

Implementing Motivational Interviewing Training for Physiotherapists Who Support Patients with Musculoskeletal Conditions: A Pilot Feasibility Study

NICHOLSON, Maddy <<http://orcid.org/0000-0001-7795-9605>>, HOMER, Catherine <<http://orcid.org/0000-0003-2571-6008>>, MCLEAN, Sionnadh <<http://orcid.org/0000-0002-9307-8565>> and BRECKON, Jeff <<http://orcid.org/0000-0003-4911-9814>>

Available from Sheffield Hallam University Research Archive (SHURA) at:
<https://shura.shu.ac.uk/38012/>

This document is the Published Version [VoR]

Citation:

NICHOLSON, Maddy, HOMER, Catherine, MCLEAN, Sionnadh and BRECKON, Jeff (2026). Implementing Motivational Interviewing Training for Physiotherapists Who Support Patients with Musculoskeletal Conditions: A Pilot Feasibility Study. Patient Preference and Adherence, Volume: 610005, 1-19. [Article]

Copyright and re-use policy

See <http://shura.shu.ac.uk/information.html>

Implementing Motivational Interviewing Training for Physiotherapists Who Support Patients with Musculoskeletal Conditions: A Pilot Feasibility Study

Maddy Nicholson¹ , Catherine Homer², Sionnadh McLean³, Jeff D Breckon⁴

¹Post Registration Studies Nursing and Allied Health, Wrexham University, Wrexham, Wales; ²School of Sport and Physical Activity, College of Health, Wellbeing and Lifesciences, Sheffield Hallam University, Sheffield, UK; ³Health Science, Charles Darwin University, Brinkin, Australia; ⁴School of Health and Life Sciences, Glasgow Caledonian University, Glasgow, Scotland

Correspondence: Catherine Homer, School of Sport and Physical Activity, College of Health, Wellbeing and Lifesciences, Sheffield Hallam University, Sheffield, UK, Email c.homer@shu.ac.uk

Purpose: Musculoskeletal (MSK) conditions are complex, affecting individuals across the UK. While physiotherapists (PTs) have increasingly adopted person-centred approaches, there remains a lack of clear implementation of behaviour change counselling in practice. Motivational Interviewing (MI), applied extensively in areas like substance misuse and education, has not been widely applied and researched in MSK physiotherapy. The purpose of this study was to develop and pilot an adapted MI training curriculum for PTs working with patients with MSK conditions (pwMSK), with a view to future refinement.

Patients and Methods: This small single cohort pilot feasibility study co-created a 3.5-day MI curriculum which was utilised to train PTs without former MI experience. Eligible PTs worked in an NHS health board and held a caseload of pwMSK. Pre and post MI training, the MI Treatment Integrity 4.2.1. Tool was used as an outcome measure, alongside the Client Evaluation of MI, and Treatment Self-Regulation Questionnaires and Perceived Competence Scale, to evaluate implementation and impact in MSK physiotherapy. Threshold for feasibility was ten PTs screened, nine PTs recruited, 100% attendance at training, $\leq 20\%$ drop out rate (DOR) for recorded consultation and 80% response rate (RR) to the post-training survey.

Results: Pre-MI training, PTs were not MI-proficient yet were eager to learn. Delivering quality MI training was feasible, with 16 PTs screened and a convenience sample of nine recruited across three months in two sites. There was 100% attendance at the 3.5-day training, and 11% DOR for each post-training recorded consultation timepoint. At the final timepoint, one PT demonstrated full MI MITI proficiency, three PTs demonstrated MITI proficiency in three out of four subcomponents, one PT demonstrated proficiency in two subcomponents, one PT demonstrated proficiency in one subcomponent and one PT achieved improvement in technical skills below proficiency threshold. There was 100% RR to the post-training survey with 100% PTs rating improved confidence in MI adherence.

Conclusion: A context-specific MI curriculum is feasible and improves PTs adherence to MI principles when working in the context of MSK care. This study had a small single cohort design, and a larger-scale cluster pre-post randomised controlled trial is recommended to establish the impact of MI training on patient health. Training should include reflective practice, focus on relational elements of MI and be tailored to clinical contexts. Long-term implementation strategies and patient involvement are essential for future research and practice.

Keywords: feasibility, pilot, training, patient-centered, communication

Introduction

Musculoskeletal (MSK) conditions are painful, limit mobility and dexterity and often result in a reduction of people's ability to work and participate in societal activities. MSK conditions have been linked to living with overweight and inactivity with increased prevalence of obesity in deprived areas accounting for 50% of extra risk for knee osteoarthritis.¹ Roughly a third of the UK population live with an MSK condition with 9.5 million reporting lower back pain, between 18.4 and 28 million people reporting chronic pain, and 10 million people with a probable diagnosis of osteoarthritis in any given year.¹

Contemporary MSK care therefore requires approaches that reach beyond symptom management to support patients in sustaining behaviour change (BC) relating to physical activity, exercise adherence, pain self-management, and broader lifestyle factors. With a large portion of patients with MSK condition/s (pwMSK) requiring a complex, multi-faceted approach to care, physiotherapists (PTs) are well placed to positively impact outcomes for pwMSK by meeting the physical, psychological, social, cultural, work, education and value-driven needs of the individual patient guiding and supporting good health and wellbeing and BC.^{2–5}

Despite the increased emphasis on person-centred, empathic, compassionate communication skills and BC in MSK care, there remains a persistent gap between recommended practice informed by MSK evidence-based guidelines and what is enacted in routine MSK physiotherapy, particularly in relation to the intention of facilitating pwMSK motivation and sustained engagement.^{6–13} BC is difficult, with numerous theories and techniques or approaches, some of which are utilised in MSK physiotherapy. One BC approach is Motivational Interviewing (MI), which has, to some extent, been found to facilitate BC in healthcare contexts for physical activity, diet^{14–16} pain^{17–19} and rehabilitation.^{20–26} MI uses a compassionate, empathic way of being with patients, that allows space for the multiple factors that may influence adherence within MSK care and moves towards change by empowering patients through affirming their strengths and eliciting verbal conversation about change and growth “change talk” (CT).^{27,28}

Nevertheless, some studies have substantial methodological limitations that limit the strength and generalisability of the findings, with inconsistent reporting of MI fidelity. The effectiveness of MI in practice, may be affected by the extent to which PTs receive training and acquire and sustain skill in MI with long-term fidelity to the approach.²⁰ The lack of enactment of MI practice in research is no different from enactment of other MSK and BC approaches, in which assessment of the fidelity to the approach is often overlooked.²⁹ Often MI practice is under described and becomes diluted, fidelity often not being assessed or if assessed, not showing fidelity to MI.³⁰ MI approaches specific to MSK physiotherapy have not been well researched and may be impacted by poor training quality and lack of fidelity by PTs in delivering MI.^{31–35}

Background

Supporting BC is a fundamental yet challenging aspect of musculoskeletal (MSK) physiotherapy. Patients are commonly required to adopt and sustain behaviours such as exercise, pacing, activity modification, and self-management, often in the context of persistent pain and complex psychosocial influences.^{36,37} A range of BC theories and approaches have been applied within MSK care, including the Capability, Opportunity, Motivation (COM-B) model, the Theory of Planned Behaviour, Social Cognitive Theory, and Self-Determination Theory.^{38,39} While these frameworks offer useful explanatory perspectives, their translation into consistent, practical communication strategies within routine physiotherapy consultations remains limited.^{7,8}

Empirical research suggests that physiotherapists value person-centred care and recognise the importance of therapeutic alliance.^{10,11} Nevertheless, observational and self-report studies indicate that physiotherapists frequently rely on a narrow range of BC techniques and often struggle to operationalise empathic, collaborative communication in practice.^{7,13} This highlights an implementation gap between theoretical intent and enacted clinical behaviour.

MI is defined as “a particular way of talking with people about change and growth to strengthen their own motivation to change.”²⁸ MI integrates relational elements—such as empathy, collaboration, compassion, and autonomy support—with technical communication skills including open questions, reflections, affirmations, and summaries.²⁸ Conceptually, MI aligns closely with Self-Determination Theory through its emphasis on autonomy, competence, and relatedness, while remaining a pragmatic, practice-based communication approach rather than a prescriptive, theory-driven intervention.^{40,41}

MI has demonstrated effectiveness in supporting behaviour change across healthcare contexts, including physical activity promotion, chronic disease self-management, and rehabilitation.^{20,21} Nevertheless, outcomes are strongly influenced by training quality and MI fidelity. Poorly specified training, limited skill development, and lack of fidelity assessment often result in diluted or non-MI-consistent practice.^{30,42}

Within MSK physiotherapy, MI research remains limited by generic training models, poor reporting of training processes, and infrequent use of validated fidelity measures. Notably, no published study has evaluated an MSK-physiotherapy specific MI training curriculum with formal fidelity assessment using the MI Treatment Integrity 9MITI) 4.2.1 tool.⁴² Establishing, feasibility, fidelity and acceptability of such training is therefore a necessary step before progressing to large-scale effectiveness trials.⁴³

Aims and Objectives

To date, no published study has evaluated a musculoskeletal physiotherapy-specific motivational interviewing training curriculum that includes fidelity assessment using the MITI 4.2.1. Therefore, the aims of this study were not to focus on effectiveness, but to develop and undertake preliminary pilot feasibility testing of the implementation of adapted MI training for physiotherapists working with pwMSK.³¹ A pilot feasibility study (PFS) design was taken, aiming to inform decisions on both whether and how to design future efficacy and effectiveness trials. Focusing pilot feasibility studies on a domain of feasibility, generates new knowledge to inform the design of a future trial.⁴⁴ Consequently, this work primarily focusses on the adaptation of an MI training curricula and secondarily on its feasibility in delivery (quality training), practice (fidelity) and its acceptability by both PTs and pwMSK.

