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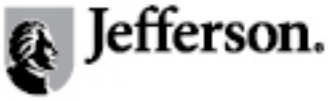

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A Systematic Review of the Efficacy of Motivational Interviewing on Occupational Performance

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A Systematic Review of the Efficacy of Motivational Interviewing on Occupational Performance

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INTRODUCTION

Motivational interviewing (MI) is a specific technique used with a client that builds on counseling and therapeutic approaches by eliciting free choice and guidance through a process of self-actualization.[1] The practice of MI focuses on the client as the locus of control in terms of change, and being cognizant that effective change happens implicitly through the client's choice rather than through explicit factors.[1] MI elicits strategies that are focused on supporting the client in a persuasive way.[1] There are clear strategies, a strong purpose of the client's goals, and a sense of timing to engage and intervene in specific ways at incisive moments.[1] The clinician targets five general principles when practicing MI, which include: active and reflective listening through which empathy can be expressed, distinguishing discrepancy between the client's current behavior and their goals, providing direct confrontation and avoiding argument, adjusting to client resistance, and supporting optimism and self-efficacy.[1]

Existing studies have found MI to be effective for a particular target population of individuals who engage in substance-use behaviors.[1] Specifically, current studies have demonstrated MI to be effective as an independent treatment, compared to usual treatment, in reducing comorbid substance use for adults in psychiatric in-patient units as well as for adolescents with comorbid psychiatric conditions.[2,3] MI has also shown efficacy in group-based treatment to reduce substance abuse and sexual risk behavior among homeless young adults.[4] Additionally, MI has been used in conjunction with other counseling methods to demonstrate efficacy for smoking cessation among varying populations and age-ranges.[5,6]

In addition to these studies demonstrating effective uses of MI, there is a growing body of research that uses MI for other outcomes related to occupational performance that has

Terminology

Occupational performance: reflects the individual's dynamic experience of engaging in daily occupations within the environment.[8]

Smoking Cessation: validated sustained abstinence from cigarettes and/or other tobacco products.[6]

Quality of Evidence: (QoE) Methodological rigor in which a study was conducted. In terms of evidence, higher quality is more likely to contain generalizable and trustworthy information. (e.g. how biases were avoided, were blind assessors utilized)[9]

Level of evidence: (LoE) Based on study design. Indication of the possible validity in a study. (e.g. RCT study design includes

not yet been included in a systematic review.[11,12] This systematic review aims to review the efficacy of MI to address such performance goals falling within the occupational therapy scope of practice.[8]

METHODS

A priori protocol was developed prior to conducting this systematic review to increase its validity. The protocol is a step-by-step outline which includes the PICO question, search strategies for each electronic database, inclusion/exclusion criteria, and search methodology (Appendix 1). The protocol was developed by five collaborating reviewers and followed closely to identify, appraise, and synthesize all relevant published studies.

Identification of Relevant Studies:

A systematic search of all relevant studies was conducted in February and March 2019 using the following databases: PubMed, Health and Medical Collection, CINAHL, PsychINFO, and TRIP. All databases were searched manually. Search restriction included quantitative group studies published in English in peer-reviewed journals. Table 3 of the protocol provides the search terms (i.e. combination of keywords and subject headings) used to conduct the search within each electronic database (Appendix 1).

To be included in this systematic review, studies retrieved during the search had to meet the following criteria: (1) The intervention within the study was MI; and (2) Outcomes for the study were occupation based. In order to ensure the second criteria was met, outcomes of included articles were listed and evaluated. Further exclusion was applied for studies that did not evaluate outcomes that fell within the scope of occupational therapy. All outcomes included in this systematic review were categorized into seven outcomes. Table 5 of the protocol provides a complete list of inclusion and exclusion criteria (Appendix 1). Table 6 includes a full list of included outcomes and their categorization for this systematic review (Appendix 1).

Two independent reviewers searched each database and applied the inclusion/exclusion criteria to each study retrieved during the search. Inclusion criteria was first applied to the title and abstract of each study. If inclusion criteria of an article was uncertain, reviewers applied the inclusion criteria to the full text of the article. The flowchart summarizes the results of the search and application of the inclusion and exclusion criteria (Figure 1). Each independent reviewer created a list of included articles per database, these were compared, and discrepancies were resolved through a consensus process with a third reviewer as needed. A final list of included articles across databases was created after all authors came to consensus.

Appraisal of Included Studies:

As shown in the flowchart, fourteen articles remained after inclusion/exclusion criteria were applied and authors came to a consensus (Figure 1). Adhering to the protocol, two independent reviewers appraised each article with regard to quality

evidence, using predetermined criteria relevant for the study level of evidence (Table 7). Two reviewers then compared their independent ratings of the quality of evidence for each study. Discrepancies were resolved and a consensus was made without the use of a third author. The quality of evidence table (Table 7) compiles the quality of methodology ratings for each included study.

The two reviewers worked independently to summarize the objective information in each study to create a description table, and again came to a consensus (Table 8). The consensus table of the study description includes information regarding the data's population, statistical & clinical significance, intervention, relevant outcomes, and results (Table 8). If there was no measure of clinical significance provided, the minimally detectable difference (MDD) was calculated.

RESULTS

Study Identification:

A total of 1,135 articles were retrieved from conducting the search across databases. Of these, 14 articles were included in this systematic review after the predetermined inclusion criteria was applied. The 14 included articles addressed a range of 20 different occupational performance outcomes, which were then grouped into seven outcomes based on similarity. These 14 studies included 13 randomized controlled trials (RCTs), which is data collected on an experimental group and control group to which participants have been randomly assigned. One quasi-experimental design was included, which is data collected on an experimental group and control group to which participants were not randomly assigned.

The level of evidence of the studies included in this systematic review ranged from level II to level I with 12 of the studies classified as level I evidence and two studies classified as level II evidence. The quality of the included studies ranged from moderate to high quality. Nine of these studies were classified as high quality, while five studies were found to be of moderate quality. Further details on the level and quality of evidence for each included study is provided in the Quality of Evidence table (Table 7).

The results of the included studies are categorized into seven groups of outcomes: (1) self management, (2) physical activity, (3) quality of life, (4) physical function, (5) mental health, (6) physical symptoms, and (7) employment.

Self Management:

Seven out of 14 included studies addressed outcomes falling within the category of self-management. Of these seven studies, five presented level I evidence and two presented level II evidence. The studies ranged from moderate to high quality, with four moderate and three high quality. Sub-outcomes within self management addressed across studies included: self efficacy for physical activity, self-care,

medication adherence, and self-management.

Four of the seven studies evaluated the efficacy of MI to improve self-efficacy for physical activity and included the following outcome measures: *The Physical Activity Efficacy Scales* (PASE), *The Modified Falls Efficacy Scale (mFES), The 22-item Ambulatory Self Confidence Questionnaire, The 6-item Self Efficacy scale,* and the *Exercise Self Efficacy Measure.* Of these four studies, three showed both statistically and clinically significant improvements in self efficacy for physical activity following the use of MI and one study showed improvements that were not statistically or clinically significant.[15]

One of the seven studies evaluated the efficacy of the use of MI to improve self care. The *Self Care Heart Failure Index Version 6.2 (SCHFI)* was used to assess self care behaviors. The SCHFI had psychometric properties that were both valid and reliable. This study showed results that were not statistically or clinically significant.[11]

One level II moderate quality study evaluated the efficacy of MI to increase medication adherence. *Pre and Post- Discharge surveys* were used to assess medication adherence. These surveys did not have published psychometric properties. The results of the study were not statistically or clinically significant.[23]

One level I high quality study within this category evaluated the efficacy of MI to improve self management. The *Diabetes Self Management Instrument* (DSMI) was used to assess self management behaviors. The DSMI had psychometric properties that were valid and reliable. The results of the study showed statistically significant improvements in diabetes self management following the use of MI.[12] The clinical significance of these results were not mentioned.

