

2019

# Expanding the impact of occupational therapy into primary care within the veterans administration

---

<https://hdl.handle.net/2144/38147>

*Downloaded from DSpace Repository, DSpace Institution's institutional repository*

BOSTON UNIVERSITY  
SARGENT COLLEGE OF HEALTH AND REHABILITATION SCIENCES

Doctoral Project

**EXPANDING THE IMPACT OF OCCUPATIONAL THERAPY INTO  
PRIMARY CARE WITHIN THE VETERANS ADMINISTRATION**

by

**NICOLE MARIE YARBROUGH**

B.A., University of Notre Dame, 2016

Submitted in partial fulfillment of the  
requirements for the degree of  
Doctor of Occupational Therapy

2019

© 2019 by  
NICOLE MARIE YARBROUGH  
All rights reserved

Approved by

Academic Mentor

---

Simone V. Gill, Ph.D., OT, OTR  
Associate Professor of Occupational Therapy  
Associate Professor of Psychological and Brain Sciences  
Assistant Professor of Medicine

Site Mentor

---

Sandra Stoll, MA, OTR/L, CHES, LIP  
PMRS Supervisor Outpatient PT/OT

## **ACKNOWLEDGMENTS**

I would like to thank my parents, Rick and Barbie, and my brother, Carsten, for their support throughout my learning journey. I would also like to thank my Boston friends and my husband, Brian, for their advice and encouragement in the beginning of my professional life.

**EXPANDING THE IMPACT OF OCCUPATIONAL THERAPY INTO  
PRIMARY CARE WITHIN THE VETERANS ADMINISTRATION**

**NICOLE MARIE YARBROUGH**

Boston University, Sargent College of Health and Rehabilitation Sciences, 2019

Major Professor: Simone V. Gill, Ph.D., OT, OTR , Associate Professor of Occupational Therapy, Associate Professor of Psychological and Brain Sciences, Assistant Professor of Medicine

**ABSTRACT**

This doctoral project presents an example of the integration occupational therapy (OT) into primary care to improve access to OT services that will address occupational performance challenges of veterans within the Eastern Colorado Veterans Affairs (VA) Health Care system. Informed by the Person Environment Occupation model of occupation and substantial evidence supporting the necessity of assessing functional cognition to better understand occupational performance, this doctoral project focuses upon the provision of OT services in a primary care setting, which included assessments of functional cognition and ADL/IADL performance and interventions addressing functional cognitive deficits, home safety, and activities of daily living/instrumental activities of daily living (ADL/IADL) performance. Satisfaction of primary care providers with inclusion of OT services as well as data on client factors of typical veterans referred to OT and assessments and interventions utilized were collected through survey and observation. Results of this project indicate that the inclusion of occupational therapy services in primary care can reduce the wait time from referral to evaluation for some veterans from 1–2 months to 15 minutes while increasing primary care provider

(PCP) knowledge of the scope of OT services. However, several factors must be considered for the successful continued presence of OT in primary care. To improve OT productivity, follow-up appointments should be scheduled at the primary care office and group programming should address health and wellness and chronic disease management. Care must be taken to balance availability for “warm hand-offs” from PCPs and prescheduled appointment times. Furthermore, continued education of PCPs on scope of OT practice will be imperative for continuing to increase numbers of appropriate referrals.

Keywords: Primary care, functional cognitive assessments, interprofessional collaboration

## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	iv
ABSTRACT .....	v
TABLE OF CONTENTS .....	vii
LIST OF TABLES .....	ix
LIST OF FIGURES.....	x
LIST OF ABBREVIATIONS.....	xi
CHAPTER ONE: INTRODUCTION .....	1
Gap in Veteran Access to Care: What is the Problem and Why it Matters .....	1
Factors Impacting the Problem .....	3
How Occupational Therapy Addresses Performance Challenges of Veterans.....	9
CHAPTER TWO: EVIDENCE BASE TO SUPPORT THE PROJECT .....	11
Evaluative Summary of Potential Solutions .....	13
CHAPTER THREE: DESCRIPTION OF THE CAPSTONE PROJECT .....	22
Overview of the Project.....	22
Process of Occupational Therapy Referrals.....	26
Process of Occupational Therapy Service Delivery.....	28
CHAPTER FOUR: EVALUATION PLAN AND OUTCOMES.....	31
Evaluation Plan .....	31
Outcomes .....	33



CHAPTER FIVE: DISSEMINATION PLAN.....	38
CHAPTER 6: CONCLUSION.....	45
APPENDIX 1: EXECUTIVE SUMMARY .....	47
APPENDIX 2: PRESENTATION FOR PCPS.....	49
APPENDIX 3: PROVIDER SURVEY .....	51
BIBLIOGRAPHY .....	52
CURRICULUM VITAE.....	56

## LIST OF TABLES

Table 1. PCP Satisfaction with Expansion of Occupational Therapy Services.....	36
--	----

## LIST OF FIGURES

Figure 1: Model of the Problem.....	4
Figure 2: Gap in Knowledge of PCPs about Role of Occupational Therapy. ....	24
Figure 3: Logic Model for Factors Evaluated.....	31

## LIST OF ABBREVIATIONS

ADL.....	Activities of Daily Living
CBOC .....	Community Based Outpatient Center
IADL.....	Instrumental Activities of Daily Living
MoCA .....	Montreal Cognitive Assessment
PACT.....	Patient Aligned Care Team
PASS.....	Performance Assessment of Self-care Skills
PCP .....	Primary Care Provider
PTSD .....	Post-Traumatic Stress Disorder
RMR VAMC.....	Rocky Mountain Regional Veterans Administration Medical Center
TBI.....	Traumatic Brain Injury

## **CHAPTER ONE: INTRODUCTION**

### **Gap in Veteran Access to Care: What is the Problem and Why it Matters**

When veterans return from combat situations, they experience a drastic change in environment. They move from being in dangerous, adrenaline-filled situations to being back at home, with people who know them well but do not have any understanding of what occurred to their loved one when they were gone. Furthermore, when soldiers return home and leave the military, they are removed from the community and structure that have become part of their everyday lives. Being separated from the soldiers with whom they were deployed may remove veterans from social supports who fully understand the depth of the experiences faced while in combat zones. Additionally, there is a change in roles that veterans experience, from soldiers, leaders, and teammates back to civilians. Finally, following injuries, there may be both changes in physical and cognitive abilities such as post-traumatic stress disorder (PTSD), anxiety, depression, burns, and amputations.

In a population of veterans, 37-77% experience occupational performance challenges in the areas of leisure, productivity, and self-care. Additionally, many veterans feel that they have lost valued military roles upon leaving the service. Therefore, decreased occupational performance and loss of ability to engage in past meaningful routines and identities may lead to a decreased sense of identify and self-efficacy. These factors, combined with any injuries sustained through military service, can lead to decreased physical and mental health in the veteran population. (Oster et al., 2017; Plach & Sells, 2013). For example, in just one sample of veterans who were attending school,

23% had possible PTSD, 40% has possible mild traumatic brain injury (TBI), 77% had potential depression, and 53% had possible alcohol use problems (Plach & Sells, 2013). Because the effects of service impact a veteran, physically, cognitively, emotionally, and socially, they would benefit from the holistic, person-centered approach of occupational therapy. The connection between a veteran's social, physical and emotional well-being is well established (Oster et al., 2017), and the holistic nature of occupational therapy can work to improve all aspects of a veteran simultaneously.

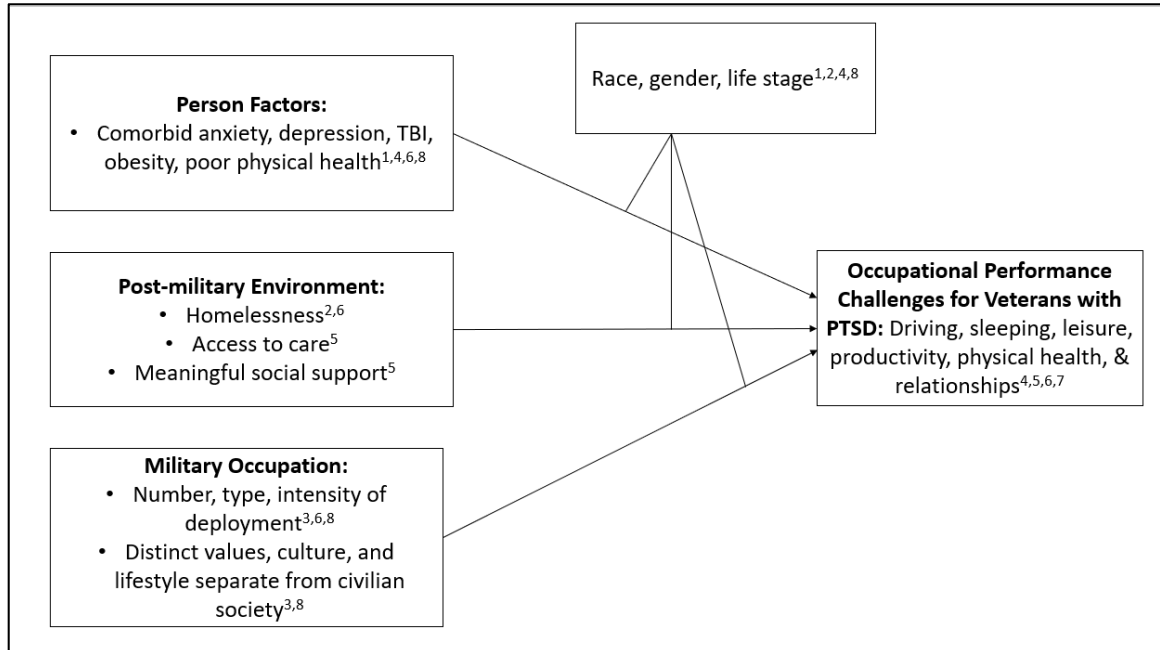
Because veterans have distinct healthcare needs that impact physical, cognitive, emotional, and social function, this population requires comprehensive, integrative client-centered health care, which includes occupational therapy. Within the Veterans Health Administration (VHA), primary care exists as the entryway for veterans to access all health care resources, including occupational therapy services. This means that for veterans to have access to the full scope of occupational therapy services their primary care providers must be knowledgeable about the full scope of occupational therapy services and their distinct value. Therefore, if primary care providers are not aware of the full scope of occupational therapy services, veterans are not able to access them, a major problem impacting veterans.