The objectives were to evaluate MI-adherent physiotherapist practice in MSK physiotherapy using the MITI 4.2.1 tool and investigate the efficacy of MI training using the Client Evaluation of Motivational Interviewing (CEMI), Treatment Self-Regulation Questionnaire (TSRQ) and Perceived Competence Scale (PCS) pre and post MI training by pwMSK.

Materials and Methods

Study Design

Reporting of this study was guided by the CONSORT 2010 checklist of information and the TIDieR.^{29,43} Collaborator feedback contributed key areas for consideration in the study protocol development and elicited information that informed the MI training curriculum.^{45–50} (See [Tables 1–4](#) in the [Supplementary Materials](#)). This study was a single-cohort prospective sequential PFS, training PTs in MI to support pwMSK.

Sample Size Calculations

A pre-study sample size of $n=9$ was determined by the availability of MSK PTs accessible in relevant NHS departments across North Wales ($n=60$). In addition, the time and financial resources required to generate and transcribe the MITI 4.2.1 was a limiting factor. 16 PTs volunteered to participate in the current study, excluded volunteers ($n=5$) were provided with the details of the researcher to access training later, $n=2$ having left the health board. As this was a PFS, there was no need to calculate a sample size sufficient to demonstrate effectiveness. Generalisability of findings was less of a concern in this PFS, as the small sample size utilised did not lend itself to parametric statistical analysis; the focus was on feasibility, fidelity and the observation of overall trends in the data.⁴⁴

Sample Recruitment and Eligibility

PTs working with pwMSK were contacted via MSK physiotherapist team meetings and a snowballing recruitment approach using Email across departments (at the largest health organisation for the population of Wales) using convenience sampling.⁵¹ A participant information sheet, consent form and data management form aided PTs in their decision to volunteer. A convenience sample of pwMSK were recruited through accessing usual care by their physiotherapist and consented to the participate in the proposed study at each data collection time point. Patients differed pre and post MI training and were selected and approached by their PTs at random.

PTs were considered eligible if they had an on-going clinical caseload of pwMSK, worked in a local health board site in North Wales, were supported with time to record patient consultations and possibly attend for interview with the researcher (qualitative data reported separately) and consented to the study in which they would receive MI training, committing to implement the MI techniques into clinical practice. PTs were excluded if they were not currently working with or would not be working with an ongoing caseload of pwMSK on a regular basis, they were unable to commit to undertaking the MI training or had already had an introduction to MI training.

PTs volunteered to participate by reading the information sheet and data management form, seeking agreement of participation from their line manager, then returning their signed informed consent form and the patients informed consent form for a recording.

Patient participants were eligible for inclusion if they were pwMSK on a participating PTs caseload at the time of the study and consented to their usual consultation being recorded.

MI Training Curriculum and MI Trainer Fidelity

PTs received 3.5 days MI training (summary of key MI curriculum contents can be found in [Supplementary Material 8](#)) developed from the MINT training manual (<https://motivationalinterviewing.org/>) modified by the findings from collaborator group meetings and pre-MI training data ([Supplementary Materials Tables 1–4](#) and qualitative interview data reported separately). Three days of the training took place after time point one, and a half days training took place between time points two and three (see [Figure 1](#)). The TIDieR checklist was used to ensure clear reporting of MI training curriculum.^{29,51} The MI trainer in this study was a MINT member and physiotherapist, with a background working with

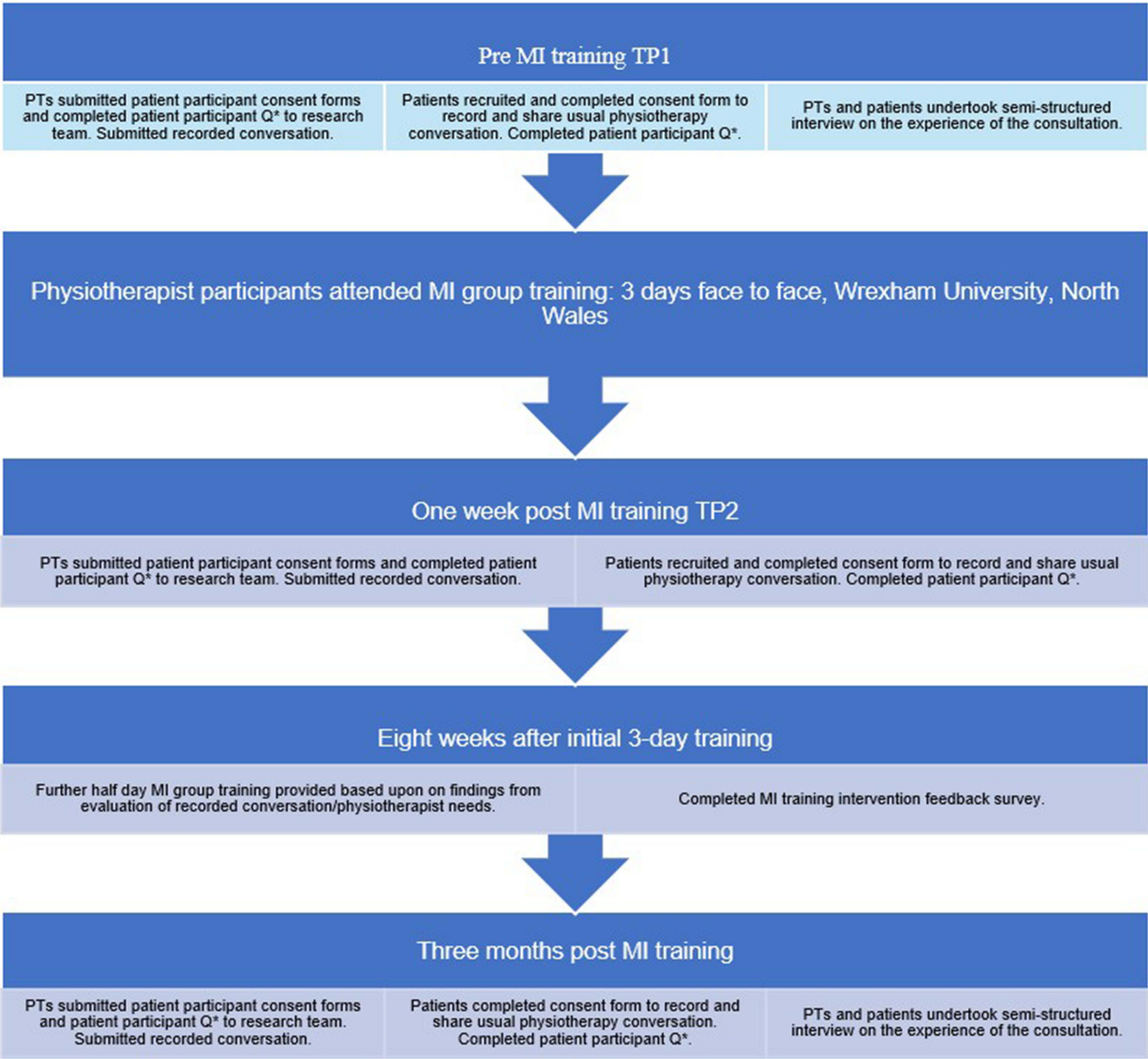


Figure 1 Procedures.
Abbreviations: Key: *Q, Questionnaires ie, demographics; CEMI, The Client Evaluation of Motivational Interviewing; TSRQ, The Treatment Self-Regulation Questionnaire; PCS, The Perceived Competence Scale; TP1, Timepoint One; TP2, Timepoint Two.

pwMSK. The post training survey based upon the MI Trainer Assessment (MITA)⁵¹ included feedback on MI trainer fidelity (see [Supplementary Materials Table 5](#)).

Data Collection

Physiotherapist and patient participant procedures including training, interviews (reported separately), questionnaires and consultation recordings are outlined in [Figure 1](#). Consent forms and information sheets were collated in either paper format or online via Qualtrics. Demographic data was collected from PTs, due to the small sample size, some information has been omitted to maintain participant confidentiality.

Outcome Measures

Physiotherapist fidelity to MI was measured by evaluating physiotherapist participant proficiency from a conversation from the submitted patient-therapist recording using the MITI 4.2.1 tool.⁴² Detail on the tool and process can be found in the [Supplementary Material](#) ([Supplementary Material 7](#)).

The Client Evaluation of Motivational Interviewing (CEMI) was provided to patient participants for self-administration and evaluates the quality of MI delivered to patient participants who rated the degree to which the physiotherapist exhibited specific MI related behaviours.^{52,53} Internal reliability of the CEMI is good to excellent 0.91 for the technical factor and 0.89 for the relationship factor and content and face validity was provided by MI experts with fidelity assessment experience. The Treatment Self-Regulation Questionnaire (TSRQ) enabled evaluation of the autonomy aspect of the self-determination theory (SDT) related elements of MI and conclude that analyses across four sites that utilized the TSRQ to measure self-regulation for behaviour change in smoking, diet and exercise (all of which can be linked to MSK care), have provided reasonable evidence for the validity and reliability of this measure and for its consistency across studies that consider a variety of health behaviours.

