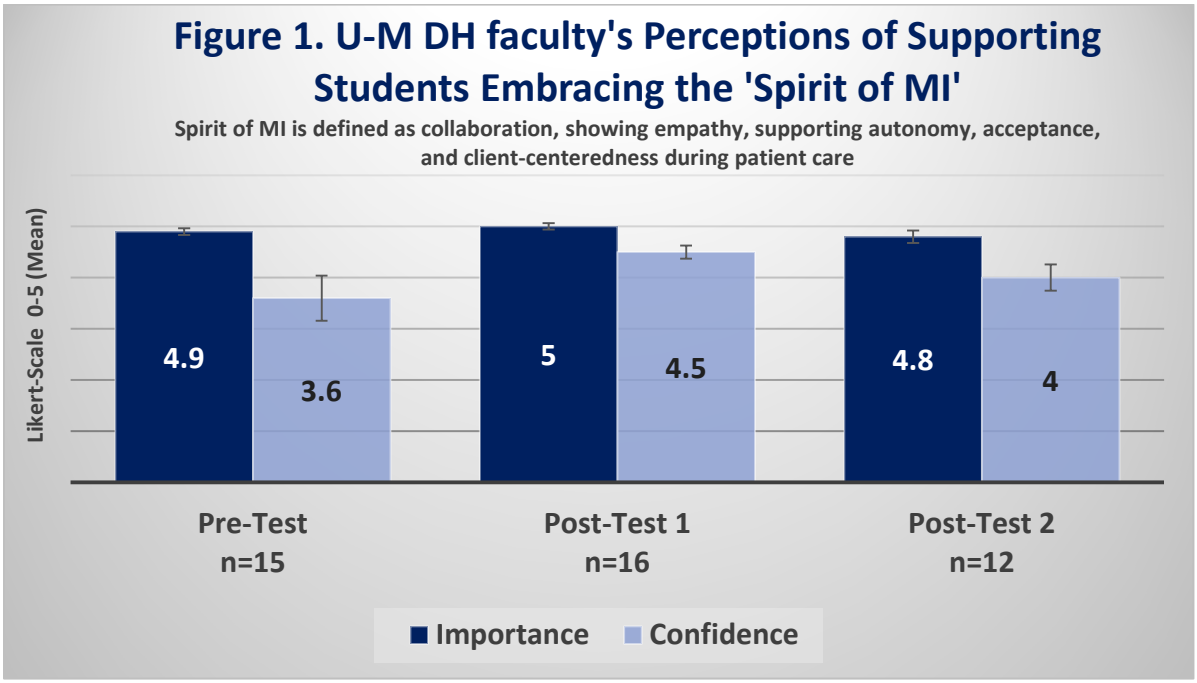
Table 28. U-M Class of 2015 suggestions to improve faculty facilitation of student use of the "spirit of MI'		
Themes	Selected Responses	Respondents=10 Responses=10
Start MI earlier in the curriculum	• Slowly incorporate it instead of heavily teaching it in one semester. • Don't overload students	30% (n=3)
More faculty involvement with the 'spirit of MI'	• Teach us how to integrate it into regular conversation • Faculty could utilize MI more in student-faculty interactions, giving us even more practice. I feel that they focused more on student-patient MI and faculty-patient MI	30% (n=3)
Thought curriculum was good	• Enjoyed the guest speaker on the topic • Good work	20% (n=2)
Other	• More positive and fun • Always use real life patient examples	20% (n=2)

Table 29. U-M Class of 2015 responses to successes using MI strategies during patient care		
Themes	Selected Responses	Respondents=16 Responses=20
Student feeling of success during patient-interactions	• More confident talking • I feel very successful	20% (n=4)
Behavior change	• Attitudes toward change • Utilized change talk to have open discussions with patients • Helping patient's recognize and understand that changes are needed	20% (n=4)
Improve health behaviors (OHI and diet)	• Patient compliance with OHI • Compliance • Maintain diet	20% (n=4)
Success with smoking cessation	• Helped few to quit smoking	10% (n=2)
Patient motivation	• Motivated patient's to increase their confident • I have helped quite a few patients develop their own plans for change and witnessed them continuing with their successful change at subsequent recall appointment, which is very rewarding	10% (n=2)
Reflectively listen and show empathy	• I've been able to listen more effectively and sympathize with patients more • Enhanced my ways of "listening" made me a better listener	10% (n=2)
Other	• More patient conversations and patients did respond well • Yes, living through and completing the MI experience	10% (n=2)