This problem is relevant to veterans because reintegration into society and rehabilitation of both physical and cognitive injuries experienced in war must be addressed for them to return to valued roles, activities, and occupations. This problem also impacts the families of veterans and professional groups who serve veterans, like the VA. The changes of roles and ability levels affecting veterans makes it more challenging

for veterans to participate fully in family relationships, work/volunteering, managing their health and wellness, ADLs and IADLs, and other social relationships. For the families of veterans, the changes they may see in their loved ones upon returning home can be difficult to understand and can lead to family disagreements and a feeling that their loved one is not the same person that they were before being deployed. For professional groups, this problem can lead to decreased employment and increased reliance on the VHA or other medical or government systems for support. On a broader level, because veterans risk their lives to keep the general population safe, many feel that it is a societal duty to help to rehabilitate and reintegrate veterans once they return. Additionally, helping veterans to participate more fully in work, leisure, and other valued areas of occupation will improve their physical and mental health, allowing them to be contributing members of society and avoiding increased burden on health care systems.

### **Factors Impacting the Problem**

Although my initial research was specifically focusing on the occupational performance deficits of veterans with PTSD rather than veterans' access to occupational therapy services, understanding the patterns of occupational performance deficits, as well as the factors impacting them, is necessary for understanding how to improve veteran's access to occupational therapy services. The following model of the problem, informed by the Person-Environment-Occupation (PEO) Model of occupation, presents several factors which likely contribute to the occupational performance deficits of veterans.

Figure 1: Model of the Problem<sup>1</sup>

Veterans with PTSD experience occupational performance challenges in the areas of driving, sleeping, leisure, physical health, productivity, and relationships (Dobie et al., 2004; Kashiwa, Sweetman, & Helgeson, 2017; Oster, Morello, Venning, Redpath, & Lawn, 2017; Plach & Sells, 2013). I hypothesize that aspects of the person, the post-military environment, and the military occupation are factors that directly contribute to these occupational performance challenges. I hypothesize that the relationships between

<sup>1</sup> References for the model of the problem:

1. Arriola, & Rozelle (2016)
2. Byrne, Montgomery, & Dichter (2013)
3. Coll, Weiss, & Yarvis, (2011).
4. Dobie, Kivlahan, Maynard, Bush, Davis, & Bradley (2004)
5. Kashiwa, Sweetman, & Helgeson (2017)
6. Oster, Morello, Venning, Redpath, & Lawn, (2017)
7. Plach, & Sells, (2013)
8. Spiro III, & Settersten Jr (2012)



the person, the post-military environment, and the military occupation are mediated by a veteran's race, gender, and life stage.

To inform the model of this problem, I used the PEO Model of occupation. The PEO Model of occupation proposes that occupational performance is based upon a dynamic interaction between individual skills, occupational demands, and the environmental supports and barriers and is continuously changing with the ongoing development that occurs across the life span (Law et al., 1996). The key components of this model are the person, described as the unique being who assumes a variety of roles simultaneously, the environment, including all the cultural, socioeconomic, institutional, physical, and social aspects, and the occupation, task, or activity.

When applying this theoretical lens to the problem, person factors, defined as comorbid conditions, are associated with increased occupational performance challenges. For example, traumatic brain injury and obesity may exacerbate PTSD symptoms (Ariola & Rozelle, 2016; Dobie et al., 2004; Oster et al., 2017). Additionally, there is a correlation between long-term anxiety, depression, and PTSD in veteran populations (Spiro & Settersten, 2012). Veterans' health and well-being is imperative for occupational engagement (Plach & Sells, 2013), suggesting that accompanying comorbidities along with PTSD exacerbate occupational performance challenges. According to the PEO model of occupation, these person factors directly impact a veteran with PTSD's occupational performance.

Furthermore, the post-military environment, defined as homelessness, difficulty accessing care, and a lack of meaningful social support, is associated with occupational

performance challenges. First, both men and women veterans are overrepresented in the homeless population (Byrne, Montgomery, & Dichter, 2013) and veterans are more likely to be homeless than civilians are (Oster et al., 2017). Homelessness may make occupational performance in areas such as sleeping, leisure, productivity, driving and physical health especially difficult. Second, lack of access to care and meaningful social support can increase feelings of isolation, which combined with psychiatric conditions can lead to decreased occupational performance in productivity and relationships (Kashiwa, Sweetman, & Helgeson, 2017). Based upon the PEO model of occupation, aspects of the environment directly impact a veteran with PTSD's occupational performance.

Finally, according to the PEO model of occupation, the occupation itself impacts occupational performance. The military occupation, operationalized as number, type and intensity of deployments, and a distinct military culture are associated with occupational performance challenges. It is clear that the number of deployments, type of deployments, and intensity of deployments have influence on veterans' mental and physical well-being, both immediately following military service and later in life (Coll, Weiss, & Yarvis, 2011; Oster et al., 2017; Spiro & Settersten, 2012). Greater warzone distress, including more frequent, dangerous, and intense deployments, is associated with greater PTSD and worse mental health up to three decades after military service (Spiro & Settersten, 2012). Additionally, if this warzone distress is not treated proactively, it can lead to greater occupational dysfunction that accompanies PTSD (Stoller, Greuel, Cimini, Fowler, & Koomar, 2012). Along with poorer mental and physical well-being, veterans are

immersed in what many feel is a separate, specialized society that is psychologically distant from the civilian world. The belief system, values, and lifestyle among service members is distinct from civilian culture (Coll et al., 2011). It seems that the military occupation, whether it be through deployments or through the culture separate from civilian society, may contribute to a veteran feeling different from the society in to which they are transitioning. Informed by the PEO Model, it is likely that the military occupation has a lasting effect on veterans' physical and mental well-being, leading to occupational performance challenges.

Research suggests that there are several additional factors that influence the relationship between the person, the post-military environment, and the military occupation. It is hypothesized that the relationship between the person factors, post-military environment, and military occupation with occupational performance challenges for veterans with PTSD is moderated by a service member's race, gender, and life stage (Arriola & Rozelle, 2016; Byrne et al., 2013; Dobie et al., 2004; Spirro & Settersten, 2012). For Hispanic veterans, there is a strong association with traumatic brain injury and PTSD and considerably poorer long-term outcomes and less access to healthcare as compared to the Caucasian population (Arriola & Rozelle, 2016). For female veterans, there is a higher level of PTSD than compared to male veterans, leading to poorer physical health, negative health perceptions, and increased obesity (Dobie et al., 2004). For older veterans, the impact of PTSD symptoms on occupational performance may be different than for younger veterans. For older veterans with PTSD, although stressful events may lead to more distress than for veterans without PTSD, they are also associated

with greater growth through the stressful event (Spirro & Settersten, 2012). It appears that, through their impact on overall health, access to healthcare, and attitudes toward challenging life situations, race, gender, and life stage mediate the relationship between the person, post-military environment, and military occupation and overall occupational performance.

For the research supporting this model of the problem, there are a few existing limitations. First, Byrne et al. (2013), Dobie et al. (2004), and Spiro & Settersten (2012) relied on a convenience sample of veterans receiving healthcare through the VA. Because veterans were already receiving healthcare services, they may have had overall poorer health than the general veteran population, leading to an overrepresentation of occupational performance challenges. Second, almost every study relied on self-report of mental health symptoms. As suggested by Coll et al. (2011), there is a strong bias in military culture against mental illness or any other health symptom deemed a sign of weakness. Therefore, it is possible that there may be an underrepresentation of mental health challenges in this research. Finally, most research study populations mainly consisted of white, male, young to middle-aged veterans except for three that focused upon Hispanic veterans (Arriola & Rozelle, 2016), women veterans (Dobie et al., 2004), or older veterans (Spirro & Settersten, 2012), so findings from these studies may not be generalizable to minority populations within the military. Regardless of the limitations of these studies, most had a robust sample size, some included randomized controlled trials, and many collected both qualitative and quantitative data, increasing the confidence that these data provide a representative and accurate picture of what factors influence the

occupational performance challenges faced by veterans with PTSD.

### **How Occupational Therapy Addresses Performance Challenges of Veterans**

This model of the problem highlights several factors which are contributing to the occupational performance deficits of veterans with PTSD that could be directly impacted by the timely access to occupational therapy services, including those within primary care. First, occupational therapists address the functional implications of comorbid conditions classified as “person factors” within this model. For example, an occupational therapist can help a veteran identify anxiety-inducing situations during their daily routine and suggest possible modifications to that routine to modulate anxiety symptoms. Additionally, occupational therapists are skilled in helping veterans to manage chronic health conditions like obesity and overall poor physical health through lifestyle modifications, motivational interviewing, and self-management technique education. Second, occupational therapists address factors within the post-military environment, especially engaging in social participation to obtain meaningful social support and in helping veterans to access care through client-centered education and assistance with community mobility and organizational strategies to improve appointment attendance. Finally, due to the holistic nature of occupational therapy, considerations of the mediating factors in this model, race, gender, and life stage, are integrated into evaluation and intervention.

Although occupational therapy can address many factors that affect the problem of veterans with PTSD having occupational performance challenges, this project will focus primarily on an environmental factor, access to care. Currently within the Rocky

Mountain Regional Veterans Administration Medical Center (RMR VAMC), veterans are waiting 1–2 months time from time of referral to receiving occupational therapy services. Furthermore, there are some veterans who would likely benefit from occupational therapy services who are not being referred. The exact reason for this lack of referral is unclear; however, factors including time restraints placed upon primary care providers (PCPs) as well as decreased knowledge of the scope of occupational therapy services may be contributing factors. This project seeks to address the problem of occupational performance challenges of veterans with PTSD as well as the problem of decreased occupational performance in the general veteran population by providing a model for integrating occupational therapy services into a primary care setting. This will occur in the context of a quality improvement project in which PCPs will provide feedback for the inclusion of occupational therapy services into Patient Aligned Care Teams (PACTs).

