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Interventions for Persons with Mild Cognitive Impairment (MCI) An Evidence-Based Practice Project

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Interventions for Persons with Mild Cognitive Impairment (MCI)

An Evidence-Based Practice Project

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Introduction

Evidence Based Practice

Evidence based practice is defined as the integration of knowledge from professional and clinical expertise, patient/client unique values and circumstances, and best research evidence (Straus, Richardson, Glasziou, & Haynes, 2005). The EBP courses in the St. Catherine University occupational therapy programs emphasizes skill building in finding, analyzing, and synthesizing research.

A definition of Evidence-Based Practice (EBP)



(Straus, Richardson, Glasziou & Haynes, 2005)



The EBP Project

Occupational therapy graduate students at St. Catherine University complete an EBP project in partial fulfillment of the requirements for a course on Evidence-Based Practice.

The EBP Process

- Begins with a practice dilemma
- Dilemma is framed as an EBP question and PICO
P (population/problem) I (intervention) C (comparison group) O (outcome(s) of interest)
- Background learning
- Search for the best evidence
- Initial appraisal and critical appraisal of the evidence
- Summary of themes from the evidence
- Recommendations for practice
- Next steps – implementation in practice

Four EBP Projects: Mild Cognitive Impairment and Functional Cognition

1. Descriptive, predictive, and risk factors
2. Perspectives and experiences
3. Screening and assessment
4. Interventions and programs

EBP Practical Dilemma: Mild Cognitive Impairment and Functional Cognition***Hypothetical EBP Case Related to Mild Cognitive Impairment and Functional Cognition***

Juan is a 75- year old male who has been diagnosed with mild cognitive impairment. Juan is in good general health but his family has noticed problems that are typical of functional cognition impairment. The health care agency you work for has seen a growing number of individuals with this diagnosis and is asking occupational therapy to become involved in program development for this population.

You have been asked to provide an in-service to staff on mild cognitive impairment and functional cognition and assist in the development of an evidence-based program for individuals with mild cognitive impairment. You are asked to gather evidence related to:

- Descriptive, predictive, and risk factors
- Perspectives and experiences on the lived experience
- Screening and assessments
- Interventions and programs

Background Information on Mild Cognitive Impairment and Functional Cognition

Functional cognition has been defined as:

- “how an individual utilizes and integrates his or her thinking and processing skills to accomplish everyday activities in clinical and community living environments” (AOTA, n.d.)
- “fundamental to the performance of complex everyday activities, which are more commonly referred to as instrumental activities of daily living (IADL)” (Wesson et al., 2016)

The occupational therapy lens on functional cognition became more important after the passage of the Centers for Medicare & Medicaid Services (CMS) IMPACT Act. The CMS IMPACT Act requires data collection in the “areas of functional status, cognitive status, falls, and skin integrity” (AOTA, 2015). The American Occupational Therapy Association (AOTA) has advocated that CMS collect data on functional cognition (functional status, cognitive status, and changes in functional and cognitive status) (AOTA, 2015). Recent occupational therapy initiatives related to functional cognition have focused on conducting quantitative and qualitative research on functional cognition, developing performance-based assessments on functional cognition, and developing evidence-based interventions to address functional cognition.

Mild cognitive impairment (MCI) is also known as mild neurocognitive disorder, mNCD, in the DSM 5 (American Psychiatric Association, 2013). The prevalence of mNCD is estimated as low as 6-7% (Sachdev, 2015) and as high as 15-20% (Minnesota Board of Aging, 2019). MCI has been defined as:

- “...changes in cognition exceeds the normal, expected changes related to age” (Mehta, 2018, para. 1)
- “...the interim state of cognition beyond that of the normal aging process, yet not sufficient to warrant a diagnosis of dementia” (Caliendo & Hilar, 2018, para. 1)
- “memory impaired, but otherwise functioning well” (Caliendo & Hilar, 2018, para. 1).

Four primary types of MCI have been proposed: amnesic MCI single domain, amnesic MCI multiple domain, non-amnesic MCI single domain, and non-amnesic MCI multiple domain (Peterson, 2009). The criteria for a diagnosis of MCI include subjective memory complaints, objective memory impairment, normal or preserved general cognition, intact activities of daily living, and no presence of dementia (Caliendo & Hilar, 2018). Additional diagnostic criteria include memory loss, language disturbance, attention deficit, and decreased visuospatial skills (Mehta, 2018).

A number of governmental agencies and national organizations have provided MCI resources and programs, including:

- AARP Brain Health and Wellness <https://www.aarp.org/health/brain-health/>
- CDC Healthy Brain Initiative <https://www.cdc.gov/aging/healthybrain/index.htm>
- NIH Cognitive and Emotional Health Project: The Healthy Brain <https://trans.nih.gov/CEHP/>
- AHRQ Practice Guidelines <https://effectivehealthcare.ahrq.gov/topics/cognitive-decline/research-protocol>
- National Academies of Science, Engineering and Medicine <http://nationalacademies.org/hmd/reports/2017/preventing-cognitive-decline-and-dementia-a-way-forward.aspx>
- Alzheimer’s Association https://www.alz.org/alzheimers-dementia/what-is-dementia/related_conditions/mild-cognitive-impairment
- HABIT: Healthy Action to Benefit Independence & Thinking <https://www.cityofroseville.com/2727/Activities>
- What is Brain Health? <https://brainhealth.nia.nih.gov/>
- U of MN Nursing ACT Trial (exercise and cognitive training) <https://www.nursing.umn.edu/act-trial>

Appraisals of Best Evidence, Themes, and Recommendations

After searching and finding evidence available from library databases and alternative sources, students conducted an initial appraisal to evaluate the quality and relevance of the evidence and select the best research for further review. Then they conducted critical appraisals of the best formal reviews of primary research (e.g., systematic reviews, meta-analyses) and/or primary/original research studies using the AOTA CAP form (American Occupational Therapy Association, 2016). One of the steps in the CAP process is to evaluate the strength or level of the research design and the types of conclusions that are possible from each design.

Initial Appraisal

- Quality of the evidence
 - type of evidence
 - research design
 - investigator qualifications
 - journal/publication/website
- Relevance of the evidence
 - PICO

Critical Appraisal

- Reviews of primary research
 - systematic reviews, meta-analysis
 - review process and approach
 - consistent and inconsistent findings
- Primary research studies AOTA CAP
 - Level 1: randomized controlled trials
 - Level 2: two groups, nonrandomized/cohort and case control
 - Level 3: nonrandomized, pretest/posttest and cross-sectional
 - Level 4: single subject
 - Level 5: case report

After completing initial and critical appraisals, themes are summarized related to the EBP question and other findings that emerged from the evidence. Recommendations for practice and reflection on participating in an EBP project are identified in the conclusions.

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All EBP Projects are available at <http://sophia.stkate.edu/>.

EBP Question

What occupational therapy and multidisciplinary/interprofessional interventions are most effective for addressing mild cognitive impairment (MCI) to improve occupational performance, functional cognition, participation, well-being, quality of life, and caregiver burden?

Executive Summary

Minnesota Occupational Therapy Association Continuing Education Presentation




Interventions for persons with Mild Cognitive Impairment (MCI)

Erika Beal, Caroline Boris, Bailey Brownlee, Sydney Buckner, Fabiola Droggett,
Grace Hermer, Bridget Ireland, Paige Nelson, Danielle Souti


PICO Question

What occupational therapy and
multidisciplinary/interprofessional
interventions are **most effective** for
addressing
mild cognitive impairment (MCI) to improve
occupational performance, functional cognition,
participation, well-being, quality of life, and
caregiver burden?




Background Learning

- MCI causes amnesic and non-amnesic changes in cognition, with little impact on the individual's ability to complete daily activities (Albert et al, 2011; Alzheimer's Association, 2019).
- Interventions for MCI entail a multidisciplinary approach including medical and allied health professionals (Alzheimer's Association, 2017; Hong Kong Department of Health, 2017, p.8).




Examples of Evidence Resources

- 🔗 Alzheimer's Association, Center for Disease Control and Prevention, Primary Care Office: Department of Health-Hong Kong, Agency for Healthcare Research and Quality.
- 🔗 American Journal of Occupational Therapy (AJOT), The Open Journal of Occupational Therapy, OTsearch
- 🔗 Mayo Clinic, National Institute of Aging, JAMA Neurology Journal, Biomed Center, Pubmed, Cinahl, PsycINFO, Medline, Cochrane, ERIC, Science Direct



Examples of Search Process

- 🔗 PubMed, Cinahl, PsycINFO, Medline, OT search, Cochrane, ERIC, ScienceDirect
- 🔗 MESH terms, Boolean operators, limitors: peer reviewed, 10-year frame, full text, population 50+, intervention filter
- 🔗 Mild Cognitive Impairment (MCI), cognitive impairment, functional cognition, non-pharmacological intervention, pharmacological interventions (medication), intervention (improvement) occupational therapy (rehab), occupational performance, quality of life, and caregiver burnout



Initial Appraisal of Best Evidence

- 🔗 Primary Research Studies
 🔗 26 articles
- 🔗 Reviews of Primary Research
 🔗 17 articles
- 🔗 Conceptual/Theoretical Articles
 🔗 2 articles

Overview of Critical Appraisals of Best Evidence

Critical Appraisal Papers (CAPs)

Article 1: International ballroom dancing against neurodegeneration: A randomized controlled trial in greek community-dwelling elders with mild cognitive impairment (Lazarou et al., 2017)

Article 2: Non-pharmacological therapies for behavioral and cognitive symptoms of mild cognitive impairment (Hahn, & Andel, 2011)

Article 3: Non-pharmacological interventions for adults with mild cognitive impairment and early stage dementia: An updated scoping review (Rodakowski, Saghaei, Butters, & Skidmore, 2015)

Article 4: Non-pharmacological interventions on cognitive functions in older people with mild cognitive impairment (MCI) (Teixeira et al., 2012)

Article 5: Effect of individualized social activities on quality of life among older adults with mild to moderate cognitive impairment in a geriatric psychiatry facility (DiNapoli, Scogin, Bryant, Sebastian, & Mundy, 2016)

Article 7: Positive effects of computer-based cognitive training in adults with mild cognitive impairment (Herrera, Chambon, Michel, Paban, & Alessio-Lautier, 2012)

Overview of Critical Appraisals of Best Evidence

Reviews of Primary Research

Article 6: Neighborhood Integration and Connectivity Predict Cognitive Performance and Decline (Watts et al., 2015)

Article 8: Cognitive Training Program to Improve Working Memory in Older Adults with MCI (Hyar et al., 2016)

Article 9: Occupational therapy at home for older individuals with mild to moderate cognitive impairments and their primary caregivers: a pilot study (Graft, Vervaeke, Oudejans, Houtagelis, Dekker, & Wille, 2003)

Critical Appraisal 1 and 2:

International ballroom dancing against neurodegeneration: A randomized controlled trial in Greek community-dwelling elders with mild cognitive impairment (Lazarou, 2017)

- Does international ballroom dancing improve cognitive functioning in elders with MCI?
- Evidence is found for participating in ballroom dancing to improve or maintain cognitive functioning, performance in daily functioning, mood and behavior for older adults.

Nonpharmacological Therapies for Behavioral and Cognitive Symptoms of Mild Cognitive Impairment (Hahn & Andel, 2011)

- What nonpharmacological treatments are used to address symptoms of mild cognitive impairment?
- Behavioral, motor or exercise, diet and walking interventions were all evaluated through the systematic review. The evidence suggests that behavioral therapy, exercise and diet may be promising areas of research in treating various symptoms of MCI.

Critical Appraisal 3 and 4:

Non-pharmacological interventions for adults with mild cognitive impairment and early stage dementia: An updated scoping review. (Rodakowski, Saghaei, Butters, & Skidmore, 2015)

- What non-pharmacological interventions are designed to slow decline for older adults with MCI?
- They found that exercise, cognitive training, and psychotherapeutic interventions had positive results
- However, small improvements were found in all intervention types. Furthermore, Multimodal use of interventions is best practice at this time.

Non-pharmacological interventions on cognitive functions in older people with mild cognitive impairment (MCI). (Teixeira et al., 2012)

- What are the effects of non-pharmacological interventions in the cognitive functions in older people with MCI?
- Physical activity and cognitive exercise may improve memory and executive functions in older people with MCI. However, more research is needed to establish a protocol of exercises to produce benefits in the cognitive functioning in older people with MCI

Critical Appraisal 5 and 6:

Effect of individualized social activities on quality of life among older adults with mild to moderate cognitive impairment in a geriatric psychiatry facility. (DiNapoli, Scogin, Bryant, Sebastian, & Mundy, 2016)

- Does the individualized social activities intervention (ISA) lead to higher scores of quality of life and lower scores of neurobehavioral symptoms than treatment as usual in geriatric patients with mild to moderate cognitive impairment?
- The findings suggest that the ISA is an effective intervention for improving quality of life in individuals with mild to moderate cognitive impairment.

Neighborhood Integration and Connectivity Predict Cognitive Performance and Decline (Watts et al., 2015)

- Does the community setting in which you walk have an impact on your cognitive functioning?
- Through the use of ArcGIS for neighborhood characteristics and space syntax as well as cognitive performance testing and a self-reported physical activity scale, findings suggest that the area in which you walk in can correlate with better cognitive functioning and delay of cognitive decline.

Critical Appraisal 7 and 8:

Positive effects of computer-based cognitive training in adults with mild cognitive impairment. (Herrera, Chambon, Michel, Paban, & Alessio-Lautier, 2012).

- Is cognitive training an effective treatment in reducing cognitive difficulties and delaying cognitive decline in individuals with A-MCI?
- Individualized, computer-based cognitive training improved recognition/attention and recall of the treatment group, with sustained effects 6-months later.

Cognitive Training Program to Improve Working Memory in Older Adults with MCI (Hyar et al., 2016)

- What is the effectiveness of Cogmed on older adults with MCI compared to a Sham condition?
- The improvement observed in both groups suggests that any CT may be of value, which is congruent with previous research? (p. viii).

Critical Appraisal 9:

Occupational therapy at home for older individuals with mild to moderate cognitive impairments and their primary caregivers (Graff et al., 2003)

- ⌘ How does occupational therapy affect the mental health of primary caregivers for people with MCI?
- ⌘ After clients with MCI received seven weeks of occupational therapy, their primary caregiver showed an increased sense of competence.

Theme 1: Exercise

- Aerobic exercise has been shown to have positive effects on individuals with MCI.
- Dance (Lazarou, 2017), High Intensity Interval Training (Hahn & Andel, 2011), and Walking (Hahn & Andel, 2011; Law, Barnett, Yau, & Gray 2014)
 - Boosted mood, functional cognition, memory, occupational satisfaction (Hahn & Andel, 2011; Lazarou, 2017; Radkowski, Sagghel, Butler & Siskmore, 2015)
 - Improved synaptic plasticity (Law, Barnett, Yau, & Gray 2014).
 - Decreased risk of developing chronic degenerative diseases (Law, Barnett, Yau, & Gray 2014).

Theme 2: Socialization & Environmental Characteristics

Interventions that focus on socialization and environmental characteristics may have an impact on preventing and treating cognitive decline.

- Activities found to help cognitive functioning include ballroom dancing (Lazarou, 2017), social book club (Rosenburg & Maier, 2018), and individualized social activities (DiNapoli et al., 2016).
- Environmental characteristics such as low neighborhood integration and high connectivity may predict fewer declines in attention (Watts et al., 2015).
- Other positive effects include increase in quality of life (DiNapoli, Scogni, Bryant, Sebastian, & Mundy, 2016), overall well-being (Brooker & Luce, 2010), and mood (Latts et al., 2011).

Theme 3: Cognitive Training

- Cognitive training through remediation exercises has been supported to increase cognitive functioning.
- Remediation exercises such as: repetitive practice of visual recognition, working memory, and attention tasks (Hemera, 2012; Hyer et al., 2016; Lee et al., 2016; Radkowski et al., 2015; Vance, 2006)
- Multimodal approaches to therapy including cognitive training with exercise or cognitive training with psychotherapeutic approaches (Radkowski et al., 2015; Teixeira, Gobbi, Corazza, Stella, & Gobbi, 2012).

Theme 4: Caregivers

Many interventions for people with MCI may also influence quality of life, depressive symptoms, and sense of competence in caregivers.

- Computerized brain fitness exercise and memory support systems interventions significantly reduced caregiver depression (Cuc et al., 2017).
- Occupational therapy using MOHO and CMOP increased caregivers' sense of competence (Graff et al., 2003)
- Environmental modifications, community based assistance, and caregiver approaches lowered burden, increased activity frequency and enjoyment, and improved mood of caregivers. (Dooley & Hinojosa, 2004)
- Task-oriented training had no significant improvements in caregiver outcomes (Ciro et al., 2014).

Recommendations for OT and Interprofessional Programs

⌘ Use a multimodal intervention style: cognitive training combined with exercise in a positive psychosocial environment.

- Participate in physical and social activities
- Find engaging communities
- Using family & caregiver-centered care

Summary and Reflection

- Population: individuals with MCI and their caregivers
- Primary interventions: Exercise, Cognitive training, Socialization/Environmental Characteristics
- Strengths and limitations:
 - specific equipment
 - training
 - physical or verbal ability of client
 - access to technology
 - support system of the client

Summary and Reflection

- Conclusion: More quality and quantity of evidence is needed for each of the primary themes.
- Treatment Recommendation: multimodal intervention style such as cognitive training combined with exercise in a positive psychosocial environment.

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Themes

Introduction

This research was done to come to a better understanding of interdisciplinary and occupational therapy interventions available for people with mild cognitive impairment (MCI). Researchers were interested in looking into both preventative measures and treatment measures. The research process consisted of conducting background learning on the topic of MCI, searching multidisciplinary research databases and putting relative articles into an initial appraisal. From our initial appraisal we chose 9 research articles that best answered our PICO question and conducted critical appraisals of each article. Following review of research, four themes emerged that encompassed the most prevalent and significant interventions: exercise, social and environmental characteristics, cognitive training, and caregivers.

Exercise

Exercise may have positive effects on individuals with mild cognitive impairment (MCI). This topic has been extensively researched with a variety of aerobic activities including: dance (Lazarou, 2017), high intensity interval training (HIIT) (Hahn & Andel, 2011), and walking (Hahn & Andel, 2011; Law, Barnett, Yau, & Gray, 2014). Reviews of research by Rodakowski, Saghafi, Butters, and Skidmore (2015) and Hahn and Andel (2011), found that exercise programs were initially used to improve general health with the hopes that there would be other cognitive and functional benefits. Research has shown to improve MCI symptoms such as mood, functional cognition, memory, occupational satisfaction and increased quality of life (Hahn & Andel, 2011; Lazarou, 2017; Radokowski, Saghafi, Butters & Skidmore, 2015). Additional research has been shown to have an effect on synaptic plasticity, and decreased risk of developing chronic degenerative diseases (Law, et al., 2014).

Reviews of research on exercise and physical activity indicate these interventions may have some potential for individuals with MCI. Exercise interventions have shown positive effects on cognitive function for individuals with MCI (Hahn and Andel, 2011; Lazarou, 2017; Radokowski, Saghafi, Butters & Skidmore, 2015). Aerobic exercise was the predominant form of exercise intervention and found to result in small changes in cognitive function (Radokowski, Saghafi, Butters & Skidmore, 2015). Exercise when used in combination with cognitive training may support cognitive function and daily functioning for healthy adults as well as individuals with cognitive impairment (Law, et al., 2014). These reviews indicated further improvement in study design is needed to address inconsistencies in description of the population (Radokowski, Saghafi, Butters & Skidmore, 2015), characteristics of exercise interventions (Law, et al., 2014; Radokowski, Saghafi, Butters & Skidmore, 2015), and outcomes related to daily functioning (Radokowski, Saghafi, Butters & Skidmore, 2015). A randomized control trial found that both high and low have equal marginal improvement in cognition in individuals with mild cognitive impairment (Varela, Ayan, Cancela, & Martin, 2012).