Physical Activity:

Seven of the 14 included studies addressed outcomes falling within the category of physical activity. Of these seven studies, six presented level I evidence and one presented with level II evidence ranging in quality from moderate to high. Sub-outcomes addressed across these studies included: physical activity, aerobic fitness, weekly caloric expenditure, and exercise.

Statistically significant improvements in each outcome following MI were found in six of the seven studies in this category. However, one study found no statistically significant results for the outcome of physical activity which could have been due to seasonal effects, control condition, and length of MI intervention.[16]

Quality of Life:

Six of the 14 included studies addressed outcomes falling within the category of quality of life. Of these six studies, five presented level I evidence and one presented with level II evidence ranged in quality from moderate to high quality. The sub-outcomes addressed across these studies included: quality of life, health, and social support.

Of the six studies within this category, four evaluated the efficacy of MI to improve health related quality of life. The following outcome measures were used to assess health related quality of life: the *Medical Outcomes Study Short Form 12 Health Survey* (SF-12), the *Assessment of Quality of Life Instrument* (AQoL) 8-D, the *Kansas*

City Cardiomyopathy Questionnaire (KCCQ), and the *Short-Form 36 Health Survey(SF-36)*. All of these outcome measures have psychometric properties that are reliable and valid. Of these four studies, two showed statistically significant improvements in health related quality of life following the use of MI, while two studies showed improvements that were not statistically significant.

One (level I, high quality) of the six studies within this category evaluated the efficacy of MI to improve social support. The *Medical Outcomes Study modified social support Scale* was used to assess this outcome. This outcome measure had psychometric properties that were valid and reliable. The results of the study showed no statistically significant improvements in perceived social support following the use of MI.[10]

Physical Function:

Four out of the 14 studies addressed outcomes falling within the category of physical function. Of these four articles, three presented level I evidence and one presented level II and ranged in quality from moderate to high quality. The sub-outcomes addressed across these studies included: fatigue, mobility and physical function.

Two of the four studies evaluated the efficacy of MI to improve fatigue. These studies were both high quality. The outcome measures used to assess fatigue included: the *Schwartz Cancer Fatigue Scale* and the *Modified Fatigue Impact Scale* (MFIS). Each of these scales have published psychometric properties that are both reliable and valid. The results of these studies indicated improvements in fatigue and fatigue impact following the use of MI, however both studies lacked statistical significance.

One of the four studies evaluated the efficacy of MI to improve mobility. This study was of moderate quality, and used *The De Morton Mobility Index* (DEMMI) to assess mobility. The DEMMI has psychometric properties that are reliable and valid. The results of this study showed no statistically significant difference in mobility following the use of MI.[14]

One of the four studies evaluated the efficacy of MI to improve physical function. This study was of high quality and used The *Western Ontario and McMaster Universities Osteoarthritis Index* (WOMAC) and *The Health Assessment Questionnaire* (HAQ). Both the WOMAC and HAQ have psychometric properties that are both reliable and valid. The results of the study indicated that participants with knee osteoarthritis (KOA) saw significant improvements in physical function following the use of MI, however no statistically significant treatment effects were found in participants with other diagnoses.[18]

Mental Health:

Three out of the 14 studies included in this review addressed outcomes falling within the category of mental health. Of the three articles within this outcome category, two studies presented Level I evidence and one presented Level II evidence, all ranging from quality from moderate to high quality. The sub-outcomes addressed across studies included: stress management and mental health, as measured by a combination of depression, anxiety and stress.

One study of high quality evaluated the efficacy of MI to improve stress management. *The Health Promoting Lifestyle Profile 2* (HPLP-2) was used to

assess stress management. The HPLP-2 has psychometric properties that are both reliable and valid. The results of this study showed a significant improvement on the stress management subscale of the HPLP-2 following the use of MI.[10] The effect size (d=0.57) given for the outcomes of the HPLP-2 suggested a moderate to large effect indicating clinical significance.

One study of moderate quality evaluated the efficacy of MI to improve mental health as indicated by depression, anxiety and stress. The *21-item Depression Anxiety and Stress Scale* (DASS-21) was used to assess mental health. The DASS has psychometric properties that are both reliable and valid. The results of this study indicated statistically significant reductions in anxiety and depression following the use of MI with a moderate effect size indicating clinical significance.[14] Additionally, the results showed no statistically significant change in stress following the use of MI. Another high quality study evaluated the efficacy of MI to improve depression and anxiety. The *Hospital Anxiety and Depression Scale* (HADS) was used to assess anxiety and depression. The HADS has psychometric properties that are both reliable and valid. The results of this study showed that there were no statistically significant changes in depression following the use of MI.[20] Additionally, participants saw modest, but non significant increases in anxiety following the use of MI.

The study used the *Heart Failure Somatic Perception Scale* (HFSPS) to assess physical symptoms. The HFSPS is a reliable and valid tool used to assess this outcome. The results of this study showed no statistically significant improvements in this outcome following the use of MI.[11]

Physical Symptoms:

Three of the 14 studies included in this systematic review addressed outcomes falling with the category of physical symptoms. All of the studies were level I and ranged in moderate to high quality. The sub-outcomes addressed across studies included: pain and physical symptoms. Two of the three studies included in this category evaluated the efficacy of MI to improve pain symptoms. These two studies were of high quality and used the following outcome measures to assess pain: the *Brief Pain Inventory* (BPI) and the *Health Assessment Questionnaire* (HAQ). The BPI and HAQ both have psychometric properties that are reliable and valid. The results of these two studies showed that there were improvements in reported pain severity following the use of MI, however these findings lacked statistical and clinical significance. Another study evaluated the efficacy of MI to improve the physical symptoms of heart failure.