## **CHAPTER TWO: EVIDENCE BASE TO SUPPORT THE PROJECT**

Early research focused on a specific solution that would improve veteran access to occupational therapy services: functional cognitive assessments. Presently at the RMR VAMC, PCPs are typically referring to occupational therapy services only for durable medical equipment needs, often failing to acknowledge the cognitive demands associated with living independently. A possible solution for this problem was integrating occupational therapy into PACTs to conduct cognitive functional screening. Evidence suggesting the importance of functional cognitive assessments as well as indicating the best type of functional cognitive assessment was utilized to support just one example of the value of incorporating OT into a primary care setting.

According to the Occupational Therapy Practice Framework, client factors are “the specific capacities, characteristics, or beliefs that reside within the person and that influence performance in occupations” (AOTA, 2014). Client factors related to cognition are referred to as mental functions which includes attention, memory, perception, thought, sequencing, and experience of self and time (AOTA, 2014). When a client integrates these mental functions to complete activities in clinical and community settings, the client is utilizing functional cognition, which is a construct that requires the unique occupational therapy skill set to assess and address (AOTA, 2019). Through assessing functional cognition and providing skilled intervention to address noted deficit areas, occupational therapists are able to improve the safety and long-term well-being of patients through strategy training to improve global occupational performance and recommendations for discharge environments. For these reasons, the information gained

through assessment of functional cognition is of great value to other healthcare providers, the client, and their family and caregivers.

The goal of the PACTs is to improve communication between the client, their family and caregivers, and health care providers at the Rocky Mountain Regional VA Medical Center. A PACT is an integrated team whose goal is to deliver patient-driven, team-based, comprehensive, and coordinated care. However, at this time, occupational therapists are not a part of PACTs and their unique skill set for assessing functional cognition is not as readily integrated into the care plans for patients. Health care providers, patients, and their families would greatly benefit from the introduction of occupational therapy into PACTs to develop more comprehensive treatment and discharge plans that consider the patient's cognitive status and that include strategies to improve the patient's independence and safety.

Although PACTs have already demonstrated improved access to healthcare providers via telephone and internet communications as well as improved post-hospitalization follow-up (Rosland et al., 2013), integrating knowledge from assessments of functional cognition in PACT treatment plans would continue to improve patient outcomes. Because a strong association exists between higher level cognitive skills and an individual's ability to live independently, hold employment, and engage in meaningful leisure (Finnagner, Skandsen, Andersson, Lydersen, Vik, & Indredavik, 2013), information from assessments of functional cognition would increase awareness of a patient's ability to safely and effectively participate in pre-morbid occupations. This would allow PACTs to make more informed recommendations for post-acute care



transition placement, patient and caregiver training, and discharge decisions.

Occupational therapists increase awareness of clients' abilities to live independently by assessing cognitive skills through performance-based testing. Performance-based testing engages clients in activities that are part of their typical routine to assess for cognitive impairments that may impact performance in more than the activity being assessed. By identifying performance-based cognitive impairments, occupational therapists can include necessary supports for promoting clients' safety and independence in current PACT treatment plans (AOTA, 2019).

An intermediate goal of this Doctoral Capstone is to explore the most reliable, valid, and feasible assessments of functional cognition to be implemented across inpatient, outpatient, and community health settings in the RMR VAMC. The most valuable cognitive assessments will be used to evaluate clients' cognitive abilities and to inform subsequent interventions and discharge recommendations. The utility of the information gained from these functional cognitive assessments will be presented to the PACTs in the format of case studies and used to advocate for the role of occupational therapy as valuable members of PACTs.

### **Evaluative Summary of Potential Solutions**

Assessments of cognition currently used in occupational therapy practice can be grouped into three distinct categories. First, neuropsychological tests can be used to examine specific cognitive abilities such as attention, inhibition, processing, verbal memory, and working memory. The Montreal Cognitive Assessment (MoCA), the Saint Louis University Mental Status Examination (SLUMS), the Mini Mental State

Examination (MMSE) and the Chessington Occupational Therapy Neurological Assessment Battery (COTNAB) are examples of bottom-up cognitive assessments that specifically examine underlying cognitive abilities. Second, cognition can be assessed in a functional context through a top-down approach, using assessments such as the Executive Function Performance Test, (EFPT) and the Kitchen Task Assessment (KTA). Finally, cognition can be assessed indirectly through assessments of performance in ADLs and IADLs, such as the Kohlman Evaluation of Living Skills (KELS), the Katz Index of Independence in Activities of Daily Living, and the Performance Assessment of Self-Care Skills (PASS). Although neuropsychological tests, functional cognition assessments, and assessments of ADLs/IADLs with moderate to high cognitive load are all valuable to practice, but certain types of assessments are more useful than others for intervention and discharge planning.

Although neuropsychological assessments such as the MoCA, SLUMS, and COTNAB provide occupational therapists and other healthcare professionals with information regarding specific cognitive processes that may impact performance on ADLs and IADLs, they may not accurately predict performance in a client's natural context. Neuropsychological assessments when considered alone lack ecological validity for predicting clients' performance on ADLs and IADLs (Bennett, 2001). However, it is true that neuropsychological assessments provide healthcare professionals with valuable information regarding a patient's cognitive strengths and weakness (Bennett, 2001). These cognitive weaknesses can correlate directly with occupational performance deficits. For example, in a population of individuals with dementia, performance on the

MoCA was associated with higher levels of impairment during functional activities as measured by the ADL Questionnaire (Durant, Leger, Banks, & Miller, 2016). However, these neuropsychological assessments cannot be considered as the sole indicator of client performance and must be supported by observation and further assessment of the client performing his or her typical functional activities (Bennet, 2001; Durant et al., 2016).

Assessments of functional cognition such as the EFPT and KTA examine some of the same cognitive skills that neuropsychological assessments do but within the context of a client's typical occupations, such as preparing a simple meal, managing medication, paying bills, and making a phone call. For example, one study investigating the performance of individuals with mild to moderate stroke on the EFPT and on neuropsychological assessments identified a moderate relationship between individuals' performance on both types of assessments. This moderate relationship suggests that the EFPT and neuropsychological assessments are examining similar constructs, but that the neuropsychological assessments cannot fully capture the complexity of performance in a client's natural context (Baum et al., 2008). Therefore, assessing cognition within functional activities may provide a more accurate representation of a client's performance in their typical context.

The functional cognitive assessment compared to the neuropsychological assessments by Baum et al. (2008), the EFPT, is a performance-based assessment which examines executive function deficits, determines an individual's capacity for functioning independently, and indicates the amount of assistance necessary for successful performance of a task. The EFPT includes five tasks: hand washing (as a screening task

that must be completed successfully for the rest of tasks to be initiated), oatmeal preparation, using the telephone, taking medication, and paying bills (Baum, Morrison, Hahn, & Edwards, 2003). This assessment has been shown to be reliable and valid for measuring executive function abilities in individuals with strokes (acute and chronic), in individuals with multiple sclerosis (MS), and in individuals with brain tumors (Aeschlimann, Butzer, Virva, Donders, & Cistaro, 2017; Baum et al., 2008; Goverover, Chiaravalloti, Guadino-Goering, Moore, & DeLuca, 2009; Kalmar, Gaudino, Moore, Halper, & DeLuca, 2008; Wolf, Stift, Connor, & Baum, 2010). The EFPT is able to differentiate between a sample of individuals with mild to moderate chronic stroke or a sample of individuals with MS as compared to a healthy sample on the basis of identifying deficits in executive functioning (Baum et al., 2008, Kalmar et al., 2010). This assessment has excellent internal consistency for overall score and excellent interrater reliability for overall EFPT and for EFPT subscales (Baum et al., 2008). The ability of the EFPT to identify executive function deficits and to predict performance in other functional activities are relative strengths of this assessment.

Although the EFPT is a useful assessment for examining executive function deficits in populations with stroke, MS, and brain tumors, some clinicians may express concern that the tasks on the EFPT are too challenging for patients with moderate/severe cognitive assessments. The concern regarding a floor-effect is valid, and has been seen with the use of other functional cognitive assessments. For example, the FLOTCA assesses integrative cognitive abilities in performance of three tasks: planning a route and navigating on a map, organizing tools in a toolbox, and planning a daily schedule

according to a list of activities. Because these tasks require abstract problem-solving skills and other high-level cognitive abilities, it is recommended that clients are first assessed using the Dynamic Lowenstein OT Cognitive Assessment (DLOTOCA) (Schwartz, Averbuch, Katz, & Sagiv, 2016). The DLOTOCA takes 1–2 hours to administer (Katz, Erez, Livini, & Averbuch, 2012). It is not feasible to complete a 1–2-hour screen with every client before completing a functional cognitive assessment. The EFPT avoids a floor-effect in an efficient manner, requiring clients with a suspected severe cognitive impairment to complete a hand-washing task before beginning the cooking task (Baum et al., 2003). Not only is this a task that matches well with clients' typical routines, but also it assesses a client's ability to sequence steps of a task and follow directions, indicating if their functional cognitive abilities will be appropriate for the full EFPT.

While the EFPT is able to decrease the likelihood of a floor-effect with an efficient functional cognitive screen, the EFPT has several shortcomings that may lead to challenges with its use at the VA. First, the assessment's validity and reliability has not been assessed in all of the populations seen by occupational therapists at the VA and no research has been done on use of the EFPT with a veteran population. Secondly, because of the nature of the tasks involved, cultural and lifestyle contextual factors may decrease the relevancy of sub-tasks of the EFPT to clients. Finally, some parts of the EFPT, such as the preparation of oatmeal, may not be feasible in certain settings part of the RMR VAMC, such as inpatient acute care, with veterans experiencing homelessness, and in primary care offices. However, it is encouraging that the EFPT is able to reliably detect executive function deficits across both neurodegenerative disorders and acquired brain

injuries in inpatient acute care, inpatient acute rehab, and in outpatient settings (Aeschlimann et al., 2017; Baum, 2008; Cederfeldt, 2011). Furthermore, some clinicians view the EFPT as both a bottom-up and top-down approach to for assessing clients because it not only assesses task completion but also the initiation, sequencing, organization, judgement, and safety cognitive skills necessary to complete the task. The EFPT provides knowledge of specific cognitive deficits as well as the support necessary to address them, assisting occupational therapists in identifying strategies to improve everyday activity performance to be used by clients and their families (Cederfeldt, Widell, Andersson, Dahlin-Ivanoff, & Gosman-Hedström, 2011). The utility of the EFPT to not only identify deficits in the context of functional task performance but also to guide interventions to address deficits makes this functional cognitive assessment of great potential value to healthcare providers at the VA.