The choice of the Perceived Competence Scale (PCS) enabled evaluation of patient competence. The alpha reliability for the perceived competence items is approximately 0.90 and the PCS has been used in several health-related studies. In a study of diabetic patients, perceived competence was predicted by the degree to which the patients experienced the health-care climate in their Diabetes Treatment Centre to be autonomy supportive, and perceived competence at carrying out the treatment regimen in turn predicted patients' glucose control (ie, HbA1c). It is theoretically important to differentiate perceived autonomy (assessed with the TSRQ) from perceived competence (assessed with the PCS) ([Supplementary Material 6](#)).

The relatedness element was evaluated through the CEMI, and relational elements of the MITI 4.2.1.^{40,41,52,53} A post-training physiotherapist training feedback survey was created based on themes discussed in a study by Norris et al⁵⁴ and on MINT member contributions on the MINT online forum. This survey evaluated MI training fidelity and was also used to further refine a future MI training curriculum (available upon request). The timings of quantitative outcome measurements are outlined in [Table 1](#).

Data Analysis

Descriptive statistics were generated on demographic information for participants, MITI proficiency scores and on survey results. Mean MITI behaviour count frequencies were counted, along with Mean and Standard Deviation of MI Global Scores (Cultivating Change Talk, Softening Sustain Talk, Partnership and Empathy), Behavioural Frequencies, MITI total and summary scores, recommended basic proficiency values for MI proficiency (fair or good for proficiency), CEMI

Table 1 Outcome Measurements

Timescale	Outcome Measure
Pre-initial MI-training	CEMI, TSRQ, PCS
1 week post initial MI training	MITI 4.2.1, CEMI, TSRQ, PCS
After the half-day follow up MI training	Post training physiotherapist survey
3-4 months post initial MI training	MITI 4.2.1, CEMI, TSRQ, PCS

scores and TSRQ and PCS scores.^{20,28,36,52} Post training survey data indicated the MI trainer's fidelity to MI. Mean differences were generated for physiotherapist confidence scores pre and post training.

Results

Participant flow is outlined in Figure 2.

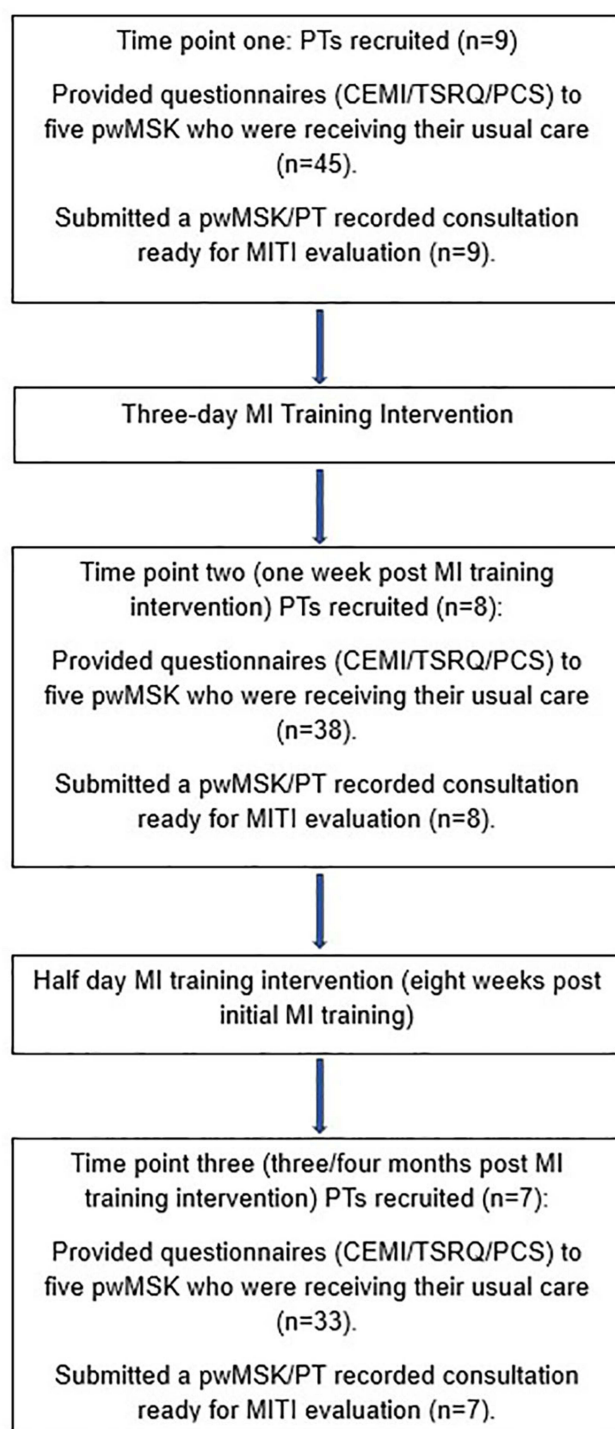


Figure 2 Participant Flow.

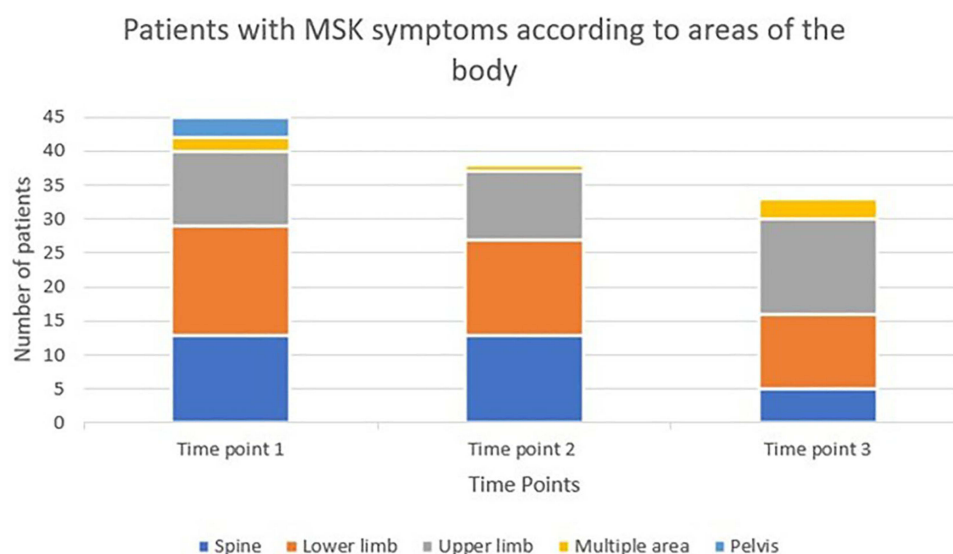


Figure 3 Patient demographics for those patients completing the CEMI, TSRQ and PCS with MSK symptoms according to areas of the body across time points one, two and three.

Physiotherapist and Patient Demographic Data

Seven physiotherapists were male and two were female. Six physiotherapists studied at MSc level, and more than 50% had worked in MSK care for over six years (range three months to 16 years). Three participants were recruited from North West Wales (NWW), six from North East Wales (NEW), and no participants were recruited from North Central Wales. One physiotherapist (R6) did not submit a recorded consultation for coding at TP3, and another (R7) at TP's 2 and 3. The quantitative patient demographics are presented in Figure 3. There were no mean differences in type of presenting MSK condition in patients across timepoints. Data presented in this section relates to the nine physiotherapists who submitted recordings that were scored using the MITI 4.2.1 at Time Point One (Table 2).

Measures of Feasibility, MI Fidelity and Acceptability

All criteria were met or could be met with minor adjustments for future trials, data relating to physiotherapist and patient feasibility criterion can be found in Table 3. MI fidelity, acceptability and implementation data was gained; this can be found in Table 4.