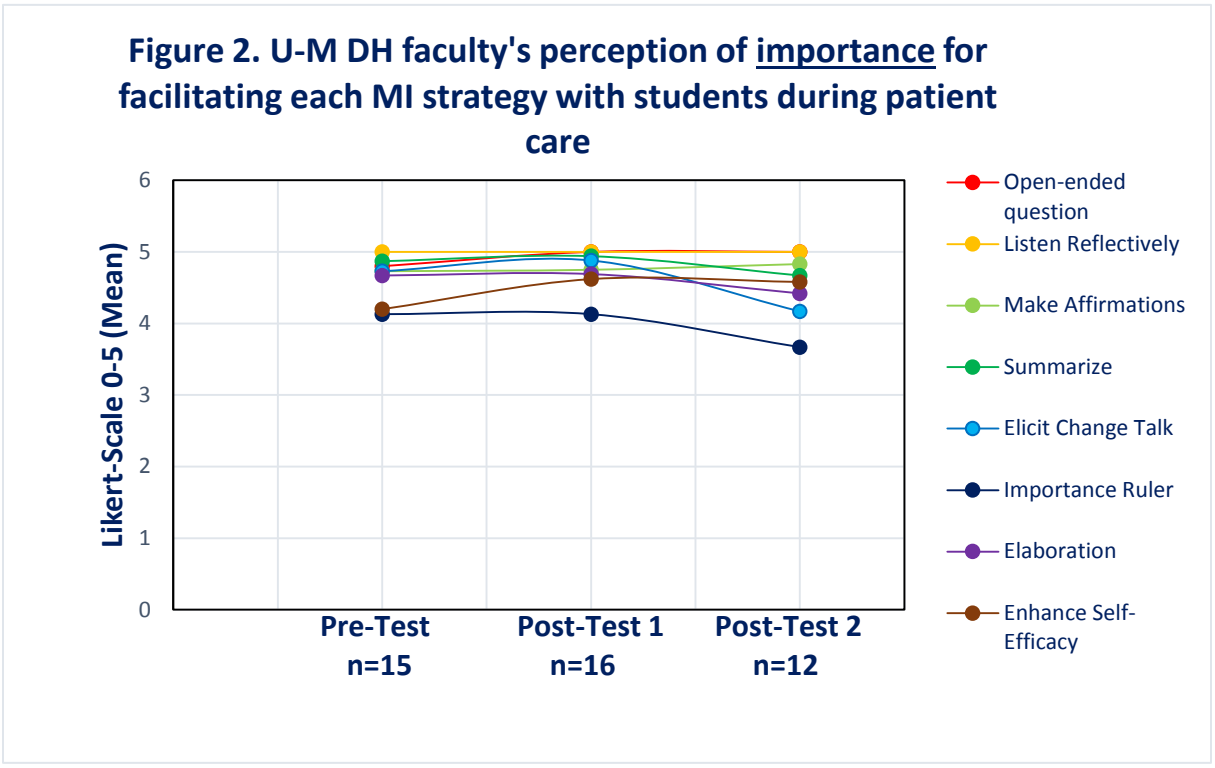
Table 30. U-M Class of 2015 responses to challenges using MI strategies during patient care		
Themes	Selected Responses	Respondents=15 Responses=17
Patient resistance	• Patient resistant to quitting smoking • Patients who are unwilling to have a discussion • Patients did not want to be recorded	53% (n=9)
MI felt unnatural or force during patient-interactions	• It isn't for everyone • Not every time, seemed forced • Seems very unnatural •	29% (n=5)
Time constraints	• Time restraint • Not enough time	12% (n=2)
MI strategies in general are challenging	• The whole process is challenging	6% (n=1)

Table 31. U-M Class of 2015 interest in additional MI training and suggestions for topics			
Interested in additional MI training	Frequency (%)	Respondents=19 Responses= 3	Frequency (%)
No	16 (84%)	Topics	
Yes	3 (16%)	Smoking Cessation	1 (33.3%)
		Treatment Plans/Misc. Topics	1 (33.3%)
		Other	1 (33.3%)

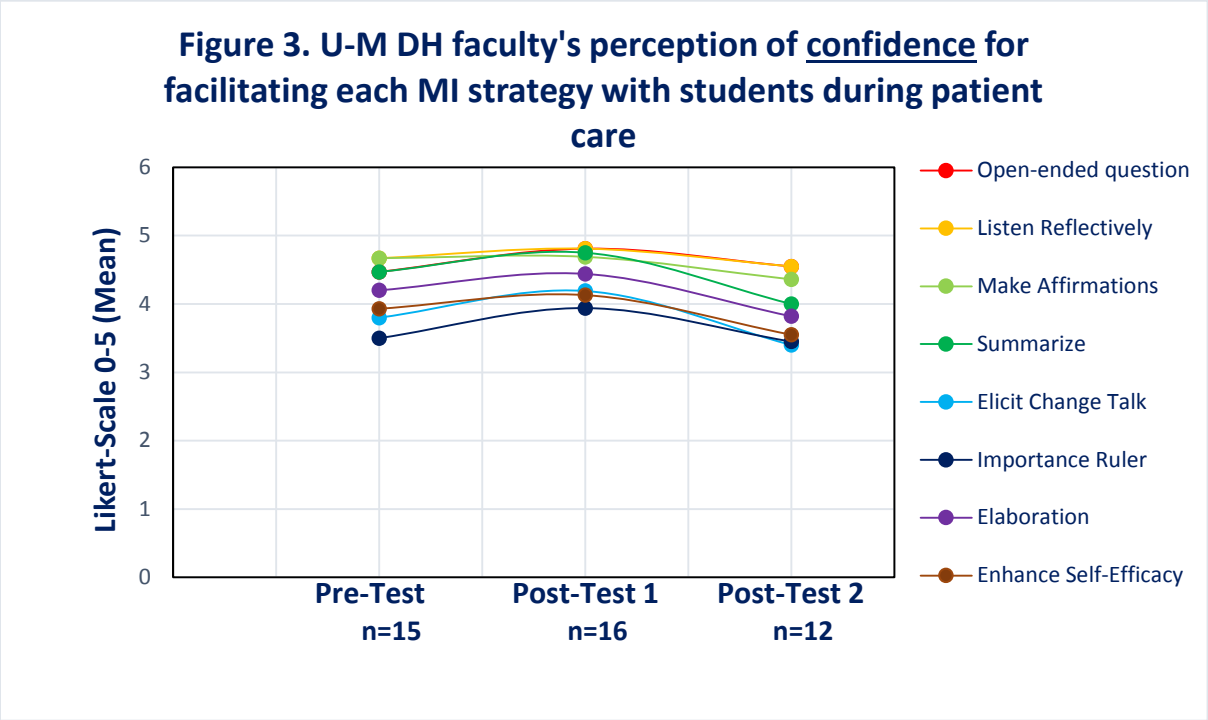
FIGURES



The responses ranged from 0= unable to answer, 1= not very important, 2= of little importance, 3= neutral, 4= somewhat important, 5= very important. 0=unable to answer, 1= not at all confident, 2= little confidence, 3=neutral, 4=somewhat confident, 5= very confident.
*The error bars represent ± the standard error.