Socialization and Environmental Characteristics

Interventions that focus on socialization and environmental characteristics may have an impact on cognition; including preventing and treating cognitive decline in conditions such as mild cognitive impairment. Intervention programs that involve social interactions such as dancing, individualized social activities and general social participation show positive effects in overall well being, quality of life, and mood (Brooker & Luce, 2010; DiNapoli, Scogin, Bryant, Sebastian, & Mundy, 2016; Letts et al., 2011). Participants' cognitive functioning such attention and working memory may improve when participating in programs based around social engagement, such as ballroom dancing (Lazarou, 2017). Providing a social book club also has

been found to help with cognitive functioning related to a decline in memory-related mistakes (Rotenburg & Maeir, 2018). The characteristics of the environment may also have an impact on cognitive decline. Neighborhoods that have high integration and connectivity predicted fewer declines in attention (Prohaska et al., 2009). Long-term group dance lessons showed reductions in mild cognitive impairment symptoms (Lazarou, 2017). Overall, research is limited but has shown that when individuals are placed in interventions that involve social activity, participation, and strong environmental characteristics, cognitive function may be preserved.

Cognitive Training

Cognitive training may have positive effects on individuals with mild cognitive impairment. Cognitive training through remediation exercises has been supported by numerous experimental studies to increase cognitive functioning in adults with MCI (Herrera, 2012; Hyer et al., 2016; Lee et al., 2016; Radokowski et al., 2015; Vance, 2006). Additionally, cognitive training through compensation was not shown to improve cognitive functioning, but rather increase performance in daily life functioning (Radakowski & Skidmore, 2017; Radokowski et al., 2015). Computer training was one modality commonly used in research studies to implement both remediation and compensation cognitive training that focused on working memory, (Hyer, et. al.) attention, recall, working memory, visual spatial processing, and logical thinking (Herrera, 2012; Lee, et. al., 2016). Ultimately, the investigated research indicates that multimodal approaches to therapy including cognitive training and exercise or cognitive training and psychotherapeutic approaches may have the most success in increasing cognitive functioning for adults with MCI (Hahn & Andel, 2011; Radokowski et al., 2015; Teixeira, Gobbi, Corazza, Stella, & Gobbi, 2012). Several other studies have found minimal improvement in cognitive function, therefore research is still needed to determine if cognitive training interventions are

effective in influencing everyday cognitive functioning (Hahn & Andel, 2011; Herrera, 2012; Hyer et al., 2016; Radokowski et al., 2015; Vance, 2006). This is important in the field of occupational therapy to ensure that our interventions are clinically significant and beneficial for our clients.

Caregivers

Several studies have explored the impact of various MCI interventions on the burden experienced by caregivers. Researched interventions included: computerized brain fitness exercise and memory support systems (Cuc et al. 2017); occupational therapy focused on Model of Human Occupation (MOHO) and the Canadian Model of Occupational Performance (CMOP) (Graff, Vernooij-Dassen, Hoefnagels, Dekker, & de Witte, 2003); and occupational therapy recommendations based on environmental modifications, community based assistance and caregiver approaches (Dooley & Hinojosa, 2004); and task-oriented training (Ciro et al., 2014). As many caregivers report difficulty adjusting to new roles and the desire for more support to encourage positive client behaviors, caregiver burden is an area of concern when treating individuals with mild cognitive impairment (Pasymowski, Roberto, & Blieszner, 2013; Paradise et al., 2015). Computerized brain fitness exercise and memory support systems interventions were found to significantly reduce caregiver depression (Cuc et al., 2017). Occupational therapy that was based in MOHO and CMOP had a positive effect on clients' primary caregivers' sense of competence (Graff et al., 2003).

Current research continues to explore whether occupational therapy interventions focused on improving activities of daily living (ADL) performance for individuals with MCI or probable Alzheimer's disease also improve caregiver burden. One study evaluated the effect of interventions involving modifying the environment and improving activities of daily living

(ADL) performance for 40 participants and their caregivers (Dooley & Hinojosa, 2004). The outcomes noted a statistically significant improvement in quality of life ($p < .001$) as the caregivers experienced lower feelings of burden, increased activity frequency and enjoyment, and improved mood (Dooley & Hinojosa, 2004). Another experimental study explored the effect of task-oriented training to improve performance in daily life skills of six participants with MCI (Ciro et al., 2014). Task-oriented training was based on OT goals like making a phone call or taking medications with specific steps and structured, repetitive blocked practice. Although the individuals did have improvements in ADL and instrumental activities of daily living (IADL) performance, the caregivers did not report any significant improvements in mood or burden caused by short and long term responsibilities (Ciro et al., 2014). Due to small sample sizes, more research is needed to address caregiver burden in relation to clients' independence level of ADL and IADLs.

Conclusion

Three primary types of interventions were examined in this EBP Project: exercise, cognitive training, and socialization/environmental characteristics. The primary outcomes of interventions focused on both individuals with MCI and their caregivers. Our research found that exercise and cognitive training may delay further cognitive impairment and improve cognitive function in this population. Symptoms of MCI such as negative mood, low levels of attention, and memory deficits may improve with use of these interventions. Additionally, we found that more research is required to understand the effects of community environments on individuals. Research on the topic of MCI also looked at how these interventions affect the quality of life for caregivers of individuals with MCI. These four themes were common in the literature around MCI interventions and treatment options and are discussed thoroughly in our research.

A range of aerobic exercises were initially implemented into therapy for individuals with MCI to improve physical health with the hopes that cognitive functioning would subsequently increase. The research thereafter has found that this intervention has shown improvements in cognitive functioning and mood, but more research is needed at this time.

Cognitive training interventions work on attention, recall, memory, visual spatial processing, and logical thinking and have been found to increase functional cognition for individuals with MCI. The findings in this research have been weak but interventions that used cognitive training correspondingly with other forms of interventions have had the best results for increased cognitive function in adults with MCI. Additional research is still needed to improve this domain of study.

While social and community engagement has been found to help improve areas of cognitive functioning, it is important to note our research found that mood, quality of life, and overall wellbeing also increases. Socially participating in activities such as dancing, book club, and group therapy may be important to implement into interventions because of the potential positive effects on clients.

Caregivers of people with MCI experience caregiver burden due to their shifting roles and concern about learning new caregiving skills. In some studies, interventions that helped clients with MCI also had potential to improve caregiver experience. Caregiver improvements included decreased levels of caregiver burden and improved mood and engagement in activities.

Some of the strengths and limitations associated with these interventions include the necessity of specific equipment for some programs, the amount of training needed to provide the interventions, if physical or verbal ability of the client is necessary, if access to technology is available, and the support system of the client. There are minimal risks of these treatment

interventions. In fact, positive side effects of treatment methods like exercise may have other beneficial health implications for the individual.

Summary and Implications for Practice

Our research concluded that common interventions including exercise and cognitive training have minimal improvement for cognitive function, ultimately more research is still needed to determine the most effective intervention for individuals with MCI. More research should be conducted on the effectiveness of exercise used as an intervention with individuals with MCI. Currently, the research suggests that an ideal course of treatment for MCI could consist of a multimodal intervention style such as cognitive training combined with exercise in a positive psychosocial environment.

Occupational therapy may use a variety of these nonpharmacological treatment methods. Understanding what interventions work best for preventing, stabilizing, and treating mild cognitive impairment is important in being able to bring the highest level of evidence-based practice to therapy sessions. By having a large range of interventions available, a therapist will be better able to fit an intervention to the individual patient they are working with. As occupational therapists, we will commonly work with individuals with mild cognitive impairment and their families. By truly understanding the best interventions that may help with this condition, we will be better prepared to treat and work patients and their families.

Table of EBP Resources

Table 1.

Governmental and Foundation Resources that Address Mild Cognitive Impairment and Functional Cognition.

Title/Name	Brief Description	Source
Mild Cognitive Impairment (MCI)	Described as “slight but noticeable and measurable decline in cognitive disabilities”. Includes information about MCI, symptoms, diagnosis, treatment, and causes and risks.	Alzheimer Association https://www.alz.org/alzheimers-dementia/what-is-dementia/related_conditions/mild-cognitive-impairment
Cognitive Impairment: A Call for Action Now	Includes information on the prevalence of MCI, key facts, and important issues.	Center for Disease Control and Prevention https://www.cdc.gov/aging/pdf/cognitive_impairment/cogimp_poilicy_final.pdf
Interventions for Preventing Cognitive Decline, Mild Cognitive Impairment, and Alzheimer’s Disease	Includes information about “interventions aimed at prevention cognitive decline”	Agency for Healthcare Research and Quality https://effectivehealthcare.ahrq.gov/topics/cognitive-decline/research-protocol
Cognitive- Introduction	Associated with the Center for Persons with Disabilities at Utah State University. Provides an overview of different types of cognitive disabilities including the difference between clinical and functional cognitive disabilities.	Web Accessibility In Mind https://webaim.org/articles/cognitive/
Hong Kong Reference Framework for Preventive Care for Older Adults in Primary Care Settings-Module on Cognitive Impairment	Provides in depth review of MCI; warning signs; assessments and screenings; and behavioral, psychological and daily functioning symptoms.	Primary Care Office, Department of Health-Hong Kong https://www.pco.gov.hk/english/resource/files/Module_on_Cognitive_Impairment.pdf

Table 2.

Occupational Resources that Address Mild Cognitive Impairment and Functional Cognition

Title/Name	Brief Description	Source
Assessing Functional Impairment in Individuals with Mild Cognitive Impairment	This is a literature review with a goal of studying the functional tools used with the Mild Cognitive Impairment (MCI) population. The literature review found 14 commonly used tools to assess functional impairment including but not limited to the following: Day-out Task (DOT), functional cognitive assessment (FUCAS), Performance-Based Skills Assessment (UPSA).	The Open Journal of Occupational Therapy https://pdfs.semanticscholar.org/577d/fb714eb9b2c0eedfc200f83c5602f7a3ce82.pdf?_ga=2.260371205.96134081.1549478789-974845413.1549478789
A Qualitative Study of the Instrumental Activities of Daily Living for Mild Cognitive Impairment and Caregivers	This is a qualitative study using interviews to compare between clients with amnesic mild cognitive impairments and their caregivers perspectives instrumental activities of daily living (IADL).Some of the codes were found to be more complained about by only the caregivers due to a decline in motivation and difficulty in efficiency with house work and leisure activities.	American Journal of Occupational Therapy (AJOT) https://ajot.aota.org/article.aspx?articleid=2582699&resultClick=3
The Role of Occupational Therapy in Adult Cognitive Disorders	This AOTA fact sheet describes the causes of cognitive disorders as well as the role of occupational therapists in cognitive rehabilitation.	American Journal of Occupational Therapy (AJOT) https://www.aota.org/About-Occupational-Therapy/Professionals/PA/Facts/Adult-Cognitive-Disorders.aspx
Instrumental Activities of Daily Living Performance and Role Satisfaction in People With and Without Mild Cognitive Impairment: A Pilot Project	This cross-sectional study used an observational assessment of cognition in order to measure function and change in instrumental activities of daily living (IADL) performance. Satisfaction in performance was also measured.	American Journal of Occupational Therapy (AJOT) https://ajot.aota.org/article.aspx?articleid=2247276&resultClick=3
Tracking Rate of Functional Cognitive Decline in Older Adults with Neurocognitive Disorder	This study utilizes the Cognitive Performance Test (CPT) scores to track annual rate of decline of subjects with neurocognitive disorders. Significance for rate of decline was found.	American Journal of Occupational Therapy (AJOT) https://ajot.aota.org/article.aspx?articleid=2490851&resultClick=3

Table 3.

Interdisciplinary Journals, Databases, and Professional Associations that Address Mild Cognitive Impairment and Functional Cognition

Title/Name	Brief Description	Source
Mild Cognitive Impairment (MCI)	Overview, symptoms, causes, risk factors, complication	Mayo Clinic https://www.mayoclinic.org/diseases-conditions/mild-cognitive-impairment/symptoms-causes/syc-20354578
What is Mild Cognitive Impairment?	Symptoms, diagnosis	National Institute of Aging https://www.nia.nih.gov/health/what-mild-cognitive-impairment
Mild Cognitive Impairment Clinical Characterization and Outcome	Study comparing subjects with MCI, healthy subjects and patients with mild Alzheimer's Disease	JAMA Neurology Journal https://jamanetwork.com/journals/jamaneurology/fullarticle/774828
Buying Time: A Proof-of-concept Randomized Controlled Trial to Improve Sleep Quality and Cognitive Function among Older Adults with Mild Cognitive Impairment	Research suggests that good quality sleep is associated with preserved cognitive function and reduced dementia risk in older adults. - this research looks at the efficacy of a personalized chronotherapy intervention to improving sleep in older adults with MCI.	Biomed Center https://trialsjournal.biomedcentral.com/articles/10.1186/s13063-018-2837-7
Computerized Cognitive Training for Chinese Mild Cognitive Impairment Patients: A Neuropsychological and fMRI Study	Multi-model training that has studied the effects on delayed cognition for patients with neuropsychological effects and neural activity.	NeuroImage: Clinical http://www.ncbi.nlm.nih.gov/pubmed/30708349

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William E. Mansbach, Ryan A. Mace & Kristen M. Clark (2017) The efficacy of a computer assisted cognitive rehabilitation program for patients with mild cognitive deficits: A pilot study. *Experimental Aging Research*, 43, 1, 94-104, DOI: 10.1080/0361073X.2017.1258256

Yuill, N. & Hollis, V. (2011). A systematic review of cognitive stimulation therapy for older adults with mild to moderate dementia: An occupational therapy perspective. *Occupational Therapy International*, 18, 163-186. DOI:10.1002/oti.315

Appendix A. Initial Appraisals

Type of article	Overall Type: review of research Specific Type: scoping review
APA Reference	Rodakowski, J., Saghafi, E., Butters, M. A., & Skidmore, E. R. (2015). Non-pharmacological interventions for adults with mild cognitive impairment and early stage dementia: An updated scoping review. <i>Molecular Aspects of Medicine</i> , 43, 38-53. doi://doi.org/10.1016/j.mam.2015.06.003
Abstract	“The purpose of this scoping review was to examine the science related to non-pharmacological interventions designed to slow decline for older adults with Mild Cognitive Impairment or early-stage dementia. We reviewed 32 unique randomized controlled trials that employed cognitive training (remediation or compensation approaches), physical exercise, or psychotherapeutic interventions that were published before November 2014. Evidence suggests that cognitive training focused on remediation and physical exercise interventions may promote small improvements in selected cognitive abilities. Cognitive training focused on compensation interventions and selected psychotherapeutic interventions may influence how cognitive changes impact daily living. However, confidence in these findings is limited due to methodological limitations. To better assess the value of non-pharmacological interventions for this population, we recommend: (1) adoption of universal criteria for "early stage cognitive decline" among studies, (2) adherence to guidelines for the conceptualization, operationalization, and implementation of complex interventions, (3) consistent characterization of the impact of interventions on daily life, and (4) long-term follow-up of clinical outcomes to assess maintenance and meaningfulness of reported effects over time.” (p. 38)
Author	Credentials: Dr. Juleen Rodakowski Doctor of Occupational Therapy Doctor of Philosophy in Rehabilitation Science Master of Occupational Therapy Post Professional Program in Occupational Therapy Position and Institution: Assistant professor at the school of health and rehabilitative sciences at the university of Pittsburgh. Publication History in Peer-Reviewed Journals: extensive, is published with skidmore.
Publication	Type of publication: Scholarly article Publisher: Molecular Aspects of Medicine
Date and Citation History	Date of publication: 2015 Cited By: Cited by 65
Stated Purpose or Research Question	“We searched PubMed, PsycINFO, EMBASE, and Cochrane Database of Systematic Reviews for randomized, controlled clinical trials examining non-pharmacological interventions for improving cognitive function, activities of daily living, or quality of life for individuals with MCI or early-stage dementia” (p. 40).
Author’s Conclusion	“From the reviewed studies, it is difficult to comment on the relative benefits of different types of cognitive training interventions for older adults with MCI”... “However, best practices for remediation remain unclear” (p. 49)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: This research article has moderate relevance to our EBP question because it is a large review of different therapy interventions, but they didn't find any intervention that is superior to others because the sample size of most research reviewed was small.
Overall Quality of Article	Overall Quality of Article: Good Rationale: The author is credible, the research looked at 32 different control trial research on different interventions. It is recently published making it relevant to today's interventions, It is peer reviewed and published in a credible journal.

Type of article	Overall Type: Commentary on review of research Specific Type: white paper, a ten year update
APA Reference	Anderson, J. G., Lopez, R. P., Rose, K. M., & Specht, J. K. (2017). Nonpharmacological strategies for patients with early-stage dementia or mild cognitive impairment: A 10-year update. <i>Research in Gerontological Nursing</i> , 10(1), 5-11.: doi:10.3928/19404921-20161209-05
Abstract	“As the incidence and prevalence of early-stage Alzheimer's disease and mild cognitive impairment increases worldwide, gerontological researchers continue to examine the efficacy and effectiveness of strategies to help patients and caregivers live with the disease. Although pharmacological treatments remain the focus of much of the research, nonpharmacological strategies and approaches to care continue to gain ground as effective means of improving the health-related quality of life for this patient population. The current commentary summarizes the state of the science based on a series of integrative and systematic reviews undertaken by the International Dementia Scholars Collaborative as a 10-year update to a previous white paper. Selected topics from this previous white paper (e.g., support groups, nutrition, exercise, cognitive training, falls) as well as new topics (e.g., mind-body, advance care planning, driving safety) are discussed, and recommendations for future research are provided.” (p. 5)
Author	Credentials: Joel G Anderson, PhD, CHTP, FGSA Position and Institution: Associate Professor at University of Tennessee, Knoxville School of nursing. Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: Scholarly Publisher: Research in Gerontological Nursing Other: N/A
Date and Citation History	Date of publication: 2017 Cited By: 3
Stated Purpose or Research Question	“ The current commentary summarizes the state of the science based on a series of integrative and systematic reviews undertaken by the International Dementia Scholars Collaborative as a 10-year update to a previous white paper. Selected topics from this previous white paper (e.g., support groups, nutrition, exercise, cognitive training, falls) as well as new topics (e.g., mind-body, advance care planning, driving safety) are discussed, and recommendations for future research” (p. 33)
Author's Conclusion	“There is general findings that nutrition and exercise decrease the symptoms and pace of MCI” (P. 38)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Limited Rationale: I think that the findings of this article are good to guide our research, and the authors are credible, but the article is hard to find and would have to be purchased if we decided to use this article any further.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: The findings of the research are very comprehensive and encompassing of the current interventions, but there is no evidence of the research done on individual interventions posted in this article.

