


RESEARCH ARTICLE

The use of motivational interviewing skills for patient counselling in an interprofessional education learning simulation

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Abstract

Objective: Healthcare training has increasingly focused on interprofessional education (IPE) to provide students opportunities to gain competencies and learn accountability. IPE was incorporated into the curriculum by creating a course for all health science. Motivational interviewing (MI) training was added to enhance the IPE process. The purpose of this study was to determine the effectiveness of MI training in patient counselling simulations.

Methods: A cohort of students enrolled in an IPE course were evaluated on MI skills before and after receiving training. MI performance was coded using the Motivational Interviewing Treatment Integrity (MITI) 4.2.1 scoring system. A student perception survey was also administered. **Results:** A total of 210 students were included in the study. Results from the MITI indicate an improvement in the four global ratings after MI training in individual and group cohorts. For example, for the Cultivating global score, 0% reached at least a fair benchmark in the pre-training groups while 90% (individual) and 50% (group) reached the benchmark post-training. Student perceptions of IPE improved following MI training with more students strongly agreeing that working together was better for patients post-training (66.2% vs 75.5%). **Conclusion:** The use of MI training in the setting of IPE setting appears to be beneficial. MI gives students a common language and approach to working with patients in an interprofessional setting.

Introduction

Interprofessional education and collaborative practice are major topics across healthcare education and interprofessional training programmes (Buring *et al.*, 2009; WHO, 2010; Interprofessional Education Collaborative, 2016). Collaborative practice is a type of work involving interprofessional individuals who come together regularly to solve problems, provide services, and enhance health outcomes (Wilson *et al.*, 2016). In order to improve patient outcomes and population health, healthcare training has increasingly focused on interprofessional education (IPE) as a means to provide students tangible, realistic, and meaningful opportunities to gain core

competencies and learn shared accountability for patients (Wilson *et al.*, 2016). The Interprofessional Education Collaborative (IPEC) has developed four key competencies to more formally define key goals of IPE (Interprofessional Education Collaborative, 2016). These include inter-professional teamwork and team-based practice, interprofessional communication practices, values and ethics for interprofessional practice, and roles and responsibilities for collaborative practice (Wilson *et al.*, 2016). Benefits of implementing IPE into pharmacy curriculum include an overall enhanced understanding of professional responsibility, therefore enhancing the quality

and continuity of care patients receive through collaboration. Student perceptions of IPE show improved understanding of both their own and other disciplines scope of practice, ability to work with others, and overall satisfaction (El-Awaisi *et al.*, 2018). The Accreditation Council for Pharmacy Education (ACPE) now requires IPE as a standard for accreditation. Pharmacy students are required to be able to effectively communicate in interprofessional teams, engage in shared therapeutic decision making and participate on a team to facilitate direct patient care (ACPE, 2015). Indeed, involvement in interprofessional collaboration is a major goal noted throughout the ACPE 2016 Standards (ACPE, 2015). In Standard 11 of the ACPE Standard, three specific key elements are described as essential components of pharmacy education, these are: interprofessional team dynamics, interprofessional team education and inter-professional team practice (ACPE, 2015). Strategies focused on developing these components of inter-professional education are therefore essential to providing high quality training for today's pharmacist.

Motivational interviewing (MI) is a skill set developed initially for helping patients overcome addiction and has since been used in a variety of settings, including healthcare (Berger, & Villaume, 2013; Christie, & Channon, 2014; Salvo, & Cannon-Breland, 2015; Eyler, Shvets, & Blakely, 2016). This approach is patient-focused and specifically uses communication skills in order to motivate and empower patients to improve behaviour (Berger, & Villaume, 2013). MI helps healthcare providers assess a patient's readiness to act on their health behaviour and then provides strategies for assisting the patient in overcoming ambivalence in order to make a positive life change (Berger, & Villaume, 2013; ACPE, 2015; Salvo, & Cannon-Breland, 2015; Interprofessional Education Collaborative, 2016; Wilson *et al.*, 2016; El-Awaisi *et al.*, 2018;). MI has been successfully used in addiction counseling, medication adherence, obesity, and other chronic health conditions (Berger, & Villaume, 2013; Christie, & Channon, 2014; Salvo, & Cannon-Breland, 2015; Eyler, Shvets, & Blakely, 2016).