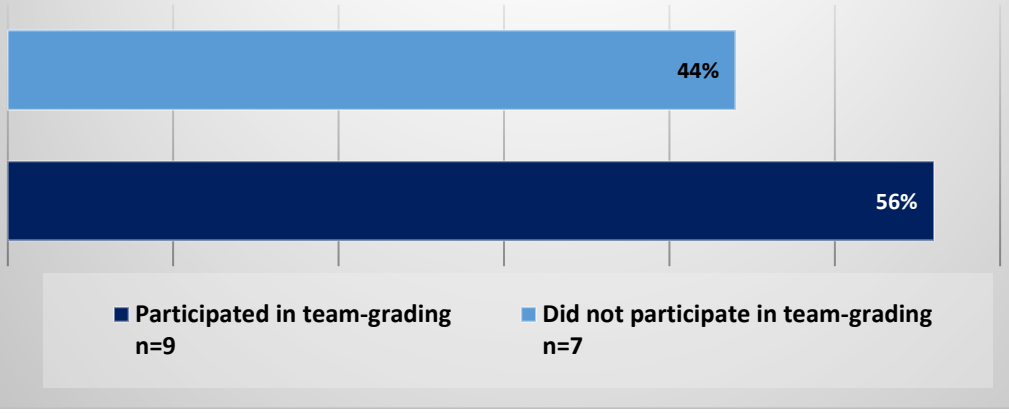


The responses ranged from 0= unable to answer, 1= not very important, 2= of little importance, 3= neutral, 4= somewhat important, 5= very important.



The responses ranged from 0=unable to answer, 1= not at all confident, 2= little confidence, 3=neutral, 4=somewhat confident, 5= very confident.

Figure 4. U-M DH faculty 2014-2015 team grading attendance of MI recordings over three semesters 2014-2015 (n=16)



APPENDIX A

DH Process of Care

Patient First Name: _____ Reg#:_____

Clinician Name: _____ Date: _____

I. ASSESSMENTS (*not located in EHR)

Last date of BW's and FMX _____

Last date of treatment plan _____

Last date of prophy or periodontal maintenance _____

Dental history / patient chief complaint _____

Systemic conditions affecting oral health _____

Medication side effects of concern _____

___Intraoral and extraoral assessment findings

___Calculus index and plaque score (plaque score after oral exam) *

___Caries risk/management

___Periodontal risk factors and skin & oral cancer risk assessments *

___Periodontal charting

___New Radiographic Findings (if applicable) _____

Considering ALL assessments collected and indicated in the EHR, complete your customized dental hygiene plan below:

DH Process of Care

Patient First Name: _____ Reg#:_____
Clinician Name: _____ Date: _____

Gingival/periodontal description- based on periodontal chart & oral exam

-(gingival description: color, size, shape, consistency)

_____

DH3 and DH4 only: Radiographic Bone Loss %_____

Previous Periodontal Tx/AAP Case Type_____= Current AAP Case Type_____

II. DENTAL HYGIENE DIAGNOSIS 1. Identify the observed or potential oral health problems for your patient and link them to probable etiology or risk factors: ie., hypersensitivity: due to exposed cementum/gingival recession **III. TREATMENT PLAN & IMPLEMENTATION** 2. Identify the planned interventions AND sequence to arrest, control, restore or maintain health (i.e., clinical, oral hygiene instruction, education/counseling):	3. Based on your overall assessments, *what one (or two) health behavior change/modification(s)* might be most relevant to approach with your patient? **IV. EVALUATION/EXPECTED OUTCOMES** 4. Identify the specific and measurable therapeutic outcomes following your initial treatment that will indicate success at the time of re-evaluation (i.e., improved plaque control, reduced BOP, reduced pocket depths) 5. Additional referrals or consultations recommended?

DH Process of Care

Representative Index Teeth

Student indicates calculus present (−) If faculty agrees, then (I) is indicated. When both agree, then (+).