Type of article	Overall Type: Review of research Specific Type: Systematic review
APA Reference	Reijnders, J., van Heugten, C., & van Boxtel, M. (2013). Cognitive interventions in healthy older adults and people with mild cognitive impairment: A systematic review. <i>Ageing Research Reviews</i> , 12(1), 263-275. doi://doi.org/10.1016/j.arr.2012.07.003
Abstract	“Given that the research area of cognitive intervention studies in the aging population is growing rapidly, it is important to review and gauge more recent intervention studies, in order to determine the evidence for the effectiveness of cognitive interventions. The purpose of the present review was to update the recent <u>systematic</u> reviews of <u>Papp et al. (2009)</u> and <u>Martin et al. (2011)</u> , to evaluate the effectiveness of cognitive interventions in healthy older adults and people with MCI, by taking into account the methodological quality of the interventions studies. A systematic review of randomized controlled trials (RCT) and clinical studies published between August 2007 and February 2012 in Pubmed and <u>PsycINFO</u> was performed. The quality of the included RCTs was assessed according to the CONSORT criteria for RCTs. A total of thirty-five studies were included; twenty-seven RCTs and eight clinical studies. The content of the intervention studies differed widely, as did the methodological quality of the included RCTs, but was considerably low with an average of 44% of the Consort items included. The results show evidence that cognitive training can be effective in improving various aspects of objective cognitive functioning; memory performance, executive functioning, <u>processing speed</u> , attention, fluid intelligence, and subjective cognitive performance. However, the issue whether the effects of cognitive interventions generalize to improvement in everyday life activities is still unresolved and needs to be addressed more explicitly in future research.”
Author	Credentials: Jennifer Reijnders, Position and Institution: Department of Psychiatry and Neuropsychology, School for Mental Health and Neuroscience, Maastricht University Medical Centre, Maastricht, The Netherlands Publication History in Peer-Reviewed Journals: 1656 articles
Publication	Type of publication: Scholarly Publisher: Ageing Research Reviews Other: N/A
Date and Citation History	Date of publication: 2013 Cited By: 301
Stated Purpose or Research Question	“to evaluate the effectiveness of cognitive interventions in healthy older adults and people with MCI, by taking into account the methodological quality of the interventions studies. A systematic review of randomized controlled trials (RCT) and clinical studies published between August 2007 and February 2012 in Pubmed and <u>PsycINFO</u> was performed.” (p. 263)
Author’s Conclusion	“The results show evidence that cognitive training can be effective in improving various aspects of objective cognitive functioning; memory performance, executive functioning, processing speed, attention, fluid intelligence, and subjective cognitive performance” (P. 274)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: I think this article is relevant to our research because it looks at the specific intervention of cognitive training and shows really positive results on this method of intervention.
Overall Quality of Article	Overall Quality of Article: Good Rationale: Credible source, and good results. They looked at many different research articles and looked at recent years between 2007 to 2012.

Type of article	Overall Type: Review of research Specific Type: Systematic Review
APA Reference	McGrattan, A. M., McEvoy, C. T., McGuinness, B., McKinley, M. C., & Woodside, J. V. (2017). The effect of diet, lifestyle and/or cognitive interventions in Mild Cognitive Impairment: A systematic review. <i>Proceedings of the Nutrition Society</i> , 76(OCE3).
Abstract	“Mild Cognitive Impairment (MCI) is described as a transitional stage between the expected decline of normal ageing and that of dementia and is suggested to be the optimum stage for preventative intervention. The role of nutrition in the prevention of cognitive decline has been examined in terms of a range of nutrients/dietary patterns, investigating single nutrients, such as n-3 PUFA as well as whole diet interventions, such as the DASH diet, a ketogenic diet or the Mediterranean diet. A systematic review of Randomised Controlled Trials was conducted to examine the effect of diet, either alone or in combination with lifestyle and/or cognitive strategies, on cognitive health outcomes in patients with MCI. The search generated a total of 2130 articles and following the removal of duplicates and screening process, 12 studies remained and were included in the review” (p. 1)
Author	Credentials: McGrattan, A.M. Position and Institution: Professor at Queen's University Belfast QUB · Centre for Public Health Publication History in Peer-Reviewed Journals: 5 total research publication
Publication	Type of publication: Scholarly Publisher: Cambridge Core Other: Proceedings of the Nutrition Society
Date and Citation History	Date of publication: June 2017 Cited By: 0
Stated Purpose or Research Question	“To examine the effect of diet, either alone or in combination with lifestyle and/or cognitive strategies, on cognitive health outcomes in patients with MCI.” (p.2)
Author's Conclusion	“Due to the heterogeneity across the studies, in terms of the dietary interventions and cognitive outcome measures used, results suggest that there is currently insufficient data to support the effect of diet on cognition in MCI patients. Therefore, there is a need for more robust RCTs to be conducted to explore the potential for dietary intervention to improve cognitive outcomes within this patient group” (p. 2)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: I think that it is good to know that there is little to no supporting evidence for diet affecting MCI and I think that will make this a point to touch on, but something that we will not be recommending for intervention with MCI patients.
Overall Quality of Article	Overall Quality of Article: Poor Rationale: The author has very little published research, this article has not been cited by other scholarly research, the findings are were not significant. But I think that the systematic review of the literature around diet and MCI means that no other research has found significant data on the topic so we can rule out this intervention pane.

Type of article	Overall Type: Review of research Specific Type: N/A
APA Reference	Quinn, C., Toms, G., Anderson, D., & Clare, L. (2016). A review of self-management interventions for people With dementia and mild cognitive impairment. <i>Journal of Applied Gerontology</i> , 35(11), 1154–1188. https://doi.org/10.1177/0733464814566852
Abstract	“Self-management offers a way of helping people with dementia or mild cognitive impairment (MCI) to play an active role in managing their condition. Barlow, Wright, Sheasby, Turner, and Hainsworth have defined self-management as the “individual’s ability to manage the symptoms, treatment, physical and psychosocial consequences and lifestyle changes inherent in living with a chronic condition.” Although commonly used in other chronic health conditions, there has been relatively little exploration of the role of self-management in dementia or MCI. This review aimed to identify group-based psychosocial interventions for people with dementia or MCI that incorporate significant elements of self-management. Fifteen interventions were included in the review: 12 for people with dementia and 3 for participants with MCI. In both the dementia and MCI interventions, the most commonly included self-management components were information, communication, and social support, and skills training. The review findings indicate that components of self-management have been incorporated into group-based interventions for people with dementia and MCI. Further studies are needed to address the methodological limitations of the included studies and to determine the effectiveness of self-management interventions with these populations.” (p. 1154)
Author	Credentials Dr. Catherine Quinn: professor Position and Institution: University of Bradford Publication History in Peer-Reviewed Journals: cited by 1014
Publication	Type of publication: <i>Scholarly</i> Publisher: Journal of Applied Gerontology Other: <i>Sage Journals</i>
Date and Citation History	Date of publication: January 21, 2015 Cited By: 36 articles
Stated Purpose or Research Question	“ The aim of this review was to identify group-based psychosocial interventions developed for people with dementia or MCI that incorporated significant elements of self-management. The review findings indicate that components of self-management are being incorporated into group-based interventions for people with dementia and MCI (p. 1176).
Author’s Conclusion	“ The findings of this review provide preliminary evidence for the feasibility and acceptability of self-management interventions for people with dementia and MCI. Attrition and adherence was not always reported but, when it was, adherence was adequate and intervention attrition tended to be low. Only eight interventions were evaluated with measurable, quantitative outcomes” (p. 1177).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: I think this article is helpful for our research question because it talks gives data behind the different interventions that are used to help people with MCI and self management. It looks at the individual interventions and gives you good vs bad interventions based off the data of their individual studies.
Overall Quality of Article	Overall Quality of Article: Good Rationale: I think this article is strong because of the credibility of the author, the amount of times it has been cited and used by other articles, it is a current article which makes it relevant to today's treatment. It is peer reviewed and published in a credible journal.

Type of article	Overall Type: Primary Research Study Specific Type: Study testing an original holistic training program
APA Reference	Hyer, L., Scott, C., Lyles, J., Dhabliwala, J., & McKenzie, L. (2014). Memory intervention: the value of a clinical holistic program for older adults with memory impairments. <i>Aging & mental health</i> , 18(2), 169-178. doi: http://dx.doi.org/10.1080/13607863.2013.819832
Abstract	<p>Objectives: Increasingly, cognitive training appears an asset in improving attention and working memory for older adults. We conducted a study involving a ‘holistic’ training program for several cohorts of older adults (N=112), targeting community residents with a spectrum of memory complaints ranging from Age Associated Memory Impairment to mild dementia.</p> <p>Method: We developed a 7-session, manualized program targeting concentration, as well as mindfulness, exercise, stress reduction, socialization, diet, and values/identity techniques. We applied this model to 11 cohorts and conducted pre- and post-testing on memory (List Learning, Story Memory, Coding, Digit Span, Recall, and Recognition) and function (Functional Assessment Questionnaire). We also divided the Memory Group by Risk Status – Low, Medium, and High.</p> <p>Results: Results showed that the Memory Clinic Group as a whole improved on this training on most scales. When broken down by risk status, the Low and Medium Risk Groups were statistically superior to the High-Risk Group on cognitive measures.</p> <p>Conclusion: There were differences also on adjustment, this time favoring only the Low Risk Groups. Holistic memory training seems to be impactful for older adults. Keywords: mild cognitive impairment; quality of life/well-being; cognitive stimulation” (p. 169)</p>
Author	<p>Credentials: PhD, ABPP</p> <p>Position and Institution: Professor of Psychiatry and Health Behavior at the Mercer School of Medicine and the Georgia Neurosurgical Institute</p> <p>Publication History in Peer-Reviewed Journals: Moderate</p>
Publication	<p>Type of publication: Scholarly peer reviewed journal</p> <p>Publisher: Aging & Mental Health Journal</p> <p>Other: Taylor & Francis Online</p>
Date and Citation History	<p>Date of publication: March 18th, 2014</p> <p>Cited By: 11</p>
Stated Purpose or Research Question	“The purpose of this research then was to examine whether the implementation of a manualized memory training program for older adults can assist with improving cognitive functioning and overall adjustment in a clinic sample of older adults with various memory problems” (p. 169).
Author’s Conclusion	<p>“Cognitive training including puzzles, handicrafts, and life skills are known to reduce the risk of cognitive problems, increase well-being at late life, and help slow the progress of dementia among the elderly” (p.174).</p> <p>“This seems to suggest that the cognitive stimulation that addresses working memory and attention performs best with higher level older adults, even in the presence of MCI” (p. 175).</p>
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: <i>Moderate</i></p> <p>Rationale: This study is strongly relevant to our research question as it consists of implementing clinical holistic programs for individuals with memory impairments. However, I chose the moderate rating because the results found are most relevant to the low and medium risk of memory impairments groups. A few individuals with MCI were assigned to the medium risk group, but the majority of participants with MCI were in the high risk group.</p>
Overall Quality of Article	<p>Overall Quality of Article: <i>Good</i></p> <p>Rationale: The experiment is well developed with many holistic areas tested, 7 sessions taking place, and testing memory to sort participants into groups based on their risk status before applying the treatment. The researcher has strong credentials as being in the medical and psychiatry field.</p>

Type of article	Overall Type: Systematic Review Specific Type: Evaluation of research from PUBMED and PsycINFO
APA Reference	Hahn, E. A., & Andel, R. (2011). Nonpharmacological therapies for behavioral and cognitive symptoms of mild cognitive impairment. <i>Journal of Aging and Health</i> , 23(8), 1223-1245. doi:http://dx.doi.org.pearl.stkate.edu/10.1177/0898264311422745
Abstract	<p>Objective: Evaluate research on nonpharmacological treatments for symptoms of mild cognitive impairment (MCI).</p> <p>Method: We searched for relevant English-language articles published from 2000 to 2010 using PUBMED and PsycINFO. We included nonpharmacological interventions for treating cognitive and behavioral symptoms in persons with MCI other than cognitive/memory training, which has been reviewed elsewhere. Effect sizes and hazard ratios were calculated when possible.</p> <p>Results: Current research points to the potential influence of behavioral interventions on behavioral symptoms. Exercise/diet interventions may alleviate cognitive deficits, especially cognitive speed and executive functioning, but possibly not memory—a domain central to MCI. Results were limited by small sample sizes, lack of rigorous methodology, short follow-ups, and the limited number of published studies.</p> <p>Discussion: Behavioral, diet, and exercise regimens show some promise with respect to reducing behavioral and cognitive symptomatology. Rigorous research studies are needed to create more certainty about their potential to complement drug and/or cognitive therapies.</p> <p>(PsycINFO Database Record (c) 2017 APA, all rights reserved) (Source: journal abstract)” (p. 1223)</p>
Author	Credentials: MA Position and Institution: Associate Professor of Medical Social Sciences and Preventive Medicine Publication History in Peer-Reviewed Journals: moderate
Publication	Type of publication: Scholarly peer reviewed journal Publisher: Journal of Aging and Health Other: Located in Sage Journals
Date and Citation History	Date of publication: 11/15/2011 Cited By: 19
Stated Purpose or Research Question	“We aimed to review current studies examining the effectiveness of these far less utilized treatment alternatives and discuss their role in the overall treatment of MCI” (p.1224).
Author’s Conclusion	<p>“It has been found that exercise may support normal cognitive function (Colcombe & Kramer, 2003) and reduce the risk of dementia in general (Andel et al., 2008; Rovio et al., 2005) as well as vascular dementia, specifically (Aarsland, Sardahee, Anderssen, & Ballard, 2010). (p.1224).</p> <p>“It appears that diet interventions, specifically omega-3 fatty acids, may lead to some short-term improvements not only in cognition, most consistently in global cognition, but also in the areas of speed of processing and executive functioning” (p.1224).</p>
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: This question strongly relates to our PICO question as occupational therapists as it houses nonpharmacological therapies, or treatments, for multiple symptoms of mild cognitive impairment specifically.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: The author of this systematic review notes that the results were limited by small sample sizes, lack of rigorous methodology, and short follow-ups. However, the findings she places emphasis on are from studies that were more sound in their structure like randomized-controlled interventions. Some studies evaluated involve the work of occupational therapists.

Type of article	Overall Type: Review of research Specific Type: Systematic review and meta-analysis
APA Reference	Orgeta, V., Qazi, A., Spector, A., & Orrell, M. (2015). Psychological treatments for depression and anxiety in dementia and mild cognitive impairment: Systematic review and meta-analysis. <i>The British Journal of Psychiatry</i> , 207(4), 293-298. doi: http://dx.doi.org.pearl.stkate.edu/10.1192/bjp.bp.114.148130
Abstract	<p>“Background: Anxiety and depression are common in people with dementia and mild cognitive impairment (MCI), but there is uncertainty about the effectiveness of both pharmacological and psychological therapies. Aims: To evaluate the evidence of effectiveness of psychological treatments in treating depression and anxiety in people with dementia and MCI.</p> <p>Method: We carried out a systematic review and meta-analysis of randomized controlled trials (RCTs) of psychological treatment versus usual care in people with dementia and MCI. Primary outcomes were symptoms of anxiety and depression. Secondary outcomes were quality of life, ability to perform daily activities, neuropsychiatric symptoms, cognition and caregivers’ self-rated depressive symptoms.</p> <p>Results: We included six RCTs, involving 439 participants with dementia, which used cognitive–behavioral therapy, interpersonal therapy, counselling or multimodal interventions including a specific psychological therapy. We found beneficial effects for both depression and anxiety. Overall, the quality of the evidence was moderate for depression and low for anxiety, due to the methodological limitations of the studies we identified and the limited number of trials.</p> <p>Conclusions: The evidence from six RCTs suggests that psychological treatments are effective in reducing symptoms of depression and anxiety for people with dementia. There is a need for high-quality, multicenter trials including standardized, well-defined interventions. (PsycINFO Database Record (c) 2019 APA, all rights reserved) (Source: journal abstract)” (p. 293)</p>
Author	<p>Credentials: PhD in Psychology</p> <p>Position and Institution: Associate Professor at the Division of Psychiatry, Faculty of Brain Sciences, at the University College London. Also a Senior Fellow of the Alzheimer’s Society.</p> <p>Publication History in Peer-Reviewed Journals: extensive</p>
Publication	<p>Type of publication: Scholarly peer reviewed journal</p> <p>Publisher: The British Journal of Psychiatry</p> <p>Other: n/a</p>
Date and Citation History	<p>Date of publication: 01/02/2018</p> <p>Cited By: 67</p>
Stated Purpose or Research Question	“To evaluate the evidence of effectiveness of psychological treatments in treating depression and anxiety in people with dementia and MCI” (p.293).
Author’s Conclusion	“The evidence from six RCTs suggests that psychological treatments are effective in reducing symptoms of depression and anxiety for people with dementia” (p.296).
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Moderate</p> <p>Rationale: This study looks at treatments for psychological symptoms that are problematic for individuals with MCI. However, the study does not specify which findings are geared towards people with MCI and which are for people with dementia, they appear to be lumped into a similar category.</p>
Overall Quality of Article	<p>Overall Quality of Article: Good</p> <p>Rationale: The author has strong experience in the field of psychology and an interest in the topic as seen in her position at the Alzheimer’s Society. She uses randomized controls, a systematic review and meta-analysis to study this data, being transparent about potential limitations.</p>

Type of article	Overall Type: Primary Research Study Specific Type: Randomized Controlled Trial
APA Reference	Lazarou, I., Parastatidis, T., Tsolaki, A., Gkioka, M., Karakostas, A., Douka, S., & Tsolaki, M. (2017). International ballroom dancing against neurodegeneration: A randomized controlled trial in Greek community-dwelling elders with mild cognitive impairment. <i>American Journal of Alzheimer's Disease and Other Dementias</i> , 32(8), 489-499. doi:http://dx.doi.org.pearl.stkate.edu/10.1177/1533317517725813
Abstract	<u>Background:</u> Many studies have highlighted the positive effects of dance in people with neurodegenerative diseases. Objectives: To explore the effects of International Ballroom Dancing on cognitive function in elders with amnesic mild cognitive impairment (aMCI). <u>Methods:</u> One-hundred twenty-nine elderly patients with aMCI diagnosis (mean age 66.8 ± 10.1 years) were randomly assigned into 2 groups: intervention group (IG, n = 66) and control group (CG, n = 63). The IG exercised systematically for 10 months, and both groups were submitted to extensive neuropsychological assessment prior and after the 10-month period. <u>Results:</u> According to the independent sample t test at the follow-up, significant differences between groups were found in benefit of the IG while the CG showed worse performance in the majority of neuropsychological tests. According to the Student t test, better performance is detected in IG in contrast with CG, which had worse performance almost in all scales. <u>Conclusion:</u> Dance may be an important non pharmacological approach that can benefit cognitive functions. (PsycINFO Database Record (c) 2018 APA, all rights reserved) (Source: journal abstract)
Author	Credentials: BSc, MSc Position and Institution: Psychologist, Clinical Research Assistant, PhD candidate in Neuroscience at the Aristotle University of Thessaloniki Publication History in Peer-Reviewed Journals: <i>limited</i>
Publication	Type of publication: Scholarly Peer Reviewed Journal Publisher: American Journal of Alzheimer's Disease & Other Dementias Other: Sage Journals
Date and Citation History	Date of publication: 08/25/2017 Cited By: 4
Stated Purpose or Research Question	"We hypothesized that patients who participated in these dance classes will have improvement in cognitive function as detected in neuropsychological assessment after 1 year in contrast with the control group (CG)" (p.491).
Author's Conclusion	"After 10 months of dance intervention, we found significant improvements in most of the investigated parameters within the IG [intervention] group, whereas no improvements were found for the CG [control] group" (p. 493).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: The focus of the occupation of dance in improving cognitive function among elders with amnesic mild cognitive impairment is highly relevant to our PICO question. However, it may be important to note the cultural variable of this study being conducted in a Greek community if one were to attempt to translate it's findings to America.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: The author appears to be a student in route to earning her PhD, and is not well published yet, however the article is well written and conducted in a way to minimize selection bias by using randomization and allocation concealment.