Employment: One of the 14 included studies addressed the outcome of employment. The study presented level I evidence and was of high quality. The outcome measures used to assess employment consisted of surveys with no published psychometric properties. The results of the study showed no statistically significant improvements in employment following the use of MI.[17]

PRACTICE RECOMMENDATIONS

All 14 studies for each of the following outcomes were evaluated using a modified GRADES classification system (self-management, physical activity, quality of life, physical function, mental health, physical symptoms, and employment).[25] All studies for each outcome received either a Grade B or Grade C classification. Grade B studies demonstrated a preponderance of a level II studies, were of moderate quality, had results that were statistically and clinically significant, and had benefits that balanced with burden and cost.[25] Grade C studies demonstrated a preponderance of level III studies, were of low quality, had results that were not statistically or clinically significant, and had a burden and cost that exceeded the amount of benefits.[25]

Further research is very likely to have an important impact on the reviewers' confidence in the estimate of effect due to the studies being classified as Grades B and C using the modified GRADES classification system.[25] The GRADES classification system for each outcome is broken down as follows:

Self-management:

Seven of the 14 published studies that met this systematic review inclusion criteria addressed self-management, specifically: self-care, self-efficacy, and medication adherence. Of these studies, four demonstrated a Grade B classification while three studies demonstrated a Grade C classification.[25]

Physical Activity:

Six of the 14 studies that met the inclusion criteria of this systematic review were classified as a Grade B study, while one study was classified as a Grade C study.[25]

Quality of Life:

Five of the six studies that evaluated quality of life received a Grade B classification.[25] However, one study that evaluated this outcome received a Grade C classification.[25]

Physical Function:

One study received a Grade B classification, specifically for physical function improvement.[25] Three studies that evaluated physical functioning, specifically: mobility and fatigue, received a Grade C classification.[25]

Mental Health:

Two out of the three studies that evaluated mental health outcomes received a Grade B classification.[25] Specifically, results regarding coping, self-worth, and stress-management for individuals with Multiple Sclerosis were shown to be statistically significant. However, one study received a Grade C classification.[25]

Physical Symptoms:

Two of the three studies that evaluated physical symptoms, specifically: pain, received a Grade B classification while one study received a Grade C classification.[25]

Employment:

One study out of the 14 studies included in this systematic review evaluated employment outcomes. This study received a Grade C classification based on the modified GRADES classification scale.[25]

CLINICAL IMPLICATIONS

The 14 included studies within this systematic review evaluated the efficacy of Motivational Interviewing (MI) on seven outcomes that fall under the umbrella term of "occupational performance." Five out of the seven outcomes were classified as moderate quality using the modified GRADES system (self-management, physical activity, quality of life, mental health, physical symptoms).[25] Although further research is warranted, the results demonstrated moderate clinical and statistical significance for these outcomes. While study limitations exist, MI has potential to impact occupational performance goals that relate to these outcomes.

The remaining two outcomes (physical functions and employment) were categorized as low-quality recommendations utilizing a modified GRADES classification system.[25] The preponderance of studies ranged from low-moderate quality and results had minimal to no clinical and statistical significance. This made the potential burden on families exceed the expected amount of benefits. Therefore, the use of MI to address occupational performance goals related to these two outcomes should be implemented with extreme caution.

CLINICAL TIPS

Motivational Interviewing (MI) has the potential to be a recommended intervention option for occupational therapy practitioners when addressing occupational performance goals regarding self-management, physical activity, quality of life, mental health, and physical symptoms. However, none of the studies had an occupational therapy practitioner delivering the intervention. Therefore, further research should be conducted in order to determine the efficacy of MI used specifically by occupational therapy practitioners. Additionally, occupational therapists would require specific training in the use of MI in order to deliver such interventions with fidelity.

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Appendix A. "A Priori" Protocol

Table 1. **PICO Question**

PICO question			
P - N/A *(will not have specific population to limit search)*	**I -** Motivational Interviewing	**C -**	**O –** Addressing Occupational Performance goals

Table 2. **List of the Databases Searched**

Databases Included in SR Search	**Planned the Search**		**Will conduct the Search**	
	Person 1	**Person 2**	**Person 1**	**Person 2**
PubMed	Caroline	Jessica	Julie	Claudia
PsycINFO	Erin	Caroline	Jessica	Julie
CINAHL	Claudia	Erin	Caroline	Jessica
TRIP	Julie	Claudia	Erin	Caroline
Health & Medical Collection	Jessica	Julie	Claudia	Erin

Table 3. **List of Search Terms**

	Construct 1		Construct 2	
Database	**Subject Headings**	**Keywords**	**Subject Headings**	**Keywords**
CINAHL	Motivational Interviewing	N/A	• Sleep • Hygiene • Exercise • Occupation • Job Performance • Recreation • Social Participation • Wellness • Energy Conservation • Psychological well-being • Mindfulness • Habits • Physical Activity • Activities Of Daily Living	• Health maintenance • Self-Care • Employment • Community Participation • Sexual Activity • Energy • Routine
PsycINFO	Motivational Interviewing	N/A	• Sleep • Self-care skills • Hygiene • Exercise • Occupations • Job Performance • Leisure Time • Recreation • Nutrition	• Health Management • Academics • Community Participation • Social Participation • Sexual Activity

			• Performance • Habits • Mindfulness • Adaptive Behavior	• Energy • Well-being • Physical Activity • Activity of Daily Living
Health & Medical Collection	Motivational Interviewing	**N/A**	• Sleep • Exercise • Health • Performance • Routine • Habits • Nutrition • Mindfulness	• Health Management • Employment seeking • Social participation • Sexual Activity • Well-being • Energy • Physical Activity • Academics • Activit* of daily living
TRIP	Motivational Interviewing	**N/A**	N/A	• Fatigue management • Health management • Health maintenance • Hygiene • Activity of daily living • Job performance • Leisure activity • Community participation • Social participation

				• Energy conservation
PubMed	Motivational Interviewing	**N/A**	• Sleep • Self care • Hygiene • Exercise • Habits	• Employment • Social participation • Nutrition • Activities of daily living • Community participation • Routine • Performance

Table 4. **Boolean Sentence for each database**

Database Name	Boolean Sentence
CINAHL	(**MH "Motivational Interviewing"**) AND (**routine*** OR **energy** OR **"sexual activity"** OR **"community participation"** OR **employment** OR **"self-care*"** OR **"health maintenance"** OR (**MH "Activities of Daily Living"**) OR (**MH "Physical Activity"**) OR (**MH "Habits"**) OR (**MH "mindfulness"**) OR (**MH "psychological well-being"**) OR (**MH "wellness"**) OR (**MH "Social Participation"**) OR (**MH "Recreation"**) OR (**MH Job Performance"**) OR (**MH "Occupation (Human)**) OR (**MH "Exercise"**) OR (**MH "Hygiene"**) OR (**MH "Sleep"**))
PsycINFO	(**"Activity of Daily Living"**) *OR* (**"Physical Activity"**) *OR* (**"Well-being"**) *OR* (**energy**) *OR* (**"sexual activity"**) *OR* ("**Social Participation"**) *OR* (**"Community Participation"**) *OR* (**Academics**) *OR* (**"Health Management"**) *OR* (**Mindfulness**) *OR* (**Habits**) *OR* (**Performance**) *OR* (**Nutrition**) *OR* (**Recreation**) *OR* ("**Leisure Time"**) *OR* (**"Job Performance"**) *OR* (**Occupations**) *OR* (**Exercise**) *OR* (**Hygiene**) *OR* (**self-care skills**) *OR* (**sleep**) *AND* (**"motivational interviewing"**)
Health & Medical Collection (Proquest)	**"Motivational Interviewing"** AND (**"sleep"** OR "**exercise**" OR "**health**" OR "**performance**" OR "**routine**" OR "**habits**" OR "**nutrition**" OR "**mindfulness**" OR "**health management**" OR "**employment seeking**" OR "**social participation**" OR "**sexual activity**" OR "**well-being**" OR "**energy**" OR "**physical activity**" OR "**academics**" OR "**activit* of daily living**")
TRIP	"**Motivational interviewing**" AND ("fatigue management" OR "**health management**" OR "**health maintenance**" OR "**hygiene**" OR "**activity of daily living"** OR "**job performance**" OR "**leisure activity**" OR "**community participation**" OR "**social participation**" OR "**energy conservation**")
PubMed	**"Motivational interviewing"** AND ("**sleep**" OR "**self care**" OR "**hygiene**" OR "**exercise**" OR "**habits**" OR "**employment**" OR "**social participation**" OR "**nutrition**" OR "**activities of daily living**" OR "**community participation**" OR "**routine**" OR "**performance**")