	3	9	12	19	25	28	INSTRUCTOR INITIALS
Supra							
Sub							

Prophy Class: _____ Number of Teeth: _____

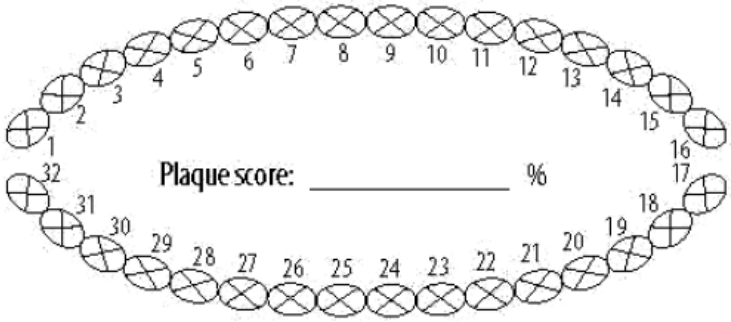
Periodontal Risk Factors	**✓ if applies**
Demographics	____Age >40 ____Genetics *(family history of perio and/or early tooth loss)* ____Low socio-economic status
Tobacco	____Use or history of use
Drug Side Effects	____Gingival overgrowth ____Xerostomia ____Other
Oral Hygiene	____Poor OH~high biofilm scores
Psychosocial stress	____Depression/anxiety/neurosis ____Grief
Systemic conditions	____Diabetes ____Osteoporosis, osteopenia ____Immuno-compromised ____Hormonal considerations: pregnancy ____Obesity ____Cardiovascular diseases
Iatrogenic factors	____overhangs, open contacts, faulty restorations/crowns, calculus
Abnormal tooth mobility	____Bone loss, occlusion/trauma, bruxism, accident/trauma
Periodontal Diagnosis	____Previous history or current diagnosis
Radiographic Findings	____Slight periodontitis (<30% loss) ____Moderate periodontitis (30-50% loss) ____Severe periodontitis (>50% loss)
Circle determined risk: Low Moderate High	

DH Process of Care

Plaque Score (O'Leary et al. 1972)

1. Mark out all missing teeth (X).
2. Disclose teeth with disclosing solution or tablets.
3. Mark all surfaces that have any plaque at the gingival margin, regardless of amount.
4. Use the following formula to determine the plaque score (percentage of surfaces with plaque):

$$\text{Plaque score (\%)} = \frac{\text{total surfaces with plaque}}{4 \times (32 - \#\text{ of missing teeth})}$$



Date: _____ Hours since brushing: _____

APPENDIX B
Daily Grade Form

Student:	**Date:**		
Daily Grade Criteria	**Point Deduction**		
Assessment	_____Major	_____Minor	None
Dental Hygiene Diagnosis and Treatment Planning	_____Major	_____Minor	None
Periodontal Debridment and Instrumentation	_____Major	_____Minor	None
Patient Self Care Instructions	_____Major	_____Minor	None
Clinical Judgement /Professionalism	_____Major	_____Minor	None
Infection Control/ Aspesis	_____Major	_____Minor	XXXXXXXXX

Patient Status Complete Incomplete

FEEDBACK

Instructor Signature_____Patient Contact Hours_____

Daily Points Earned /5

Student	**Date**		
Daily Grade Criteria	**Point Deduction**		
Assessment	_____Major	_____Minor	None
Dental Hygiene Diagnosis and Treatment Planning	_____Major	_____Minor	None
Periodontal Debridment and Instrumentation	_____Major	_____Minor	None
Patient Self Care Instructions	_____Major	_____Minor	None
Clinical Judgement /Professionalism	_____Major	_____Minor	None
Infection Control/ Aspesis	_____Major	_____Minor	XXXXXXXXX

Patient Status Complete Incomplete

FEEDBACK

Instructor Signature_____Patient Contact Hours_____

Daily Points Earned /5

APPENDIX C
Daily Grade Criteria

CATEGORY	MAJOR	MINOR
MEDICAL HX	Failure to: *Review and update Med Hx form *Record all patient meds *Record or report oral side effects or implications for tx for pt meds *Determine pt medication compliance *Follow up & record information for all YES responses on med hx *Determine need for, or document premed *Have necessary patient medication out (inhaler, nitroglycerin) *Determine need for med consult *Determine and report ASA Status *Acquire all necessary signatures/swipes' *Address pt chief complaint	Failure to: *Accurately/Correctly review and update Med Hx form (ie, pt taking a HBP drug, but no HBP condition is entered) *Record reason for taking med, drug class, and pregnancy risk category of all meds taken *Record discontinued meds *Accurately complete Dental History Form
VITAL SIGNS	Failure to: *Obtain, record or report pt vital signs *Follow protocol if vital signs exceed tx guidelines	Failure to: *Use correct BP technique
EO/IO	Failure to: *Complete EO/IO exams *Follow up on previously reported lesions or pathology *Determine the need for consult/referral *Detect and record obvious findings *Ask appropriate follow up questions with patient	Failure to: *Document findings correctly using complete lesion descriptions *Utilize correct exam techniques
TEETH/ OCCLUSION	Failure to: *Perform occlusion assessment *Note obvious attrition, abrasion, abfraction, caries, fractures, or faulty restorations *Use current radiographs in conjunction with assessments	Failure to: *Utilize proper techniques for caries assessment (eg. air drying, transillumination, etc.) *Correctly identify occlusion *Correctly identify conditions such as abrasion, abfraction, erosion, etc