Type of article	Overall Type: Primary Research, Pilot Study Specific Type: Non-Randomized Control Trial
APA Reference	Mansbach, W., Mace, R., & Clark, K. (2017) The Efficacy of a Computer-Assisted Cognitive Rehabilitation Program for Patients with Mild Cognitive Deficits: A Pilot Study, <i>Experimental Aging Research</i> , 43:1, 94-104, DOI: 10.1080/0361073X.2017.1258256
Abstract	<p>Background: Whereas computer-assisted cognitive rehabilitation (CR) programs show promise as tools for improving cognition in certain populations, there is not a consensus regarding their efficacy. This study focuses on restorative CR, a treatment designed to improve cognitive functioning affected by progressive brain changes due to disease or aging, through computer-assisted cognitive exercises. The purpose of this study was to investigate the efficacy of a computer-assisted restorative CR intervention for improving cognitive functioning in older rehabilitation patients with relatively mild cognitive deficits.</p> <p>Methods: Older adult residents in a Maryland retirement community (N = 43) who met inclusion criteria were assigned to either the CR treatment or the control group. Treatment group participants completed 3 weeks (nine sessions) of Memory Match, an online CR module designed to improve attention and visual memory, whereas the control group did not complete the CR program after the baseline assessment. Analyses were based on the 38 (n = 20 treatment, n = 18 control) participants (mean age = 78.08 ± 10.31) who completed the post-assessment Brief Cognitive Assessment Tool (BCAT) and a self-rating inventory (SRI) of cognitive ability.</p> <p>Results: Treatment group participants who received the CR treatment obtained significantly higher BCAT scores (medium to large effect size) at post-assessment than control group participants over the same period. Additional evidence for the efficacy of the CR program was found by comparing responses on a SRI of cognitive ability between the two groups.</p> <p>Conclusion: The authors discuss the merits and shortcoming of this pilot study, the utility of the CR program for older rehabilitation patients with relatively mild cognitive deficits, and ideas for future research." (p. 94)</p>
Author	<p>Credentials: PhD in Psychology</p> <p>Position and Institution: Founder and Chief Executive Officer of Mansbach Health Tools LLC which supports the BCAT Research Center</p> <p>Publication History in Peer-Reviewed Journals: <i>extensive</i></p>
Publication	<p>Type of publication: Scholarly Journal</p> <p>Publisher: Journal of Experimental Aging Research</p> <p>Other: Biomedical Journal Subset</p>
Date and Citation History	<p>Date of publication: Jan/Feb 2017</p> <p>Cited By: 3</p>
Stated Purpose or Research Question	"The purpose of this study was to investigate the efficacy of a computer-assisted restorative CR intervention for improving cognitive functioning in older rehabilitation patients with relatively mild cognitive deficits" (p. 95).
Author's Conclusion	"A majority of participants in the treatment group attributed improvement in their cognition, either modestly or significantly, to the CR program" (p. 100).
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Strong</p> <p>Rationale: This study has strong relevance to our PICO question as it examines tools for improving cognition for MCI patients using cognitive rehabilitation programs on the computer.</p>
Overall Quality of Article	<p>Overall Quality of Article: Moderate to Poor</p> <p>Rationale: Due to this study being a pilot study with a small sample size it is difficult to generalize the findings. It is important to note that the Brief Cognitive Assessment Tool (BCAT) which is used as a primary measure in this study is funded and founded by the researcher.</p>

Type of article	Overall Type: Review of research Specific Type: Systematic review
APA Reference	Law, L. L., Barnett, F., Yau, M. K., & Gray, M. A. (2014). Effects of combined cognitive and exercise interventions on cognition in older adults with and without cognitive impairment: a systematic review. <i>Ageing Research Reviews, 15</i> , 61-75
Abstract	“Global concern on the potential impact of dementia is mounting. There are emerging calls for studies in older populations to investigate the potential benefits of combining cognitive and exercise interventions for cognitive functions. The purpose of this systematic review is to examine the efficacy of combined cognitive and exercise training in older adults with or without cognitive impairment and evaluate the methodological quality of the intervention studies. A systematic search of Cinahl, Medline, PsycINFO, ProQuest, EMBASE databases and the Cochrane Library was conducted. Manual searches of the reference list from the included papers and additional internet searches were also done. Eight studies were identified in this review, five of which included a cognitively impaired population and three studies included a cognitively healthy population. The results showed that combined cognitive and exercise training can be effective for improving the cognitive functions and functional status of older adults with and without cognitive impairment. However, limited evidence can be found in populations with cognitive impairment when the evaluation included an active control group comparison. Further well-designed studies are still needed to explore the potential benefits of this new intervention paradigm.” (p. 61)
Author	Credentials: Unknown Position and Institution: Associate Professor of College of Science & Engineering at James Cook University. Occupational Therapy Discipline, School of Public Health, Tropical Medicine & Rehabilitation Sciences, James Cook University, Queensland, Australia Publication History in Peer-Reviewed Journals: moderate
Publication	Type of publication: scholarly peer-reviewed journal Publisher: ScienceDirect Other:
Date and Citation History	Date of publication: 2014 Cited By: 149
Stated Purpose or Research Question	“(1) to assess the efficacy of combined cognitive and exercise training to improve cognitive functions in older adults with and without cognitive impairment; (2) to examine the methodological quality of the included studies; and (3) to summarize the latest results on combined cognitive and exercise training in older adults with or without cognitive impairment.” (p. 62)
Author’s Conclusion	“In conclusion, combined cognitive and exercise training can be effective for improving the cognitive functions and functional status of older adults with and without cognitive impairment. However, limited evidence can be found in populations with cognitive impairment when the evaluation includes an active control group comparison.” (p. 72)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strongly Relevant Rationale: Directly related to the outcome of multidisciplinary/interprofessional interventions on cognition in older adults
Overall Quality of Article	Overall Quality of Article: Good Quality Rationale: Established professional. Reputable journal and publisher. Publication within last 10 years

Type of article	Overall Type: Primary Research Studies Specific Type: Randomized Controlled Study
APA Reference	Lee, Y. Y., Wu, C. Y., Teng, C. H., Hsu, W. C., Chang, K. C., & Chen, P. (2016). Evolving methods to combine cognitive and physical training for individuals with mild cognitive impairment: study protocol for a randomized controlled study. <i>Trials</i> , 17(1), 526, 1-10
Abstract	<p>“Nonpharmacologic interventions, such as cognitive training or physical exercise, are effective in improving cognitive functions for older adults with mild cognitive impairment (MCI). Some researchers have proposed that combining physical exercise with cognitive training may augment the benefits of cognition. However, strong evidence is lacking regarding whether a combined therapy is superior to a single type of training for older adults with MCI. Moreover, which combination approach - combining physical exercise with cognitive training sequentially or simultaneously - is more advantageous for cognitive improvement is not yet clear. This proposed study is designed to clarify these questions.</p> <p>METHODS/DESIGN:</p> <p>This study is a single-blinded, multicenter, randomized controlled trial. Eighty individuals with MCI will be recruited and randomly assigned to cognitive training (COG), physical exercise training (PE), sequential training (SEQ), and dual-task training (DUAL) groups. The intervention programs will be 90 min/day, 2-3 days/week, for a total of 36 training sessions. The participants in the SEQ group will first perform 45 min of physical exercise followed by 45 min of cognitive training, whereas those in the DUAL group will perform physical exercise and cognitive training simultaneously. Participants will be assessed at baseline, after the intervention, and at 6-month follow-up. The primary cognitive outcome tests will include the Montreal Cognitive Assessment and the color-naming Stroop test. Other outcomes will include assessments that evaluate the cognitive, physical, and daily functions of older adults with MCI.</p> <p>DISCUSSION:</p> <p>The results of this proposed study will provide important information regarding the feasibility and intervention effects of combining physical exercise and cognitive training for older individuals with MCI.” (p. 1)</p>
Author	<p>Credentials: DPT</p> <p>Position and Institution: School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University, Taipei, Taiwan</p> <p>Publication History in Peer-Reviewed Journals: moderate</p>
Publication	<p>Type of publication: Open Peer Review</p> <p>Publisher: Trials Journal</p> <p>Other:</p>
Date and Citation History	<p>Date of publication: 2016</p> <p>Cited By: 3</p>
Stated Purpose or Research Question	“(1) to determine whether combined therapy, sequentially or simultaneously, is a feasible approach to train older adults with MCI, (2) to determine whether combined therapy can induce superior treatment outcomes compared with a single mode of intervention, and (3) to compare which combination approach – sequential or simultaneous – is more advantageous for improving cognitive functions, physical fitness, ADLs, and quality of life in adults with MCI.” (p.10)
Author’s Conclusion	“The overall goal of this study is to compare the treatment effects of different combinations of physical exercise and cognitive training. The results of this study will be important for clinicians as well as family caregivers to select the most efficient and effective training approach to improve cognitive, physical, and daily functions in older individuals with MCI.” (p.8)
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Strongly Relevance</p> <p>Rationale: Directly related to the outcome of interventions addressing mild cognitive impairment to improve daily functions</p>
Overall Quality of Article	<p>Overall Quality of Article: Good Quality</p> <p>Rationale: Recognized Professional. Reputable publisher. Publication within last 10 years</p>

Type of article	Overall Type: Review of Research Specific Type: Systemic Review
APA Reference	Teixeira, C. V. L., Gobbi, L. T. B., Corazza, D. I., Stella, F., Costa, J. L. R., & Gobbi, S. (2012). Non-pharmacological interventions on cognitive functions in older people with mild cognitive impairment (MCI). <i>Archives of gerontology and geriatrics</i> , 54(1), 175-180.
Abstract	“Mild cognitive impairment (MCI) can be a stage of pre-dementia. There is no consensus about pharmacological treatment for this population, so it is important to structure non-pharmacological interventions for increasing their cognitive reserve. We intended to analyze the effects of non-pharmacological interventions in the cognitive functions in older people with MC, in form of a systematic review. Data sources were the Web of Science, Biological Abstracts, Medline, Pubmed, EBSCOHost, Scirus and Google Scholar. All studies were longitudinal trials, with MCI sample, aged>60 years, community-dwelling, and having cognitive functions as dependent variable. Seven studies, from 91 previously selected ones, were identified according to the inclusion criteria. Six studies used cognitive intervention, improving memory and one study used physical activity as intervention, improving executive functions. The results show evidence that physical activity and cognitive exercise may improve memory and executive functions in older people with MCI. But yet, more controlled studies are needed to establish a protocol of recommendations regarding the systemization of exercise, necessary to produce benefits in the cognitive functioning in older people with MCI.” (p. 175)
Author	Credentials: PhD Position and Institution: Neuroimage Laboratory (LNI), Department of Neurology, Medical Sciences Faculty, UNICAMP, Campinas, São Paulo, Brazil. Brazilian Institute of Neuroscience and Neurotechnology, Campinas, São Paulo, Brazil Publication History in Peer-Reviewed Journals: moderate
Publication	Type of publication: Scholarly peer-reviewed journal Publisher: Elsevier Other:
Date and Citation History	Date of publication: 2012 Cited By: 101
Stated Purpose or Research Question	“Given the above and considering the growing interest in understanding the benefits of non-pharmacological interventions, the purpose of this systematic review was to analyze the studies that have investigated the effect of these interventions in the cognitive functions in older people with MCI and to discuss its main findings.” (p.175)
Author’s Conclusion	“The studies presented here, in their majority, used interventions that were sufficient to temporarily improve episodic memory, abstraction, mental flexibility, self-control and working memory in older people with MCI. However, contradictions and divergences mark the number of studies on non-pharmacological interventions.” (p. 179-180)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strongly relevant Rationale: directly related to the outcome of multidisciplinary interventions that are most effective for addressing mild cognitive impairment to improve occupational performance and functional cognition
Overall Quality of Article	Overall Quality of Article: Good Rationale: Recognized professional. Reputable journal and publisher. Publication within last 10 years

Type of article	Overall Type: Primary Research Studies Specific Type: Psychometric research study
APA Reference	Chaves, G. D. F. D. S., Oliveira, A. M., Chaves, J. A. D. S., Forlenza, O. V., Aprahamian, I., & Nunes, P. V. (2016). Assessment of impairment in activities of daily living in mild cognitive impairment using an individualized scale. <i>Arquivos de neuro-psiquiatria</i> , 74(7), 549-554.
Abstract	“Mild impairment in activities of daily living (ADL) can occur in Mild Cognitive Impairment (MCI), but the nature and extent of these difficulties need to be further explored. The Canadian occupational performance measure (COPM) is one of the few individualized scales designed to identify self-perceived difficulties in ADL. The present study investigated impairments in ADL using the COPM in elderly with MCI. A total of 58 MCI patients were submitted to the COPM for studies of its validity and reliability. The COPM proved a valid and consistent instrument for evaluating ADL in elderly MCI patients. A total of 74.6% of the MCI patients reported difficulties in ADL. Of these problems, 41.2% involved self-care, 31.4% productivity and 27.4% leisure. This data further corroborates recent reports of possible functional impairment in complex ADL in MCI.” (p. 549)
Author	Credentials: Master in Experimental Pathophysiology, OT/L Position and Institution: Occupational therapist at the Center for Psychosocial Attention (CAPS) I in Vargem Grande Paulista - Greater São Paulo. Publication History in Peer-Reviewed Journals: moderate
Publication	Type of publication: scholarly-peer-reviewed journal Publisher: SciELO Other:
Date and Citation History	Date of publication: 2016 Cited By: 3
Stated Purpose or Research Question	“Therefore, the primary objective of the present study was to assess self-perceived performance and difficulties in ADL among patients with MCI using the COPM. As a secondary objective, divergent validity and both intra-rater and inter-rater reliability for the use of COPM in MCI patients were investigated.” (p. 550)
Author’s Conclusion	“In conclusion the results of the present study suggest that people with MCI can have difficulties performing some complex ADL, as reported in the literature. Furthermore, the MCI patients, despite having cognitive impairment, were able to identify and prioritize their difficulties in ADL. Difficulties in ADL were reported as being caused not only by cognitive deficits but also physical problems.” (p. 553)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strongly Relevant Rationale: Directly related to the outcome of occupational therapy interventions to identify impairment in ADL’s in MCI
Overall Quality of Article	Overall Quality of Article: Good Quality Rationale: Pertinent author. Reputable journal. Publication within last 10 years

Type of article	Overall Type: Primary Research Study Specific Type: Psychometric research study
APA Reference	Okahashi, S., Seki, K., Nagano, A., Luo, Z., Kojima, M., & Futaki, T. (2013). A virtual shopping test for realistic assessment of cognitive function. <i>Journal of Neuroengineering and Rehabilitation</i> , 10(1), 59, 1-13
Abstract	<p>“Cognitive dysfunction caused by brain injury often prevents a patient from achieving a healthy and high quality of life. By now, each cognitive function is assessed precisely by neuropsychological tests. However, it is also important to provide an overall assessment of the patient's’ ability in their everyday life. We have developed a Virtual Shopping Test (VST) using virtual reality technology. The objective of this study was to clarify 1) the significance of VST by comparing VST with other conventional tests, 2) the applicability of VST to brain-damaged patients, and 3) the performance of VST in relation to age differences.</p> <p>Methods The participants included 10 patients with brain damage, 10 age-matched healthy subjects for controls, 10 old healthy subjects, and 10 young healthy subjects. VST and neuropsychological tests/questionnaires about attention, memory and executive function were conducted on the patients, while VST and the Mini-Mental State Examination (MMSE) were conducted on the controls and healthy subjects. Within the VST, the participants were asked to buy four items in the virtual shopping mall quickly in a rational way. The score for evaluation included the number of items bought correctly, the number of times to refer to hints, the number of movements between shops, and the total time spent to complete the shopping.</p> <p>Results Some variables on VST correlated with the scores of conventional assessment about attention and everyday memory. The mean number of times referring to hints and the mean number of movements were significantly larger for the patients with brain damage, and the mean total time was significantly longer for the patients than for the controls. In addition, the mean total time was significantly longer for the old than for the young.</p> <p>Conclusions The results suggest that VST is able to evaluate the ability of attention and everyday memory in patients with brain damage. The time of VST is increased by age.” (p. 1)</p>
Author	<p>Credentials: PhD Position and Institution: Assistant Professor (Department of Human Health Sciences, Graduate School of Medicine, Kyoto University: Kyoto)</p> <p>Publication History in Peer-Reviewed Journals: Moderate</p>
Publication	<p>Type of publication: Open Access journal Publisher: Journal of NeuroEngineering and Rehabilitation Other:</p>
Date and Citation History	<p>Date of publication: 2013 Cited By: 27</p>
Stated Purpose or Research Question	“The reason to introduce a shopping task in a virtual shopping mall is because we aimed to assess the cognitive ability in daily routine” (p.2)
Author’s Conclusion	“Therefore, we concluded that VST can be used as a cognitive assessment tool in rehabilitation for brain-damaged patients.” (p.12)
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Moderate Relevance Rationale: Directly related to the outcome of multidisciplinary/interprofessional interventions for addressing mild cognitive, but it does not target MCI</p>
Overall Quality of Article	<p>Overall Quality of Article: Moderate Quality Rationale: Reputable author. Publication within last 10 years</p>

Type of article	Overall Type: Primary Research Study Specific Type: Quasi Experimental Research Design
APA Reference	Abd-Elaziz, S. A. E., Khedr, E. M., Ahmed, H. A. E., & Ibrahim, H. D. F. (2015). Effect of Cognitive Rehabilitation on Improving Cognitive Function and Activities of Daily Living among Elderly Patients with Stroke at Assiut University Hospital. <i>Journal of Education and Practice</i> , 6(24), 44-56.
Abstract	“Cognitive impairment is a frequent consequence of stroke. <i>The study aimed</i> to measure the effect of cognitive rehabilitation of elderly patients with stroke on their cognitive function and activities of daily living. Quasi experimental research design were used in this study. This study was conducted at neuropsychiatric, physical medicine and rehabilitation departments at Assiut University hospital, their number were 70 elderly stroke patients aged 60 years and above, (study group, 35, control group, 35) . Six tools were utilized ,tool I: Socio- demographic characteristics and questions about stroke tool II: Mini-Mental State Examination tool III: Digit Span tool IV: Logical memory tool V: Geriatric Depression Scale. Tool VI: Barthel Index scale. The rehabilitation program: consist of five practical session about spatial memory, attention and concentration, visual attention, fish face task and N400 task and three theoretical session about health education for diabetes mellitus, hypertension and prevention of recurrent stroke. The main result of the present study revealed that a significant statistical difference was existed between both studied groups in relation to Min Mental State Examination (P- value = 0.000*). <i>Conclusion:</i> Application of training program about cognitive impairment of stroke elderly patients have significant therapeutic effect on cognitive function, and on activities of daily living. Recommendation: Routine use of screening assessment of cognitive impairment in every stroke patient for early detection, and Health education to the elderly patients and caregivers about the possible ways of prevention of recurrent stroke and ways for controlling of diabetes and hypertension “ (p. 44)
Author	Credentials: None Position and Institution: Assistant lecture at Geriatric Nursing Department, Faculty of Nursing, Assiut University, Assiut, Egypt Publication History in Peer-Reviewed Journals: only publication
Publication	Type of publication: Scholarly Publisher: Journal of Education and Practice Other: completed in egypt at one hospital
Date and Citation History	Date of publication: 2015 Cited By: 3
Stated Purpose or Research Question	“ <i>The study aimed</i> to measure the effect of cognitive rehabilitation of elderly patients with stroke on their cognitive function and activities of daily living” (p. 44).
Author’s Conclusion	“Elderly Patients with post stroke dementia have a significant impact on physical and psychological status of stroke patient. Hypertension and diabetes mellitus were a major risk factor for stroke. Most stroke patients had moderate depression and were dependent in activities of daily living. Application of nursing intervention program about cognitive impairment of stroke patients have significant therapeutic effect on cognitive function, and on activities of daily living” (p. 55)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: Implements a therapeutic intervention for cognitive impairment on post-stroke patients and found a significant therapeutic effect for their cognitive functioning and on activities of daily living.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: Small sample size, only at one hospital

Type of article	Overall Type: Primary Research Study Specific Type: pre- to post- intervention study
APA Reference	Missiuna, C., DeMatteo, C., Hanna, S., Mandich, A., Law, M., Mahoney, W., & Scott, L. (2010). Exploring the use of cognitive intervention for children with acquired brain injury. <i>Physical & occupational therapy in pediatrics</i> , 30(3), 205-219.
Abstract	“Children with acquired brain injury (ABI) often experience cognitive, motor, and psychosocial deficits that affect participation in everyday activities. Cognitive Orientation to Daily Occupational Performance (CO-OP) is an individualized treatment that teaches cognitive strategies necessary to support successful performance. Objective: This study explores the use of CO-OP with children with ABI. Method: Children with ABI, experiencing school and self-care difficulties, were identified from a previous study. Six children, aged 6-15 years, completed 10 weekly intervention sessions with occupational therapists. Children and parents rated the child's performance of challenging everyday tasks and their satisfaction with this performance. Task performance was also evaluated objectively through videotape analysis. Results: Participants showed significant improvement in their ability to perform child-chosen tasks and maintained this performance 4 months later. However, they had difficulty applying the executive problem-solving strategy and discovering cognitive strategies on their own. Issues related to the use of CO-OP with this population are discussed. (Contains 3 tables and 3 figures.)” (p. 205)
Author	Credentials: PhD, OTR Position and Institution: CanChild Centre for Childhood Disability Research and the School of Rehabilitation Science, McMaster University, Hamilton, Ontario, Canada. Publication History in Peer-Reviewed Journals: 24
Publication	Type of publication: Scholarly Publisher: Physical and Occupational Therapy In Pediatrics Other: A quarterly journal of developmental therapy; all authors are PhD, MD, or OTR.
Date and Citation History	Date of publication: July 7, 2010 Cited By: 35
Stated Purpose or Research Question	“This study was conducted to explore the use of an evidence-based, short-term intervention with children with ABI” (p.206).
Author's Conclusion	“In summary, the results suggest that CO-OP is potentially beneficial for use with children who have had an ABI, but that some adaptation of the CO-OP model may be required. This study did not show evidence of children being able to recall and systematically apply the executive problem-solving strategy, GPDC. Children did, however, remember and use cognitive strategies that could be generalized across many tasks” (p. 217).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: Discusses individual treatment to help children with Acquired Brain injuries. A significant improvement of abilities was shown.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: This has a very small sample size, only 6 kids. There was a significant increase in abilities when the treatment was used.