In an effort to incorporate IPE into the curriculum, the study institution, a private university located in the southeastern United States, created a year-long Interprofessional Grand Rounds course for all health science programmes. The IPE course began in 2011 and includes senior nursing students, third-year student pharmacists, dietetic interns, exercise & nutrition science masters students, and undergraduate nutrition students. The health science programmes were equally represented with faculty champions during the design, implemen-

tation, and delivery of course content. The IPE course activities include didactic training, case-based group activities, and simulations. Limitations of inadequate faculty time, scheduling across multiple programmes, and other logistical challenges were minimised since all health science disciplines are united under a joint Dean (Matsumoto *et al.*, 2020).

In 2014, the IPE course coordinators decided to incorporate a MI training opportunity for all health sciences students enrolled in the course. Students were trained in the techniques of MI and assessed on their skills using a pre and post patient simulations. The goal was to enhance the IPE course experience, promote student teamwork, and provide an introduction to MI skills that can be utilised in interprofessional collaborative practice (Matsumoto *et al.*, 2020).

The purpose of this study was to determine the effectiveness of motivational interviewing training on healthcare student performance in a simulated patient counselling session for individual students and inter-professional student groups.

Methods

This pragmatic retrospective cohort study was approved by the University's Institutional Review Board (IRB). Following IRB approval, all students enrolled in the IPE course were given written informed consent documents and provided with a clear explanation of the study design and objectives. A total of 210 students, already enrolled in the IPE course, completed the voluntary informed consent for the study. Due to the large class size and limited faculty resources, only a portion of the students were randomly assessed; This was done using recorded simulated patient counselling sessions before the MI training began, and four months after completion of the MI training during the spring semester. Students not enrolled in both the autumn and spring terms of the IPE course were excluded from the assessment simulations but were included in the course evaluation of student IPE perceptions.

The course coordinators collaborated with an experienced Motivational Interviewing Network of Trainers (MINT) member to conduct the MI training and code the recorded the simulated patient sessions. MINT is an international organisation of trainers who have completed the required MI training coursework endorsed or sponsored by the organisation (MINT Board of Directors, 2015). Although MINT does not currently license or certify their member

Session 1	Session 2	Session 3	Session 4	Session 5
<ul style="list-style-type: none"> •What is MI? •Theoretical Background •MI Spirit •Righting Reflex 	<ul style="list-style-type: none"> •Open Questions •Affirmations •Reflections •Summaries 	<ul style="list-style-type: none"> •Defining Change Talk •Identifying Change Talk •Responding to Change Talk •Evoking Change Talk 	<ul style="list-style-type: none"> •Sustain Talk •Stages of Change •Managing Discord 	<ul style="list-style-type: none"> •Engaging •Focusing •Evoking •Planning

Figure 1: IPE MI Training Sessions & Topics

trainers, the educational programmes and membership ‘promote quality applications of motivational interviewing across cultures, languages, and contexts’ (MINT Board of Directors, 2015). IPE coordinators often employ MI trainers to ensure quality content and trained coders for the proper utilisation of the Motivational Interviewing Treatment Integrity (MITI) scale when coding recorded simulations (White, Gazewood, & Mounsey, 2007; Molander *et al.*, 2017; Matsumoto *et al.*, 2020).

Student MI training was completed during the five IPE sessions, at 1.5 hours each, scheduled over the autumn term (see Figure 1). The MINT member conducted all the IPE MI training sessions and guided student group activities. The MINT member also supplied MI student workbooks for note-taking and student reflections.

For their pre- and post- MI training simulations, 20 students were randomly assigned to function as individuals and the remainder were assigned to IPE teams of four to five students each (40 groups total). Using individual students and IPE teams for simulation experiences was a tool implemented to highlight the importance of good communication skills with patients and team collaboration in healthcare. From these preassigned individuals and teams, ten individual counselling sessions and ten group counselling sessions were randomly selected to be recorded pre- and post- MI training. The institution used current faculty to play the part of the simulated patient. All faculty patient actors received a two hour orientation training with the MINT member to promote a standardised simulation experience. Every simulated counselling session was recorded using university-issued iPad and uploaded to password-protected shared drive using numerical identifiers in order to de-identify the groups. Student and team MI performance was coded by the MINT trainer

using the Motivational Interviewing Treatment Integrity (MITI) 4.2.1 scoring system. Students not selected for a recorded assessment simulations conducted the same patient counselling sessions with fellow students by role playing.