PERIO ASSESS	Failure to: *Perform and/or document gingival description *Complete periodontal charting and/or verify 'referred' periodontal charting *Identify ADA/AAP case type *Determine need for perio consult *Accurately record measurements, and includes 4 or more probing/CAL depths off by > 1 mm *Perform appropriate reassessment as as necessary	Failure to: *Correctly identify and document gingival descriptions *Accurately record measurements, and includes up to 3 probing/CAL depths off by > 1 mm *Correctly identify ADA/AAP case type
CALC DETECT	Failure to: *Explore or determine type/location/amount of calculus *Detect gross supra or subgingival calculus	Failure to: *Accurately determine type/location/amt of calc and proper classification *Detect fine/hard deposits
DH DX/ TXPLAN	Failure to: *Generate a DH Dx and Tx Plan *Customize TxPlan for individual pt needs *Plans appropriate pain management *Include appropriate cultural considerations *Obtain pt consent for treatment *Obtain appropriate referral, or consult *Create sufficient DH TxPlan and needs significant modification	Failure to: *Complete correct DH TxPlan, minor revisions needed *Determine appropriate number/sequence of appointments *Make necessary adjustments to DH TxPlan at subsequent visits *Identify follow up evaluation criteria *Identify correct recall interval or maintenance plan *Communicate with dental student-new or existing tx needs
PERIO SRP/ Instruments	Failure to: *Avoid generalized tissue trauma *Avoid localized severe tissue trauma *Re-evaluate past completed quadrants during multiple perio appointments *Remove all but 4 hard/soft or stain deposits = 1 Major Error *Remove all but 7-5 deposits = 1 Major Error and 1 Minor *Remove all but 8 deposits = 2 Major Errors *Reassess after scaling	Failure to: *Use appropriate detection skills (air, exploring, indirect vision, etc.) *Use correct patient or operator positioning *Use appropriate instrument selection *Effectively clean prosthesis *Sharpen instruments ***Avoid Slight*** tissue trauma in a localized area *Remove all but 1-3 hard/soft or stain deposits = 1 Minor Error
PT SELF CARE	Failure to: *Identify critical/important criteria for health ed and self care plan * Make patient an active participant and demonstrate MI spirit for OH and health behavior changes	Failure to: *Provide accurate self care strategies, that do not adversely affect patient care

	(tobacco, nutrition, caries risk, perio risk) *Complete and record plaque score *Identify and inform pt of OH status or risk factors (all factors, clinical, systemic, idiopathic) *Integrate patient's risk factors (caries, oral cancer, and perio) into plan	*Appropriately recommend additional preventive adjunct products *Include pt's special needs or preferences in OHI
CLINIC JUDGE MT/ Profession-alism	Failure to: *Follow HIPAA protocol *Arrive, prepare cubicle, and seat pt on time *Understand patient status/review record *Follow DH clinic attire guidelines *Manage time appropriately/efficiently *Determine and assess most recent/appropriate radiographs and have on viewbox or computer screen during assessments and treatment *Document records completely and accurately *Follow appropriate protocol for treatment and procedures *Administer correct type or dose of local anesthesia or nitrous oxide	Failure to: *Clarify appointment/scheduling and referring policies/procedures with pt *Seek consultations and advice appropriately *Provide consulting faculty or residents with appropriate information *Attend to patient's comfort *Use appropriate pain management *Demonstrate appropriate language and consideration for others
INFECT CONT/ DOCUMENT	Failure to: *Follow OSHA protocol for all procedures *Wear appropriate PPE *Properly prepare operatory unit *Follow appropriate exposure incident protocol *Use appropriate measures to prevent cross contamination, including records	

Major	Minor	Grade
0	0	5
0	1-3	4
1	0	3
0	4-5	3
1	1-5	2*
2	0	2*
0	6-7	2*
exceeds	exceeds	1**
exceeds	exceeds	0**

*Remediation may be recommended and required by clinical faculty.

**Remediation required

APPENDIX D

Motivational Interviewing Clinical Audio Recording Rating Form

Student Name:_____ Date:_____

How well/often did the Counselor…?	Comments/High Points	Poor/Never			Good/Often			Excellent/ Always	Not Applicable
1. Collaboratively sets session agenda		1	2	3	4	5	6	7	N/A
2. Uses open-ended questions		1	2	3	4	5	6	7	N/A
3. Uses reflections		1	2	3	4	5	6	7	N/A
4. Affirms the pts strenghts and efforts		1	2	3	4	5	6	7	N/A
5. Develops discripancy (i.e., explore values) using decisional balance and/or pro's con's reflections		1	2	3	4	5	6	7	N/A
6. Evokes and reinforces CHANGE TALK		1	2	3	4	5	6	7	N/A
7. Elicits change talk using the 'Importance Ruler'		1	2	3	4	5	6	7	N/A
8. Elicits change talk using the 'Confidence Ruler'		1	2	3	4	5	6	7	N/A
9. Rolls with resistance (sustain talk) vs. confronting patient		1	2	3	4	5	6	7	N/A
10. Avoids providing unsolicited advice and/or information using Elicit-Provide-Elicit (EPE) mechanism		1	2	3	4	5	6	7	N/A
11. Summarizes and checks for accuracy of conversation, including 'next steps'		1	2	3	4	5	6	7	N/A
12. Builds efficacy		1	2	3	4	5	6	7	N/A
13. Maintains spirit of MI through rapport, empathy, and respecting autonomy		1	2	3	4	5	6	7	N/A

Grading: Points for all 'applicable' criteria will be added, and an average obtained. A point average of 4 to 7 must be obtained to pass. Below 4 will require remediation.

APPENDIX E

Motivational Interviewing Questionnaire Faculty Pre-Test

Adapted from UMKC Division of Dental Hygiene (2009 version); U-M DH August 2014

Directions: For each question, select the rating that most closely describes the **current** importance you place on facilitating each with students during patient care and the confidence you have in your ability to facilitate each.