Type of article	Overall Type: Primary Research Study Specific Type: Pre/Post Test
APA Reference	Herrera, C., Chambon, C., Michel, B. F., Paban, V., & Alescio-Lautier, B. (2012). Positive effects of computer-based cognitive training in adults with mild cognitive impairment. <i>Neuropsychologia</i> , 50(8), 1871-1881.
Abstract	<p>“Considering the high risk for individuals with amnesic Mild Cognitive Impairment (A-MCI) to progress towards Alzheimer's disease (AD), we investigated the efficacy of a non-pharmacological intervention, that is, cognitive training that could reduce cognitive difficulties and delay the cognitive decline. For this, we evaluated the efficacy of a 12-week computer-based memory-attention training program based on recognition in subjects with A-MCI and compared their performances with those of A-MCI controls trained in cognitively stimulating activities. The effect of training was assessed by comparing outcome measures in pre- and post-tests 15 days before and after training. To evaluate the duration of training benefits, a follow-up test session was performed 6 months after memory and attention training or cognitively stimulating activities.</p> <p>Outcome measures showed that the trained group, compared to control group, improved episodic recall and recognition. Six months after training, scores remained at the level of the post-test. Since the training program was exclusively based on recognition, our results showed a generalization from recognition to recall processes, which are memory components that represent part of the core cognitive impairments in individuals at risk of converting to AD. Thus, cognitive training based on recognition holds promise as a preventive therapeutic method and could be proposed as a non-pharmacological early-intervention strategy. Future investigations need to focus on methodological constraints and delineating possible neuroplastic mechanisms of action.” (p. 1871)</p>
Author	<p>Credentials: None</p> <p>Position and Institution: Laboratoire de Neurosciences Integratives et Adaptatives</p> <p>Publication History in Peer-Reviewed Journals: 3</p>
Publication	<p>Type of publication: Scholarly</p> <p>Publisher: Neuropsychologia</p> <p>Other: An International Journal in Behavioural and Cognitive Neuroscience</p>
Date and Citation History	<p>Date of publication: July 2012</p> <p>Cited By: 99</p>
Stated Purpose or Research Question	“we investigated the efficacy of a non-pharmacological intervention, that is, cognitive training that could reduce cognitive difficulties and delay the cognitive decline” (p.1871).
Author's Conclusion	“Our results showed cognitive training improved episodic recall, one of the memory components in the core cognitive impairment in MCI patients at risk of converting to AD” (p.1879).
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Strong</p> <p>Rationale: This article discusses an early intervention non-pharmacological therapy that helps prevent those with A-MCI deteriorate further. Their findings showed the intervention did help with recall and recognition and upheld 6 months after the intervention.</p>
Overall Quality of Article	<p>Overall Quality of Article: Good</p> <p>Rationale: Used control and therapy group, did pre and post tests, also 6 month post test. Worked with specific MCI (A-MCI)</p>

Type of article	Overall Type: Primary Research Study Specific Type: Cross Sectional Study, Correlational
APA Reference	Prohaska, T. R., Eisenstein, A. R., Satariano, W. A., Hunter, R., Bayles, C. M., Kurtovich, E., Kealy, M. & Ivey, S. L. (2009). Walking and the preservation of cognitive function in older populations. <i>The Gerontologist</i> , 49(S1), S86-S93.
Abstract	<p>“PURPOSE: This cross-sectional study takes a unique look at the association between patterns of walking and cognitive functioning by examining whether older adults with mild cognitive impairment differ in terms of the community settings where they walk and the frequency, intensity, or duration of walking.</p> <p>DESIGN AND METHODS: The sample was based on interviews with 884 adults aged 65 years and older, residing in 4 locations across the United States: Alameda County, California; Cook County, Illinois; Allegheny County, Pennsylvania; and Durham/Wake Counties, North Carolina. Cognitive function was assessed using a modified Mini-Mental State Examination (MMSE) and the Mental Alternation Test (MAT). Multiple linear regressions were conducted between self-reported walking activities and cognitive measures, controlling for psychosocial, demographic, health status, functional performance, and neighborhood characteristics.</p> <p>RESULTS: The community setting where people walk and the intensity of walking in their neighborhood were significantly associated with cognitive status. After controlling for individual and neighborhood characteristics, better MAT scores were significantly associated with brisk walking and walking fewer times per week. Compared with the MMSE, the MAT was more likely to be associated with patterns of walking among older adults. Older adults with lower MAT scores were more likely to walk in indoor shopping malls and less in parks, whereas those with higher cognitive function scores on the MMSE were less likely to walk in indoor gyms.</p> <p>IMPLICATIONS: This investigation provides insight into the extent to which walking is associated with preservation of cognitive health, setting the stage for future longitudinal studies and community-based interventions.” (p. S86)</p>
Author	<p>Credentials: PhD</p> <p>Position and Institution: Institute for Health Research and Policy, University of Illinois at Chicago</p> <p>Publication History in Peer-Reviewed Journals: 97</p>
Publication	<p>Type of publication: Scholarly</p> <p>Publisher: <i>The Gerontologist</i></p> <p>Other: Found on Oxford Academic</p>
Date and Citation History	<p>Date of publication: 2009</p> <p>Cited By: 50</p>
Stated Purpose or Research Question	“This cross-sectional study takes a unique look at the association between patterns of walking and cognitive functioning by examining whether older adults with mild cognitive impairment differ in terms of the community settings where they walk and the frequency, intensity, or duration of walking” (p. S86).
Author’s Conclusion	“The community setting where people walk and the intensity of walking in their neighborhood were significantly associated with cognitive status” (p.S86).
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Strong</p> <p>Rationale: Correlation found between amount/rigor of walking and Mental Test Scores. Concludes walking could be used as preventative mechanisms for regression of mental functioning.</p>
Overall Quality of Article	<p>Overall Quality of Article: Good</p> <p>Rationale: Large sample size across multiple states, well regarded author, multiple mental tests performed.</p>

Type of article	Overall Type: Primary Research Study Specific Type: Pre- Post-test design
APA Reference	Lim, M. H., Liu, K. P., Cheung, G. S., Kuo, M. C., Li, R., & Tong, C. Y. (2012). Effectiveness of a multifaceted cognitive training programme for people with mild cognitive impairment: a one-group pre-and posttest design. <i>Hong Kong Journal of Occupational Therapy</i> , 22(1), 3-8.
Abstract	<p>Objectives The effectiveness of a cognitive training programme in enhancing the functional abilities of elderly persons with <u>mild cognitive impairments</u> was tested in an integrated home and institutional training programme focused on performing daily tasks.</p> <p>Methods Twenty elderly participants were taught cognitive stimulation and memory encoding strategies for 10 weeks by an occupational therapist, or by nonprofessionals and community caregivers. The programme consisted of attention and memory stimulation, association-based and imagery-based strategies. <u>Functional assessment</u> (Chinese version of the disability assessment for <u>dementia</u> instrument and the instrumental activities of daily living scale) and <u>neuropsychological tests</u>(digit span forward test, <u>word list memory</u> subtest of the neuropsychological test battery developed by the Consortium to Establish a Registry for <u>Alzheimer's Disease</u>, Cognistat) were administered before and after the programme.</p> <p>Results After the 10-week programme the participants showed significant improvements in average attention and memory. The participants showed improved memory (word list memory: $p \leq .001$) and other cognitive function as measured by the naming ($p \leq .001$), construction ($p \leq .001$), memory ($p \leq .001$) and similarities ($p \leq .001$) subtests of the Cognistat.</p> <p>Conclusion These results provide initial evidence supporting the use of daily tasks as the context in teaching cognitive stimulation and memory encoding strategies to mildly impaired elderly people." (p. 3)</p>
Author	<p>Credentials: OT</p> <p>Position and Institution: Department of Occupational Therapy, Singapore General Hospital, Singapore</p> <p>Publication History in Peer-Reviewed Journals: 0</p>
Publication	<p>Type of publication: Scholarly</p> <p>Publisher: Hong Kong Journal of Occupational Therapy</p> <p>Other: Hong Kong's version of AJOT</p>
Date and Citation History	<p>Date of publication: June 11, 2011</p> <p>Cited By: 13</p>
Stated Purpose or Research Question	"The effectiveness of a cognitive training programme in enhancing the functional abilities of elderly persons with mild cognitive impairments was tested in an integrated home and institutional training programme focused on performing daily tasks" (p. 3).
Author's Conclusion	"After the 10-week programme the participants showed significant improvements in average attention and memory" (p. 3)."
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Moderate</p> <p>Rationale: This was a cognitive training program that found correlation in enhancing memory, but the sample size was small and does not have good external validity</p>
Overall Quality of Article	<p>Overall Quality of Article: Poor</p> <p>Rationale: Fairly unknown author, small sample size, convenience sampling. Assessments used were Chinese versions, may not transfer well to American versions.</p>

Type of article	Overall Type: Review of Research Studies Specific Type: Systematic Review of Randomized Controlled Trials
APA Reference	Cammisuli, D. M., Innocenti, A., Fusi, J., Franzoni, F., & Pruneti, C. (2018). Aerobic exercise effects upon cognition in Alzheimer's Disease: A systematic review of randomized controlled trials. <i>Archives italiennes de biologie</i> , 156(1-2), 54-63.
Abstract	<p>“BACKGROUND: Previous reviews and meta-analysis have shown that physical activity has positive effects on cognition in healthy elderly as well as in patients with Mild Cognitive Impairment, even if with a minor effect whereas less is known about the effectiveness of aerobic exercise in patients with Alzheimer's Disease (AD).</p> <p>OBJECTIVES: The aim of the present study was to systematically review the evidence from randomized controlled trials (RCTs) designed to evaluate aerobic exercise effects upon cognition in AD patients.</p> <p>METHODS: PubMed, Cochrane, Web of Science and DARE databases were analytically searched for RCTs including aerobic exercise interventions for AD patients.</p> <p>RESULTS: There is scarce evidence that aerobic exercise improves cognition in AD patients. Overall, the included studies reported only positive effects for patients' global cognition after intervention, mainly due to a lack of accurate neuropsychological assessment of each cognitive domain. Whether the benefits of exercise are evident in all stages of AD pathology remain also uncertain.</p> <p>CONCLUSIONS: Standardized protocols, larger and more rigorous RCTs with long-term follow-ups may provide better insight into the effects of aerobic exercise on cognitive deterioration characterizing people with AD.” (p. 54)</p>
Author	<p>Credentials: Department of Medicine and Surgery, Laboratory of Clinical Psychology, Psychophysiology and Clinical Neuropsychology</p> <p>Position and Institution: University of Parma, Italy</p> <p>Publication History in Peer-Reviewed Journals: Extensive</p>
Publication	<p>Type of publication: Scholarly</p> <p>Publisher: Archives Italiennes de Biologie</p> <p>Other: Archives Italiennes de Biologie is a quarterly peer-reviewed open access scientific journal.</p>
Date and Citation History	<p>Date of publication: 2018</p> <p>Cited By: Not found - there are 5 versions on google scholar</p>
Stated Purpose or Research Question	“The aim of the present study was to systematically review the evidence from randomized controlled trials (RCTs) designed to evaluate aerobic exercise effects upon cognition in AD patients.” (p. 45)
Author's Conclusion	“Standardized protocols, larger and more rigorous RCTs with long-term follow-ups may provide better insight into the effects of aerobic exercise on cognitive deterioration characterizing people with AD.” (p. 45)
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Moderate</p> <p>Rationale: I think this article is moderately relevant to our PICO question because it is reviewing the effects exercise has on cognition and our question is related to interventions.</p>
Overall Quality of Article	<p>Overall Quality of Article: Good</p> <p>Rationale: This article is good because it is a systematic review of randomized controlled trials however I don't know how reliable the publisher is. The authors used very reliable sources (PubMed, Cochrane Library, Web of Science and DARE) and databases to find their articles to review.</p>

Type of article	Overall Type: Review of Research Specific Type: Systematic Review
APA Reference	Lussier, M., Lavoie, M., Giroux, S., Consel, C., Guay, M., Macoir, J., ... & Pigot, H. (2018). Early detection of mild cognitive impairment with in-home monitoring technologies using functional measures: A systematic review. <i>IEEE Journal of Biomedical and Health Informatics</i> .
Abstract	<p>“Introduction: The aging of the world population is accompanied by a substantial increase in neurodegenerative disorders such as dementia. Early detection of dementia, i.e. at the mild cognitive impairment (MCI) stage, could be an essential condition for slowing down the loss of autonomy and quality of life caused by the disease, as it would provide a critical window for the implementation of early pharmacological and non-pharmacological interventions. However, the current assessments for MCI have several limitations. In this context, approaches involving smart home technologies offer many attractive advantages, including the continuous measurement of functional abilities in ecological environments. Objective: This systematic review aims to investigate the current state of knowledge on the effectiveness of smart home technologies for the early detection of MCI through the monitoring of everyday life activities. Methods: A systematic search of publications in Medline, EMBASE, CINAHL was conducted. Results: Sixteen studies were included in this review. Twelve studies were based on real-life monitoring, with several sensors installed in participants' actual homes, and four studies included scenario-based evaluations in which the participants had to complete various tasks in a research lab apartment. In real-life monitoring, the most used indicators of MCI were walking speed and activity/motion in the house. In scenario-based evaluation, time of completion, quality of activity completion, number of errors, amount of assistance needed, and task-irrelevant behaviors during the performance of everyday activities predicted MCI in participants. Discussion: Despite technological limitations and the novelty of the field, smart home technologies represent a promising potential for the early screening of MCI and could support clinicians in geriatric care.” (p. 1)</p>
Author	<p>Credentials: Professor - Not Reported Position and Institution: Faculty of Medicine University of Montrial, Montrial Quebec Canada Publication History in Peer-Reviewed Journals: There was an extensive amount of “M. Lussier” in google scholar but I am unsure if it is the same author.</p>
Publication	<p>Type of publication: Scholarly Publisher: IEEE Journal of Biomedical and Health Informatics Other: It was published in Early Access</p>
Date and Citation History	<p>Date of publication: May 7th, 2018 Cited By: Not Reported</p>
Stated Purpose or Research Question	“This systematic review aims to investigate the current state of knowledge on the effectiveness of smart home technologies for the early detection of MCI through the monitoring of everyday life activities.” (in abstract)
Author's Conclusion	“Despite technological limitations and the novelty of the field, smart home technologies represent a promising potential for the early screening of MCI and could support clinicians in geriatric care.” (in abstract) - Could not find full text anywhere
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Moderate Rationale: Although the title of the article and abstract are relevant to our PICO question related to interventions and prevention strategies using home monitoring technologies I will not be using this article any further because I cannot find the full text easily. I think it would have been interesting to learn more about the use of technologies in individuals with mild cognitive impairments trying to detect it early on.</p>
Overall Quality of Article	<p>Overall Quality of Article: Poor Rationale: After doing a thorough search on google scholar and trying to find a full text version of this article I have been unable to find it, therefore I do not think this article will be the best use of our resources.</p>

Type of article	Overall Type: Review of Research Studies Specific Type: <i>Narrative Review</i>
APA Reference	Russell-Williams, J., Jaroudi, W., Perich, T., Hoscheidt, S., El Haj, M., & Moustafa, A. A. (2018). Mindfulness and meditation: treating cognitive impairment and reducing stress in dementia. <i>Reviews in the Neurosciences</i> , 29(7), 791-804.
Abstract	“This study investigates the relationship between mindfulness, meditation, cognition and stress in people with Alzheimer's disease (AD), dementia, mild cognitive impairment and subjective cognitive decline. Accordingly, we explore how the use of meditation as a behavioural intervention can reduce stress and enhance cognition , which in turn ameliorates some dementia symptoms. A narrative review of the literature was conducted with any studies using meditation as an intervention for dementia or dementia-related memory conditions meeting inclusion criteria. Studies where moving meditation was the main intervention were excluded due to the possible confounding of exercise. Ten papers were identified and reviewed. There was a broad use of measures across all studies, with cognitive assessment, quality of life and perceived stress being the most common. Three studies used functional magnetic resonance imaging to measure functional changes to brain regions during meditation. The interventions fell into the following three categories: mindfulness, most commonly mindfulness-based stress reduction (six studies); Kirtan Kriya meditation (three studies); and mindfulness-based Alzheimer's stimulation (one study). Three of these studies were randomised controlled trials. All studies reported significant findings or trends towards significance in a broad range of measures, including a reduction of cognitive decline, reduction in perceived stress, increase in quality of life, as well as increases in functional connectivity, percent volume brain change and cerebral blood flow in areas of the cortex. Limitations and directions for future studies on meditation-based treatment for AD and stress management are suggested.” (p. 791)
Author	Credentials: Not Reported Position and Institution: School of Social Sciences and Psychology, Western Sydney University, Sydney 2751, New South Wales, Australia. Publication History in Peer-Reviewed Journals: <i>do a brief search for other publications</i>
Publication	Type of publication: <i>Scholarly</i> Publisher: <i>Reviews in the Neurosciences</i>
Date and Citation History	Date of publication: September 28th, 2018 Cited By: 6
Stated Purpose or Research Question	“A narrative review of the literature was conducted with any studies using meditation as an intervention for dementia or dementia-related memory conditions meeting inclusion criteria.” (abstract)
Author's Conclusion	“All studies reported significant findings or trends towards significance in a broad range of measures, including a reduction of cognitive decline, reduction in perceived stress, increase in quality of life, as well as increases in functional connectivity, percent volume brain change and cerebral blood flow in areas of the cortex.” (abstract)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Limited Rationale: Although the intervention of mindfulness is interesting and related to the intervention aspect of our PICO question. Their study concluded that cerebral blood flow increased and percent of brain volume increased but it didn't say a lot about the mild cognitive impairment aspect of our PICO question even though it was in the title of the article.
Overall Quality of Article	Overall Quality of Article: <i>Moderate</i> Rationale: Full text not available online but if we decide to use this in our final project I can request through the interlibrary loan. I wish I had access to the full article to get a better understanding of the information.