The first simulation, before the MI training began, was used to establish student MI skills at baseline. This was important to ascertain since the skills and training among the IPE students was very diverse. The first simulation activity involved a paediatric patient whose parents were reluctant to immunise their child (see Figure 2). During the simulation, individual students and interprofessional groups were asked to counsel the patient’s parent on the need for immunisation.

Following the term-long MI training in the autumn, a second simulation activity was performed in the spring to assess the students, ten individuals and ten IPE teams, with a new patient scenario of a non-compliant Type II Diabetes Mellitus patient. The course coordinators determined that a new but similar patient scenario should be utilised for the post MI training assessment. The same procedures were used for conducting, recording and scoring the simulations with the MITI 4.2.1 coding system.

Positive changes in patient behaviours are the ultimate measure of success for MI interventions, but this approach is not always feasible in educational environments where students are not counselling live patients (Matsumoto *et al.*, 2020). IPE programmes often utilise standardised patient encounters or various role-playing techniques to develop MI skills in their student populations (Molander *et al.*, 2017; Matsumoto *et al.*, 2020). There are various tools to assess skills fidelity in MI training programmes with the Motivational Interviewing Treatment Integrity (MITI) tool being the most commonly used (Gill, Oster, & Lawn, 2020). The MITI scale is a validated instrument used to

Grand Rounds MITI Case: Immunizations (Parent)

PR is an 11 month old female who is brought to clinic today for a checkup by her parent. She has had no illnesses or complications thus far and has not had any allergies reported. She is her parent's second child and their first child is a 6 year-old who has recently been formally diagnosed with Autism.

While PR has received all of her vaccinations as scheduled according to CDC recommendations, her parent is now refusing the next scheduled vaccinations. Her next doses are a first dose of varicella, first dose of MMR (measles, mumps, and rubella), and first dose of Hepatitis A. Her parents have recently been researching Autism because of PR's brother being diagnosed and have come across articles, documentaries and news releases discussing the connection between vaccinations and autism as well as other potential complications associated with vaccinations. Because of this information, they are now wanting to withhold all vaccines from PR and are refusing the next series of vaccines. They are concerned about PR becoming autistic and don't think that measles, mumps, rubella, or hepatitis A are very common and risk is low. They also state that they both had chicken pox as children and 'turned out fine' so they don't think the varicella series is important.

You are tasked with discussing these concerns with PR's parent in an attempt to correct misinformation and give accurate information about the risks of children not getting vaccines.

Figure 2: Standardised patient case

assess MI skills in training programmes and research studies (Moyers *et al.*, 2005; Moyers *et al.*, 2016; Szczekala *et al.*, 2018; Gill, Oster, & Lawn, 2020).

MITI scoring of the student simulations was conducted according to the MITI coding manual version 4.2.1 by the experienced MINT member (Moyers *et al.*, 2005; Moyers *et al.*, 2016). The Motivational Interviewing Treatment Integrity (MITI) 4.2.1 coding system has two domains; a global rating component and a behavioural count component. The MITI coding system provides a review of the overall quality rating of the interaction (global score with four domains) and captures the number of specific behaviours displayed by the person(s) being assessed (behavioural count). The global rating incorporates both technical and relational skills that practitioners use in conversations with a patient. The technical rating specifically assesses to what extent a practitioner cultivates change talk and softens sustain talk to resolve patient ambivalence. The relational rating specifically assesses to what extent the practitioner demonstrates both partnership and empathy for the patient. The practitioner is rated on each global score for cultivating change talk, softening sustain talk, partnership and empathy (see Figure 3). The behaviour counts serves to capture the number of instances a particular behaviour is

displayed by the practitioner during the session. Behaviour counts are tallied into categories.

Global scores are coded on a scale of 1 to 5, where 1 is low and 5 is high, and are compared with 'fair' and 'good' benchmarks based on MITI coding standards. Fair benchmarks indicate a beginner's MI skillset while a good benchmarks indicates a demonstration of proficient MI skills. The authors study results for global scores are reported as a percentage of students, individual and student teams per simulation session, that met either benchmarks. Table I indicates the specific 'Fair' and 'Good' benchmarks for each of type of behaviour the practitioner demonstrated. In reference to behaviour counts as part of the MITI coding system, instances of persuasion and confronting are considered behaviours to be avoided while other behaviour counts are considered behaviours to be encouraged or to be used sparingly (Table I) (Christie, & Channon, 2014).