I feel it is <u>important</u> for me to support students in embracing the <u>spirit of MI</u> (collaboration, showing empathy, supporting autonomy, acceptance, and client-centeredness) during patient care.							**I feel <u>confident</u> in my abilities to support students in embracing the <u>spirit of MI</u> (collaboration, showing empathy, supporting autonomy, acceptance, and client-centeredness) during patient care.**					
Unable to Answer	Not Very Important	Of Little Importance	Neutral	Somewhat Important	Very Important		Unable to Answer	Not at all Confident	Little Confidence	Neutral	Somewhat Confident	Very Confident
0	1	2	3	4	5		0	1	2	3	4	5

Rate the <u>importance</u> of facilitating each of these MI strategies with students during patient care.							**Rate your <u>confidence</u> in facilitating each of these MI strategies with students during patient care.**					
Unable to Answer	Not Very Important	Of Little Importance	Neutral	Somewhat Important	Very Important		Unable to Answer	Not at all Confident	Little Confidence	Neutral	Somewhat Confident	Very Confident
0	1	2	3	4	5	**Use open ended questions**	0	1	2	3	4	5
0	1	2	3	4	5	**Listen reflectively**	0	1	2	3	4	5
0	1	2	3	4	5	**Make affirmations**	0	1	2	3	4	5
0	1	2	3	4	5	**Summarize**	0	1	2	3	4	5
0	1	2	3	4	5	**Elicit change talk**	0	1	2	3	4	5
0	1	2	3	4	5	**Use the importance ruler**	0	1	2	3	4	5
0	1	2	3	4	5	**Ask for elaboration ("What else?")**	0	1	2	3	4	5
0	1	2	3	4	5	**Enhance self-efficacy**	0	1	2	3	4	5

For each of the following statements check the box that most closely coincides with your perspective.

	Unable to Answer	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe MI will help students achieve behavior change with their patients.	0	1	2	3	4	5
I believe students have enough time in clinic to incorporate MI strategies with their patients.	0	1	2	3	4	5
With proper education and training, I believe students have the ability to use MI strategies with their patients.	0	1	2	3	4	5
I have the skills needed to facilitate students' use of MI strategies in clinic.	0	1	2	3	4	5
I can have a positive influence with my students and their use of MI strategies in clinic.	0	1	2	3	4	5

APPENDIX F

Motivational Interviewing Questionnaire Faculty Post-Test-1

Adapted from UMKC Division of Dental Hygiene (2009 version); U-M DH August 2014

Directions: For each question, select the rating that most closely describes the **current** importance you place on facilitating each with students during patient care and the confidence you have in your ability to facilitate each.

I feel it is important for me to support students in embracing the spirit of MI (collaboration, showing empathy, supporting autonomy, acceptance, and client-centeredness) during patient care.							**I feel confident in my abilities to support students in embracing the spirit of MI (collaboration, showing empathy, supporting autonomy, acceptance, and client-centeredness) during patient care.**					
Unable to Answer	Not Very Important	Of Little Importance	Neutral	Somewhat Important	Very Important		Unable to Answer	Not at all Confident	Little Confidence	Neutral	Somewhat Confident	Very Confident
0	1	2	3	4	5		0	1	2	3	4	5

Rate the importance of facilitating each of these MI strategies with students during patient care.							**Rate your confidence in facilitating each of these MI strategies with students during patient care.**					
Unable to Answer	Not Very Important	Of Little Importance	Neutral	Somewhat Important	Very Important		Unable to Answer	Not at all Confident	Little Confidence	Neutral	Somewhat Confident	Very Confident
0	1	2	3	4	5	**Use open ended questions**	0	1	2	3	4	5
0	1	2	3	4	5	**Listen reflectively**	0	1	2	3	4	5
0	1	2	3	4	5	**Make affirmations**	0	1	2	3	4	5
0	1	2	3	4	5	**Summarize**	0	1	2	3	4	5
0	1	2	3	4	5	**Elicit change talk**	0	1	2	3	4	5
0	1	2	3	4	5	**Use the importance ruler**	0	1	2	3	4	5
0	1	2	3	4	5	**Ask for elaboration ("What else?")**	0	1	2	3	4	5
0	1	2	3	4	5	**Enhance self-efficacy**	0	1	2	3	4	5

For each of the following statements check the box that most closely coincides with your perspective.

	Unable to Answer	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe MI will help students achieve behavior change with their patients.	0	1	2	3	4	5
I believe students have enough time in clinic to incorporate MI strategies with their patients.	0	1	2	3	4	5
With proper education and training, I believe students have the ability to use MI strategies with their patients.	0	1	2	3	4	5
I have the skills needed to facilitate students' use of MI strategies in clinic.	0	1	2	3	4	5
I can have a positive influence with my students and their use of MI strategies in clinic.	0	1	2	3	4	5

Please check the box that best describes your evaluation of the MI in-service speaker and the session.

	Unable to Answer	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The presenter covered the important topics related to MI.	0	1	2	3	4	5
The material was covered in sufficient detail for me to understand its application.	0	1	2	3	4	5
There were sufficient application activities to obtain relevant practice.	0	1	2	3	4	5
The presenter was responsive to questions.	0	1	2	3	4	5
I am interested in additional MI training sessions.	0	1	2	3	4	5

Additional comments about the MI in-service session:

APPENDIX G

Motivational Interviewing Questionnaire Faculty Post-Test 2

Adapted from UMKC Division of Dental Hygiene (2009 version); U-M DH January 2015

Directions: For each question, select the rating that most closely describes the **current** importance you place on facilitating each with students during patient care and the confidence you have in your ability to facilitate each.