Type of article	Overall Type: <i>Primary Research Study</i> Specific Type: Single Subject Design Method
APA Reference	Kizony, R., Korman, M., Sinoff, G., Klinger, E., Josman, N., & Sharky, P. M. (2012). Using a virtual supermarket as a tool for training executive functions in people with mild cognitive impairment. In <i>Proceedings of the 9th International Conference on Disability, Virtual Reality and Associated Technologies</i> (pp. 41-46). University of Reading, Reading, England.
Abstract	“ABSTRACT Cognitive and executive functions (EF) intervention programs for people with mild cognitive impairment (MCI) has not been studied enough, especially with the use of virtual reality. The purpose of the current study was to examine the effectiveness of using the Virtual Action Planning – Supermarket (VAP-S) to improve performance of a shopping task and EF among people with MCI. Seven participants with non-amnesic or multi-domain amnesic MCI completed the study protocol which followed an ABA single subject design. The outcome measures included the Multiple Errands Test (MET) to assess EF while performing a shopping task and the WebNeuro to assess EF impairments. Results showed that 4 participants improved their EF as assessed by the WebNeuro and 4 improved their performance of the shopping task in the MET. It seems that in some cases a learning effect occurred which explains why some of the participants did not improve. The results point to the potential of using the VAP-S as an intervention tool for training EF in people with MCI.” (p. 41)
Author	Credentials: PhD, OTR Position and Institution: Department of Occupational Therapy, Sheba Medical Center, Tel Hashomer, ISRAEL Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: <i>Scholarly</i> Publisher: Proc. 9th Intl Conf. Disability, Virtual Reality & Associated Technologies Other: <i>She has extensive publication history, and chapters in books and abstracts</i>
Date and Citation History	Date of publication: September 2012 Cited By: 9
Stated Purpose or Research Question	“The purpose of the current study was to examine the effectiveness of using the Virtual Action Planning – Supermarket (VAP-S) to improve performance of a shopping task and EF among people with MCI.” (p. 41)
Author’s Conclusion	“ Results showed that 4 participants improved their EF as assessed by the WebNeuro and 4 improved their performance of the shopping task in the MET. It seems that in some cases a learning effect occurred which explains why some of the participants did not improve. The results point to the potential of using the VAP-S as an intervention tool for training EF in people with MCI.” (p. 41)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: <i>Strong</i> Rationale: The intervention of using virtual reality could be used with individuals with MCI to help their performance not only in supermarket shopping but also in other settings as well. This article directly relates to intervention and individuals living with MCI.
Overall Quality of Article	Overall Quality of Article: <i>Moderate</i> Rationale: The main reason I say moderate is because she only used 7 participants and that can be a small sample size and it wasn’t a RCT so the data could be skewed in that way.

Type of article	Overall Type: Primary research Specific Type: Case Example
APA Reference	Rodakowski, J., Reynolds III, C. F., Lopez, O. L., Butters, M. A., Dew, M. A., & Skidmore, E. R. (2018). Developing a non-pharmacological intervention for individuals with mild cognitive impairment. <i>Journal of Applied Gerontology</i> , 37(5), 665-676.
Abstract	“The purpose of this study is to describe one potential intervention model that is designed to slow decline to disability for individuals at-risk for dementia due to Mild Cognitive Impairment. Strategy training is a treatment model that focuses on behavioral activation through addressing barriers to daily activities. Strategy training encourages development of goals and plans to address self-identified impaired processes, and it maintains or improves individuals’ ability to perform desired activities. Progression to dementia may be slowed due to the link between engagement in daily activities and production of biological factors associated with neurocognitive health. We demonstrated that an older adult with mild cognitive impairment is able to develop goals, establish effective plans, and engage in daily activities through the strategy training intervention model.” (p. 665)
Author	Credentials: OTD, MS, OTR/L, is an Assistant Professor in the Department of Occupational Therapy in the School of Health Position and Institution: Department of Occupational Therapy, University of Pittsburgh Publication History in Peer-Reviewed Journals: Extensive
Publication	Type of publication: <i>Scholarly</i> Publisher: <i>Journal of Applied Gerontology</i> Other: <i>Also published in SAGE</i>
Date and Citation History	Date of publication: March 26th, 2016 Cited By: 6
Stated Purpose or Research Question	“The purpose of this study is to describe one potential intervention model that is designed to slow decline to disability for individuals atrisk for dementia due to Mild Cognitive Impairment.” (p. 665)
Author’s Conclusion	“We demonstrated that an older adult with mild cognitive impairment is able to develop goals, establish effective plans, and engage in daily activities through the strategy training intervention model.” (p. 665)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: <i>Moderate</i> Rationale: This article relates to the PICO question because it is holistic, non-pharmacological interventions in individuals with MCI.
Overall Quality of Article	Overall Quality of Article: <i>Good</i> Rationale: The author has extensive research and is able to identify and give specific case examples. As an occupational therapy student I appreciate that this article identifies that pharmacological interventions are not always the best route with all diagnoses.

Type of article	Overall Type: Primary Research Study Specific Type: cross-sectional
APA Reference	Hedman, A., Nygård, L., Kottorp A., (2017). Everyday technology use related to activity involvement among people in cognitive decline. <i>American Journal of Occupational Therapy</i> . 71(5):7105190040p1-7105190040p8. doi: 10.5014/ajot.2017.027003.
Abstract	<p>“OBJECTIVE. We investigated how everyday technology use related to activity involvement over 5 yr in people with mild cognitive impairment.</p> <p>METHOD. Thirty-seven older adults with mild cognitive impairment were evaluated regarding everyday technology use and involvement in activities over time. Information on diagnostic changes was collected from medical files. Linear mixed-effects models were used in data analysis.</p> <p>RESULTS. Ability to use everyday technology showed a significant effect on activity involvement (p 5.007) beyond the effects of time, diagnostic change, and age. Decreases in number of everyday technologies used (p < .001) and share of accessible and relevant everyday technologies used (p 5 .04) were associated with decreasing activity involvement. However, these two aspects did not reinforce each other.</p> <p>CONCLUSION. When monitoring activity involvement in clients with cognitive decline, health care professionals should take into account clients’ ability to use everyday technologies and the amount of everyday technologies they use.” (p. 1)</p>
Author	<p>Credentials: PhD, OTR</p> <p>Position and Institution: Postdoctoral Fellow, Division of Occupational Therapy, Department of Neurobiology, Care Sciences and Society, Division of Occupational Therapy, Karolinska Institutet, Huddinge, Sweden</p> <p>Publication History in Peer-Reviewed Journals: <i>extensive</i></p>
Publication	<p>Type of publication: <i>scholarly peer-reviewed journal</i></p> <p>Publisher: <i>American Journal of Occupational Therapy</i></p> <p>Other: <i>N/A</i></p>
Date and Citation History	<p>Date of publication: 2017</p> <p>Cited By: 7</p>
Stated Purpose or Research Question	“We investigated how everyday technology use related to activity involvement over 5 yr in people with mild cognitive impairment” (p. 1).
Author’s Conclusion	“When monitoring activity involvement in clients with cognitive decline, health care professionals should take into account clients’ ability to use everyday technologies and the amount of everyday technologies they use.” (p. 1).
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Moderate</p> <p>Rationale: This study looks at how the use of technology and participations in activities can impact one’s day, specifically with mild cognitive impairment.</p>
Overall Quality of Article	<p>Overall Quality of Article: Good</p> <p>Rationale: The authors of this article all have a PhD and are OTR. This article was also published through AJOT, which is a highly regarded journal.</p>

Type of article	Overall Type: Review of research studies Specific Type: systematic review
APA Reference	Letts, L., Edwards, M., Berenyi, J., Moros, K., O'Neill, C., O'Toole, C., et al. (2011). Using occupations to improve quality of life, health and wellness, and client and caregiver satisfaction for people with Alzheimer's disease and related dementias. <i>American Journal of Occupational Therapy</i> , 65, 497–504. doi: 10.5014/ajot.2011.002584
Abstract	“An evidence-based review was undertaken to answer the question, “What is the evidence for the effect of interventions designed to establish, modify, and maintain activities of daily living (ADLs), instrumental activities of daily living (IADLs), leisure, and social participation on quality of life (QOL), health and wellness, and client and caregiver satisfaction for people with Alzheimer's disease and related dementias?” A systematic search of electronic databases and application of inclusion and exclusion criteria guided the selection of 26 articles. Limited high-level evidence on ADL interventions was identified. IADL interventions for people living in the community showed promise. Tailored and activity-based leisure interventions were common and seemed to have positive impacts on caregiver satisfaction, and some interventions had positive results for client well-being and QOL. Social participation interventions focused on people with dementia still able to engage in verbal social interactions; these interventions had at least short-term positive effects.” (p. 497)
Author	Credentials: PhD, OTR Position and Institution: Associate Professor and Assistant Dean, Occupational Therapy Program, School of Rehabilitation Science, McMaster University, Hamilton, Ontario. Publication History in Peer-Reviewed Journals: <i>extensive</i>
Publication	Type of publication: <i>Scholarly</i> Publisher: <i>American Journal of Occupational Therapy</i> Other: <i>N/A</i>
Date and Citation History	Date of publication: 2011 Cited By: 76
Stated Purpose or Research Question	“The objectives of this review were to systematically search the literature and then critically appraise and synthesize the applicable evidence to address the focused question, “What is the evidence for the effect of interventions designed to establish, modify, and maintain activities of daily living (ADLs), instrumental activities of daily living (IADLs), leisure, and social participation on quality of life (QOL), health and wellness, and client and caregiver satisfaction for people with Alzheimer's disease (AD) and related dementias?” (p. 497).
Author's Conclusion	“In the area of ADLs, we found it surprising that no high-level studies were available to guide occupational therapy practitioners to assess, plan, and implement interventions for people with AD or related dementias in an area of function that is significantly affected by the condition” (p. 501).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: <i>Strong</i> Rationale: <i>This systematic review looked at the effectiveness of many different interventions.</i>
Overall Quality of Article	Overall Quality of Article: <i>Good</i> Rationale: <i>The author of this article has a PhD and is an OTR, along with many other OTRs. This article was also published through AJOT, which is a highly regarded journal.</i>

Type of article	Overall Type: Primary Specific Type: RCT
APA Reference	Fogarty, J. N., Murphy, K. J., McFarlane, B., Montero-Odasso, M., Wells, J., Troyer, A. K., ... Hansen, K. T. (2016). Taoist Tai Chi® and memory intervention for individuals with mild cognitive impairment. <i>Journal of Aging And Physical Activity</i> , 24(2), 169–180. https://doi.org/10.1123/japa.2014-0062
Abstract	“Objective: It was hypothesized that a combined Taoist Tai Chi (TTC) and a memory intervention program (MIP) would be superior to a MIP alone in improving everyday memory behaviors in individuals with amnesic mild cognitive impairment (aMCI). A secondary hypothesis was that TTC would improve cognition, self-reported health status, gait, and balance. Method: A total of 48 individuals were randomly assigned to take part in MIP + TTC or MIP alone. The TTC intervention consisted of twenty 90 min sessions. Outcome measures were given at baseline, and after 10 and 22 weeks. Results: Both groups significantly increased their memory strategy knowledge and use, ratings of physical health, processing speed, everyday memory, and visual attention. No preferential benefit was found for individuals in the MIP + TTC group on cognition, gait, or balance measures. Conclusions: Contrary to expectations, TTC exercise did not specifically improve cognition or physical mobility. Explanations for null findings are explored.” (p. 169)
Author	Credentials: N/A Position and Institution: Lawson Health Research Institute, London, Ontario; Specialized Geriatric Services, St. Joseph’s Health Care London, London, Ontario; and Division of Geriatric Medicine and Department of Psychiatry, Faculty of Medicine, Schulich School of Medicine and Dentistry, Western University, London, Ontario. Publication History in Peer-Reviewed Journals: <i>extensive</i>
Publication	Type of publication: <i>scholarly</i> Publisher: <i>Journal of Aging and Physical Activity</i> Other: <i>N/A</i>
Date and Citation History	Date of publication: 2016 Cited By: 13
Stated Purpose or Research Question	“This project is a randomized control pilot study that aimed to evaluate the effects of a Taoist Tai Chi (TTC) exercise intervention (Davis, Voyer, & Panter, 2004) in improving everyday memory and daily function in individuals with MCI attending a MIP” (p.170).
Author’s Conclusion	“Thus, TTC did not improve cognition or physical mobility over the MIP-only group” (p.174).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Limited Rationale: This study is limited because it is only focusing on one intervention.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: This study describes in detail their findings and methods although they did have a small sample size.

Type of article	Overall Type: <i>Review of research studies</i> Specific Type: <i>systematic review</i>
APA Reference	Matyas, N., Auer, S., Gisinger, C., Kil, M., Keser Aschenberger, F., Klerings, I., & Gartlehner, G. (2017). Continuing education for the prevention of mild cognitive impairment and Alzheimer's-type dementia: a systematic review protocol. <i>Systematic Reviews</i> , 6(1), 157. https://doi.org/10.1186/s13643-017-0553-0
Abstract	<p>"Background: Because of the enormous social and economic burden of disease, the prevention of mild cognitive impairment and Alzheimer's-type dementia has become a major global public health priority. Studies show that cognitively stimulating activities during middle adulthood might have a protective effect on the brain by boosting the cognitive reserve. The aim of this review is to identify evidence investigating the effects of continuing education for the prevention of mild cognitive impairment and Alzheimer's-type dementia in late life.</p> <p>Methods: Our approach employs a two-stage design: First, we will conduct a systematic review to assess the preventive effects of continuing education on mild cognitive impairment and Alzheimer's-type dementia. Second, because we expect to find few studies, we will perform a review of systematic reviews on leisure activities that mimic formal continuing education to determine their effects on the prevention of mild cognitive impairment and Alzheimer's-type dementia. We will search electronic databases (e.g., MEDLINE, PsycINFO, EMBASE, CENTRAL, CINAHL, and Scopus) for published studies and gray literature databases (e.g., trial registries) for unpublished studies. Two authors will independently screen abstracts and full-texts using pre-defined eligibility criteria, select studies, extract data, and assess the quality of included studies or reviews. Outcomes of interest include the incidence of mild cognitive impairment or Alzheimer's-type dementia, quality of life, functional capacity, and psychological well being. Intermediate outcomes are cognitive (test) performance, cognitive functioning, and social inclusion. The review team is a multidisciplinary group consisting of methodological experts and dementia, geriatrics, and continuing education researchers.</p> <p>Discussion: We anticipate that our review will highlight serious gaps in the current evidence. Results will build the basis for further research regarding the relation of continuing education and cognitive decline and dementia." (p. 157)</p>
Author	<p>Credentials: N/A</p> <p>Position and Institution: Danube University Krems: Krems, Niederösterreich</p> <p>Publication History in Peer-Reviewed Journals: <i>extensive</i></p>
Publication	<p>Type of publication: <i>scholarly</i></p> <p>Publisher: <i>Biomed Central</i></p>
Date and Citation History	<p>Date of publication: 2017</p> <p>Cited By: 3</p>
Stated Purpose or Research Question	"The purpose of our review is to summarize the evidence investigating the effects of continuing education on the development of cognitive impairment and Alzheimer's type Dementia" (p. 2).
Author's Conclusion	We anticipate that this review will identify serious gaps in the current evidence. Our results will build the basis for further research and highlight implications for practice. (p.6).
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Limited</p> <p>Rationale: After reading thought this article it seems to be a pilot study. I would consider it limited because of that and because these are only theoretical ideas.</p>
Overall Quality of Article	<p>Overall Quality of Article: Moderate</p> <p>Rationale: I would say that this article is moderate because it does have some ideas for prevention but it does not have any data to back these ideas up yet.</p>

Type of article	Overall Type: Primary Specific Type: Randomized Control Trial
APA Reference	Tak, E. C. P. M., van Uffelen, J. G. Z., Paw, M. J. M. C. A., van Mechelen, W., & Hopman-Rock, M. (2012). Adherence to exercise programs and determinants of maintenance in older adults with mild cognitive impairment. <i>Journal Of Aging And Physical Activity</i> , 20(1), 32–46. Retrieved from https://pearl.stkate.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=21945922&site=ehost-live
Abstract	“After a randomized controlled trial showing that improvement on some aspects of cognitive function was related to adherence to an exercise program, determinants of adherence and maintenance were further studied. Older adults with mild cognitive impairment were contacted 6 mo after the end of exercise programs for a telephone interview addressing patterns of adherence and determinants of maintenance. Mean adherence during the trial was 53%. About one third of participants had lapses during the trial but completed, one third had no lapses, and one third dropped out or never started. Practical barriers (time, location) were related to not starting and functional limitations to dropout. After the trial 25% of participants continued the programs, 14% reported intention to continue, and 61% quit. Maintenance was determined by fewer health complaints, higher satisfaction with the programs, and better adherence during the programs. Although maintenance was low, this study identified several reasons and barriers to adherence and maintenance that could be addressed.” (p. 32)
Author	Credentials: N/A Position and Institution: Dept. of Health Promotion, TNO Quality of Life, Leiden, The Netherlands. van Uffelen is with the School of Human Movement Studies, University of Queensland, Brisbane, Australia. Publication History in Peer-Reviewed Journals: <i>extensive</i>
Publication	Type of publication: Scholarly Publisher: Journal of Aging and Physical Activity
Date and Citation History	Date of publication: 2012 Cited By: 47
Stated Purpose or Research Question	“The purposes of the current study were to determine the level of participation, adherence, and maintenance of the exercise programs in older adults with MCI during the 12-month trial and 6 months after its end; describe reasons and barriers for participation, adherence, and lapses; and identify determinants of maintenance 6 months after the end of the trial.” (p. 34).
Author’s Conclusion	“This study showed that maintenance of participation in exercise programs in elderly adults with MCI is low; only 25% continued exercising after the end of the 12-month RCT. In addition, self-reported habitual physical activity levels were lower than pre intervention levels, although seasonal effects cannot be ruled out” (p. 42).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: This study focuses on specifically individuals with MCI and how likely they are to stick with an exercise program.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: This article did a nice job of summarizing and displaying their findings. I also thought that for the most part their layout and explanation of their background information and methods were very helpful.