Cultivating Change Talk				
Low		High		
1	2	3	4	5
Clinician shows no explicit attention to, or preference for, the client's language in favor of changing	Clinician sporadically attends to client language in favor of change – frequently misses opportunities to encourage change talk	Clinician often attends to the client's language in favor of change, but misses some opportunities to encourage change talk	Clinician consistently attends to the client's language about change and makes efforts to encourage it	Clinician shows a marked and consistent effort to increase the depth, strength, or momentum of the client's language in favor of change

Figure 3: Example of MITI 4.2.1 Scoring System

Table I: MITI 4.2.1 Scoring System

Global Scores	Fair' Benchmarks (out of 5)	Good' Benchmarks (out of 5)
Cultivating	3	4
Softening	3	4
Partnership	4	5
Empathy	4	5
Behavior Counts		
Giving information	To be used sparingly	
Persuasion	To be avoided	
Persuade WITH Permission	To be encouraged	
Questions	To be used sparingly	
Simple Reflection	To be encouraged	
Complex Reflection	To be encouraged	
Affirmation	To be encouraged	
Seeking Collaboration	To be encouraged	
Emphasize Autonomy	To be encouraged	
Confronting	To be avoided	

To assess student experiences, students were invited to complete pre- and post- survey on their perceptions of the course, other professional students, and motivational interviewing. Some basic student demographic data was included in the course survey and students were asked to identify their field of study. Participation in the survey was not required by the course coordinators. Due to the size of the study, a statistical analysis was not planned and results are reported using descriptive statistics only.

Results

A total of 210 students were included in the course (Table II), mostly consisting of nursing, pharmacy and nutrition/dietetic students. Of the 210 students enrolled in the course, 20 students were assigned to individual groups each semester and the rest were assigned to groups of four to five students (40 groups total). From these individuals and groups, ten individual counselling sessions

and ten group counselling sessions were randomly selected to be scored on the MITI coding system before and after the semester-long MI training. No other demographic data were collected on all students beyond their individual disciplines however students who completed the voluntary surveys did submit age and ethnicity information.

Table II: IPE Health Sciences Student Discipline Summary

Student disciplines	IPE Course Enrolment
Nursing (BSN)	30.5% (n = 64)
Pharmacy (PharmD)	31.4% (n = 66)
Exercise Science (MS)	1.8% (n = 3)
Dietetic Intern	7.1% (n = 15)
Nutrition (BS)	29.5% (n = 62)
Total	210

Results from MITI coding indicate an improvement in both global ratings and behaviour counts after MI training was implemented. For the global ratings, both individuals and interprofessional student group scores improved with a larger proportion of subjects meeting at least the minimum benchmark of fair MI practice in all categories with the exception of empathy. Table III summarises the percentage of global scores reaching Fair or better benchmark for the individual and group interviews.

Additionally, the behaviour counts improved in both individual and interprofessional student group sessions. In general, behaviour counts of persuasion and confronting were lower or unchanged from pre- to post-training and encouraged behaviour counts were increased after MI training (see Figures 4a and 4b). When comparing the individual and group behaviour counts, the groups had more giving information counts than the individuals, however other behavioural counts were similar between the two cohorts.

Table III: Performance of Individuals and Groups Pre- and Post-Training on Global Scores System

Global Score Category	Individual Interviews		Group Interviews	
	Percentage meeting 'Fair' or higher benchmark		Percentage meeting 'Fair' or higher benchmark	
	Pre-Training	Post-Training	Pre-Training	Post-Training
Cultivating	0%	50%	0%	90%
Softening	40%	100%	60%	90%
Partnership	0%	10%	0%	40%
Empathy	0%	0%	0%	0%

Finally, results from the pre- and post-course student survey are presented in Table IV. There was an improvement in student perceptions of IPE and the importance of other health professions after completing the course. Additionally, there was a greater appreciation for the need to overcome assumptions and prejudices that health professions have for other disciplines after completing the MI training course. There were no differences seen in terms of student satisfaction with the course content prior to and after the implementation of the course.