Table 2 Participant Demographic Data

Respondent (R1)	Qualification Held Post BSc Hons	Time Spent Working in MSK Care	Location/Setting Within LHB Available Upon Request
R1	MSc pre-registration	8 years	NWW ^a
R2	MSc	12 years	NWW ^a
R3	MSc	7 years	NEW ^b
R4	No further qualification held	3 months	NEW ^b
R5	No further qualification held	2 years	NEW ^b
R6	No further qualification held	16 years	NEW ^b
R7	MSc pre-registration	9 years	NEW ^b
R8	MSc	6 years	NWW ^a
R9	MSc	15 years	NEW ^b

Notes: ^aNorth West Wales ^bNorth East Wales

Table 3 Physiotherapist and Patient Feasibility Criterion Data

	Criterion	Achieved	Proceed	Proceed with Amendments
	Physiotherapists			
Eligibility	10, 3 per site	16 screened, 9 recruited across 2 sites	Yes	Strategies to identify more eligible participants, particularly in North Central Wales.
Recruitment	3 per month across 3 sites 1 month to reconfirm across 3 sites	5 in month 1. 2 in month 2 and 2 in month 3 across 2 sites. 9 reconfirmed over month 1 across 2 sites	Yes	Strategies to increase recruitment rate.
Adherence	100% attendance at MI training	100% (9) PTs attended the 3.5-day training	Yes	
	100% submission of recorded consultation at each TP	88% (8) PTs submitted a recording at TP2 over 1 week. 78% (7) PTs submitted at TP3 over 2 weeks	Yes	Strategies to increase eligibility and recruitment rates will ensure greater submissions. Continue with emails to physiotherapists as reminders.
	80% RR post MI training survey	100% response rate to the post-training survey	Yes	
Dropouts	≤20%	0% drop out at MI training phase. 11% drop out at TP2 recorded consultation (one PT). 11% drop out at TP3 recorded consultation (one PT)	Yes	Consider equality, diversity and inclusion
	Patients			
Recruitment	35 at each TP (45 gained at TP1 over 2 weeks)	38 at TP2 over 3 weeks. 33 at TP3 over 2 weeks. Most patients utilised paper consent forms (n=5 utilised online form over entire time)	Yes	Strategies to increase recruitment rate at TP3. Continue with emails to physiotherapists as reminders – consideration of the resource required if numbers were to increase. Consideration is required for the numbers and tracking of pwMSK, if the same pwMSK volunteered pre and post MI training in future study.
Adherence	100% submission of questionnaires (5 per PT)	100% recruited patients submitted questionnaires. Most patients utilised paper questionnaire submission (n=5 utilised online form)	Yes	If greater numbers of physiotherapists were recruited in a future trial, consideration is required for the resource to support manual in-person collection of data.

Table 4 Measures of MI Fidelity and Acceptability

	Criterion Degree to which the MI training was delivered as intended (Post training PT survey) 80% or greater physiotherapist MI fidelity score (MITI 4.2.1)
MI fidelity and acceptability	4 out of 7 PTs were 100% satisfied with all trainer elements. 2 out of 7 were 88% satisfied with all trainer elements and 1 out of 7 was 96% satisfied with all trainer elements. All PTs were between 71% and 91% percent satisfied with the extent to which the training aims were met. 100% of PT's rated improved confidence in their MI-adherence. (See section "Post training physiotherapist survey" for more detail). 87% of PTs (7 out of 8 PTs) demonstrated some MI MITI proficiency at TP2. 86% of PTs (6 out of 7 PTs) demonstrated some MI MITI proficiency at TP3 (See section "MITI proficiency scores" for further detail).

Physiotherapist Data

MITI Proficiency Scores

Physiotherapist MITI proficiency scores are presented in Table 5 and Table 6. At the final timepoint, timepoint three (TP3), one physiotherapist achieved full proficiency in all four areas of proficiency, three physiotherapists achieved proficiency in three out of four subcomponents, one physiotherapist achieved proficiency in two subcomponents, one physiotherapist achieved proficiency in one subcomponent and one physiotherapist did not achieve subcomponent proficiency, achieving an improvement in technical skills below the subcomponent proficiency threshold.

Proficiency thresholds are based on expert consensus and should be used in combination with other data to arrive at how well or poorly a physiotherapist is using MI.⁴² This additional data comes in the form of the following qualitative interviews of PTs (reported separately).

As Figure 4 shows, differences were found in mean MITI global scores. At TP3, global ratings remained at a moderate level (moderate level for global scores is deemed as 3 out of 5, with low being 1 out of 5 and high being 5 out of 5).

As Figure 5 shows, average relational global (RG) and Technical Global (TG) MITI scores changed across time-points. At TP2 “fair” relational proficiency was achieved but not at TP3. At TP3 “fair” TG proficiency was achieved (Fair’ proficiency for RG is achieved at 3.5 and for TG is achieved at 3).

As Figure 6 shows, out of the MITI behaviour counts, the reduction in questions asked improved, followed by the use of persuade with permission, and increase in percentage of complex reflective statements (%CR). At TP2 “fair” proficiency for %CR was achieved (40% is deemed ‘fair’) and at TP3 “good” proficiency was achieved (50% is deemed “good”). At TP1 no PTs demonstrated “fair” or “good” proficiency in the ratio of reflective statements to questions (fair’ proficiency is 1:1 and “good” proficiency is 2:1), at TP2 this increased to two PTs and then to four PTs at TP3 at “fair” proficiency.

Patient Data

Over the period of the study the author contacted three pwMSK to clarify their missing questionnaire data, subsequently the questionnaires were completed. The individual patients providing data at each time point differed. As Figure 7 shows, there were limited differences across time points for CEMI, TSRQAR, TSRQC, and PCS scores. Across the three time-points, physiotherapists submitted a greater number of questionnaire data from patients with chronic symptoms.

Table 5 Physiotherapist MITI 4.2.1 Proficiency Sub Scores Over Time

Respondent (R)	Relational Global Score (3.5 Required for Proficiency)			Technical Global Score (3 Required for proficiency)			% of Complex Reflections (40% Required for Proficiency)			R:Q		
	Pre-MI Training	1 Week Post Training	3-4 Months Post Training	Pre-MI Training	1 Week Post Training	3-4 Months Post Training	Pre-MI Training	1 Week Post Training	3-4 Months Post Training	Pre-MI Training	1 Week Post Training	3-4 Months Post Training
R1	1	3.5	4	1	3.5	4	0	66	100	0.2:1	1.5:1	1.2:1
R2	1	5	3.5	1	3	2.5	14	66	73	0.4:1	1.3:1	1.2:1
R3	2	2	2	1	1.5	2	20	25	72	0.2:1	0.3:1	1.1:1
R4	3	3.5	4	1.5	2	4	25	27	36	0.8:1	0.6:1	1:1
R5	2.5	4.5	4	1	4	4	37	50	77	0.3:1	0.9:1	0.5:1
R6	4	3	X	3.5	2	X	61	46	X	0.6:1	0.5:1	X
R7	2	X	X	1	X	X	20	X	X	0.1:1	X	X
R8	1	3	1.5	1.5	2.5	2	16	50	0	0.2:1	0.4:1	0
R9	1	3.5	3.5	1	2.5	3.5	0	20	33	0.2:1	0.4:1	0.5:1
Mean	2	3.5	3.2	1.3	2.6	3.1	25.1	44	56	0.3:1	0.7:1	0.9:1

Notes: Key: R:Q = Reflection to question ratio. 1:1 required for fair proficiency and 2:1 required for good proficiency. X = no submission/data.

Table 6 Physiotherapist MITI 4.2.1 Proficiency Scores

MI Proficiency as Scored by the MITI 4.2.1			
Respondent (R)	Pre-MI Training	1 Week Post Training	3-4 Months Post Training
R1	N	RG and TG F %CR N R:Q F	RG G and TG G %CR N R:Q F
R2	N	RG G TG N %CR G R:Q F	RG F TG N %CR G R:Q F
R3	N	RG and TG N %CR N R:Q N	RG N and TG N %CR N R:Q F
R4	N	RG F TG N %CR G R:Q N	RG G and TG G %CR G R:Q F
R5	N	RG and TG G %CR G R:Q N	RG G and TG G %CR G R:Q N
R6	F-G, N for R:Q	RG and TG N %CR F R:Q N	X
R7	N	X	X
R8	N	RG and TG N %CR G R:Q N	RG N and TG N %CR N R:Q N
R9	N	RG F TG N %CR N R:Q N	RG F and TG F %CR N R:Q N
Mean	N	RG F TG N %CR F R:Q N	RG N and TG F %CR G R:Q N

Notes: Key: N = not competent, F = fair G = good, TG = Technical global, RG = Relational global, R:Q = Reflection to question ratio: 1:1 required for fair proficiency and 2:1 required for good proficiency, %CR = percentage of complex reflections X = no submission/data.

Post Training Physiotherapist Survey

Upon completion of the training, seven PTs responded to the post training survey. The survey comprised both qualitative and quantitative elements (See [Supplementary Material 5](#) for qualitative results). [Figure 8](#) outlines the quantitative survey results on the MI fidelity of the MI trainer. [Figure 9](#) outlines the average physiotherapist ratings of whether the MI training aims were met.

Physiotherapist Confidence Scores

As [Figure 10](#) shows, there was an improvement in physiotherapists' confidence in the ability to recognise ambivalence in clinical practice. There was an improvement in physiotherapist confidence in the ability to use the spirit of MI in clinical practice and in physiotherapists' confidence in the ability to use core skills of MI in clinical practice.

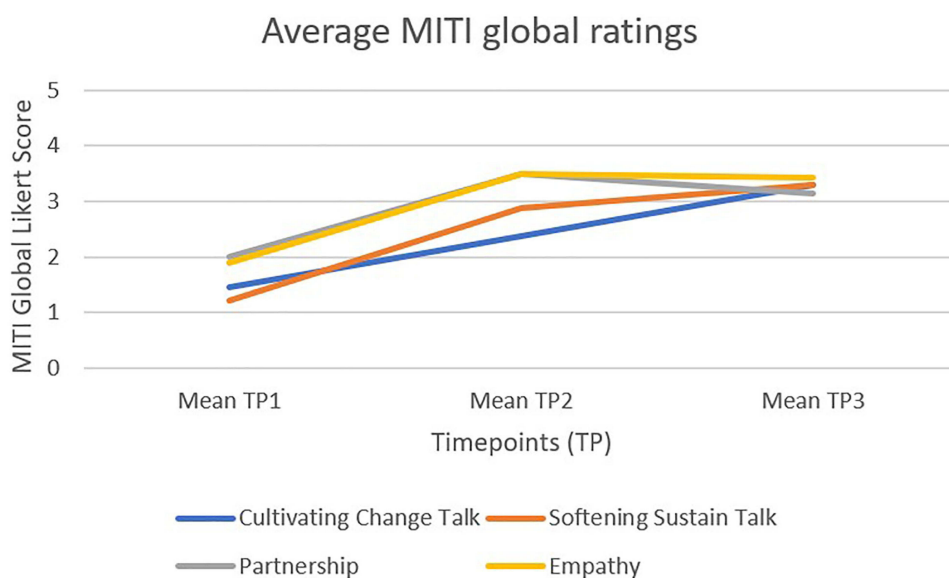


Figure 4 Average global MITI ratings over the study period.