Along with neuropsychological assessments and assessments of functional cognition like the EFPT, cognition can be assessed indirectly through assessments of performance in ADLs and IADLs using the KELS, the Katz Index of Independence in Activities of Daily Living, and the PASS. The clear advantage of using assessments of ADL and IADL performance is they likely give healthcare providers the most ecologically valid depiction of what a client's performance of these same tasks will look like in their natural context. However, as compared to functional cognitive assessments like the EFPT, these ADL/IADL performance-based assessments likely do not provide clinicians with as much structure regarding which specific cognitive skills may be limiting performance.

One assessment of ADL and IADL performance called the PASS seems to combine the benefits of observing a patient perform various ADLs and IADLs that they would be performing in their home environment with the benefits of the structured cueing system used in the EFPT. As discussed prior, the cueing system used in the EFPT provides clinicians with a concrete example of the type of support needed by a client to complete a functional task (Baum et al., 2008; Cederfeldt et al., 2011). The PASS seeks to provide this same structure to 26 ADL and IADL tasks by utilizing standardized types of cueing (like the EFPT does) and breaking down each task into subtasks (Chisholm, Toto, Raina, Holm, & Rogers, 2014). Breaking down each task into subtasks, which are matched with specific levels of cueing, assists occupational therapists in identifying which part of the task leads to overall breakdown in performance of the ADL/IADL, as well as the supports needed to avoid this breakdown in performance.

There are several advantages to using the PASS to assess client performance in ADLs and IADLs. First, the PASS is a client-centered and performance-based assessment (Chisholm et al., 2014), which may improve client engagement with the assessment. Second, the PASS is criterion-referenced and has strong interrater and test-retest reliability (Chisholm et al., 2014; Taghizadeh, Aldini, Karimi, & Rahimzadeh, 2008). This allows client performance on the PASS to be compared to normative criteria and ensures that multiple clinicians can retest clients using the PASS and truly be measuring change in client performance. Third, the PASS breaks down the rating of client performance into three areas: safety, independence, and adequacy of task completion (Chisholm et al., 2014). By separating scoring of independence and safety, the PASS

draws greater attention to self-awareness, which is essential to consider when making recommendations for discharge level of care and supervision. Finally, the PASS is a flexible assessment, increasing its ease of use in any level of care and ensuring that the assessment is targeting specific skills relevant to the client.

A characteristic of the PASS that lends to its flexibility and utility across various settings is that it consists of 26 tasks that may be administered all together or as select items that are most salient to the client. The 26 tasks include five for functional mobility, three for personal self-care, 14 for IADLs with a cognitive emphasis, and four IADLs with a physical emphasis. Additionally, the PASS has a clinic and a home version with identical tasks, except for that the materials used for some activities are different, depending on what is available. Finally, the testing manual includes a guide for the construction of new PASS items that may be especially relevant to a client based upon their physical or cultural context (Rogers & Holm, 2014).

When comparing the PASS to other assessments such as the EFPT or neuropsychological assessments, it is clear that there is less of an emphasis on specific cognitive skills and more on task performance. It may be assumed that an assessment like the MoCA or the MMSE would be more effective for identifying cognitive deficits than a performance-based assessment such as the PASS. However, some research has indicated that the PASS is more effective than the MMSE for differentiating between individuals with mild cognitive impairments and a healthy sample (Rodakowski et al., 2014). The MMSE and eight of the 14 cognitively focused IADLs from the PASS were administered to a sample of 96 older adults with normal cognitive function and 61 older



adults with a mild cognitive impairment by a rater who was blind to their cognitive status. The eight cognitive IADLs demonstrated 81% accuracy for discriminating between cognitive statuses, and the eight cognitive IADLs were more accurate in classifying cognitive statuses than the MMSE. In fact, just two of the cognitive IADLs, shopping and checkbook balancing, were more discriminating between the two groups than the MMSE (Rodakowski et al., 2014). Furthermore, these two items take the same amount of time to perform as the MMSE, suggesting that they realistically could be used in a setting with time constraints.

This research indicates that the PASS is an effective and realistic performance-based measure for assessing cognitive abilities and ADL/IADL task performance. Additionally, this assessment has been demonstrated to be of value for examining ADL/IADL performance with various populations, including individuals with mild cognitive impairments, Parkinson's disease, bipolar disorder, congestive heart failure, dementia, depression, heart transplant, macular degeneration, osteoarthritis, and cerebrovascular accident (Chisholm et al., 2014; Rodakowski et al., 2014; Taghizadeh et al., 2008). Because the PASS has both clinic and home versions and has been used to successfully evaluate ADL/IADL performance and associated cognitive abilities with a structured cueing system, the evidence suggests that the PASS is the assessment that best fits the needs of occupational therapists at RMR VAMC.

## **CHAPTER THREE: DESCRIPTION OF THE CAPSTONE PROJECT**

### **Overview of the Project**

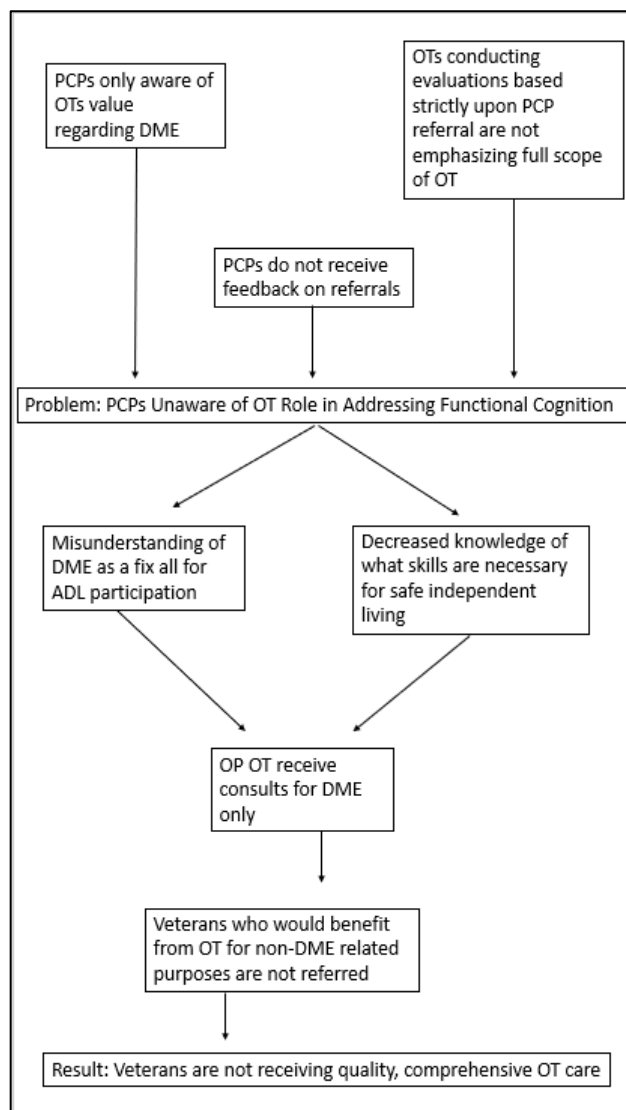
Upon arrival at the RMR VAMC and assessing the needs of the site through interview of supervisor Sandy Stoll, occupational therapist Julie Dancheck, and lead physician within the Denver PACT, Dr. Tso Chen., this capstone project shifted to focus on how occupational therapy could best serve veterans within a primary care setting. Although there was substantial evidence for the support of functional cognitive assessments such as the PASS, it was not feasible due to time and space constraints to utilize the PASS as a screening tool. It was suggested that the SLUMS or MoCA be utilized to screen veterans for cognitive deficits within the PACT, and then, if appropriate, refer to the occupational therapy outpatient clinic for further evaluation of functional cognitive deficits using the PASS. The following chapter details the current presence of occupational therapy within primary care services and the project utilized to serve as a trial of integration of occupational therapy services within a PACT at the RMR VAMC.

Within the RMR VAMC veterans attending annual primary care appointments were not undergoing cognitive screening. Without cognitive screening, many veterans could be at risk for falls and decreased participation in ADLs and IADLs. Occupational therapy services promote the well-being and mental health of veterans while restoring, maintaining, and improving their function (AOTA, 2017) and could provide a valuable service to veterans with cognitive deficits. The scope of occupational therapy services within the RMR VAMC are currently underutilized, as most PCPs refer predominately to

occupational therapy services for durable medical equipment distribution. This underutilization of occupational therapy services is likely due to decreased knowledge of the scope of occupational therapy practice, and therefore, a decreased awareness of how occupational therapy could benefit the veterans they are serving.

The aim of this project was to increase veterans' access to occupational therapy services by increasing awareness of occupational therapy services within the RMR VAMC through inclusion of occupational therapy within PACTs. PACTs are teams that operate within community-based outpatient centers (CBOCs) that include physicians, nurse practitioners, nurses, social workers, and physical therapists working together in one location. The goal of the PACT is to provide veterans with an opportunity to be more involved in their medical care and to place a higher emphasis on preventative medicine (U.S Department of Veterans Affairs, 2019). Occupational therapy's distinct contribution in assessing how performance in valued roles, habits, and routines affects overall wellbeing is a natural fit with the PACT's goal of engaging veterans' in preventative health care (AOTA, 2019). To promote the inclusion of occupational therapy services in PACTs, PCPs within the Denver CBOC must be aware of the distinct value of occupational therapy.

Figure 2: Gap in Knowledge of PCPs About Role of Occupational Therapy



Within the CBOC, increased visibility of occupational therapy services was provisioned in two ways: 1) education regarding the scope of occupational therapy and 2) presence of occupational therapy services within the PACT through cognitive screening of veterans to improve access to occupational therapy services for those who may have a functional cognitive or other deficit that could decrease their ability to safely live independently. The educational module was delivered through a formal presentation

during a PACT meeting and during regular interactions with PCPs which included updating them on the impact of occupational therapy referral on their patients. The occupational therapy services were delivered following occupational therapist identification of need or following PCP referral.