Discussion

Motivational interviewing is a skill taught across multiple disciplines and can be used as topic for interprofessional education in professional programmes and clinical settings (Molander *et al.*, 2017; Nagelkerk *et al.*, 2018; Matsumoto *et al.*, 2020). In the clinical setting, Wilson and colleagues found the knowledge of each profession’s capacity and respecting the contributions of others on the team, influenced the quality of interprofessional collaborative practice (Wilson *et al.*, 2016). For healthcare students, MI training provides an opportunity to learn a skill set that can be used on clinical rotations and future inter-professional collaborate care settings. MI training in IPE has been shown to be a valuable topic to address the IPEC competencies in healthcare education. Through MI training, students gain knowledge about their role and the role of other professions on their team. This can increase how team members are valued and respected for the skills and knowledge they contribute to the team. MI also provides the opportunity to practice communication and teamwork skills in group activities and simulations (Matsumoto *et al.*, 2020). IPE students have also reported increased confidence in their ability to use MI in a patient care setting after receiving training (Matsumoto *et al.*, 2020; Larson, & Martin, 2021).

In this study, the implementation of MI training in the IPE course resulted in improvements in the motivational interviewing skills of the students. For the global ratings, there was a higher percentage of students reaching minimum benchmarks for MI practice in three of the four categories. Neither individual student nor the inter-professional student teams reached minimum benchmarks in empathy before or after MI training. It should be noted that the benchmark for the empathy category is more difficult to obtain and it is common for even experienced professionals with MI training to take years to develop this competency.

In terms of behaviour counts, there was a general trend in minimising avoidable behaviours and increasing desirable behaviours after MI training. Comparing individual students to interprofessional student teams counts, there were higher results of giving information, simple reflection, and affirmation counts in the student teams and a larger change from pre-training to post-training. This may be due to having more professionals represented on an interprofessional team discussing issues with a patient. An interprofessional team approach to patient counselling may provide a wide-range of information with the varied perspectives of each member being convey to the patient. It could also be due to the student teams learning how to function as a group to accomplish their goals, but future research would be needed to address these findings. Other behaviour counts and differences in pre-training and post-training were similar between individual students and student teams.

Strengths of this study include it being a pragmatic evaluation of IPE course experience in real time. This study was able to identify the value and immediate application of MI training on IPE patient counselling scenarios. While MI is typically performed by an individual practitioner, one of the unique aspects of this study was to observe a group of healthcare students collaborating during a patient simulation counselling session to develop their MI skills. Future research is needed to see how the application of MI training of interprofessional student teams achieves IPEC competencies.

There are various limitations in this study. This study was conducted at one institution, enrolled a limited variety of healthcare disciplines, and had a small study population (n = 210). Faculty resources only allowed a small number of students to be assessed using a pre and post MI training simulated patient encounters vs the entire class. Faculty were utilised as the simulated patients since standardised patients were not available. While case training was provided to the faculty by the MINT member, this could have resulted in differences in performance and variability