I feel it is <u>important</u> for me to support students in embracing the <u>spirit of MI</u> (collaboration, showing empathy, supporting autonomy, acceptance, and client-centeredness) during patient care.							**I feel <u>confident</u> in my abilities to support students in embracing the <u>spirit of MI</u> (collaboration, showing empathy, supporting autonomy, acceptance, and client-centeredness) during patient care.**					
Unable to Answer	Not Very Important	Of Little Importance	Neutral	Somewhat Important	Very Important		Unable to Answer	Not at all Confident	Little Confidence	Neutral	Somewhat Confident	Very Confident
0	1	2	3	4	5		0	1	2	3	4	5

Rate the <u>importance</u> of facilitating each of these MI strategies with students during patient care.							**Rate your <u>confidence</u> in facilitating each of these MI strategies with students during patient care.**					
Unable to Answer	Not Very Important	Of Little Importance	Neutral	Somewhat Important	Very Important		Unable to Answer	Not at all Confident	Little Confidence	Neutral	Somewhat Confident	Very Confident
0	1	2	3	4	5	**Use open ended questions**	0	1	2	3	4	5
0	1	2	3	4	5	**Listen reflectively**	0	1	2	3	4	5
0	1	2	3	4	5	**Make affirmations**	0	1	2	3	4	5
0	1	2	3	4	5	**Summarize**	0	1	2	3	4	5
0	1	2	3	4	5	**Elicit change talk**	0	1	2	3	4	5
0	1	2	3	4	5	**Use the importance ruler**	0	1	2	3	4	5
0	1	2	3	4	5	**Ask for elaboration ("What else?")**	0	1	2	3	4	5
0	1	2	3	4	5	**Enhance self-efficacy**	0	1	2	3	4	5

For each of the following statements check the box that most closely coincides with your perceptions.

	Unable to Answer	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe MI will help students achieve behavior change with their patients.	0	1	2	3	4	5
I believe students have enough time in clinic to incorporate MI strategies with their patients.	0	1	2	3	4	5
With proper education and training, I believe students have the ability to use MI strategies with their patients.	0	1	2	3	4	5
I have the skills needed to facilitate students' use of MI strategies in clinic.	0	1	2	3	4	5
I can have a positive influence with my students and their use of MI strategies in clinic.	0	1	2	3	4	5
I was able to assess students' application of the "spirit of MI" in the clinic (i.e. DHPOC, Daily Grade criteria)	0	1	2	3	4	5
Explain why or why not you were able to assess the students' application of the "spirit of MI" in the clinic?						
I was able to provide <u>general feedback</u> supporting students' application of the "spirit of MI" with patients in clinic.	0	1	2	3	4	5
Explain why or why not?						

For each of the following statements rate the value of the following related to your facilitation of students use of MI:

	Unable to Answer	Not at all Valuable	Little Value	Neutral	Somewhat Valuable	Very Valuable
MI in-service session facilitated by Delwyn Catley (August 27, 2014).	0	1	2	3	4	5
DH 3 Seminar class session facilitated by Ken Resnicow (September 16, 2014).	0	1	2	3	4	5
MI discussions during monthly clinical faculty meeting conference calls.	0	1	2	3	4	5
Faculty team grading of MI student/patient recordings.	0	1	2	3	4	5

In how many sessions of faculty team grading of MI student/patient recording did you participate in between September 2014 and April 2015?

0 1 2 3 4 5 6

From your clinical teaching perspective, what aspect of the above MI activities and training were most helpful in enhancing your support of student delivery of the "spirit of MI" during patient care?

For the following statement check the box that most closely coincides with your perceptions.

	Unable to Answer	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Participation in MI in-service enhanced <u>my own ability</u> to model MI.	0	1	2	3	4	5
Explain why or why not?						
Assessing "spirit of MI" (i.e. DHPOC, Daily Grade criteria) in clinic enhanced <u>my own ability</u> to model MI.	0	1	2	3	4	5
Explain why or why not?						
Involvement in team grading of MI student/patient recordings enhanced my own ability to model MI.	0	1	2	3	4	5
Explain why or why not?						
I routinely modeled the "spirit of MI" with students and patients in the clinic.	0	1	2	3	4	5
Explain why or why not?						

Additional comments:

APPENDIX H

Motivational Interviewing Qualitative Faculty Questionnaire

Please return to Dina Korte or Lisa Dodge (ldodge@umich.edu) by Friday, Nov 20, 2015

1. The preliminary results from the Motivational Interviewing (MI) faculty surveys conducted in August 2014 and April 2015 indicated that faculty's level of confidence in supporting students' delivery of MI decreased over the academic year. **Please provide a suggestion on how to maintain (and possibly enhance) faculty members' confidence in this area of clinical teaching.**

2. The MI faculty surveys indicated that faculty members felt their positive influence with their students and the use of MI strategies in clinic decreased over the academic year. **Please provide a suggestion on how to maintain (and possibly enhance) faculty members' positive influence in this area of clinical teaching**.

3. The MI faculty surveys identified that the majority of faculty felt they routinely modeled the 'spirit of MI' during student interactions in clinic. However, the student surveys indicated they felt the faculty modeled the 'spirit of MI' only about half of the time. It appears that the students may not be recognizing that this is taking place. **Please provide a suggestion regarding how we can better assist students in recognizing faculty modeling of the 'spirit of MI.'**

4. The MI faculty surveys identified time constraints during clinic as a challenge with providing feedback to students about their application of the 'spirit of MI'. **Please provide suggestions on how this feedback might be better incorporated when reviewing the DHPOC form and/or providing the Daily Grade. Other recommendations are also welcome**.

5. Any additional ideas or comments?

APPENDIX I

Class of:_____

Motivational Interviewing Questionnaire
Class of 2015 End of Winter 2015 Semester (DH4 Year)
Adapted from UMKC Division of Dental Hygiene (2009 version)
U-M DH January 2015

Directions: For each Motivational Interviewing (MI) strategy, select the rating that most closely describes the importance you **CURRENTLY** place on each MI strategy and the confidence you have in applying each MI strategy in your delivery of health education.