***Table 5*. Inclusion and Exclusion Criteria**

Inclusion Criteria			
Population	Intervention and Comparison	Outcome	Other
All (no specific population)	• Motivational Interviewing • Will include any studies done with motivational interviewing in conjunction with any other interventions.	• Focused on ADLs/IADLs within the OTPF. • Attempted to listed IADLs and activities within the scope of OT that could be treated with Motivational Interviewing.	• English • Peer Reviewed • Quantitative
Exclusion Criteria			
Population	Intervention and Comparison	Outcome	Other
N/A	• Any study that does not specifically use Motivational Interviewing as an intervention	• Substance Use • Smoking Cessation • Any articles that are NOT occupation based or within the OT scope	

Figure 1. **Flow Chart**

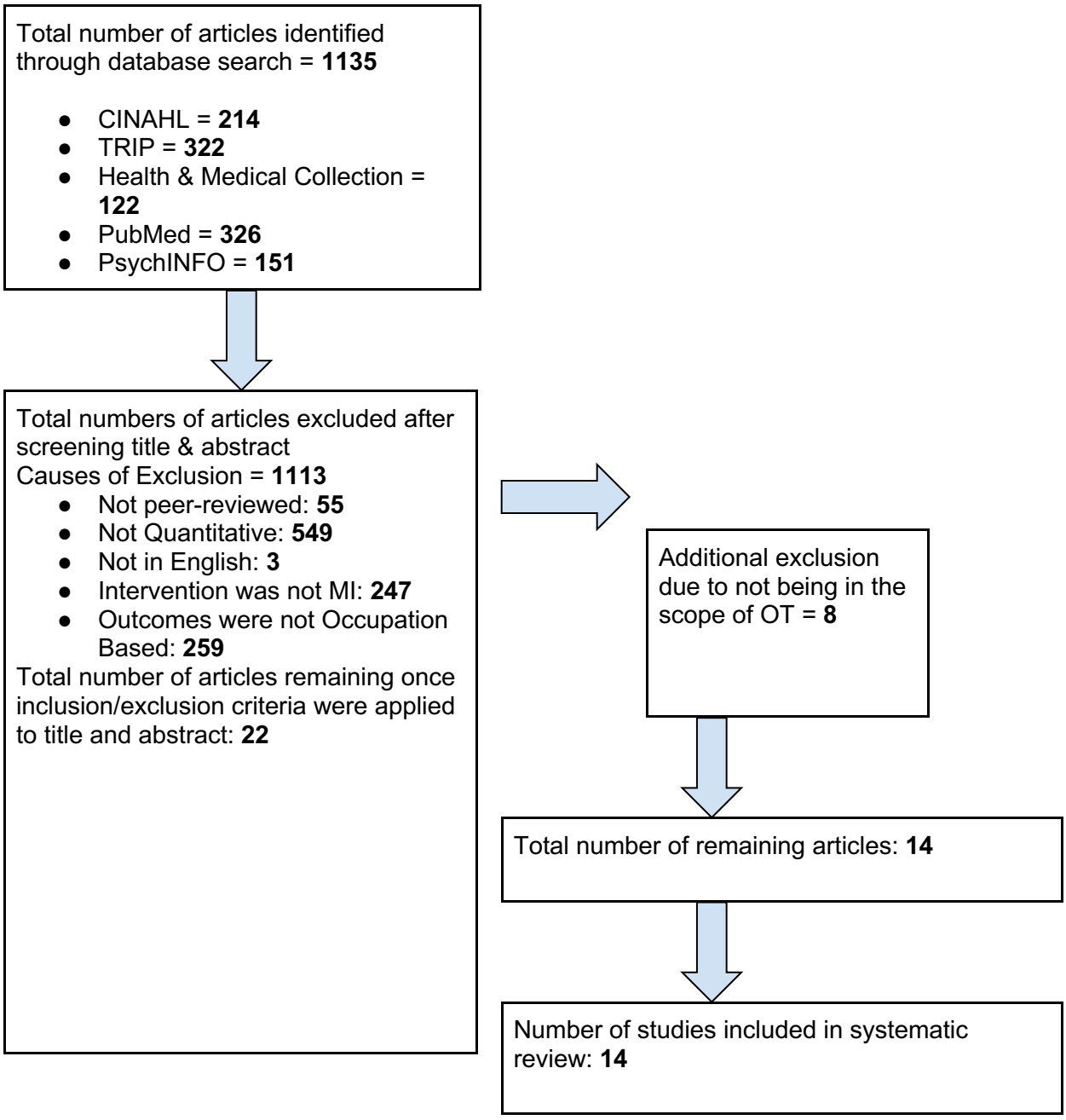

Table 6. **Outcome Table**

OUTCOMES
Self-Management ● Self Efficacy ● Self-management ● HF self-care ● Medication adherence
Physical Activity ● Physical Activity ● Aerobic Fitness ● Weekly Caloric Expenditure ● Exercise
Quality of Life ● Quality of Life ● Health ● Social Support
Physical Function ● Fatigue ● Mobility ● Physical function
Mental Health ● Mental Health ● Psychological Scores ● Anxiety/Stress Management
Employment
Physical Symptoms ● Physical Symptoms ● Pain

Table 7. **Quality and Level of Evidence Table**

		Quality Criteria											
Citation	Type of design	1	2	3	4	5	6	7	8	9	10	Quality Level	Evidence Level
(Chen et al., 2012)	2	1	1	1	1	1	1	1	1	1	1	High	Level I
(Ang et al., 2013)	3	1	1	1	1	1	1	1	1	0	1	High	Level I
(O'Halloran et al., 2016)	3	1	0	1	1	0	1	1	1	0	0	Moderate	Level II
(Lilienthal et al., 2014)	3	1	0	1	1	0	1	1	0	0	0	Moderate	Level I
(Bombardier et al., 2008)	2	1	1	1	1	0	0	1	1	1	1	High	Level I
(Bennett et al., 2008)	3	1	0	1	1	0	1	1	1	1	1	High	Level I
(Sayegh et al., 2017)	2	1	0	1	1	1	1	0	1	1	1	High	Level I
(Gilbert et al., 2018)	2	1	1	1	1	1	0	1	1	0	0	High 7/10	Level I
(Riegel et al., 2016)	3	1	1	1	1	0	0	0	0	0	1	Moderate	Level I
(Masterson Creber et al., 2016)	3	1	1	1	1	0	1	1	0	0	0	Moderate	Level I
(Chair et al., 2013)	2	1	1	1	1	1	1	1	1	0	1	High	Level I
(Bennett et al., 2007)	2	1	1	1	1	1	1	1	1	0	0	High	Level I
(Barrett et al., 2018)	3	1	1	0	1	0	1	1	1	0	0	Moderate	Level I
Hyrkas et al., (2014)	5	0	1	1	0	0	0	1	1	0	1	Moderate	Level II