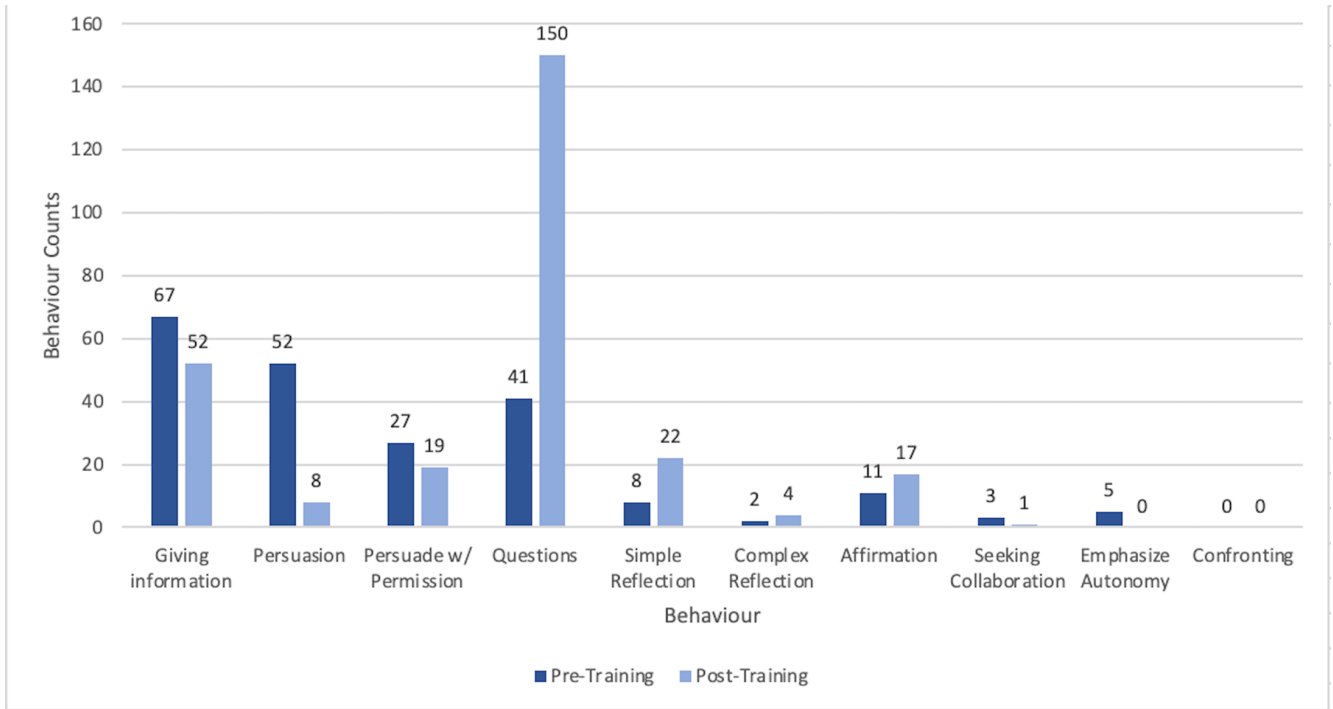


Figure 4a: Individual behaviour counts

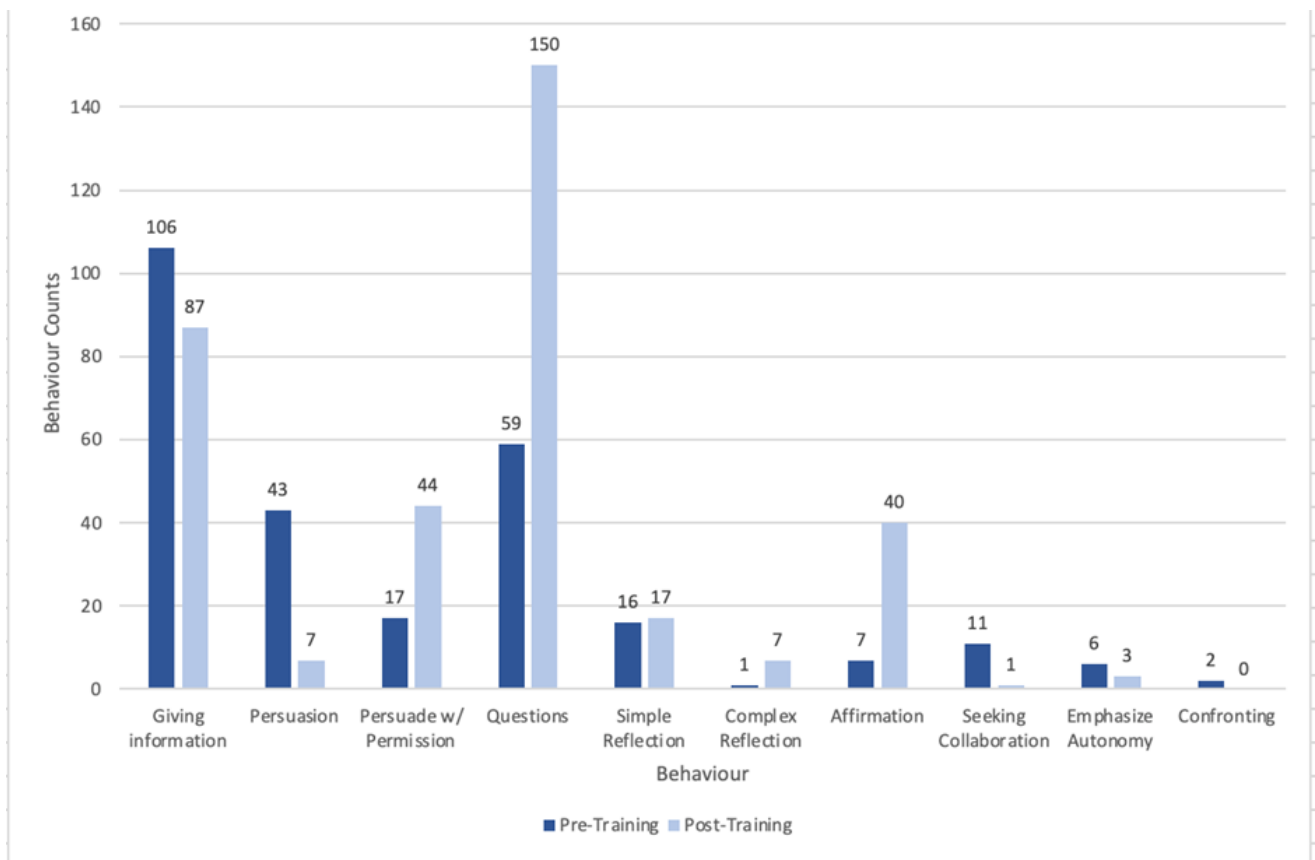


Figure 4b: Group behaviour counts

Table IV: Student course perceptions survey

Student survey result		
	Pre-Study (n = 154)	Post-Study (n = 49)
Female, % (n)	77.3% (119)	65.3% (32)
Discipline		
Dietetic Intern	7.8% (12)	6.1% (3)
Nursing Student	35.7% (55)	16.3% (8)
Nutrition Student	16.2% (25)	6.1% (3)
Pharmacy Student	40.3% (62)	71.4% (35)
Age Range		
19-22	46.1% (71)	20.4% (10)
23-32	46.8% (72)	69.4% (34)
33-42	7.1% (11)	10.2% (5)
Ethnicity		
Caucasian	78.6% (121)	77.6% (38)
African American	7.1% (11)	10.2% (5)
Other	14.3% (22)	12.2% (6)
Survey question responses pertinent to IPE		
Patients would ultimately benefit if health sciences students worked together to solve patient problems		
Strongly agree	66.2% (102)	75.5% (37)
Agree	32.5% (50)	24.5% (12)
Neutral	1.3% (2)	0% (0)
Shared learning with other health sciences students will increase my ability to understand clinical problems		
Strongly agree	53.9% (83)	61.2% (30)
Agree	42.2% (65)	36.7% (18)
Neutral	3.3% (5)	0% (0)
Disagree	0.7% (1)	2% (1)
Prejudices and assumptions about health professionals from other disciplines get in the way of delivery of health care		
Strongly agree	23.4% (36)	27.1% (13)
Agree	50% (77)	54.2% (26)
Neutral	15.6% (24)	12.5% (6)
Disagree	8.4% (13)	4.2% (2)
Strongly Disagree	2.6% (4)	2.1% (1)

in the individuals' and student teams' counselling sessions. The MITI 4.2.1 coding system was designed to assess individual MI performance and was applied to both individuals and interprofessional student teams in this study. Using MITI 4.2.1 to evaluate groups is fairly novel approach but the developers of the coding system approved of its use in this situation. The MINT member personally coded all student simulations but Ideally we would have the recorded sessions double coded to reduce bias. Due to the small sample size and pragmatic nature of the study, additional comparisons (group versus individual performance, etc.) was not feasible. Finally, the survey used in this course was optional and resulted in a decreased response post-training.