Prior to beginning this capstone project, I obtained the necessary approvals from the VA and Colorado Multiple Institutional Review Board to conduct a quality improvement project within the VA. Additionally, approval from the PCP union was required before administering the satisfaction survey to the PCPs within the PACT.

During this capstone project, I screened veterans within the Denver PACT for appropriateness for occupational therapy two/three days a week and worked at RMR VAMC conducting outpatient occupational therapy evaluations and return to clinic evaluations and interventions with veterans I had identified within the PACT for the remaining days of the week. Initially, it was believed that conducting cognitive screening on veterans would be the most appropriate method for introducing occupational therapy services. However, after the first few days of integrating occupational therapy into the PACT, it became clear that offering a fuller scope of occupational therapy services would not only better serve the veterans of this community, but also better demonstrate the distinct value and role of occupational therapy in this setting to PCPs and other stakeholders.

Although the scope of occupational therapy services offered was broader than initially anticipated, cognitive screening still occurred. Even though research suggested that the PASS was a reliable screening method for indicating cognitive impairments, the

SLUMS and MoCA were also used at screening tools, and at times, indicating the use of PASS for assessment of cognition in a functional context during a return to clinic appointment. If occupational therapy screening within the PACT was not necessarily indicated by a diagnosis generally associated with a cognitive deficit, functional cognition was still considered when assessing ADL performance, IADL performance, mental health treatment, and recommendations for improved home safety and decreased risk for falls.

### **Process of Occupational Therapy Referrals**

During this doctoral capstone, veterans were referred to occupational therapy in three phases. During phase one, the delivery process for occupational therapy services began with a thorough chart review of all veterans with appointments with various providers within the PACT. Veterans were identified as having potential to benefit from OT services if the veteran:

- Had a diagnosis often associated with cognitive impairment
- Had been documented as having a cognitive impairment but there was no documentation of how this impairment impacted functional performance.
- Had fallen recently
- Was over age 65 and live with one or fewer people

After a veteran was identified, contact was initiated with their PCP to see if they would approve occupational therapy seeing the veteran. This contact primarily occurred over Skype messenger, as is the customary method of communication in the office, or via face-to-face contact. In most circumstances, the PCP was agreeable to having the veteran

seen by occupational therapy. Occasionally, PCPs did not respond or said that occupational therapy could meet with a veteran but then forgot to alert me when their appointment ended. Confirming that a veteran could be seen by occupational therapy but then forgetting to send them to see the occupational therapy student was typically avoided by being present outside offices when appointments ended. Collaborating with PCPs to determine the best process of moving veterans from PCP appointments to occupational therapy and increased occupational therapy presence largely eliminated this barrier.

During the second phase of this doctoral capstone, veterans were referred to occupational therapy through my own chart review (similar to phase one) and through referrals directly from PCPs. Once PCPs became more familiar with the provision of occupational therapy services within the PACT, some started to identify veterans that would benefit from occupational therapy. This shift occurred around my fourth week working within the PACT. Although the referrals from other health care providers did not seem to be correlated with any specific factor, I hypothesize that increased awareness of occupational therapy presence as well as informal feedback I had been providing to PCPs contributed to this shift.

Finally, during the third phase of this doctoral capstone, all referrals to occupational therapy came from PCPs and other health care providers, such as social work and physical therapy. Again, this shift in referral source did not appear to be associated with any specific factor, but it likely signaled a stronger integration of occupational therapy services into the PACT, as the referral process for occupational

therapy now mirrored the referral process for other specialties like social work, pharmacy, and physical therapy.

### **Process of Occupational Therapy Service Delivery**

Veterans seen in primary care were screened for appropriateness of further occupational therapy services. While some veterans participated in quick evaluations and behavioral and educational interventions within the primary care clinic, some evaluation of and interventions for ADL participation, functional cognitive deficits, and home safety were scheduled at a future date at RMR VAMC. As part of screening for appropriateness for occupational therapy services, veterans seen in the PACT who had a diagnosis associated with cognitive deficits were assessed using the SLUMS or the MoCA. Those who scored below the typical norms on these assessments were further evaluated at RMR VAMC for functional cognitive deficits using the PASS. For veterans screened at the PACT and deemed appropriate for OT services, further occupational therapy evaluations and interventions occurred on an outpatient basis at the RMR VAMC, with some exceptions in which follow-ups were scheduled at the PACT.

Although it is true that research discussed in Chapter 2 indicates that the PASS is an effective and realistic performance-based measure for assessing cognitive abilities and ADL/IADL task performance as its validity and reliability has been used with various populations, including individuals with mild cognitive impairments, Parkinson's disease, bipolar disorder, congestive heart failure, dementia, depression, heart transplant, macular degeneration, osteoarthritis, and cerebrovascular accident (Chisholm et al., 2014; Rodakowski et al., 2014; Taghizadeh et al., 2008). However, due to environmental and



temporal barriers, the PASS was not a feasible functional cognitive assessment to be integrated into primary care at this time. Instead, a brief neuropsychological assessment served as a screening tool for cognitive deficits, and if functional implications were suspected, the veteran was assessed utilizing the PASS.

Initially, I utilized the SLUMs to assess for cognitive deficits. However, due to unforeseen institutional policies, the SLUMs was no longer recommended for use. Therefore, I utilized the MoCA as a brief screen for cognitive impairments. Research does indicate that specific sections of the MoCA, as well as the complete assessment, correlate with functional cognitive deficits. In a study of individuals who had experienced strokes, the MoCA has a marginally strong association with functional status at discharge from inpatient rehabilitation. Additionally, it was suggested that the visuoexecutive subscore of MoCA may assist identifying individuals at risk for decreased functional gains in self-care and mobility (Toglia, Fitzgerald, O'Dell, Mastrogiovanni, & Lin, 2010).

The primary desired outcome for this project was to increase veterans' access to occupational therapy services through the expansion of our role in primary care. Additionally, it was desired that PCPs have increased knowledge of the scope of OT services, which will lead to increased appropriateness of occupational therapy referrals. As discussed prior, a large part of referrals to outpatient occupational therapy services at RMR VAMC were for a specific piece of durable medical equipment, such as a stair lift, a shower chair, or grab bars. It would be preferred if PCPs were initiating occupational therapy consults for overall ADL/IADL performance that is impacted by impaired

mobility, functional cognitive deficits, or a poor person-environment fit. Therefore, if PCPs were more aware of the scope of occupational therapy services, they would be more apt to place consults for veterans in need of occupational therapy services for reasons other than home safety evaluations.

One barrier I was faced while implementing this project concerned some PCPs being resistant to changes that occurred from expanding occupational therapy's role within the PACT. This barrier was mitigated by specifically addressing the PCPs' concern with expanding our role. For example, if PCPs worried that increased presence of occupational therapy services would add to their workload, I can explain how our role in preventive care decreases PCP burden. Additionally, at times efforts to create change within the VA healthcare system required procedures that are complicated and slow moving. To mitigate this barrier, I sought out the guidance of staff skilled with navigating the system and continue working on other aspects of the program while waiting for certain approvals. Finally, this program increased access to occupational therapy services while I was working with the VA. However, a potential barrier I needed to address was continuing the positive effect of this program once I leave. I worked to mitigate this barrier by providing a detailed dissemination plan to the occupational therapy department and by ensuring that PCPs are more aware of scope of occupational therapy practice to continue to initiate the occupational therapy consult process.

## CHAPTER FOUR: EVALUATION PLAN AND OUTCOMES

### Evaluation Plan

Relevant stakeholders wanted to have information regarding how the expansion of occupational therapy services within the PACT impacted veterans and PCPs. Therefore, I collected data regarding occupational therapy consults and data concerning PCP satisfaction and feedback for the expansion of occupational therapy services into the PACT. Data on occupational therapy consults was collected throughout the quality improvement project, while data from PCPs was collected at one time point toward the conclusion of the project.

Because this quality improvement project was anticipated to impact veterans and PCPs, it was necessary to evaluate the impact on both groups. The following logic model presents various factors that were indicative of the impact of this project.

Figure 3: Logic Model for Factors Evaluated

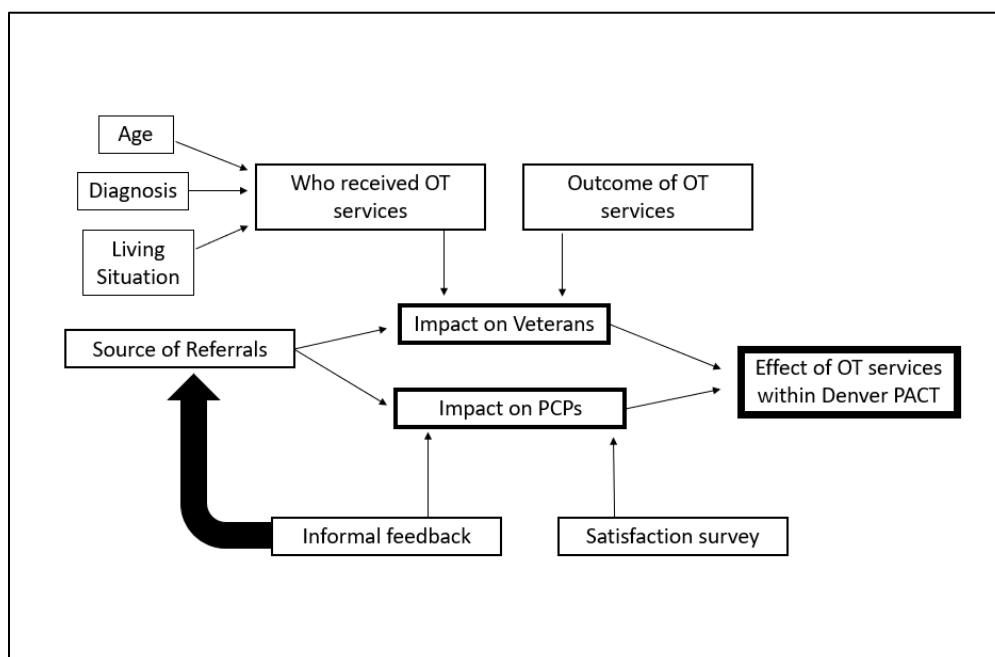


Figure 3: Various factors that influenced the effect of OT services within the PACT through their impact on veterans and PCPs. Of note, informal feedback to a PCP regarding status of veterans referred appeared to increase number of appropriate OT referrals from that PCP.