Table 8. **Study Description Table**

Study Citation	Design Type/ Level of Evidence/ Quality of Evidence	Population n per group	Intervention & Comparison/ Control Group	Outcomes Measured	Outcome Measures	Means (SD or CI)	Inferential Statistics	Effect Size
(Chen, Creedy, Lin & Wollin, 2012)	RCT Level I High	Dx: type 2 diabetes for more than 3 years Age: 18+ (mean age 58) N = 250 N per group = 125	Intervention: 45-60 minute Motivational interviews based on MI strategies of Miller & Rollnick's approach Control: Hospital education sessions, individual education during clinic visit, and diabetes club attendance	1. Self integration Self regulation Self-efficacy Self-management 3. Physical capacity Psychological well being Social relationships Environment 4. Depression Anxiety Stress	1. The Diabetes Self-Management Instrument (DSMI, 35-item) (>=better score) 2. The Diabetes Management Self-Efficacy Scale (C-DMSES, 20-item) (>=better score) 3. The WHO Quality of Life-brief (WHOQoL, 28-item) (>=better score) 4. The Depression Anxiety Stress Scale (DASS-21, 21-item) (<=better score)	Not Mentioned	1. Tx group: (p<0.01) Control group: (p=0.029) 2. Tx group: (p<0.01) Control group (p=0.054) 3. Tx group: (p<0.01) Control group (p=0.35) 4. Tx group: (p=0.003) . Control group (p=0.010)	Not Provided & Unable to estimate with the information provided.
(Lilienthal et al.,	RCT Level I	Inclusion:	Intervention: Four	1. Total Weekly	1. Community	1. Baseline:	1. For tx	1. For tx

2014)	Moderate	expressed interest in increasing physical activity, approved for physical activity by the PAR-Q Age:55+ Subjects: N =86 Women = 57, Men = 29	telephone-based MI Control Group: A healthy activity living guide	Caloric Expenditure from Physical Activity 2.Self-Efficacy 3. Stage of Change for Physical Activity	Health Activities Model Program for Seniors Questionnaire (CHAMPS)-Modified (>=better score) 2. Exercise: Self-Efficacy Measure (>=better score) 3. Exercise: Stage of Change – Short Form (>=better score) Canada's Physical Activity Guide to Healthy Active Living for Older Adults Given to every participant at baseline	2,838.69 (1,813.14) Posttreatment: 3,790.73 (1,977.69) Six-month follow-up: 2,228.54 (1,253.45) Control Group: Baseline: 3,063.15 (2,507.07) Posttreatment: 3,203.25 (2,592.28) Six-month follow-up: 2,085.25 (1,810.32) 2. Tx group: 21.99 (4.34) Control group: 20.15 (5.12)	group: p<.001 Between groups at baseline: p>.1 Between groups 6 mo f/u: p>.10 Between groups post t: p<.05 Within MI group: p<.001 Within MI group baseline → post assessment: p<.001 Within MI group baseline → 6 mo f/u: p<.001 Within control group: p<.001 Within control group	group: .27 Between groups at baseline: .00 Between groups 6 mo f/u: .02 Between groups post t: .06 Within MI group: .31 Within MI group baseline → post assessment: d=0.50 Within MI group baseline → 6 mo f/u: d=0.94 Within control group: .27 Within control group baseline → 6 mo f/u: d=0.45 Within

							baseline → 6 mo f/u: p<.001 Within control group post assessment → 6 mo f/u: p<.001 2. Tx group: p<.05 Tx group baseline: p>.10 Tx group 6 mo f/u: p<.05 3. Baseline → post t: p<.05 Baseline → 6 mo f/u: p<.05 Post t → 6 mo f/u: p>.05	control group post assessment → 6 mo f/u: d=0.50 2. Tx group: .05 Tx group baseline: d=0.43 Tx group 6 mo f/u: d=0.46 3. Baseline → post t: d=0.68 Baseline → 6 mo f/u: d=0.64 Post t → 6 mo f/u: d=0.51

O'Hallaron et al. (2016)	RCT Level 1 Moderate	Dx: Patients with hip fractures from the community rehab program (CRP) Age: >65	Intervention: MI + Usual Care n= 13 Control: Usual Care n=12	Primary: Physical activity levels as measured by an accelerometer Secondary: self efficacy, health related QOL, mobility, and mental health	1:Accelerometer (> values= positive change) 2: AQOL (8 components) (> values= positive change) 3: Modified Falls Efficacy Scale (mFES) (> values= positive change) 4: Ambulatory Self-Confidence Questionnaire (> values= positive change) 5: 21-item DASS (<values = positive change) 6: The De Morton Mobility Index (DEMMI) (> values = positive change)	1: Walking; MI: 5.8 (15.8), UC: -7.7(18.2) Steps: MI: 509 (1224), UC: -705 (1688) Time sitting/lying down: MI: -.2(13), UC: 0.1(0.6) 2. Psychometric: MI: 1.7(6.2), UC: -2.1(3.8) Physical super-dimension: MI: 0.6(9.5), UC: -2.0(8.9) Psychosocial Super-dimension: MI: 2.2(5.1), UC: -2.2 (5.0) Independent Living: MI: 4.3 (15.6), UC: -2.3 (17.6)	2. Psychosocial super-dimension; Mental health (p=0.039) Coping (p=0.005) Self-worth (p=0.023) Psychometric (p=0.015) 3. (p=0.007) 4. (p=0.015) 5.	Cohen d for outcome measures: 1. Walking: 0.74 Steps: 0.71 Time Sitting/lying down: 0.5 2. Psychometric: 1.0 Physical super dimension: 0.29 Psychosocial super dimension: 0.88 Independent Living: 0.37 Happiness: 0.33 Mental Health:0.43 Coping:0.96 Relationships:0.42 Pain:0.18 Sense: 0.15 Self-worth:0.04 3. mFes: 0.90 4. Ambulatory Self Care Confidence :0.29 5. Stress: 0.03 Anxiety:1

						Happiness: MI: -2.4(10.7), UC: -5.7 (9.8) Mental Health: MI:2.6 (6.2), UC: -0.5 (7.2) Coping: MI: 3.8 (11.1), UC: -4.2(8.3) Relationship: MI: 2.3 (7.5), UC: -1.9(9.9) Pain: MI: -3.8 (16.1), UC: -4.2 (21.1) Sense: MI: -1.2 (4.3), UC: 0.0 (8.0) Self-worth: MI: -1.2 (4.3, UC: -0.7 (10.3) 3. MI: 0.5(0.8), UC: -0.4(1.0) 4. MI: 0.6(9.5),	Anxiety (p=0.004) Depression (p=0.010)	Depression: 0.56 6. DEMMI: 0.08