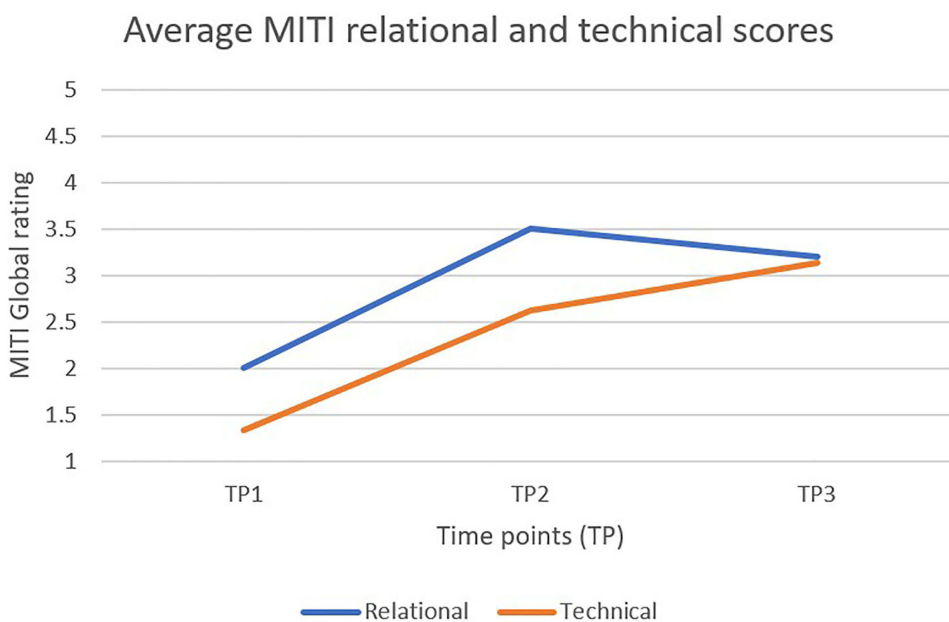


Figure 5 Average MITI RG and TG scores over the study period.

Discussion

The purpose of this study was to develop and undertake preliminary feasibility testing of an adapted MI curriculum for PTs working with pwMSK. There is a need for practical patient centered communication approaches in MSK physiotherapy that can support behaviour change and sustained engagement.^{6–13} This study contributes to addressing this need, by co-producing and piloting a context-specific MI curriculum, demonstrating that delivery, uptake and early implementation are feasible within real-world clinical settings.

Feasibility, Impact and Acceptability

All feasibility criteria were met or could be adapted to support progression to a larger scale study.

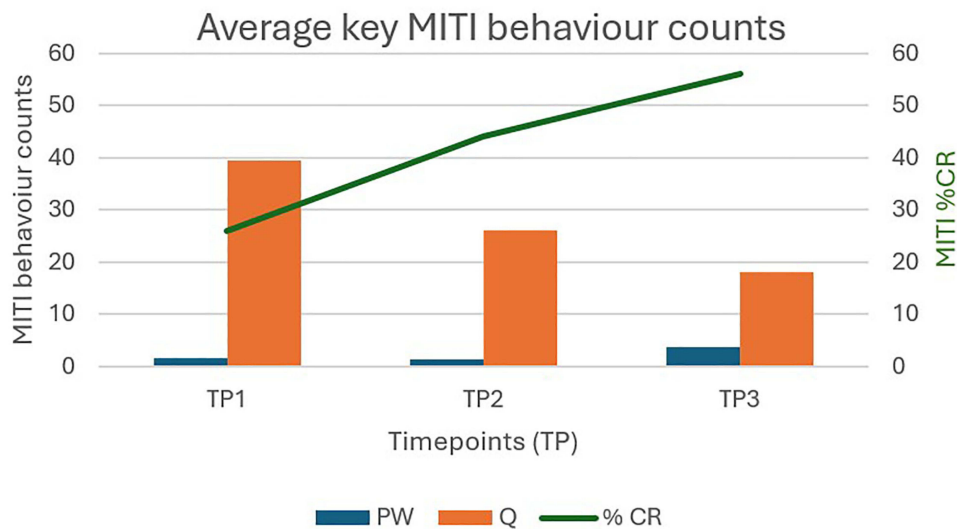


Figure 6 Average MITI behaviour counts over the study period.
Abbreviations: Key: PW, persuade with permission; Q, Question; % CR, percentage of complex reflections.

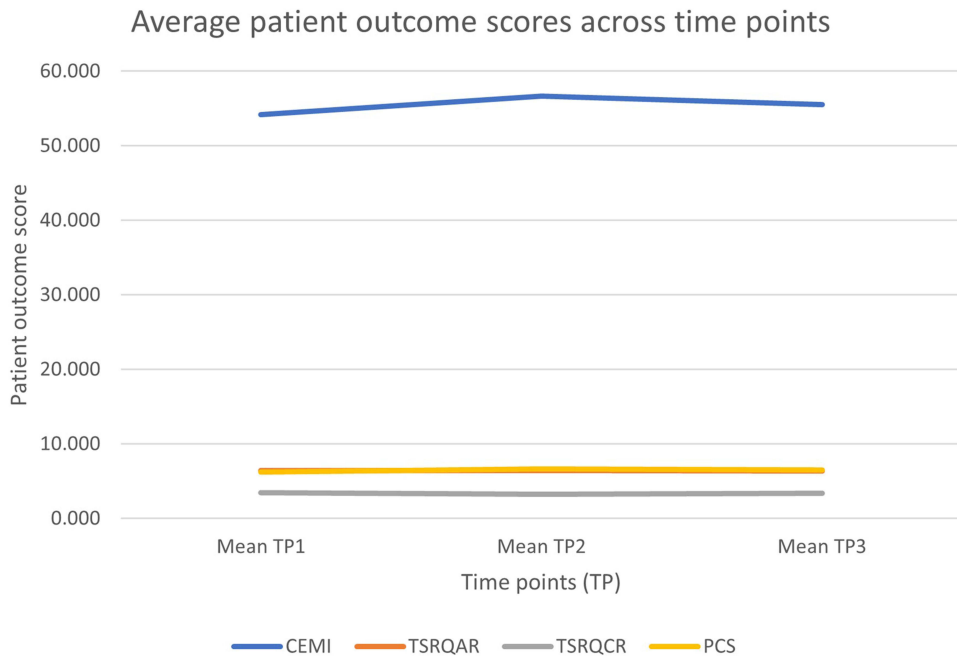


Figure 7 Average patient outcome scores across timepoints.
Abbreviations: CEMI, Client Evaluation of Motivational Interviewing; TSRQAR, Treatment Self-Regulation Questionnaire Autonomous Regulation; TSRQCR, Treatment Self-Regulation Questionnaire Controlled Regulation; PCS, Perceived Competence Scale.

The study demonstrated early implementation success with most PTs showing measurable improvements in MI-adherent behaviours and reporting increased confidence in applying MI in practice. Improvements were most evident in technical MI skills including increased use of complex reflections, reduced questioning, and improved ratios of reflections to questions. PTs demonstrated a more reflective, patient-centred consultation approach.^{28,42}

Although only one PT achieved full MITI 4.2.1 proficiency, five others achieved MI adherent practice across subcomponents, suggesting that behavior change can occur without full mastery. This echoes findings from other studies, that recommend post workshop coaching and feedback for sustained MI practice.^{20,55}

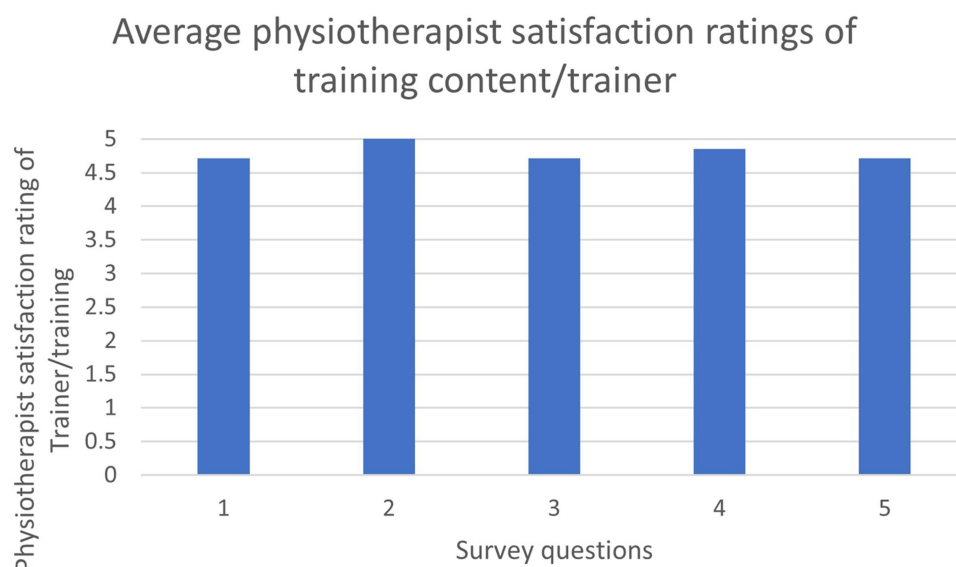


Figure 8 Average physiotherapist participant satisfaction ratings of training content/trainer fidelity post training. Key: 0= poor satisfaction 5 = excellent satisfaction. Survey questions: 1. Training content (usefulness, relevance, appropriateness, accurate up-to-date information, value, quality) 2. Trainers' responsiveness to questions and concerns, providing feedback where relevant 3. Trainers' skills (sharing information, instructing clearly, facilitating, using multimedia, time management, group interaction, setting agenda) 4. Trainer's style (gestures, movement, voice tone/volume, pacing, demonstrating, enthusiasm/humour, telling a story) 5. Modelling of MI (engagement, empathy, using the resources of the group, interactive, supportive/collaborative learning environment, rolls with discord, emphasising autonomy, acting as a guide).