To track the data on the types of occupational therapy referrals received, outcomes of screening for appropriateness of occupational therapy services, and subsequent evaluations and intervention, the following data was collected:

- Date consult was placed and source of consult
- Veteran's age and primary diagnosis/symptom which resulted in occupational therapy consult
- Veteran's living situation
- If veteran was seen for additional occupational therapy services following screening
- Qualitative data on evaluation and interventions performed

Because the baseline number of occupational therapy evaluations performed on veterans within the PACT is 0, there is must room for improvement and significant change.

Additionally, primary care provider satisfaction for expanding the role of occupational therapy within the PACT was collected through a satisfaction survey. This satisfaction survey gathered information on provider's perception of benefit to patients, impact on access to occupational therapy services, knowledge of scope of occupational therapy practice, and overall perceived benefits/and or barriers associated with including occupational therapy within the PACT.

## Outcomes

Referrals to OT services came from three sources: 38% OT chart review, 4% PT referral, and 58% PCP referral. When occupational therapy was initially introduced into the PACT, referrals exclusively came from PT and occupational therapy chart reviews. However, after about five days in the PACT, referrals from PCPs directly to occupational therapy occurred. Regarding reason for referrals, although many veterans seen within the PACT had multiple comorbidities, certain diagnoses were most frequently referenced in referrals to occupational therapy services. The diagnoses typically leading to referral PTSD, major depressive disorder, substance use disorder, visual impairment, TBI, cognitive disorder/cognitive deficits, cerebral vascular accident, history of falls, pain, diabetes, pain, upper extremity injury, and dementia. Although some motivational interviewing and recommendations for mental health supports occurred, most typically cognitive impairments associated with mental illness were addressed. Aside from the 33% of PACT veterans who did not report living situation, 29% live alone, 25% live with 1 other person, and 13% live with family. No veterans lived in an assisted living facility or skilled nursing facility. Of veterans seen at the PACT who were living alone, 86% were 65 and older

Several assessments were utilized to evaluate veterans' cognitive abilities, independent living skills, and goals for further occupational therapy. First, the MoCA and MiniCog were used as screening tools for identifying possible cognitive impairments. If cognitive impairments were indicated by these screens, veterans were typically evaluated with a functional cognitive assessment during a follow-up appointment.

Second, the PASS medication management task was utilized as a functional cognitive assessment. This assessment not only evaluated veterans' abilities to manage medication using a pill box, but also more global executive functioning skills, such as planning, organization, attention to detail, and judgement and safety, providing a broader idea of veterans' cognitive abilities in a functional context. Third, a semi-structured interview to assess home safety was used. This assessment involved asking a veteran about their home environment, current use of durable medical equipment, ADL/IADL performance, and a gross evaluation of physical and cognitive skills. Finally, the Canadian Occupational Performance Measure (COPM) was utilized for goal setting and assessing ADL/IADL participation to track progress toward desired outcomes. The most common interventions provided within the primary care setting and at follow-up appointments included: environmental modification, task specific training for ADL/IADLs, education on chronic disease management and home safety, cognitive skills training, durable medical equipment training, education on mental health resources, home exercise programs for upper extremity rehabilitation, and motivational interviewing to address lifestyle changes, improved self-efficacy, and following recommendations from PCPs.

Of those veterans referred to occupational therapy, 50% had a follow-up appointment requested for scheduling. This indicates that one evaluation and brief intervention was not adequate for meeting their needs. For the 50% who did not need a follow-up appointment, cognitive strategy and training and home safety assessment were the primary interventions utilized. However, 8% of veterans who agreed to a follow-up appointment were not scheduled, due to errors in scheduling or difficulty getting in

contact with the veteran. The actual number of veterans who were unable to be scheduled would have been higher if I did not utilize client-centered scheduling to maximize likelihood of veteran being able to be scheduled for and attend appointment. For example, if a veteran told me they had a difficult time setting up appointments over the phone, I would negotiate a time with the veteran and then communicate that with the medical scheduling assistants. In another case, I agreed to complete a follow-up appointment with a veteran at the primary care office, as he reported great difficulty in commuting to the other facility where follow-ups were typically scheduled. These efforts improved attendance at follow-up appointments but also required increased time invested in patient care. This may be more difficult for a therapist with a heavier case load, as it involves thorough communication with medical scheduling assistants and frequently searching scheduling program for veterans that you felt may be at risk for not being scheduled.

As discussed prior, a survey regarding the perceived impact of the expansion of occupational therapy services was provided to the primary care providers. Six of the seven surveys were returned. This survey consisted of four questions and a Likert scale of strongly disagree (1) to strongly agree (10). The following chart contains the average responses of the PCPs for each statement.

Table 1:

Statement	Rating (1= strongly disagree to 10=strongly agree)
I am satisfied with the incorporation of OT services into the primary care setting.	9.5
OT services within the primary care setting are highly beneficial to patient care.	9.2
The expansion of OT services within the primary care setting has improved patient access to OT services.	9
Including OT services within the primary care setting has increased my knowledge of the scope of care the OT services can provide.	9

Table 1: PCPs reported satisfaction with expansion of occupational therapy services within Primary Care.

Along with responses to these questions, PCPs also provided comments on perceived barriers and benefits of continuing occupational therapy presence in primary care. Barriers identified included few opportunities to refer veterans to occupational therapy, limited office space, and the possibility that veterans may have to wait to see occupational therapist if they were meeting with another veteran at time of referral. These barriers could likely be mitigated in the future in several ways. First, opportunities for referrals or “hand-offs” to occupational therapy could be increased by increasing PCP knowledge of occupational therapy’s scope of practice. It is important mention that the PCP who provided feedback about limited opportunities of handoffs also reported that he slightly disagreed that including occupational therapy in primary care had increased his



knowledge of occupational therapy's scope of practice. Second, the limited office space can be addressed by utilizing non-exam rooms for OT evaluation and intervention. As a profession skilled at adapting the environment to meet our clients' needs, occupational therapy can certainly adapt a non-traditional space to serve as an office. Finally, although veterans may have to wait to see the OT in primary care, this wait time will be substantially less than the 1–2 month average wait time for OT evaluation outside of the PACT.

Along with barriers to expansion of occupational therapy services within the PACT, PCPs reported benefits of our presence. These potential benefits included quick access to care, high patient satisfaction, and improved outcomes. Additionally, one comment reported that daily presence would be more beneficial but that any occupational therapy presence is welcome.

## CHAPTER FIVE: DISSEMINATION PLAN

Following the collection of data regarding occupational therapy consults as well as PCP satisfaction with expansion of occupational therapy services, a report will be compiled to disseminate new learning to the occupational therapy department and relevant stakeholders with interest in the expansion of occupational therapy services. This report will contain information obtained directly from the data and survey and qualitative data obtained from working within PACT. This qualitative data will include information such as typical flow of workday in PACT, how to manage consults, typical conditions treated, interventions used, and general challenges that must still be addressed for future presence of occupational therapy within the PACT.

On a macro-scale, the information from this doctoral capstone project will possibly be shared with other occupational therapist at the American Occupational Therapy Association (AOTA) Annual Conference in Boston in 2020. A proposal was submitted to AOTA for consideration in June of 2019, with a decision expected in October of 2019. If the project is selected, a poster presentation will be made specifically for an audience of occupational therapists at the AOTA conference. This poster will begin with a brief description of the structure of the RMR VAMC system, as this is necessary for the audience to understand the difference between an occupational therapist working within a PACT vs. a traditional outpatient setting. Following a brief overview of the RMR VAMC structure will be an outline of how occupational therapy services were expanded within the PACT. This will provide information to the audience about one possible method for expanding the role of occupational therapy in a primary care setting.

Next, this poster will present data on the number of occupational therapy referrals received, the diagnoses, ages, and living situations of veterans seen by occupational therapy, and the outcomes of these referrals. These outcomes will include what occupational therapy interventions were provided to veterans within the PACT as well as what follow-up assessments and interventions were performed within the outpatient clinic at RMR VAMC.

The goal of disseminating this information to an occupational therapy practitioner audience at the AOTA conference is to provide an example of how occupational therapy services can be integrated into a primary care setting. Because this project is a quality improvement project within the Eastern Colorado VA Health Care System, it is not meant to be a model for how occupational therapy should be integrated into primary care settings in other contexts. Due to the short time frame in which this project occurred, the relatively small sample of veterans and primary care providers impacted, and the lack of a standardized protocol, this process may not be highly generalizable. However, by learning about an example of how occupational therapy was integrated into a primary care setting, it is possible that occupational therapy practitioners hoping to do something similar in their own practice setting may be able to identify potential avenues for integration of occupational therapy services as well as likely barriers to this integration so that they may address them more proactively.

On micro-level, the findings of this project will be disseminated to the occupational therapy department at RMR VAMC. This will be accomplished by providing a project report to Sandy Stoll, who is the supervisor of the outpatient physical

therapy and occupational therapy programs. This report is essential to the continuation of occupational therapy services once my doctoral capstone project is complete. Currently, it is projected that an occupational therapist will be entering the position initiated by my capstone experience. In order to have continuity between the services provided during this capstone project and full integration of occupational therapy services, this report will detail how occupational therapy services were integrated, feedback received from primary care providers regarding the expansion of occupational therapy services, and information regarding the client factors of veterans seen as well as the assessments and interventions performed. The goal of this report is to provide the occupational therapy department with all of the necessary information gathered during this capstone experience in order to encourage the continuation of occupational therapy services within the PACT. This information will be used to not only inform the occupational therapist about the typical assessments and interventions utilized in the PACT but also to advocate for the value of occupational therapy services integrated within a primary care team.

The initial part of this report will detail how occupational therapy services were provided. It will discuss the typical daily routine of occupational therapy services within primary care as well as some information regarding the flow of veterans through the PACT. This part of the report will be supported by an in-person visit from the occupational therapist who will fill this position following the end of the capstone experience. This occupational therapist will spend one day working with me in the PACT to gain firsthand experience of the culture and typical routines of PCPs within the clinic.