						UC: -2.0(8.9) 5: Stress: MI: -0.1 (2.4), UC: 0.0 (2.8) Anxiety: MI: -0.6 (1.0), UC: 1.2 (1.8) Depression: MI: -0.5 (1.7), UC: 1.8 (4.1) 6. MI: -1.3, (11.4), UC: -2.6 (15.2)		
Ang et al. (2013)	RCT Level 1 90% HIGH	Dx: Females with fibromyalgia Age: 18-65	Intervention: Telephone based MI to improve physical activity in females with Fibromyalgia Intervention: Aerobic prescription + telephone based MI (n=107) Control: Aerobic	Primary Outcome: 1. Frequency and duration of physical activity Secondary outcomes: 2. Number of functioning domains related to FM 3. Pain 4. Physical activity in a given 7 days	1. CHAMPS (> = better score) 2. FIQ (Fibromyalgia impact questionnaire) (> = more impairment) 3. Brief Pain Inventory (BPI) (> = more pain) 4. GTIM (Actigraph acceleorometry) 5. 6 Minute Walk Test (tests distance	*done at 6 months follow up 1. MI (54%) EC (53%) 2. MI: -1.7(0.2) EC: -1.4 (0.2) 3. MI & EC: Both -1.2 (0.18) 4. MI: -34.63 (8.8) EC: -	*done at 6 months follow up 1. p=0.89 2. p =0.39 3. p=0.90 4. p =0.34 5. p =0.03 6. p =0.34 7. p =0.18	2. The resulting sample size provided 95% power to detect a minimum difference of 1.2 (effect size=0.57) in the improvement of FIQ-physical impairment.

			prescriptio n + telephone based didactic information about Fibromyalg ia (n=109)	5. Aerobic endurance /fitness related to peak oxygen consumpti on and FIQ score Other: 6. Depressio n symptom severity 7. New medicatio n use	walked in 6 minutes) 6. Patient Health Questionnair e 8 item Depression scale (PHQ-8) (> = more severe depression) 7. Verbal expression at follow up	22.63 (8.9) 5. MI: 43.9 (6.3) EC: 24.8 (6.3) 6. MI: -2.2 (0.5) EC: -2.8 (0.5) 7. MI: 20% EC: 28%		
(Bomb ardier et al., 2008)	RCT Level I High	Dx: Multiple Sclerosi s, walk unassist ed 90. (300ft) Age: 18+ Subjects : I/C n=70/60	Tx: - 60-90 minute MI and goal-setting meeting. - A series of 5 follow-up telephone counseling sessions at weeks 1,2,4,8,12. Control: Thanked for participatio n, informed they would be contacted for a re-eval in 12 weeks and sent home.	1. Primary: Health promotion behaviors Secondary : 2. Fatigue impact 3. Subjective health 4. Perceived social support 5. Communit y integration 6-11. Objective measures of strength, fitness, cognition.	1. The HPLP II (> = better score) 2. 21-item MFIS (> = worse score) 3. SF-36 (> = better functional ability) 4. 18-item Perceived Social Support (modified for the Multiple Sclerosis Quality of Life Inventory) (> = more true score) 5. Craig Handicap Assessment and	Primary Outcome : 1. Tx: 0.2 (0.0-0.3) Control: 0.0(-0.2-0.2) Seconda ry Outcome s: 2. Tx: -1 (-9.5-0.5) Control: 0 (-7-5) 3. Tx: -0.3 (-3.4-2.1) Control: 1.0 (-2.8-5.1)	1. (p<.001) Subscale s: Physical activity (p<.001) Spiritual growth (p<.01) Stress manage ment (p=.03) 2. (p=.01) Subscale s: Physical (p=.02) 4. (p<.01) 8. (p=.04)	Primary Outcomes: 1. d=.57, large effect Secondary Outcomes: 2. d=.33, moderate effect 4. d=.32, moderate effect

					Reporting Technique: Community integration (> = more functional) 6. Isokinetic dynamometer (leg flexion & extension) 7. A Bicycle ergometer was used to measure fitness (aerobic capacity). 8. Self-selected walking speed was measured by asking subjects to walk 90m (300ft) at a self-selected pace along an indoor track traced in a hospital corridor. 9. MSFC (> = better score) 10. TMT-A (> = greater impairment) 11. TMT-B (> = greater impairment)	4. Tx: 3.6 (0.3-8.0) Control: 0.7 (-2.7-6.3) 5. Tx: 0.7 (-2.1-6.8) Control: -0.3 (-7.8-5.9) CHART Tot Tx: 0.0 (-2.6-0.7) Control: 0.0 (-2.7-1.8) 6. (leg flexion): Tx: 0.5 (-0.5-7.0) Control: 1.0(-0.5-8.5) 6. (leg extension): Tx: 0.0(-2.5-5.5) Control: 0.0 (3.0-8.0) 7. Tx: 0 (-45-23) Control: 0(-34-31) 8.		

						Tx: -0.4(-2.0-0.5) Control: 0.0(-1.7-1.0) 9. Tx: 0.5 (0.0-1.2) Control: 0.4 (-0.3-0.7) 10. Tx: 0.0 (-6.0-2.0) Control: -2.0 (-8.5-0.5) 11. Tx: -3.5 (-23.0-2.0) Control: -2.0 (-14.5-9.0)		
(Bennet, Young, Nail, Winters-Stone & Hanson, 2008)	RCT Level 1 High	Dx: Underactive rural adult 25 yrs > Age: Mean: 58 yrs; Range = 30-81 yrs Subjects I/C n= 35/37	Intervention: MI* via telephone Control: Interview questions without MI via telephone	1. Level of physical activity 2. Self-efficacy for exercise 3. Stage of change for exercise	1. CHAMPS** (> = better) 2. 6-item; Likert scale (6 - 30; ↑=+) 3. 1 of 5 exercise behavior statements	1. TX: pre: 3,535.74 (2,629.65) post: 3,538.01 (2,790.78) Control: pre: 3,321.13 (3,224.76) post: 2,908.13 (2,301.12) 2. TX:	1. p = 0.572 2. p = 0.019 3. p = 0.085	1. d = 0.16 2. d = 0.62 3. d =0.44

						pre: 17.05 (5.45) post: 19.63(4.84) Control: pre: 17.72 (6.77) post: 16.75 (6.42) 3. TX: pre: 2.71 (.52) post: 3.74 (.93) Control: pre: 2.89 (.46) post: 3.38 (1.48)		
Sayegh, Huey, Barnett, & Spruijt-Metz, 2017	RCT High Level I	Mean Age=20 Completed 10th grade 60 % m 40% f Subjects I/C: 35/38 Placebo: 28	Tx: Motivational Interviewing Control: -Placebo Counseling -Control	1. Program Retention 2. High School Diploma	1. Youth Risk Behavior Survey (> = worse score) 1. Self-Report Delinquency Scale (> = worse score) 1. Motivational Screening Measure (not scored) 1. Client Behavior Counts Section of	Not Mentioned	22 week Retention (1): p. = 0.83 22 week diploma (2): p = 0.94	Retention at 8-weeks: 95% CI [0.95–1.02] Retention at 22-weeks: 95% CI [0.96-1.03] Diploma earning at 22-weeks: 95% CI [0.97-1.04]

					MISC 2.1 (not scored) 1. Preference for Consistency Scale-Brief (> = more strongly agree, higher score) 1. Several Self Report measures (unsure of scoring)			
Gilbert et al., (2018)	RCT High Level I	Participants with knee OA and RA above the age of 18 years old KOA: 155 (76 Intervention, 79 control) RA: (93 intervention, 92 control)	Intervention groups (in both KOA and RA): Physician Activity counseling session + MI Control: Physician activity counseling session	1. Change in self-reported physical function 2.Self-reported pain 3.Physical activity 4.Self-reported health status	1. WOMAC (<=better) 2. HAQ (<=better) 3. Accelerometer-measured average daily activity minutes (>=better) 4. Short form 36 physical and mental component scores (SF-36 PCS and MCS) (>=better)	Not Mentioned	1. Follow up visits p=0.049 1. Pain scores p= 0.051 2. Function p= 0.999 2. Pain p= 0.502 3. p = 0.067 3. Average daily activity minutes p = (0.288) 3. Average daily MV minutes p =(0.680) 4. p =0.020	Not Provided & Unable to estimate with the information provided.