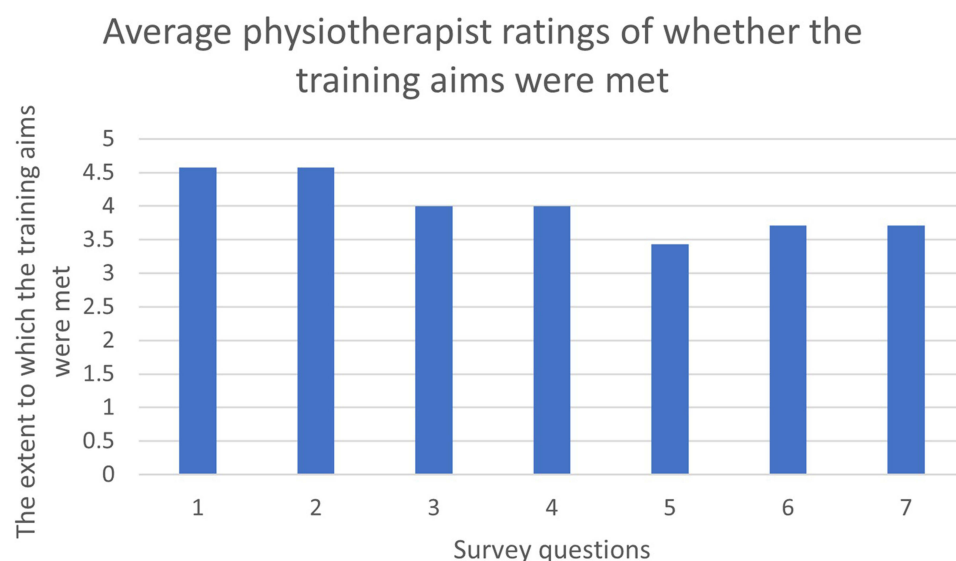


Figure 9 Average physiotherapist participant ratings of whether the training aims were met. Key: 0= training aims not at all met 5 = training aims completely met. 1. Discover MI method/style 2. Experience the application of the spirit of MI 3. Develop the technical skills of MI (OARS) 4. Explore the use of MI in clinical practice, how to continue to learn MI in clinical practice 5. Achieving proficiency (MITI) 6. Practising responding to patient discord/sustain talk 7. Learning fundamental language cues (CT/discord) that allow continued feedback and learning.

A key contribution of this work is the demonstration that training was not only feasible but acceptable and valued by PTs, with high satisfaction and perceived relevance to their pwMSK consultations. PTs described the training as supporting shift in mindset rather than simply adding techniques, emphasizing awareness of collaborative agenda setting and reflective practice.^{40,41}

These findings are aligned with broader MSK literature highlighting the importance of therapeutic alliance, empathy, and shared decision-making in improving patient experience and engagement.^{10–12}

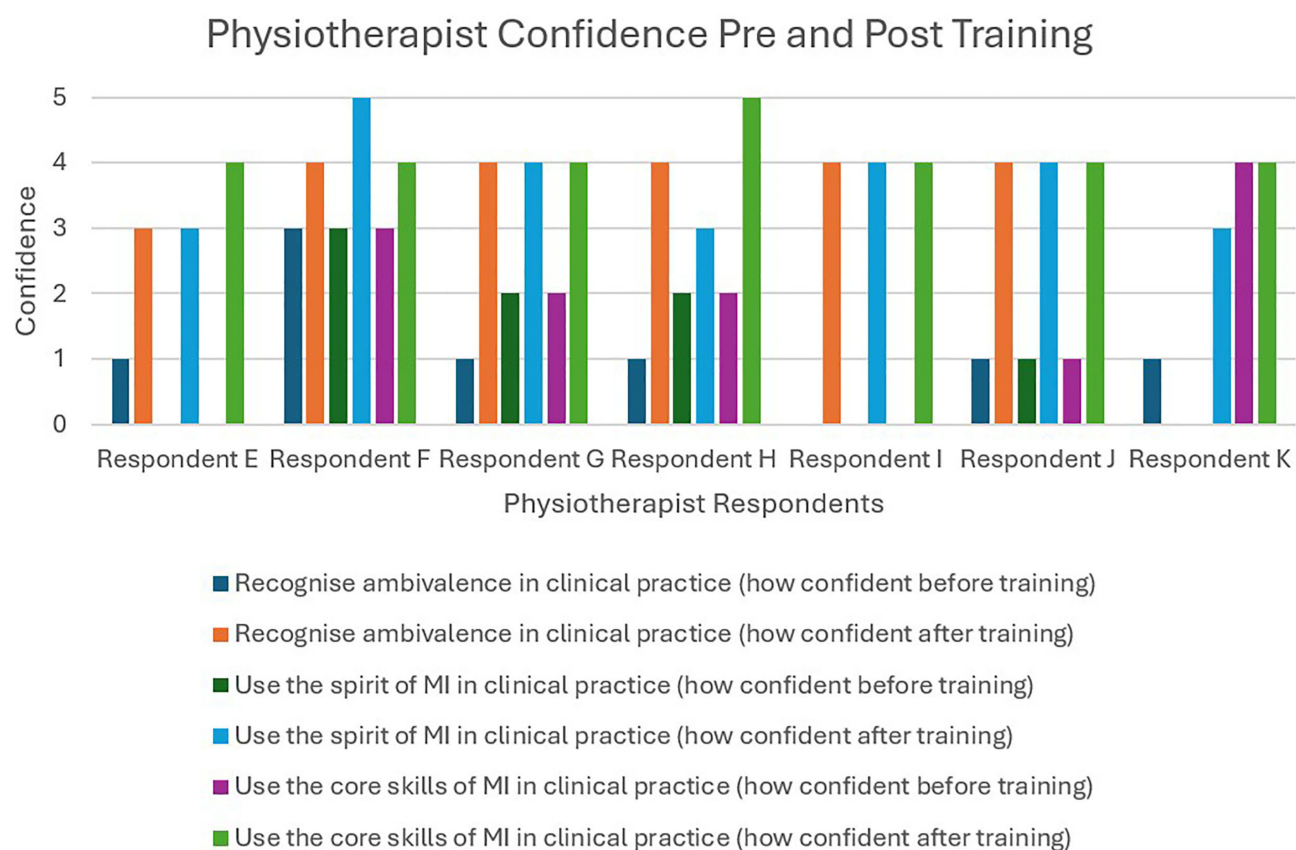


Figure 10 Physiotherapist confidence pre and post MI training.

Interpreting Patient Outcomes

In contrast to improvements in PTs MI-adherent behaviour and confidence, pwMSK self-evaluation of the receipt of MI and self-efficacy pre and post training (CEMI, TSRQ and PCS scores) remained unchanged across timepoints. Firstly, it was not feasible for pwMSK to flow through each of the three timepoints, reflecting the real-world clinical environment. Secondly, variability in PTs proficiency levels may have limited the consistency of MI delivery.

Importantly, findings from this study highlight that improvements in physiotherapist communication do not necessarily translate directly into short-term measurable patient outcomes, particularly in complex MSK populations. Patient change is influenced by multiple interacting factors including broader biopsychosocial contexts.^{2–5,36,37} As such, these results should not be interpreted as a lack of effect, but rather as reinforcing the need for appropriately powered trials with longitudinal follow-up.^{21,25}

Training, Fidelity and Implementation Considerations

While high-quality three-and-a-half day MI training was delivered, achieving sustained proficiency remains challenging. This study supports existing evidence that initial training alone is insufficient, and that ongoing supervision, coaching, and reflective practice are essential for maintaining fidelity.⁵⁵

PTs in this study demonstrated openness to learning and a willingness to engage in reflective practice, a key facilitator of implementation.²⁰ The co-produced nature of the curriculum, collaborator involvement, and tailoring to MSK contexts represent important strengths that may enhance real-world applicability.^{30,42}

However, several implementation challenges were identified. Time pressures, competing clinical demands, and ingrained practitioner habits may limit the consistent application of MI. Additionally, the complexity of integrating relational and technical MI components into routine consultations should not be underestimated. These findings highlight that MI should be viewed not as a discrete technique, but as an evolving clinical skillset requiring sustained support.²⁸



Figure 11 Key curriculum adaptations.