Next this report will provide information about the veterans typically referred to

occupational therapy. It will include veterans average age, primary diagnoses linked to referrals, and veteran's living situations. The goal of this part of the report will be to provide relevant stakeholders with information about the client factors of those veterans typically referred in order to inform preparation of an occupational therapist moving into primary care and to understand patterns of PCP referrals.

Following discussion of specific client factors, this report will describe common assessments and interventions used by the occupational therapy student working within primary care. This part of the dissemination paper also explains the purposes of the assessments used. The goal of this section will be to ensure that the occupational therapist working into primary care will have the necessary materials and training to perform the most typically used evaluations and interventions and to help them identify gaps in current evaluations and interventions and prepare to improve them.

Then this report will include feedback from primary care providers about the expansion occupational therapy services obtained through a survey of primary care providers. This survey collected information regarding PCPs satisfaction with the expansion of occupational therapy services within primary care to improve their knowledge of occupational therapy scope of practice and veterans' access to care. This section will also include barriers and benefits to the expansion of occupational therapy services from the point of view of the PCPs in the Denver CBOC.

Furthermore, this report will include two or three case studies that illustrate the benefit of including occupational therapy in a primary care setting. The goal of these case studies is to provide concrete examples of how the inclusion of occupational therapy in

primary care improves veteran access to care and overall outcomes. For example, the following case study will likely be included: “Mr. N is a 72-year-old gentleman with a past medical history of visual impairment, CVA, substance use, homelessness and a recent fall resulting in upper extremity injury referred to OT services by a PCP concerned about his current ability to live independently, given impaired use of bilateral upper extremities. Home safety assessment was conducted at Denver CBOC, and goals for following OT sessions were established. At follow-up session, Mr. N was taught the hemi-technique to improve performance in dressing, reducing time needed to put on a shirt from 30 minutes to three minutes. Mr. N was also encouraged to contact PACT social worker who is trying to work with him on housing stability. Between follow-up appointments, I was able to discuss veteran with PACT social worker and PCP to collaborate on Mr. N’s goals and learn more about his living environment through her discussion with Mr. N’s attorney.”

Last, this report will include qualitative information regarding unexpected barriers associated with integrating occupational therapy into the PACT, how some barriers have been addressed, and challenges that still need to be addressed. The following barriers will likely be included: space constraints, PCP time constraints, and veteran willingness to engage with occupational therapy services. First, regarding space constraints, various environmental factors will likely influence the ease with which occupational therapy continues to be integrated into the PACT. For example, during this capstone project, the Denver CBOC was relocated. During the initial phases of this project, there was ample office space. However, when the Denver CBOC relocated and an additional PCP was

added to the PACT, there was no longer a designated office for the occupational therapy. This barrier was mitigated by simply moving the occupational therapy “office” to the exam room of whichever PCP was not present in the office that day. Although this provided occupational therapy with a physical space, it required increased flexibility from the PCPs, as the location of occupational therapy services within the clinic was typically inconsistent.

Second, regarding PCP time constraints, it will be important to include some information regarding the typical path of referrals. Because PCPs are inundated with alerts on the electronic medical record system and are often scheduled to see patients every 30 minutes, placing an occupational therapy consult on the electronic medical record system may take increased time, slowing occupational therapy productivity. During this capstone project, this barrier was addressed by having both the PCPs and other care providers, including physical therapists working with the PACT, place occupational therapy consults. Therefore, if a PCP was inundated with patients or attending to online alerts, the consult could be placed by a physical therapist on site, improving the timeliness of occupational therapy documentation as well as productivity. This will likely need to be addressed further by the occupational therapist who will enter into this position when the capstone project is terminated. Considering occupational therapists within the VA are typically Licensed Independent Providers, they may be able to place their own consults into the electronic medical record system.

Finally, regarding veterans’ willingness to engage with occupational therapy services, it will be necessary to include discussion of some barriers that led to veterans

declining occupational therapy services. First, some veterans declined when invited to attend occupational therapy because they were unaware of the potential benefits of these services. Second, some veterans declined because they were already seeing an occupational therapist outside of the VA. Third, some veterans declined because they were unable or unwilling to wait to see occupational therapist who was unavailable due to meeting with another veteran. This barrier will impact productivity of the occupational therapist who becomes part of the PACT and could possibly be mitigated by scheduling return to clinic appointments for morning or afternoon hours when PCPs are typically not seeing veterans.



## CHAPTER 6: CONCLUSION

This doctoral project describes the process of expanding occupational therapy into primary care, and the perceived impact of this expansion on both PCPs and veterans. It represents a significant, novel innovation in the field of occupational therapy for two main reasons. First, this project outlines the expansion of occupational therapy services from the planning process to the maintenance of the newly established role, and second, this project presents an innovative method for improving veteran access to care within the VA system, which is plagued by long wait-times and decreased patient satisfaction.

Because this project follows the transition from beginning to integrate occupational therapy services to the hand-off from the occupational therapy student to a full-time occupational therapist who will be continuing the presence in primary care, it presents a potential model for how services could be expanded in other primary care offices. Although this project is framed as a quality improvement project within the VA, other occupational therapists can look at the method for expanding occupational therapy into primary care proposed in this doctoral project and identify potential starting points for their own expansion. This project can also serve as an example of potential barriers occupational therapists may face while advocating for the role of occupational therapy in primary care as well as ideas for the expansion of services in a productive manner once they have been included. By examining the process utilized in this doctoral project, other practitioners can potentially identify barriers and supports they may need to have a successful expansion into primary care before the encounter the barriers themselves.

This doctoral project also represents an innovation in a long-established process

of occupational therapy service delivery. In this project, a novel solution to increased wait times and decreased access to care is presented. Through the inclusion of occupational therapy services with primary care, the typical wait time for an occupational therapy evaluation following referral dropped from 1–2 months to around 15 minutes. Although this impact was not systemic and there are many veterans who are still waiting 1–2 months for an occupational therapy evaluation, this project presents a potential solution for improving veteran access to care if applied on a larger scale.

Informed by this doctoral project, future initiatives should strive to include occupational therapists in more CBOCs within the VA healthcare system. Even on a part-time basis, increasing the presence of occupational therapy across primary care facilities can not only decrease veteran wait times for occupational therapy evaluation but also improve the appropriateness of occupational therapy referrals due to increased communication between PCPs and occupational therapists. Along with increasing occupational therapy presence in more primary care offices, occupational therapy services within the primary care setting can too be expanded to more specifically address health and wellness participation and chronic disease management. Interventions targeting health and wellness participation and chronic disease management could benefit a large audience within primary care. These interventions could even include groups run with other healthcare providers. For example, a pharmacist who specializes in chronic disease pharmacology could collaborate with an occupational therapist to run a group that provides education, social support, and improved self-efficacy for individuals living with diabetes.

## **APPENDIX 1: EXECUTIVE SUMMARY**

### **EXPANDING THE IMPACT OF OCCUPATIONAL THERAPY INTO PRIMARY CARE WITHIN THE VETERANS ADMINISTRATION**

Rocky Mountain Regional VA Medical Center, Nicole Yarbrough OT/s, Sandra Stoll MA, OTR/L, CHES, LIP, Simone Gill, PhD, OT, OTR

The goal of this doctoral capstone project was to improve veteran's access to occupational therapy services within the RMR VAMC. On average, within the RMR VAMC, veterans are waiting 1–2 months to be evaluated by an occupational therapist following referral from their PCP. Integrating occupational therapists into the PACTs which already exist within primary care offices presents a possible solution to reduce veteran wait times. A PACT is a team of doctors, nurses, social workers, physical therapists and pharmacists that operate within one office to provide veterans with access to various health care services while attending an annual or semi-annual primary care appointment. This project describes the process by which occupational therapy was integrated into the PACT, perceived impact of the expansion of occupational therapy services, and recommendations for the continued inclusion of occupational therapy.

The occupational therapy doctoral candidate provided on-call occupational therapy services within the PACT three days a week. During these times, the candidate was present within the primary care office to answer PCP's questions and evaluate and treat veterans referred to occupational therapy. Common diagnoses linked to referral to occupational therapy services included post-traumatic stress disorder, upper extremity injury, chronic pain, cognitive impairments, stroke, and dementia. Veterans were typically evaluated for deficits in the areas of independent living skills, cognitive skills,

home safety, chronic disease management, and overall participation in valued occupations. All veterans seen in primary care had some need for occupational therapy intervention, whether it be brief strategy training to improve memory in functional contexts or multiple sessions to improve performance in dressing, cooking, and medication management.

Along with providing occupational therapy services, the doctoral candidate provided education to PCPs regarding the scope of occupational therapy practice. This was accomplished through a presentation, informal feedback on appropriateness of referrals, and a brief handout that provided common reasons that a veteran may benefit from occupational therapy. A survey was provided to PCPs to gather their perception regarding the utility of occupational therapy services. Of the six PCPs who returned their surveys, 83% strongly agreed that occupational therapist presence in primary care improved veteran access to care and their own knowledge of occupational therapy scope of practice. Veteran wait times for occupational therapy evaluation were reduced from 1-2 months to 15 minutes or less.

Recommendations for future integration of occupational therapy services in primary care include continued collaboration with other healthcare providers to improve continuity of services provided. Furthermore, in addition to accepting warm hand-offs from PCPs, occupational therapists in primary care should schedule follow-up appointments to improved productivity. They could also co-lead groups with pharmacists or social workers to address chronic disease management and health and wellness.

## APPENDIX 2: PRESENTATION FOR PCPS

Occupational Therapy in Primary Care

Nikki Murgas OT/s



What did it take to get you here today?

If a veteran told you that they were having difficulty with these activities...

What did it take to get you here today?