Reigel et al. (2016)	RCT Level 1 Moderate (50%	n=100 Tx: 70 Cx: 30	Telephone based MI to Tx group of individuals with condition of Heart Failure Tx Group: MI + Usual healthcare resources Cx Group: Usual healthcare resources	1. Primary: Utilization of healthcare resources 2. Secondary: Identification of predictor for readmission related to HF	1. Hospital Readmission: A dichotomous variable of 'yes/no' 1) HF-Hospitalization 2) Non-HF Hospitalization 2. Length of Stay (LOS): Reported length of stay 1) First readmission 2) Second readmission	Not Mentioned	1. HF-Hospitalization: p=.540 Non-HF Hospitalization: p=.003 2. LOS (first readmission): p=.171 LOS (second readmission): p=.903 Variables of Hemoglobin and Diabetes were significant to the study (found later during analysis) Hemoglobin: p=0.01 Diabetes: p=.02	Given in Odds ratio: Readmission related to multimorbidity rather than HF: significantly lower at 7.1% (Tx) than 30% (Cx) Participants in Tx group had 94% lower odds of having a non-HF related readmission Odds of having non-HF related readmission: 7% lower Diabetes had 6.7 times the odds of readmission Hemoglobin was associated with 48% lower odds of having a non-HF related readmission Four variables of intervention, age,

								hemoglobin and diabetes explained 35% of the variance in non-HF related readmission
(Masterson Creber et al., 2016)	RCT High Level 1	N=100 I/C n=70/30 Dx: HF Age: 18+	Home-based MI intervention and 3-4 follow-up phone calls over the course of 90 days. Usual care from respective care providers & patient education materials designed by Krames StayWell.	1. Self-care 2. Acute physical heart failure symptoms 3. Quality of Life	1. SCHFI v. 6.2, 22-item instrument (>values=positive change) 2.The Heart Failure Somatic Perception Scale (HFSPS) (>values=positive change) 3.Kansas City Cardiomyopathy Questionnaire (KCCQ) (>values=positive change)	Tx Group: 1. Self-care maintenance 19.7(16.0) Self-care confidence 26.6(20.8) 2. HFSPS total score 2.8(16.8) 3. KCCQ QOL 10.8(28.2) KCCQ CSS 9.3(23.9) Control group: 1. Self-care maintenance 12.1(18.3) Self-care confidence 21.6(16.8)	1. Self-care maintenance (p=0.08) Self-care confidence (p=0.31) 2. HFSPS total score (p=0.63) 3. KCCQ QOL(p=0.36) KCCQ CSS (p=0.67)	1. Self-care maintenance b/w groups (Cohen's d=0.44) 1. Self-care confidence b/w groups (Cohen's d=0.26)

						2. HFSPS total score 0.73 (17.1) 3. KCCQ QOL 4.81(21.4) KCCQ CSS 11.86(20.9)		
(Bennet, Lyons, Winter-stone, Nail & Scherer, 2007)	RCT High Level 1	N = 56 Age range = 37-85 6 men total, 50 female participants	I: MI – 2 telephone calls and 1 in person session C: 2 telephone calls without MI content	1. Regular physical activities 2. Aerobic fitness 3. Physical health status and mental health status 4. Fatigue 5. Self-efficacy for regular physical activities 6. Descriptive variables	1 & 3. Community Healthy Activities Model Program for Seniors (CHAMPS) Physical Activity Questionnaire for Older Adults (> score indicates more hours of physical activity) 2 & 4. 6-minute walk test (score = distance walked by pt) 3 & 5. Medical Outcomes Study Short-Form 36 Physical Component Summary	Not Mentioned	Mean level of participation in all regular physical activity (measured in kcal/wk), which was significantly lower (p = .04) in the intervention group 1. (B = 2,331.46, p < .001);(B = 432.37, p < .05) 2. (B = 1,542.97, p < .001);(B = 59.24, p < .001) 3 Mental	1. exercise group: D: 55: medium effect size 2. .09 (small effect size) 3. .40 (small effect size) 4. .14 (small effect)

					(PCS): (> score = better health) 6. Schwartz Cancer Fatigue Scale: good internal consistency reliability		(B = 45.65, p < .001);(B = 3.12, p < .01) 3. Phys(B = 42.98, p < .001); B = 1.57, p < .001) 4. (B = 15.20, p < .001); (B = j2.11, p < .001)	
Chair et al, 2013	RCT High Level 1	N =73 in control N= 73 in experimental Intervention age: 66.8 Control group age: 66.0 146 adults: 18 or older - diagnosed with coronary heart disease, poor motivation to change healthy lifestyle, able to perform	I: Received MI in weeks 1,3, 5, 7 during first 8 weeks Received MI once per month until 6 months Each MI session lasted 30-45 mins C: 6 month cardiac rehab program	Clinical outcomes: 1. Blood pressure 2. Body Mass index 3. Tobacco use 4. Total cholesterol 5. Low-density lipoprotein cholesterol 6. High-density lipoprotein cholesterol 7. Triglycerides	mmHg : 1 & 16 .systolic blood pressure, 1. diastolic blood pressure (normal range: 120/80) 2. kg/m^2: body mass index (normal 18-26) 4 & 5 & 6 mmol/L: total cholesterol, LDL-C, HDL-C, Triglyceride (LDL<100) (HDL<60) 8. adherence to prescription/ adherence	1. CG: 123.9 (16.4) MI: 130.6 (17.6) 2. CGI: 25.4(2.7) MI: 24.4(36) 3. Total cholesterol: CG:4.06(0.68) MI: 3.81 (0.74) 4. Triglyceride: CG: 1.00 (0.73–1.27) MI: 1.29 (0.99–1.71) 5. Drug compliance: CG:	11. At 12 points: (p= 0.044) 18. at 12 months: (p= 0.022)	Effect Sizes: 1. .40 2. .37 3. .36 4. .39 5. .04 6. .04 7. .03

		daily activity independently		8. Drug compliance Psychological outcomes: 9. Anxiety 10. Depression 11. Self efficacy 12. Health related QOL 13. Physical functioning 14. Role physical 15. Bodily pain 16. General health 17. Vitality 18. Social functioning 18. Role emotional 19. Mental health 20. Physical component	to recommended intake times 9,10, 19, 21. Hospital Anxiety and Depression Scale: anxiety & depression (> more severe of depression/ anxiety) (<7 indicates non-case) 11.& 12 General Self-efficacy scale (> indicates better self efficacy) 11. Short-Form 36 Health Survey: (< = more disability)	58 (80.6%) MI: 54 (77.1%) 6. Anxiety score: CG: 2.4 (2.4) MI: 2.5 (2.9) 7. Depression score: CG: 2.4(2.6) MI: 2.5 (2.7) 8. Self efficacy: CG: 2.9(0.7) MI: 2.8(0.7) 9. Physical functioning: CG: 87.3 (15.8) MI: 84.8(17.1) 10. Role physical: CG: 72.6(24.5) MI: 81.5(19.7) 11. Bodily pain: CG: 87.6(18.		8. .14 9. .15 10. .36 11. .05 12. .09 13. .47 14. .05 15. .37