- In the left column rate the "importance" of the strategy for you.
- In the right column rate your "confidence" with the strategy.

Rate the importance of each of these strategies.							Rate your confidence with each of these strategies.					
Unable to Answer	Not Very Important	Of Little Importance	Neutral	Somewhat Important	Very Important		Unable to Answer	Not at all Confident	Little Confidence	Neutral	Somewhat Confident	Very Confident
0	1	2	3	4	5	**Use open ended questions**	0	1	2	3	4	5
0	1	2	3	4	5	**Listen reflectively**	0	1	2	3	4	5
0	1	2	3	4	5	**Make affirmations**	0	1	2	3	4	5
0	1	2	3	4	5	**Summarize**	0	1	2	3	4	5
0	1	2	3	4	5	**Elicit change talk**	0	1	2	3	4	5
0	1	2	3	4	5	**Use the importance ruler**	0	1	2	3	4	5
0	1	2	3	4	5	**Ask for elaboration ("What else?")**	0	1	2	3	4	5
0	1	2	3	4	5	**Enhance self-efficacy**	0	1	2	3	4	5

Directions: For each of the following statements check the box that most closely coincides with your perception.

	Unable to Answer	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. MI is a valuable strategy that can be used during clinical care to assist patients in achieving behavior change.						
2. Using MI, I am able to help my patients achieve behavioral change that will assist in enhancing their oral health.						
3. I have enough time in clinic to incorporate MI strategies.						
4. I have the skills I need to use MI strategies in the clinic.						
5. The material covered in DH 338-Health Education Methods, was sufficient in detail for me to understand the application of MI.						
6. The material covered in DH312-Clinical Dental Hygiene Seminar built upon DH 338 to provide a deeper understanding of the application of MI						
7. The self-assessment of my recordings of MI interactions with patients in clinic during my DH3 year was valuable.						
8. Explain why (or why not) this was valuable.						
9. The faculty feedback on my recorded MI interactions with patients in clinic during my DH3 year was valuable.						
10. Explain why (or why not) this was valuable.						
11. The SPI tobacco cessation experience during my DH4 year was an effective way for me to demonstrate my MI skills.						
12. Explain why (or why not) this was valuable.						

13. How frequently do you use MI skills (i.e. readiness ruler, evocative questions, elicit-provide-elicit) with your patients in clinic? *[Circle one]*

Never **Seldom** **About half the time** **Most of the time** **All of the time**

14. How often do you exhibit the "spirit of MI" (collaboration, showing empathy, supporting autonomy, acceptance, and client-centeredness) throughout a patient care appointment? *[Circle one]*

Never **Seldom** **About half the time** **Most of the time** **All of the time**

15. Clinical faculty modeled the "spirit of MI" in their interactions with students and patients. *[Circle one]*

Never **Seldom** **About half the time** **Most of the time** **All of the time**

16. Faculty's application of the "spirit of MI" motivated me to do so as well. *[Circle one]*

Strongly Disagree **Disagree** **Neutral** **Agree** **Strongly Agree**

17. What could faculty do to improve upon their facilitation of your use of the "spirit of MI" that could have a positive impact on how you would use this in practice in the future?

18. What successes have you achieved using MI during patient care?

19. What challenges have you experienced using MI during patient care?

20. I am interested in additional MI training sessions. *[Circle one]*

YES **NO**

21. If yes, list what additional MI training topics or experiences might be helpful.

APPENDIX J

Collaborator Confirmation Letters

Michelle Arnett <arnetmic@umich.edu> Feb 14

to Janet

Dear Mrs. Kinney,
I am writing to formally request your expertise as a consultant for my thesis project. You have been diligently mentoring me through this process, providing feedback and editing my proposal. Your involvement in the development of evaluation instruments, distribution assistance and coordinating MI in-service training are huge elements for the success of my project. I would like to acknowledge your contributions to my project and name you as a collaborator. Thank you so much for considering my request and I look forward to your response.
Sincerely,
Michelle Arnett

--
Michelle Arnett RDH, BS
arnetmic@umich.edu

734-718-5107

Janet Kinney Feb 15

to me

My pleasure Michelle!

Michelle Arnett **<arnetmic@umich.edu>** Sep 20

to Susan, Anne

Dr. Taichman,

Thank you again for meeting with Anne and I to discuss the statistical analysis portion of my thesis project. Attached you will find all four evaluation instruments for this project and the faculty demographics (five attachments total).

In each document, I have made comments of how each question is coded in SPSS. Again, I will be more than happy to put all of the coded questions in a word document if that is easier for you. Please let me know if you have any questions.

Thank you,
Michelle Arnett

Susan Taichman **<hipolite@umich.edu>** Sep 21

to me

Hello Michelle,

It was great to see where you are headed with your thesis project. I have reviewed the coded surveys.

I am attaching a nice explanation of the Wilcoxon signed test in SPSS (how to run is highlighted in yellow). I have also attached a module on using repeated ANOVA which we will cover in the winter semester. Use these if you want to start looking at the data.
It is important for both Wilcoxon and Repeated ANOVA to have the data laid out in wide format. In the wide format, a subject's repeated responses will be in a single row, and each response is in a separate column.
In using repeated ANOVA the loss of any variables will affect the outcome. ANOVA throws out anyone with any missing data (even if it is demographic).

Also, do you have a baseline data for the DH4 class or just a post test?

LST

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