Limitations

Several methodological limitations should be considered. The small convenience sample limits generalisability, and selection bias may have occurred, as participating PTs were likely motivated to develop their communication practice. Patient samples differed across timepoints, limiting interpretation of outcome measures.

There are also potential sources of bias, including the Hawthorne effect from recorded consultations and the possibility of social desirability in PT responses. Additionally, MI fidelity coding was resource-intensive and not blinded, introducing the potential for observer bias.⁴²

While these limitations are inherent to pilot feasibility work, they are balanced by the study's strengths, including its mixed-methods design, use of validated fidelity measures, and grounding in real-world clinical practice.⁴³

Implications for Research and Practice

Taken together, these findings suggest that MI training for PTs in MSK care is feasible, acceptable, and capable of improving clinician behaviour, with promising implications for enhancing therapeutic engagement. However, effectiveness cannot be assumed, and future research should focus on larger cluster randomised controlled trials (RCT), longitudinal pwMSK outcomes, sustained MI-fidelity through supervision and feedback and matched patient-physiotherapist data.

Strategies to improve recruitment rate of patients submitting questionnaires at TP3 could be utilised. Increased frequency of requests and reminders with improved resources for practice engagement, including supervisors, managers and participant colleagues during the study timeline, might facilitate collective ownership. To ensure better spread of participants across sites, the recruitment period could be extended to focus on purposive sampling. From a practice perspective, MI training should prioritise relational elements, reflective practice and ongoing learning, contextual tailoring to MSK care and co-creation with physiotherapists and pwMSK.

Conclusion

Improvements in MI-adherent practice represent feasibility and implementation outcomes only; patient benefit remains untested and requires evaluation in a fully powered trial. Findings from this study indicate that it is feasible to proceed with a larger scale pre-post cluster RCT to evaluate the effectiveness of MI with pwMSK using the MI training curricula informed by the adaptations and feasibility adjustments and enhancements such as a co-ordinator at each site, blinded coders, continued MI supervision post training, comparative individual patient data pre and post MI training and prolonged follow-up beyond three months. A pwMSK and physiotherapist co-created adapted MI training curriculum can feasibly enable MI adherent practice in MSK physiotherapy and be utilized in a future RCT (curriculum available upon request, with key adaptations highlighted in [Figure 11](#) and [Supplementary Material 8](#)).

The findings from this study echo previous findings, that participants accessing quality MI training, can produce measurable improvements in MI-adherent behavior.^{20,54} Not only should the content of the adapted curricula be considered but the methods through which it was created. Caution should be exercised when considering the use of the MI training curricula, as rigid following of a training manual is not recommended, rather it should be utilised as a guide and reminder while exercising creativity, flexibility and co-creation of an environment with the participants. MI training should be viewed as a foundation for ongoing practice development rather than a complete intervention, requiring sustained investment in education, supervision and evaluation to achieve patient-level impact.

Ethical Approval

Before starting the study, ethical approval was obtained by both Sheffield Hallam University Research Ethics Committee (Project ID: ER37446816 /ER37354205) and the NHS Health Research Authority - Health and Care Research Wales via the IRAS system. The ethics committee allocated was Cambridge East Research Ethics Committee (Project ID: 308614/303658, REC reference 22/EE/0137). All procedures were conducted in accordance with institutional research policies and the principles of the Declaration of Helsinki. Participation was voluntary, and informed consent was obtained from all participants prior to data collection. Participants informed consent included publication of anonymized responses/direct quotes. The study involved no disclosure of participant identity and posed minimal risk to participants.

Acknowledgments

Ellen Marshall for support with statistics and the physiotherapist and patient participants in the local North Wales Health Board. This paper includes data collected and presented as part of a thesis which was uploaded to the Sheffield Hallam University repository as a thesis that can be found at <https://shura.shu.ac.uk/id/eprint/36526>.

Funding

The authors received no specific funding for this research.

Disclosure

Dr Maddy Nicholson reports supports from Sheffield Hallam University for supporting a PhD supervisory team, statistics and with article processing charges, Wrexham University for support with time for study and contribution to PhD study fees, Betsi Cadwaladr University Health Board in North Wales for supporting the study through staff release for training and access to staff/patients for generation of data., during the conduct of the study; various meeting/travel supports from her university for conference attendance. She also holds leadership or fiduciary roles for the Motivational Interviewing Network of Trainers (MINT) UK and Ireland Committee, outside the submitted work. The authors report no other conflicts of interest in this work.

References

1. Versus Arthritis. The state of musculoskeletal health. 2025. Available from: https://www.arthritis-uk.org/media/flpbvm2m/arthritisuk_state_of_msk_health_report_2025.pdf. Accessed March 25, 2025.
2. Chartered Society of Physiotherapy (CSP). Musculoskeletal physiotherapy service standards. 2022. Available from: <https://www.csp.org.uk/professional-clinical/improvement-innovation/musculoskeletal-service-standards/msk-physio-standards>. Accessed July 10, 2022.
3. Chartered Society of Physiotherapy (CSP). Thousands more physiotherapists needed in government's workforce plan. 2023. Available from: <https://www.csp.org.uk/news/2023-03-14-thousands-more-physiotherapists-needed-governments-workforce-plan>. Accessed December 11, 2023.
4. World Health Organization. Package of interventions for rehabilitation. module 2: musculoskeletal conditions. Geneva, Switzerland: World Health Organization; 2023. Available from: <https://iris.who.int/bitstream/handle/10665/370503/9789240071100-eng.pdf>. Accessed December 11, 2023.
5. Lewis JS, Stokes EK, Gojanovic B, et al. Reframing how we care for people with persistent non-traumatic musculoskeletal pain: suggestions for the rehabilitation community. *Physiotherapy*. 2021;112:143–149. doi:10.1016/j.physio.2021.04.002
6. Lin I, Wiles L, Waller R, et al. What does best practice care for musculoskeletal pain look like? Eleven consistent recommendations from high-quality clinical practice guidelines: systematic review. *Br J Sports Med*. 2020;54(2):79–86. doi:10.1136/bjsports-2018-099878
7. Chester R, Daniell H, Belderson P, et al. Behaviour change techniques to promote self-management and home exercise adherence for people attending physiotherapy with musculoskeletal conditions: a scoping review and mapping exercise. *Musculoskelet Sci Pract*. 2023;66:102776. doi:10.1016/j.msksp.2023.102776
8. Shore H, Hebron C. Musculoskeletal physiotherapists' perceptions of health promotion. *Musculoskelet Sci Pract*. 2020;50:102260. doi:10.1016/j.msksp.2020.102260
9. National Institute for Health and Care Excellence (NICE). Musculoskeletal conditions guidance. 2025. Available from: <https://www.nice.org.uk/guidance/conditions-and-diseases/musculoskeletal-conditions>. Accessed January 6, 2024.
10. Allen MV, Roberts LC. Perceived acquisition, development and delivery of empathy in musculoskeletal physiotherapy encounters. *J Commun Healthc*. 2017;10(4):304–312. doi:10.1080/17538068.2017.1366000
11. O'Keeffe M, Cullinane P, Hurley J, et al. What influences patient-therapist interactions in musculoskeletal physical therapy? Qualitative systematic review and meta-synthesis. *Phys Ther*. 2016;96(5):609–622. doi:10.2522/ptj.20150240
12. Room J, Boulton M, Dawes H, et al. Physiotherapists' perceptions of how patient adherence and non-adherence to recommended exercise for musculoskeletal conditions affects their practice: a qualitative study. *Physiotherapy*. 2021;113:107–115. doi:10.1016/j.physio.2021.06.001
13. Zadro J, O'Keeffe M, Maher C. Do physical therapists follow evidence-based guidelines when managing musculoskeletal conditions? Systematic review. *BMJ Open*. 2019;9(10):e032329. doi:10.1136/bmjopen-2019-032329
14. Bell EC, O'Halloran P, Wallis JA, et al. Using supported motivational interviewing (SUMIT) to increase physical activity for people with knee osteoarthritis: a pilot, feasibility randomized controlled trial. *BMJ Open*. 2023;13(11):e075014. doi:10.1136/bmjopen-2023-075014
15. Breckon J. Motivational interviewing, exercise, and nutrition counseling. In: Andersen MB, Hanrahan SJ, editors. *Doing Exercise Psychology*. Champaign, IL: Human Kinetics; 2015:75–100. doi:10.5040/9781492595427.ch-0006
16. Holden J, O'Halloran P, Davidson M, et al. Embedded motivational interviewing combined with a smartphone application to increase physical activity in people with sub-acute low back pain: a cluster randomized controlled trial. *Braz J Phys Ther*. 2024;28(4):101091. doi:10.1016/j.bjpt.2024.101091
17. Alperstein D, Sharpe L. The efficacy of motivational interviewing in adults with chronic pain: a meta-analysis and systematic review. *J Pain*. 2016;17(4):393–403. doi:10.1016/j.jpain.2015.10.021
18. Beinart NA, Goodchild CE, Weinman JA, Ayis S, Godfrey EL. Individual and intervention-related factors associated with adherence to home exercise in chronic low back pain: a systematic review. *Spine J*. 2013;13(12):1940–1950. doi:10.1016/j.spinee.2013.08.027
19. Hardt S, Griefahn A, Aasdahl L, Armijo-Olivo S. Effectiveness of motivational interviewing on pain-related outcomes in patients with musculoskeletal pain: a systematic review and meta-analysis. *Disabil Rehabil*. 2025;1–25. doi:10.1080/09638288.2025.2462773
20. Fortune J, Breckon JD, Norris M, Eva G, Frater T. Motivational interviewing training for physiotherapy and occupational therapy students: effect on confidence, knowledge and skills. *Patient Educ Couns*. 2019;102(4):694–700. doi:10.1016/j.pec.2018.11.014