				21. Mental health component		7) MI: 88.7(16.7) 12. General health: CG: 52.8 (14.9) MI:54.2(163) 13. Vitality score: CG: 68.3 (10.8) MI: 63.2(12.0) 14. Social functioning: CG: 86.3(18.2) MI: 87.3 (16.6) 15. Role emotional: CG: 76.9(23.9) MI: 85.8(18.9) 16. Mental health: CG :73.5 (10.0) MI: 71.9(11.2) 17. Physical		16. .16 17. .01 18. .16

						component: CG :47.6(9.5) MI: 47.5(9.5) 18. Mental health component: CG: 51.6(6.3) MI 52.1(6.9)		
(Barrett et al., 2018)	RCT Moderate Level 1	N total: 72 N control: 36 N intervention: 36 Adults 18-69 - Average BMI: 30.8 - All “insufficiently physically active” - Patients of an ambulatory clinic	Intervention: Initial education session + 8 sessions of Integrated Motivational Interviewing and cognitive behavioral therapy (MI-CBT) Control/Comparison: Initial education session	Primary: 1. Moderate to vigorous physical activity (MVPA) Secondary Outcomes: 2. Anthropometrics 3. Self efficacy to be physically active 4. Health related quality of life 5. Type 2 diabetes risk	Primary: 1. Accelerometer and logbook t report significant physical activity events (>values = positive change) Secondary: 2. a. Waist Circumference b. Body mass c. BMI (< values=positiv change) 3. PA self efficacy surve	Intervention: Baseline: 1. 28.1(9.9) 2. (a-c) 99.3(11.7) 84.5(9.9) 31.1(4.0) 3. 28(8) 4. 0.63(0.08) 5. 14(5) Post: 1. 43.5(10.7) 2. (a-c) 97.2(11.4) 82.5(9.6) 30.4(4) 3. 36(7) 4. 0.62(0.08) 5. 13(4) FU: 1. 41.1(12.	P values not reported. Time x group F^a given at p<0.001: 1. 23.25 2. (a-c) 61.84 70.04 71.31 3. 18.72 4. 18.08 5. 10.91	Effect size (partial eta squared): 1. 0.249 2.(a-c) 0.469 0.500 0.505 3. 0.211 4. 0.205 5. 0.135

					(>values =positive change) 4. SF-12 (>values = positive change) 5. AUS-DRISH (<values=positive change)	5)) 2. (a-c) 96.8(11.3)) 81.7(9.4) 30.1(3.9) 3. 38(7) 4. 0.67(0.09) 5. 13(4) Control: Baseline: 1. 33.3(10.3) 2. (a-c) 96.9(11.5) 85.1(8.9) 30.5(4.2) 3. 34(11) 4. 0.65(0.07) 5. 14(5) Post: 1. 29.8(13.2) 2. (a-c) 97.2(11.4) 85.6(8.8)) 30.6(4.1) 3. 33(10) 4. 0.65(0.07) 5. 14(5) FU: 1. 23.4(9.7) 2. (a-c) 97.3(11.3) 85.7(8.7) 30.7(4.1)		

						3. 32(6) 4. 0.65(0.08) 5. 14(5)		
(Hyrkas & Wiggins, 2014)	Quasi-experimental Moderate Level 2	N:303 C:98 I: 205 18 & older adult patients: hospitalized in medical center in north-eastern USA for acute medical/ surgical treatment	I: teach-back and medication tools (n= 137) or motivational interviewing (n= 68) C: received usual care n=98	1. Medication adherence 2. Importance & Confidence 3. Therapeutic alliance 4. Patients experience	1. Discharge and post-discharge surveys: (pape and pencil instrument (T1 - 48-72 hour post-discharge survey (T2) - 30-day Post-discharge survey (T3) with two additional questions 2. Self-reported medication screening tool 3. The Kim Alliance Scale (KAS) (>=better) 4. The Patient Experience Scale (PES) (>=better)	1. Not mentioned 2. Tx group: T1: 9.04 (1.55) T2: 9.46 (1.20) T3: 9.66 (0.76) Control group: T1: 8.80 (1.71) T2: 9.38 (1.32) T3: 9.47 (1.29) 3. Not Mentioned 4. Patient-centered intervention group: 6.41(1.26) MI group: 6.60 (0.78)	1. Started meds (Intervention) T1: p =0.10 Taking meds as prescribed (Intervention) T1: p =0.24 (patient-centered) T1: p =0.56 Readmitted (Intervention) T1: p =0.15 (patient-centered) T1: p= 0.58 2. Tx group: T1 → T2: p = 0.00 T1 → T3: p= 0.00 Control group:	2. Importance T1: CI = 0.28, 3.23 (intervention group) T2: CI = 0.08, 10.20 (intervention group) T3: CI = 0.03 (Patient-centered group) Confidence T1: CI = 0.40, 1.70 T2: 9.35, 3.09 T3: 0.22, 3.74

							T1 → T2: p = 0.00 T2 → T3: p = 0.00 3. There were no significant differences found in therapeutic alliance between groups. 4. No significant differences between intervention groups. P < 0.00 between KAS and PES.	

***Table 9*. Abbreviations Table**

Abbreviations Table	
WOMAC	The Western Ontario and McMaster Universities and Osteoarthritis Index
HAQ	The Health Assessment Questionnaire
DSMI	The Diabetes Self-Management Instrument
C-DMSES	The Diabetes Management Self-Efficacy Scale
WHOQoL, 28-item	The WHO Quality of Life-brief
DASS-21, 21-item	The Depression Anxiety Stress Scale
CHAMPS	Community Health Activities Model Program for Seniors Questionnaire
SF-12	Short Form 12 Health Survey
AUS-DRISK	The Australian type 2 diabetes risk assessment tool
HrQoL	Health related quality of life
SCHFI v. 6.2	Self Care Heart Failure Index Version 6.2
HFSPS	The Heart Failure Somatic Perception Scale
KCCQ	Kansas City Cardiomyopathy Questionnaire
mFES	Modified Falls Efficacy Scale
DEMMI	The De Morton Mobility Index
HPLP II	The Health Promoting Lifestyle Profile II
21 item MFIS	Modified Fatigue Impact Scale
SF-36	36-item Short Form Survey
MSFC	Multiple Sclerosis Functional Composite
TMT-A	Trail Making Test - A
TMT-B	Trail Making Test - B
MISC 2.1	Motivational Interviewing Skill Code 2.1
BMI	Body Mass Index
HDL/LDL	High density protein/ Low density lipoprotein
KAS	The Kim Alliance Scale
PES	The Patient Experience Scale