Type of article	Overall Type: Primary research Specific Type: Qualitative
APA Reference	Pasymowski, S., Roberto, K. A., & Blieszner, R. (2013). Adjustment to Mild Cognitive Impairment: Perspectives of Male Care Partners and Their Spouses. <i>Journal of Couple & Relationship Therapy</i> , 12(3), 213–234. https://doi.org/10.1080/15332691.2013.806703
Abstract	“The authors explored changes in couple dynamics in the context of mild cognitive impairment (MCI). Guided by family systems theory and the biopsychosocial model, they used grounded theory methods to examine how 11 couples perceived change in their relationships when husbands were primary care partners for their wives with MCI. Analysis revealed four major themes: (a) care partnering is like working, (b) care partnering influences interpersonal dynamics, (c) care partnering shifts roles, and (d) care partnering modifies social relations. Findings point to the usefulness of systemic therapies and interventions for helping couples adjust to the behavioral manifestations of MCI.” (p. 213)
Author	Credentials: doctoral student Position and Institution: researcher, Virginia Tech Publication History in Peer-Reviewed Journals: minimal
Publication	Type of publication: Scholarly Publisher: Taylor & Francis Other:
Date and Citation History	Date of publication: 2013 Cited By: 6
Stated Purpose or Research Question	“The purpose of this study is to explore relational dynamics of couples in the early stages of MCI in which a husband care partner provides assistance to a spouse with MCI.” (p. 214)
Author’s Conclusion	“As suggested by previous studies, improving knowledge and awareness of the behavioral manifestations of MCI among care partners and families is certainly a worthy focus of clinical intervention with these couples. However, our findings also point to the need for intervention that goes beyond mere education and attends to the construction of meaning and patterns of interaction that characterize relational dynamics in these couples.” (p. 231)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Mild Rationale: Although this article does not seem as high quality research as other articles I found, I did appreciate that it went into the experiences of caregivers in adjusting to this diagnosis of their spouse. Even though it does not have much information about interventions that are important, it seems that it would be helpful in order to come up with ideas for intervention that will reduce caregiver burden.
Overall Quality of Article	Overall Quality of Article: Mild Rationale: Few credentials, not controlled, little structure

Type of article	Overall Type: Primary Specific Type: Randomized controlled trial
APA Reference	DiNapoli, E. A., Scogin, F., Bryant, A. N., Sebastian, S., & Mundy, M. J. (2016). Effect of individualized social activities on quality of life among older adults with mild to moderate cognitive impairment in a geriatric psychiatry facility. <i>Aging & Mental Health</i> , 20(3), 262–270. https://doi.org/10.1080/13607863.2015.1008990
Abstract	“Objectives: The study examined the effect of an individualized social activities intervention (ISAI) on quality of life among older adults with mild to moderate cognitive impairment in a geriatric psychiatry facility. Method: This randomized control trial consisted of 52 older adults (M= 70.63,SD= 5.62) with mild to moderate cognitive impairment in a geriatric inpatient psychiatry facility. A 2 (group condition) × 2 (time of measurement) design was used to compare the control (treatment-as-usual) and intervention(treatment-as-usual plus ISAI) conditions at pre- and post-treatment. ISAI consisted of 30- to 60-minute sessions for up to 15 consecutive days. The Dementia Quality of Life instrument and Neurobehavioral Rating Scale – Revised were used to examine quality of life and behavioral and psychological symptoms of dementia at pre- and post-treatment. Results:Intent-to-treat analyses indicated a significant time × group condition interaction on quality of life, with this effect remaining when only completer data were included. There was no evidence of a significant treatment effect on behavioral and psychological symptoms of dementia. Conclusion: Findings suggest that individualized social activities are a promising treatment for cognitively impaired geriatric inpatients.” (p. 262)
Author	Credentials: PhD Position and Institution: Professor of Psychology, University of Alabama Publication History in Peer-Reviewed Journals: <i>extensive</i>
Publication	Type of publication: scholarly Publisher: Taylor & Francis Other:
Date and Citation History	Date of publication: 2016 Cited By: 6
Stated Purpose or Research Question	“This study compares the effectiveness of an individualized social activities intervention (ISAI; Richards, Beck, O’Sullivan, & Shue, 2005) to treatment-as-usual (TAU) care for QOL in cognitively impaired geriatric inpatients.” (p. 263)
Author’s Conclusion	“Individualized social activities were found to be feasible in a geriatric psychiatry facility, as well as appropriate for individuals with mild to moderate cognitive impairment. Exploratory results suggest that activities should be delivered for more than seven days and implemented quickly upon a patient’s inpatient admission.” (p. 268)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: This study compares many methods for intervention in geriatric populations with mild cognitive impairment. In addition to suggesting a particular method as best for intervention with this population, the researchers also give recommendations for frequency and duration for this kind of intervention. This will be helpful in completing research into our PICO question.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: RCT with ~ 50 participants

Type of article	Overall Type: Primary Specific Type: Single group design
APA Reference	Graff MJL, Vernooij-Dassen MJF, Hoefnagels WHL, Dekker J, & de Witte LP. (2003). Occupational therapy at home for older individuals with mild to moderate cognitive impairments and their primary caregivers: a pilot study. <i>OTJR: Occupation, Participation & Health</i> , 23(4), 155–164.
Abstract	“The objective of this pilot study was to explore the effects of occupational therapy on the performance of daily activities by older individuals with cognitive impairments and on the sense of competence of their primary caregivers. The design was a single group design. Older individuals with cognitive impairments and their primary caregivers were assessed prior to the first occupational therapy visit in hospital and after 5 weeks of occupational therapy at home. Participants were older individuals with mild to moderate cognitive impairments living at home (n = 12) and their primary caregivers (n = 12). These older clients with cognitive impairments and their primary caregivers received an occupational therapy intervention in hospital and at home after discharge in accordance with an occupational therapy guideline. This guideline is client-centered and makes use of collaborative, psychosocial, and environmental approaches. The main outcome measures were older clients' motor and process skills, initiative, need for assistance, self-perception in occupational performance, and satisfaction with this performance in daily activities and primary caregivers' sense of competence. The results of this study indicated that older clients' motor and process skills and self-perception in occupational performance improved and that they needed less help. The sense of competence of their primary caregivers also improved. This study provides preliminary evidence for the effectiveness of occupational therapy in older individuals with cognitive impairments and their primary caregivers, which should be tested in a randomized, controlled trial.” (p. 155)
Author	Credentials: PhD Position and Institution: Chair of Occupational Therapy, Radboud University Publication History in Peer-Reviewed Journals: <i>extensive</i>
Publication	Type of publication: scholarly Publisher: American Occupational Therapy Foundation Other: lead journal in occupational therapy
Date and Citation History	Date of publication: 2003 Cited By: 55
Stated Purpose or Research Question	“The aim of this pilot study was to explore the effects of an occupational therapy intervention on the performance of daily activities by older individuals with mild to moderate cognitive impairments and on the sense of competence of their primary caregivers.” (p. 156)
Author's Conclusion	“The motor and process skills of older individuals with cognitive impairments increased, their need for assistance decreased, and the primary caregivers' sense of competence also increased.” (p. 161)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: This study looks at occupational therapy interventions and how they affect occupational performance of individuals with mild to moderate cognitive impairment. However, as this study was not controlled and had a broader population than just people with mild cognitive impairment, it is only moderately relevant.
Overall Quality of Article	Overall Quality: Moderate Rationale: Vague intervention, single-group design has little power

Type of article	Overall Type: Primary Specific Type: Randomized clinical trial
APA Reference	Hyer, L., Scott, C., Atkinson, M. M., Mullen, C. M., Lee, A., Johnson, A., & McKenzie, L. C. (2016). Cognitive Training Program to Improve Working Memory in Older Adults with MCI. <i>Clinical Gerontologist</i> , 39(5), 410–427. https://doi.org/10.1080/07317115.2015.1120257
Abstract	<p>“Objectives: Deficits in working memory (WM) are associated with age-related decline. We report findings from a clinical trial that examined the effectiveness of Cogmed, a computerized program that trains WM. We compare this program to a Sham condition in older adults with Mild Cognitive Impairment (MCI).Methods:Older adults (N= 68) living in the community were assessed. Participants reported memory impairment and met criteria for MCI, either by poor delayed memory or poor performance in other cognitive areas. The Repeatable Battery for the Assessment of Neuropsychological Status (RBANS, Delayed Memory Index) and the Clinical Dementia Rating scale (CDR) were utilized. All presented with normal Mini Mental State Exams (MMSE) and activities of daily living (ADLs). Participants were randomized to Cogmed or a Sham computer program. Twenty-five sessions were completed over five to seven weeks. Pre, post, and follow-up measures included a battery of cognitive measures (three WM tests), a subjective memory scale, and a functional measure.Results:Both intervention groups improved over time. Cogmed significantly outperformed Sham on Span Board and exceeded in subjective memory reports at follow-up as assessed by the Cognitive Failures Questionnaire (CFQ). The Cogmed group demonstrated better performance on the Functional Activities Questionnaire (FAQ), a measure of adjustment and far transfer, at follow-up. Both groups, especially Cogmed, enjoyed the intervention.Conclusions:Results suggest that WM was enhanced in both groups of older adults with MCI. Cogmed was better on one core WM measure and had higher ratings of satisfaction. The Sham condition declined on adjustment.” (p. 410)</p>
Author	<p>Credentials: PhD Position and Institution: Professor, Mercer Medical School, Georgia Publication History in Peer-Reviewed Journals: <i>extensive</i></p>
Publication	<p>Type of publication: Scholarly Publisher: Taylor & Francis Other:</p>
Date and Citation History	<p>Date of publication: 2016 Cited By: 21</p>
Stated Purpose or Research Question	“In this study, we report findings from a clinical trial that examined the effectiveness of Cogmed on older adults with MCI compared to a Sham condition. Participants met criteria for MCI.” (p. 413)
Author’s Conclusion	“The improvement observed in both groups suggests that any CT may be of value, which is congruent with previous research.” (p. 418)
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Moderate Rationale: This study supports evidence that cognitive training is helpful in cases of MCI. This information can be helpful in researching our PICO question.</p>
Overall Quality of Article	<p>Overall Quality of Article: Good Rationale: good design, researcher had extensive experience, many assessments</p>

Type of article	Overall Type: Primary Specific Type: Cross Sectional
APA Reference	Paradise, M., McCade, D., Hickie, I. B., Diamond, K., Lewis, S. J. G., & Naismith, S. L. (2015). Caregiver burden in mild cognitive impairment. <i>Aging & Mental Health</i> , 19(1), 72–78. https://doi.org/10.1080/13607863.2014.915922
Abstract	“Objectives: We aimed to compare the rates of burden amongst caregivers of participants with mild cognitive impairment (MCI), compared to a control group. We also aimed to identify factors in both the caregiver and patient that are associated with significant levels of burden. Method: This was a cross-sectional study. Sixty-four participants with MCI, 36 control-participants and their respective caregivers/informants were recruited to a university research clinic. The proportion of those who showed clinically significant levels of burden was determined by a Zarit Burden Interview score of >21. The associations of burden in MCI-caregivers were calculated in the following categories; participant characteristics (including depressive symptoms, cognition and informant ratings of cognitive and behavioural change); caregiver characteristics; and the caregiving context. Multivariate analyses were performed to examine the relative contribution of individual variables to burden amongst MCI-caregivers. Results: We found that 36% of MCI-caregivers reported clinically significant levels of burden, twice that of the control informant group. Participant behavioural problems contribute most to burden, with participant depression and possibly cognition also having a significant association. Conclusion: Caregiver burden is a considerable problem in MCI and shares some of the same characteristics as caregiver burden in dementia, namely a strong association with challenging behaviours in the patient. This has implications for further research and intervention studies.” (p. 72)
Author	Credentials: Psychiatrist with Master’s degree in psychiatry research Position and Institution: Research Fellow, Centre for Healthy Brain Ageing, University of New South Wales Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: scholarly Publisher: Taylor & Francis Other:
Date and Citation History	Date of publication: 2015 Cited By: 28
Stated Purpose or Research Question	“The primary aim is to report the prevalence of significant levels of burden amongst caregivers of people with MCI, compared to informants of control-participants. Second, to identify which factors are associated with significant levels of burden based on findings from dementia research in three categories; patient characteristics, caregiver characteristics and the caregiving context.” (p. 73)
Author’s Conclusion	“This study shows that burden is common in the caregivers of MCI-participants, with 36% reporting clinically significant levels of burden. When factors responsible for this burden were explored, depression reported by the MCI-participant, functional/ behavioural problems and possibly cognition were significant. On multivariate analysis, it was found that participant functional/behavioural problems as a whole contributed most to caregiver burden.” (p. 75)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Mild Rationale: This article has relevance because it goes into the factors involved in caregiver burden in caregivers of people with MCI. However, interventions are not discussed, so it would be more helpful to find a study that discusses ways to intervene with these particular reasons mentioned for caregiver burden.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: Controlled, thorough, researcher is experienced

Type of article	Overall Type: Primary Specific Type: Randomized control trial
APA Reference	Cuc, A. V., Locke, D. E., Duncan, N., Fields, J. A., Snyder, C. H., Hanna, S., ... & Chandler, M. (2017). A pilot randomized trial of two cognitive rehabilitation interventions for mild cognitive impairment: caregiver outcomes. <i>International journal of geriatric psychiatry</i> , 32(12), e180-e187.
Abstract	“Objective—To provide effect size estimates of the impact of two cognitive rehabilitation interventions provided to patients with Mild Cognitive Impairment (MCI): computerized brain fitness exercise (BF) and memory support system (MSS), on support partners' outcomes of depression, anxiety, quality of life, and partner burden. Methods—Randomized controlled pilot trial. Results—At 6 months, the partners from both treatment groups showed stable to improved depression scores, while partners in an untreated control group showed worsening depression over six months. There were no statistically significant differences on anxiety, quality of life or burden outcomes in this small pilot trial; however, effect sizes were moderate suggesting the sample sizes in this pilot study were not adequate to detect statistical significance. Conclusion—Either form of cognitive rehabilitation may help partners' mood, compared to providing no treatment. However, effect size estimates related to other partner outcomes (i.e., burden, quality of life, anxiety) suggest follow-up efficacy trials will need sample sizes of at least 30-100 people per group to accurately determine significance.” (p. e180)
Author	Credentials: LCSW Position and Institution: Psychotherapist: Mayo Clinic Arizona, Division of Psychology Publication History in Peer-Reviewed Journals: Extensive
Publication	Type of publication: Scholarly Publisher: Wiley Other: This study was associated with Mayo Clinics across the United States.
Date and Citation History	Date of publication: December, 2017 Cited By: 2
Stated Purpose or Research Question	“To provide effect size estimates of the impact of two cognitive rehabilitation interventions provided to patients with Mild Cognitive Impairment (MCI): computerized brain fitness exercise (BF) and memory support system (MSS), on support partners' outcomes of depression, anxiety, quality of life, and partner burden,” (p. 1).
Author's Conclusion	“In these small samples, our results suggest that MSS or BF cognitive rehabilitation with a person who has MCI, and their support partner, positively impacts support partner depression scores over 6 months in comparison to a no-treatment control group,” (p. 8).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: This source evaluates the effect that two different types of mild cognitive impairment has on the individual's caregiver, which addresses the caregiver burden aspect of our research question.
Overall Quality of Article	Overall quality of article: Good This is a randomized control trial published in a reputable journal and written by professionals that are familiar with cognitive impairments in older adulthood.

Type of article	Overall Type: Secondary Source Specific Type: Systematic Review
APA Reference	Leung, P., Orrell, M., & Orgeta, V. (2015). Social support group interventions in people with dementia and mild cognitive impairment: a systematic review of the literature. <i>International journal of geriatric psychiatry</i> , 30(1), 1-9.
Abstract	“Objectives: Despite the large number of studies evaluating social support groups for people with dementia, there are no systematic reviews of current evidence. The aim of this study was to evaluate the effectiveness of social support group interventions for people with dementia and mild cognitive impairment. Methods: A systematic review was performed. We searched electronic databases for randomised controlled trials. Two reviewers worked independently to select trials, extract data and assess risk of bias. Results: A total of 546 studies were identified of which two met the inclusion criteria. We were not able to pool data for further analyses, as the interventions tested in the studies meeting the inclusion criteria were too dissimilar in content. The first trial (n = 136) showed a benefit of early-stage memory loss social support groups for depression and quality of life in people with dementia. The second trial (n = 33) showed that post-treatment self-reported self-esteem was higher in the group receiving a multicomponent intervention of social support compared with that in the no intervention control group. Conclusions: Limited data from two studies suggest that support groups may be of psychological benefit to people with dementia by reducing depression and improving quality of life and self-esteem. These findings need to be viewed in light of the small number, small sample size and heterogeneous characteristics of current trials, indicating that it is difficult to draw any conclusions. More multicentre randomised controlled trials in social support group interventions for people with dementia are needed.” (p. 1)
Author	Credentials: PhD Position and Institution: Postdoctoral Research Associate: University College, London Publication History in Peer-Reviewed Journals: <i>Extensive</i>
Publication	Type of publication: Scholarly Publisher: Wiley Other: two independent reviewers selected and analyze articles to avoid bias.
Date and Citation History	Date of publication: 2014 Cited By: 36
Stated Purpose or Research Question	“The aim of this study was to evaluate the effectiveness of social support group interventions for people with dementia and mild cognitive impairment,” (p. 2)
Author’s Conclusion	“This review provides some evidence for the effectiveness of social support group interventions for people with early-stage dementia; however, this conclusion is based on a small number of trials with small sample sizes.” (p. 9)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: This systematic review provides in-depth information on one specific intervention through review of the literature. This article addresses or research question by analyzing social support groups as an intervention for mild cognitive impairment.
Overall Quality of Article	Overall quality of article: Good This is a systematic review that was published by a well respected publisher. The author appears to be knowledgeable about the cognitive impairment, and has published extensively.

Type of article	Overall Type: Secondary Specific Type: Systematic Review
APA Reference	Martin, M., Clare, L., Altgassen, A. M., Cameron, M. H., & Zehnder, F. (2011). Cognition-based interventions for healthy older people and people with mild cognitive impairment. <i>Cochrane Database of Systematic Reviews</i> , (1) doi:10.1002/14651858.CD006220.pub2
Abstract	Background Evidence from some, but not all non-randomised studies suggest the possibility that cognitive training may influence cognitive functioning in older people. Due to the differences among cognitive training interventions reported in the literature, giving a general overview of the current literature remains difficult. Objectives To systematically review the literature and summarize the effect of cognitive training interventions on various domains of cognitive function (ie memory, executive function, attention and speed) in healthy older people and in people with mild cognitive impairment. Search methods The Cochrane Specialized Register was searched on 30 September 2007 for all years up to December 2005. <i>The Cochrane Library</i> , MEDLINE, EMBASE, PsycINFO and CINAHL were searched separately on 30 September 2007 to find trials with healthy people. These results were supplemented by searches from January 1970 to September 2007 in PsychInfo/Psyndex, ISI Web of Knowledge and PubMed. Selection criteria RCTs of interventions evaluating the effectiveness of cognitive training for healthy older people and people with mild cognitive impairment from 1970 to 2007 that met inclusion criteria were selected. Data collection and analysis Authors independently extracted data and assessed trial quality. Meta-analysis was performed when appropriate. Main results Only data on memory training could be pooled for analysis. Within this domain, training interventions were grouped according to several outcome variables. Results showed that for <i>healthy older adults</i> , immediate and delayed verbal recall improved significantly through training compared to a no-treatment control condition. We did not find any specific memory training effects though as the improvements observed did not exceed the improvement in the active control condition. For <i>individuals with mild cognitive impairment</i> , our analyses demonstrate the same pattern. Thus, there is currently little evidence on the effectiveness and specificity of memory interventions for healthy older adults and individuals with mild cognitive impairment. Authors' conclusions There is evidence that cognitive interventions do lead to performance gains but none of the effects observed could be attributable specifically to cognitive training, as the improvements observed did not exceed the improvement in active control conditions. This does not mean that longer, more intense or different interventions might not be effective, but that those which have been reported thus far have only limited effect. We therefore suggest more standardized study protocols in order to maximize comparability of studies and to maximize the possibility of data pooling - also in other cognitive domains than memory" (p. 1)
Author	Credentials: PhD, Professor Position and Institution: Department head of the Psychological Institute of Gerontopsychology and Gerontology at the University of Zurich Publication History in Peer-Reviewed Journals: <i>Extensive</i>
Publication	Type of publication: Scholarly Publisher: Wiley Other: This article is from the Cochrane Database of Systematic Reviews
Date and Citation History	Date of publication: 2011 Cited By: 297
Stated Purpose or Research Question	"To systematically review the literature and summarize the effect of cognitive training interventions on various domains of cognitive function (ie memory, executive function, attention and speed) in healthy older people and in people with mild cognitive impairment.." (p. 1)
Author's Conclusion	"...results show that most interventions were effective, with significant improvements following training for the treatment group. However, the effects were significantly better for treatment compared to no contact control in only two of the seven cognitive domains with sufficient data for meta-analysis, namely immediate and delayed recall." (p. 10)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: This systematic review analyzed effects of cognitive based interventions for individuals with mild cognitive impairment. This article is relevant to our question because it addresses the efficacy of a particular type of intervention on individuals with mild cognitive impairment.
Overall Quality of Article	Overall quality of article: Good This is a systematic review published in a reputable journal by a professional in the field of gerontopsychology. This article has been cited over two hundred times.