This study confirms the viability of motivational interviewing training in an IPE course and shows that MI training can be beneficial for individual students' and interprofessional student teams' performance in patient simulations. Motivational interviewing is a skill that must be practiced and refined over time (Miller, & Rollnick,

2009). Matsumoto and colleagues (2020) reported that IPE students, comprised of nine disciplines training in MI, reported better learning outcomes when provided with more opportunities to regularly practice their MI skills versus increasing the time in didactic sessions. In the authors study findings students were assessed after their MI training was complete (four months prior) and they did not have the opportunity to practice a comprehensive patient interview beyond their pre and post simulations. In addition, students did not receive formal feedback from faculty or an MITI review of their MI skills during the course to improve their methods. (White, Gazewood, & Mounsey, 2007; Miller, & Rollnick, 2009; Larson, & Martin, 2021). Additional MI practice sessions could improve student perceptions, confidence, and MI skills.

Conclusion

The use of motivational interviewing training in the setting of IPE appears to be beneficial and should be considered in training programmes for healthcare professionals. The use of MI training improved student perceptions on the importance of teamwork and served as an introduction to developing MI skills. MI training in IPE provides an opportunity to learn a skill set that can be used on clinical rotations and future interprofessional collaborate care settings. Further research on the use of MI in IPE is warranted, particularly in the area of how student MI training translates to clinical practice.

Conflict of interests

Each of the authors of this manuscript report being affiliated with the organisation where the research was conducted at the time it was conducted. No authors report any financial or other conflicts of interest.

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