21. Lundahl B, Moleni T, Burke BL, et al. Motivational interviewing in medical care settings: a systematic review and meta-analysis of randomized controlled trials. *Patient Educ Couns*. 2013;93(2):157–168. doi:10.1016/j.pec.2013.07.012
22. Morton K, Beauchamp M, Prothero A, et al. The effectiveness of motivational interviewing for health behaviour change in primary care settings: a systematic review. *Health Psychol Rev*. 2015;9(2):205–223. doi:10.1080/17437199.2014.882006
23. Scott SE, Breckon JD, Copeland RJ. An integrated motivational interviewing and cognitive-behavioural intervention promoting physical activity maintenance for adults with chronic health conditions: a feasibility study. *Chronic Illn*. 2019;15(4):276–292. doi:10.1177/1742395318769370
24. Wintle E, Taylor NF, Harding K, O'Halloran P, Peiris CL. Physical therapist-delivered motivational interviewing and health-related behaviour change: a systematic review and meta-analysis. *Braz J Phys Ther*. 2025;29(1):101168. doi:10.1016/j.bjpt.2024.101168
25. Frost H, Campbell P, Maxwell M, et al. Effectiveness of motivational interviewing on adult behaviour change in health and social care settings: a systematic review of reviews. *PLoS One*. 2018;13(10):e0204890. doi:10.1371/journal.pone.0204890
26. Martin ES, Dobson F, Hall M, Marshall C, Egerton T. The effects of behavioural counselling on determinants of health behaviour change in adults with chronic musculoskeletal conditions: a systematic review and meta-analysis. *Musculoskelet Care*. 2019;17(3):170–197. doi:10.1002/msc.1410
27. Moyers TB, Martin T. Therapist influence on client language during motivational interviewing sessions. *J Subst Abuse Treat*. 2006;30(3):245–251. doi:10.1016/j.jsat.2005.12.003
28. Miller WR, Rollnick S. *Helping People Change and Grow: Motivational Interviewing and Beyond*. 4th ed. New York, NY: Guilford Press; 2023.
29. Hoffmann TC, Glasziou PP, Boutron I, et al. Better reporting of interventions: tIDieR checklist and guide. *BMJ*. 2014;348:g1687. 10.1136/bmj.g1687.
30. Rimayanti MU, O'Halloran PD, Shields N, Morris R, Taylor NF. Comparing process evaluations of motivational interviewing interventions for managing health conditions and health promotion: a scoping review. *Patient Educ Couns*. 2022;105(5):1170–1180. doi:10.1016/j.pec.2021.08.032
31. Hinman RS, Campbell PK, Lawford BJ, et al. Does telephone-delivered exercise advice and support improve pain/function in knee osteoarthritis? Telecare RCT. *Br J Sports Med*. 2020;54(13):790–797. doi:10.1136/bjsports-2019-101183
32. Knittle K, De Gucht V, Hurkmans E, et al. Targeting motivation to increase physical activity among rheumatoid arthritis patients: randomized controlled trial. *Clin Rheumatol*. 2015;34(2):231–238. doi:10.1007/s10067-013-2425-x
33. O'Dwyer T, Monaghan A, Moran J, O'Shea F, Wilson F. Behaviour change intervention in ankylosing spondylitis: randomized trial. *J Physiother*. 2017;63(1):30–39. doi:10.1016/j.jphys.2016.11.009
34. Vong SK, Cheing GL, Chan F, So EM, Chan CC. Motivational enhancement therapy plus physiotherapy improves outcomes in low back pain: RCT. *Arch Phys Med Rehabil*. 2011;92(2):176–183. doi:10.1016/j.apmr.2010.10.016
35. Tse MMY, Vong SKS, Tang SK. Motivational interviewing + exercise for older persons with chronic pain: RCT. *J Clin Nurs*. 2013;22(13–14):1843–1856. doi:10.1111/j.1365-2702.2012.04317.x
36. Jack K, McLean SM, Moffett JK, Gardiner E. Barriers to treatment adherence in physiotherapy outpatient clinics: a systematic review. *Man Ther*. 2010;15(3):220–228. doi:10.1016/j.math.2009.12.004
37. McLean SM, Burton M, Bradley L, Littlewood C. Interventions for enhancing adherence with physiotherapy: a systematic review. *Man Ther*. 2010;15(6):514–521. doi:10.1016/j.math.2010.05.012
38. Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci*. 2011;6:42. doi:10.1186/1748-5908-6-42
39. McGrane N, Galvin R, Cusack T, Stokes E. Addition of motivational interventions to exercise and traditional physiotherapy: a review and meta-analysis. *Phys Ther*. 2015;95(8):1068–1082. doi:10.2522/ptj.20140256
40. Markland D, Ryan RM, Tobin VJ, Rollnick S. Motivational interviewing and self-determination theory. *J Soc Clin Psychol*. 2005;24(6):811–831. doi:10.1521/jscp.2005.24.6.811
41. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am Psychol*. 2000;55(1):68–78. doi:10.1037/0003-066X.55.1.68
42. Moyers TB, Rowell LN, Manuel JK, Ernst D, Houck JM. The motivational interviewing treatment integrity code (MITI 4): rationale, reliability, and validity. *J Subst Abuse Treat*. 2016;65:36–42. doi:10.1016/j.jsat.2016.01.001
43. Eldridge SM, Chan CL, Campbell MJ, et al. CONSORT extension for pilot and feasibility trials. *Pilot Feasibility Stud*. 2016;2:64. doi:10.1186/s40814-016-0105-8
44. Pearson N, Naylor P, Ashe MC, et al. Guidance for conducting feasibility and pilot studies for implementation trials. *Pilot Feasibility Stud*. 2020;6(1). doi:10.1186/s40814-020-00634-w
45. Chalmers I, Bracken MB, Djulbegovic B, et al. Increasing value and reducing waste in research priority setting. *Lancet*. 2014;383(9912):156–165. doi:10.1016/S0140-6736(13)62229-1
46. Chalmers I, Glasziou P. Avoidable waste in research production/reporting. *Lancet*. 2009;374(9683):86–89. doi:10.1016/S0140-6736(09)60329-9
47. National Institute for Health and Care Research (NIHR). Patient and public involvement. 2017. Available from: <https://www.rds-sc.nihr.ac.uk/ppi-information-resources/>. Accessed July 17, 2024.
48. National Institute for Health and Care Research (NIHR). Briefing notes for researchers: public involvement. 2021. Available from: <https://www.nihr.ac.uk/documents/briefing-notes-for-researchers-public-involvement-in-nhs-health-and-social-care-research/27371>. Accessed July 17, 2024.
49. Richards T, Snow R, Schroter S. Co-creating health: more than a dream. *BMJ*. 2016;354:i4550. doi:10.1136/bmj.i4550
50. Social Care Wales. Outside In – Wrexham Glyndŵr University. 2024. Available from: <https://socialcare.wales/resources/outside-in-wrexham-glynd%C5%B5r-university>. Accessed July 17, 2024.
51. Hicks CM. *Research Methods for Clinical Therapists: Applied Project Design and Analysis*. 5th ed. London, UK: Churchill Livingstone/Elsevier; 2009.
52. Madson MB, Mohn RS, Schumacher JA, Landry AS. Measuring client experiences of motivational interviewing during a lifestyle intervention. *Meas Eval Couns Dev*. 2015;48(2):140–151. doi:10.1177/0748175614544687
53. Madson MB, Villarosa MC, Schumacher JA, Mohn RS. Validity of the client evaluation of motivational interviewing scale in brief intervention for college drinkers. *J Subst Abuse Treat*. 2016;65:51–57. doi:10.1016/j.jsat.2016.02.001
54. Norris M, Eva G, Fortune J, Frater T, Breckon JD. Educating undergraduate occupational therapy and physiotherapy students in motivational interviewing: the student perspective. *BMC Med Educ*. 2019;19(1). doi:10.1186/s12909-019-1560-8
55. Schwalbe CS, Oh HY, Zweben A. Sustaining motivational interviewing: a meta-analysis of training studies. *Addiction*. 2014;109(8):1287–1294. doi:10.1111/add.12558

Patient Preference and Adherence**Dovepress**
Taylor & Francis Group**Publish your work in this journal**

Patient Preference and Adherence is an international, peer-reviewed, open access journal that focusing on the growing importance of patient preference and adherence throughout the therapeutic continuum. Patient satisfaction, acceptability, quality of life, compliance, persistence and their role in developing new therapeutic modalities and compounds to optimize clinical outcomes for existing disease states are major areas of interest for the journal. This journal has been accepted for indexing on PubMed Central. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/patient-preference-and-adherence-journal>