Type of article	Overall Type: Primary Specific Type: Randomized control trial
APA Reference	Hampstead, B. M., Sathian, K., Phillips, P. A., Amaraneni, A., Delaune, W. R., & Stringer, A. Y. (2012). Mnemonic strategy training improves memory for object location associations in both healthy elderly and patients with amnesic mild cognitive impairment: A randomized, single-blind study. <i>Neuropsychology</i> , 26(3), 385.
Abstract	“Objective: To evaluate the efficacy of mnemonic strategy training versus a matched-exposure control condition and to examine the relationship between training-related gains, neuropsychological abilities, and medial temporal lobe volumetrics in patients with amnesic mild cognitive impairment (aMCI) and age-matched healthy controls. Method: Twenty-three of 45 screened healthy controls and 29 of 42 screened patients with aMCI were randomized to mnemonic strategy or matched-exposure groups. Groups were run in parallel, with participants blind to the other intervention. All participants completed five sessions within 2 weeks. Memory testing for object–location associations (OLAs) was performed during sessions one and five and at a 1-month follow-up. During Sessions 2–4, participants received either mnemonic strategy training or a matched number of exposures with corrective feedback for a total of 45 OLAs. Structural magnetic resonance imaging was performed in most participants, and medial temporal lobe volumetrics were acquired. Results: Twenty-one healthy controls and 28 patients with aMCI were included in data analysis. Mnemonic strategy training was significantly more beneficial than matched exposure immediately after training, $p = .006$, partial $\eta^2 = .16$, and at 1 month, $p < .001$, partial $\eta^2 = .35$, regardless of diagnostic group (healthy group or aMCI group). Although patients with aMCI demonstrated gains comparable to the healthy control groups, their overall performance generally remained reduced. Mnemonic strategy-related improvement was correlated positively with baseline memory and executive functioning and negatively with inferior lateral ventricle volume in patients with aMCI; no significant relationships were evident in matched-exposure patients. Conclusion: Mnemonic strategies effectively improve memory for specific content for at least 1 month in patients with aMCI.” (p. 385)
Author	Credentials: PhD Position and Institution: Associate professor at the University of Michigan's department of psychiatry. Publication History in Peer-Reviewed Journals: Extensive
Publication	Type of publication: Scholarly Publisher: American Psychological Association
Date and Citation History	Date of publication: 2012 Cited By: 66
Stated Purpose or Research Question	“To evaluate the efficacy of mnemonic strategy training versus a matched-exposure control condition and to examine the relationship between training-related gains, neuropsychological abilities, and medial temporal lobe volumetrics in patients with amnesic mild cognitive impairment (aMCI) and age-matched healthy controls.” (p. 385)
Author's Conclusion	“Overall, our results indicate that mnemonic strategies are superior to exposure, with benefits that persist for at least one month after training.” (p. 395)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: This study addressed our research question because it was a randomized experiment that studied the effects of mnemonic strategy training on individuals with mild cognitive impairment.
Overall Quality of Article	Overall quality of article: Good This is a randomized control trial that has been cited sixty-six times. This study was written by professionals in the field of psychiatry and it was published by the American Psychological Association, which is a well respected organization.

Type of article	Overall Type: Primary Specific Type: Randomized trial
APA Reference	Varela, S., Ayán, C., Cancela, J. M., & Martín, V. (2012). Effects of two different intensities of aerobic exercise on elderly people with mild cognitive impairment: a randomized pilot study. <i>Clinical rehabilitation</i> , 26(5), 442-450.
Abstract	<p>“Objective: To evaluate the effect of different intensities of aerobic exercise on elderly people with mild cognitive impairment. Design: A randomized trial. Setting: Residential care homes for elderly people. Subjects: Forty-eight patients were included in the study. Interventions: The patients were randomized in three groups. Group A performed aerobic exercise at 40% of heart rate reserve, group B did the same at 60% and group C carried out recreational activities. The duration of the study was three months. Main measures: Cognitive level and functional ability were assessed by means of the Mini Mental State Examination and the Timed Up and Go test before the intervention, at the end of it and three months later as a follow-up. Results: After completion of the aerobic training programme, the patients’ Mini Mental State Examination scores improved marginally (group A from 19.8 ± 5.1 to 20.6 ± 7.3; group B from 20.8 ± 4.6 to 21 ± 5.4). A similar trend was observed for the Timed Up and Go test scores (group A from 18.8 ± 5.3 to 18.5 ± 5 seconds; group B from 15.4 ± 4.2 to 14.3 ± 5.1 seconds). However, no statistically significant differences were found at any time during the evaluation regarding cognitive level and functional autonomy among the three groups. Conclusion: In this pilot study, intensity does not seem to be a determining factor when aerobic exercise is performed by people with mild cognitive impairment.” (p. 442)</p>
Author	Credentials: NA Position and Institution: Position NA. University of Vigo, Spain Publication History in Peer-Reviewed Journals: 4
Publication	Type of publication: Scholarly Publisher: SAGE Other: This article provides an international perspective on intervention for individuals with mild cognitive impairment.
Date and Citation History	Date of publication: 2011 Cited By: 61
Stated Purpose or Research Question	“...we aimed to find out the effects of two different intensity levels of aerobic exercise on mild cognitive impairment patients.” (p. 443)
Author’s Conclusion	“This study shows that there is no difference between the effects of three months of aerobic training whether it is prescribed at a low or at a moderate intensity, over cognitive decline and functional autonomy in elderly people with mild cognitive impairment. Both exercise interventions seemed to have slowed cognitive deterioration slightly and somehow improved functional level. ” (p. 446)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: This article relates to the research question by identifying the effects of different intensities of exercise on individuals with mild cognitive impairment. The authors found no difference between intensities, however, this is helpful in providing specifications for the effectiveness of different types of interventions.
Overall Quality of Article	Overall quality of article: Moderate This is a randomized control trial that was published in a scholarly, well respected journal. Because this is an international article, it is difficult to verify the credentials of the authors.

Type of article	Overall Type: Conceptual or Theoretical Article Specific Type: Review Article
APA Reference	Vance, E. (2006). A Brief review of selected cognitive remediation therapies for older adults. <i>Physical & occupational therapy in geriatrics</i> , 24(4), 15-32, DOI: 10.1080/J148v24n04_02
Abstract	“Cognitive reserve theories posit that subtle cognitive declines occur as a function of normal aging as well as a host of physiological, lifestyle, and environmental factors. Such cognitive declines can impair everyday functioning and reduce quality of life in older adults. Fortunately, cognitive remediation interventions continue to be developed, refined, and validated in multiple populations and contexts. Such cognitive remediation interventions promote neuroplasticity and increase cognitive reserve, which facilitate successful cognitive aging. With the efficacy of such cognitive remediation interventions, improvement in specific cognitive abilities as well as everyday functioning can occur, resulting in better adaptation to age-related changes. Underlying principles of cognitive remediation interventions are stated. Concomitantly, several cognitive remediation interventions are elucidated; limitations and strengths are provided for practical implementation of such techniques. Finally, implications for continued research in this area are suggested.” (p. 15)
Author	Credentials: PhD, MGS Position and Institution: Research Assistant Professor, Center for Aging and Mobility in Translational Research and Department of Psychology, University of Alabama at Birmingham, Birmingham, AL Publication History in Peer-Reviewed Journals: Extensive research regarding older adults, MCI, and neurocognitive functioning
Publication	Type of publication: Peer-reviewed article Publisher: Taylor & Francis Group Other: provide any other specific information that helps you evaluate the source of information
Date and Citation History	Date of publication: 2009 Cited By: 4
Stated Purpose or Research Question	“The purpose of this paper is to provide an overview of cognitive remediation interventions in older adults with subtle and mild cognitive impairment.” (p.17)
Author’s Conclusion	“Fortunately, several cognitive remediation therapies can be used to mitigate some age-related cognitive declines. However, therapists may consider altering the type, duration, or intensity of such intervention based upon the performance capabilities of their clients. In conclusion, cognitive remediation therapies may be combined with other approaches in not only reducing age-related cognitive declines, but also in improving cognition and everyday performance.” (p.29)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: Summaries 5 relevant interventions: speed of processing training, memory training, reasoning training, and psychomotor training; and their strengths and limitations.
Overall Quality of Article	Overall Quality of Article: Good Rationale: A theoretical article is not as strong of evidence as an RCT but the author has good credentials and the authors’ references are strong and it is peer-reviewed.

Type of article	Overall Type: Review of Research Studies Specific Type: Systematic Review
APA Reference	Yuill, N. & Hollis, V. (2011). A systematic review of cognitive stimulation therapy for older adults with mild to moderate dementia: An occupational therapy perspective. <i>Occupational Therapy International</i> , 18, 163-186. DOI:10.1002/oti.315
Abstract	“In response to the need for effective non-pharmacological approaches for individuals with mild to moderate dementia, cognitive stimulation therapy (CST) interventions aim to optimize cognitive function. The present literature review explored the effectiveness of CST and the congruence of this approach with occupational therapy. Twenty-four databases and 13 “grey” sources were searched. Relevant papers were analysed using the McMaster Critical Literature Review Guidelines, the Modified Jadad Quality Scale and the Oxford Centre for Evidence-based Medicine Levels of Evidence Scale. To establish the congruence of CST with occupational therapy, themes were identified using the International Classification of Functioning and professional values outlined by the Canadian Association of Occupational Therapists. Twelve studies demonstrated a trend towards delayed cognitive decline following CST. This intervention strategy is congruent with occupational therapy values and may provide a useful structural framework to build rehabilitation programmes for this population. Psychometric properties of the McMaster Guidelines have not yet been established, and there is no standardized way to extract quantitative data from this measure. There is a need for further research exploring outcomes of CST interventions within the context of everyday function in individuals experiencing cognitive decline.” (p. 163)
Author	Credentials: No credentials, appears to be a student Position and Institution: Bethany Care Centre, Calgary, AB, Canada Publication History in Peer-Reviewed Journals: 1
Publication	Type of publication: Peer-Reviewed article Publisher: Wiley Online Library
Date and Citation History	Date of publication: 2011 Cited By: 19
Stated Purpose or Research Question	“The present literature review explored the effectiveness of CST and the congruence of this approach with occupational therapy.” (p.1)
Author’s Conclusion	“The use of CST is supported by quality evidence that has demonstrated a clinically meaningful degree of effectiveness in maintaining cognitive function.” “CST is appropriate to be implemented by occupational therapists as the approach encompasses values and goals central to the profession.” (p.171)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderately low Rationale: This review article gives a good overview of relevant and practical OT concepts regarding MCI and treatments such as contextual factors, and OT and dementia treatment. Includes results summary of CST intervention based primarily on RCTs, the clinical importance and implications for OT. However, it is primarily written by a student who has no publication history.
Overall Quality of Article	Overall Quality of Article: Fair to moderate Rationale: The main author has no credentials, however the search methods were good and evaluated a large number of RCTs with low bias as it incorporated “grey” articles as well.

Type of article	Overall Type: Primary research study Specific Type: Quasi-experimental study
APA Reference	Brooker, D. & Duce, L. (2010). Well-being and activity in dementia: A comparison of group reminiscence therapy, structured goal directed group activity and unstructured. <i>Journal of Aging & Mental Health</i> , 4(4) 354-358.
Abstract	“A within-subjects design was utilized to compare levels of wellbeing demonstrated by 25 individuals with mild to moderate dementia during three types of activity. The first was simple group reminiscence therapy (RT), using objects and photographs; the second was group activities (GA), involving simple goal directed crafts or games; and the third was unstructured time (UT), during which participants were left to their own devices with little staff interaction. These activities were all part of the usual programme of activities within three day hospitals where the study took place. Dementia Care Mapping was used to measure relative levels of wellbeing or illbeing during these three conditions. The results indicated that individuals experienced a greater level of relative wellbeing during RT than GA. The level of wellbeing in both RT and GA was significantly higher than in UT.” (p. 354)
Author	Credentials: PhD, MSc, BSc Position and Institution: Director of the Oxford Dementia Centre, Oxford Brookes University & Clinical Psychology Trainee Publication History in Peer-Reviewed Journals: Extensive, many research articles and book chapters published on EBP practice and person centered care for individuals with dementia
Publication	Type of publication: Peer-reviewed article Publisher: EBSCO Host
Date and Citation History	Date of publication: 2000 Cited By: 226
Stated Purpose or Research Question	“Within the current study, DCM was used to assess the wellbeing of people with dementia during three types of activity in three National Health Service day hospitals in a rural community in the UK.” (p.355)
Author’s Conclusion	“In summary, the results indicate that people attending the reminiscence groups sustained a higher level of wellbeing during this activity than during other structured group activities available.” (p.357) “This study also demonstrated that, without planned activity, levels of wellbeing quickly deteriorated within care settings.” (p.357)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: Although this research used a convenience sample of 25 individuals with mild or moderate dementia or Alzheimer’s it provides good information to compare the effectiveness of reminiscence therapy, group activities, or unstructured time on the well-being of older adults. The author also has good credentials and it has a high impact factor. The results are also based on a 2-week intervention and therefore we do not know if the results of well-being will be maintained.
Overall Quality of Article	Overall Quality of Article: Good Rationale: The author has good credentials and the article has a high impact factor, however there was no longitudinal measure and it used a convenience sample.

Type of article	Overall Type: Primary Research Study Specific Type: Quasi-experimental Design
APA Reference	Ciro, C., Dao, H., Anderson, M., Robinson, C., Hamilton, T., & Hershey, L. (2014). Improving daily life skills in people with dementia: Testing the STOMP intervention model. <i>Journal of Alzheimer's Disease and Parkinsonism</i> , 4(165), 2161-0460.
Abstract	“People with Alzheimer's disease and related dementias suffer inevitable losses in the performance of daily life activities. Emerging research demonstrates that improvement in performance may be achievable, yet clinicians lack a standardized approach for evaluation, planning and implementation. The STOMP intervention (Skill-building through Task-Oriented Motor Practice) was created using current knowledge of teaching new behaviours through motor learning principles and task-dependent neuroplasticity which occurs through mass practice and task-specific training. In this quasi-experimental design, we sought to examine the feasibility of the techniques, tolerance of a mass practice schedule and efficacy of the intervention for improving performance in daily life skills and reducing caregiver burden. Our results indicated that participants not only improved in their performance of daily living skills but also maintained the improvement at the three-month follow-up. Mass practice schedules were tolerated by people with mild-moderate dementia. Caregiver burden was unchanged at either follow-up period. Future research examining the advantages conferred from delivering STOMP in the home environment is recommended.” (p. 2161).
Author	Credentials: PhD, OTR/L, FAOTA Position and Institution: Department of Rehabilitation Science, University of Oklahoma Health Sciences Center 1200 Stonewall Avenue, Oklahoma City, USA Publication History in Peer-Reviewed Journals: Good, 34 OT related research
Publication	Type of publication: Peer-reviewed Publisher: OMICS International Other: Open-access, peer-reviewed medical, pharmaceutical and engineering articles
Date and Citation History	Date of publication: 2014 Cited By: 8
Stated Purpose or Research Question	“The goal was to create an evidence informed intervention model for improving daily life skills performance in people with dementia that not only structured the evaluation, but also intervention planning and implementation strategies.” (p.1)
Author's Conclusion	“By using the STOMP intervention model to improve performance in daily life skills, we found a statistically significant improvement in examiner- and caregiver-reported performance that was retained three months post- intervention.” (p.8)
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: Only 6 participants, but it tests a new MCI intervention that focuses on caregiver burden, improving functioning in daily life skills, and it provides specific examples and tables of the intervention process: evaluation, planning, and implementation.
Overall Quality of Article	Overall Quality of Article: Good Rationale: Author has good credentials and the study included a 3-month follow up, however it came from an open-access publisher which could compromise the integrity of the study.

Type of article	Overall Type: Primary Research Study Specific Type: Pre-test/Post-test (Pre-experiment)
APA Reference	Dooley, N. & Hinojosa, J. (2004). Improving quality of life for persons with Alzheimer's disease and their family caregivers: Brief occupational therapy intervention. <i>The American Journal of Occupational Therapy</i> , 58, 561-569.
Abstract	<p>"OBJECTIVE: This study examined the extent to which adherence to occupational therapy recommendations would increase the quality of life of persons with Alzheimer's disease living in the community and decrease the burden felt by family members caring for them.</p> <p>METHOD: Using a pretest-posttest control group design, the Assessment of Instrumental Function (AIF) was administered to two groups of persons with Alzheimer's disease in their own homes ($n = 40$). Caregivers completed measures of their feelings of burden and the quality of life, including level of function of the persons with Alzheimer's disease.</p> <p>RESULTS: A significant (MANCOVA) main effect was obtained for caregiver burden and three components of quality of life, positive affect, activity frequency and self-care status, by the treatment group, $F(4, 31) = 7.34, p < .001$.</p> <p>CONCLUSIONS: Individualized occupational therapy intervention based on the person-environment fit model appears effective for both caregivers and clients. This is especially important in light of a recent directive for more favorable reimbursement for occupational therapy services for persons with dementia." (p. 561)</p>
Author	<p>Credentials: PhD, OTR</p> <p>Position and Institution: Assistant Professor, New England Institute of Technology</p> <p>Publication History in Peer-Reviewed Journals: Minimal</p>
Publication	<p>Type of publication: Peer-reviewed</p> <p>Publisher: AJOT</p>
Date and Citation History	<p>Date of publication: 2004</p> <p>Cited By: 128</p>
Stated Purpose or Research Question	"This study examined the extent to which adherence to occupational therapy recommendations would increase the quality of life of persons with Alzheimer's disease living in the community and decrease the burden felt by family members caring for them." (p.561)
Author's Conclusion	"Participants whose caregivers received and followed occupational therapy recommendations derived from the AIF had significantly higher scores on quality of life variables at the posttest than those who did not receive the recommendations. Caregivers had significantly lower feelings of burden than those who did not receive the recommendations." (p. 566)
Overall Relevance to PICO or EBP Research Question	<p>Overall Relevance to PICO: Strong</p> <p>Rationale: The intervention provided to 40 persons with Alzheimer's, it used the AIF assessment which focused on ADL occupational performance items like safety, medication administration, money management, and meal planning and preparation. It also addressed caregiver burden and caregiver approaches for intervention. Focus on improvement of QOL, environmental modifications. It also has a high impact factor and the credentials of the author are distinguished and relevant.</p>
Overall Quality of Article	<p>Overall Quality of Article: Good</p> <p>Rationale: The author has good credentials and the article is peer-reviewed from AJOT and has a high impact factor, however there was no follow-up measure.</p>