**What Occupational Therapy Does:**

- Focus on what a veteran needs to do, wants to do, and is expected to do
  - Need to do:** get dressed, get out of bed, eat and prepare food, go to work
  - Want to do:** drive a car, play with children, get around the community, returning to pre-morbid leisure activities
  - Expected to do:** pay bills, take medication, manage chronic illnesses (diabetes, HTN, fall risk)
- Help veterans to do the things that occupy their time and give their days (and life!) meaning



**How Occupational Therapists Do It:**

- Person:** strength, range of motion, cognitive strategies, social skills, behavioral regulation skills, sensory techniques, health and wellness skills, energy conservation, fine motor skills
- Environment:** ergonomics, home safety evaluations, durable medical equipment
- Occupation (activity):** task simplification, breaking task down into more manageable steps
- As it relates to participation in meaningful, functional activities



**The Distinct Value of Occupational Therapy:**

- Veteran-centered and holistic
- We emphasize ability rather than disability
- We focus on valued activities: what a veteran needs and wants to do
  - Activities of Daily Living, Instrumental Activities of Daily Living
- We are skilled at adapting the environment or the activity to improve performance and safety
- We empower our clients to be an active participant in their own health and wellness
  - Which is major goal of PCPT and primary care



Questions and Discussion

The logo features a group of five diverse children in various playful poses. Below the illustration, the text "Occupational Therapy" is written in a blue, cursive-style font, with the tagline "Skills for the Job of Living" in a smaller, red, sans-serif font underneath.

### APPENDIX 3: PROVIDER SURVEY

#### Provider Satisfaction Survey: A Response to the Expansion of Occupational Therapy in Primary Care

*Please rate the degree to which you agree/disagree with the following statements:*

I am satisfied with the incorporation of occupational therapy services into the primary care setting.

1	2	3	4	5	6	7	8	9	10
<b>Strongly disagree</b>									<b>Strongly agree</b>

Occupational therapy services within the primary care setting are highly beneficial to patient care.

1	2	3	4	5	6	7	8	9	10
<b>Strongly disagree</b>									<b>Strongly agree</b>

The expansion of occupational therapy services within the primary care setting has improved patient access to occupational therapy services.

1	2	3	4	5	6	7	8	9	10
<b>Strongly disagree</b>									<b>Strongly agree</b>

Including occupational therapy services within the primary care setting has increased my knowledge of the scope of care that occupational therapy services can provide.

1	2	3	4	5	6	7	8	9	10
<b>Strongly disagree</b>									<b>Strongly agree</b>

Please include comments on perceived benefits and/or barriers that may be associated with incorporating occupational therapy services into the primary care setting:

## BIBLIOGRAPHY

- Aeschlimann, Butzer, Virva, Donders, & Cistaro. (2017). Executive Function Performance Test in acute rehab patients with brain tumors. *Archives of Physical Medicine and Rehabilitation*, 98(10), E67.
- American Occupational Therapy Association (2019). Role of occupational therapy in assessing functional cognition. *Advocacy and Policy*. Retrieved from <https://www.aota.org/Advocacy-Policy/Federal-Reg-Affairs/Medicare/Guidance/role-OT-assessing-functional-cognition.aspx>
- American Occupational Therapy Association. (2017). Occupational therapy practice framework: Domain and process (3<sup>rd</sup> ed.). *American Journal of Occupational Therapy*, 68, S1-S48. doi:10.5014/ajot.2014.682006
- American Occupational Therapy Association. (2019). Primary care. Retrieved from [www.aota.org/practice/manage/primary-care.aspx](http://www.aota.org/practice/manage/primary-care.aspx)
- Arriola, V. D., & Rozelle, J. W. (2016). Traumatic brain injury in United States Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) Hispanic veterans—A review using the PRISMA Method. *Behavioral Sciences*, 6(1), 3. doi:10.3390/bs601000
- Baum, C. M., Connor, L. T., Morrison, T., Hahn, M., Dromerick, A. W., & Edwards, D. F. (2008). Reliability, validity, and clinical utility of the Executive Function Performance Test: A measure of executive function in a sample of people with stroke. *American Journal of Occupational Therapy*, 62, 446–455.
- Baum, C., Morrison, T., Hahn, M., & Edwards, D. (2003). Executive function performance test: Test protocol booklet. *St. Louis, MO, USA: Program in Occupational Therapy Washington University School of Medicine*.
- Bennett, T. L. (2001). Neuropsychological evaluation in rehabilitation planning and evaluation of functional skills. *Archives of Clinical Neuropsychology*, 16(3), 237–253. doi:10.1016/S0887-6177(00)00082-2
- Byrne, T., Montgomery, A. E., & Dichter, M. E. (2013). Homelessness among female veterans: A systematic review of the literature. *Women & Health*, 53(6), 572–596. doi: 10.1080/03630242.2013.817504
- Cederfeldt, M., Widell, Y., Andersson, E. E., Dahlin-Ivanoff, S., & Gosman-Hedström, G. (2011). Concurrent Validity of the Executive Function Performance Test in People with Mild Stroke. *British Journal of Occupational Therapy*, 74(9), 443–449. <https://doi.org/10.4276/030802211X13153015305673>



- Chisholm, D., Toto, P., Raina, K., Holm, M., & Rogers, J. (2014). Evaluating capacity to live independently and safely in the community: Performance Assessment of Self-care Skills. *British Journal of Occupational Therapy*, 77(2), 59-63. doi:10.4276/030802214X13916969447038.
- Coll, J. E., Weiss, E. L., & Yarvis, J. S. (2011). No one leaves unchanged: Insights for civilian mental health care professionals into the military experience and culture. *Social Work in Health Care*, 50(7), 487-500. doi:10.1080/00981389.2010.528727
- Dobie, D. J., Kivlahan, D. R., Maynard, C., Bush, K. R., Davis, T. M., & Bradley, K. A. (2004). Posttraumatic stress disorder in female veterans: association with self-reported health problems and functional impairment. *Archives of Internal Medicine*, 164(4), 394-400. doi:10.1001/archinte.164.4.394
- Durant, J., Leger, G. C., Banks, S. J., & Miller, J. B. (2016). Relationship between the activities of daily living questionnaire and the Montreal Cognitive Assessment. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, 4, 43-46. <https://doi.org/10.1016/j.dadm.2016.06.001>
- Finnanger, T. G., Skandsen, T., Andersson, S., Lydersen, S., Vik, A., & Indredavik, M. (2013). Differentiated patterns of cognitive impairment 12 months after severe and moderate traumatic brain injury. *Brain Injury*, 27, 1606-1616. <http://dx.doi.org/10.3109/02699052.2013.831127>
- Goverover, Y., Chiaravalloti, N., Gaudino-Goering, E., Moore, N., & DeLuca, J. (2009). The relationship among performance of instrumental activities of daily living, self-report of quality of life, and self-awareness of functional status in individuals with multiple sclerosis. *Rehabilitation Psychology*, 54(1), 60. doi: 10.1037/a0014556.
- Kalmar, J. H., Gaudino, E. A., Moore, N. B., Halper, J., & DeLuca, J. (2008). The relationship between cognitive deficits and everyday functional activities in multiple sclerosis. *Neuropsychology*, 22(4), 442. doi: 0.1037/0894-4105.22.4.442.
- Kashiwa, A., Sweetman, M. M., & Helgeson, L. (2017). Occupational therapy and veteran suicide: a call to action. *American Journal of Occupational Therapy*, 71(5), <https://doi.org/10.5014/ajot.2017.023358>
- Katz, N., Bar-Haim Erez, A., Livni, L., & Averbuch, S. (2012). Dynamic Lowenstein Occupational Therapy Cognitive Assessment: Evaluation of potential to change in cognitive performance. *American Journal of Occupational Therapy*, 66, 207-214. <http://dx.doi.org/10.5014/ajot.2012.002469>

- Law, M., Cooper, B., Strong, S., Stewart, D., Rigby, P., & Letts, L. (1996). The person-environment-occupation model: A transactive approach to occupational performance. *Canadian Journal of Occupational Therapy, 63*(1), 9-23. Retrieved from [www.academia.edu](http://www.academia.edu)
- Oster, C., Morello, A., Venning, A., Redpath, P., & Lawn, S. (2017). The health and wellbeing needs of veterans: A rapid review. *BMC Psychiatry, 17*(1), 414. doi:10.1186/s12888-017-1547-0
- Plach, H. L., & Sells, C. H. (2013). Occupational performance needs of young veterans. *American Journal of Occupational Therapy, 67*, 73–81. <http://dx.doi.org/10.5014/ajot.2013.003871>
- Rodakowski, J., Skidmore, E. R., Reynolds III, C. F., Dew, M. A., Butters, M. A., Holm, M. B., ... & Rogers, J. C. (2014). Can performance on daily activities discriminate between older adults with normal cognitive function and those with mild cognitive impairment? *Journal of the American Geriatrics Society, 62*(7), 1347-1352.
- Rogers, J.C. & Holm, M.B. (2014). Performance Assessment of Self-Care Skills: Version 4.0. *Test Manual*. Retrieved from: <https://www.ono.ac.il/wp-content/uploads/PASS-Home-Test-Manual.pdf>
- Rosland, A. M., Nelson, K., Sun, H., Dolan, E. D., Maynard, C., Bryson, C., ... & Schectman, G. (2013). The patient-centered medical home in the Veterans Health Administration. *The American Journal of Managed Care, 19*(7), e263-272.
- Schwartz, Y., Averbuch, S., Katz, N., & Sagiv, A. (2016). Validity of the Functional Loewenstein Occupational Therapy Cognitive Assessment (FLOTCA). *American Journal of Occupational Therapy, 70*(1), 7001290010p1-7001290010p7.
- Spiro III, A., & Settersten Jr, R. A. (2012). Long-term implications of military service for later-life health and well-being. *Research in Human Development, 9*(3), 183-190. doi:10.1080/15427609.2012.705551
- Stoller, C. C., Greuel, J. H., Cimini, L. S., Fowler, M. S., & Koomar, J. A. (2012). Effects of sensory-enhanced yoga on symptoms of combat stress in deployed military personnel. *American Journal of Occupational Therapy, 66*, 59–68. doi: 10.5014/ajot.2012.001230
- Taghizadeh, G., Aldini, A.S., Karimi, H., & Rahimzadeh, S. (2008). Validity and reliability of PASS in evaluating the self-care skills of patients with Parkinson's disease. *Iranian Journal of Aging, 3*(3), 47-52.

- Toglia, J., Fitzgerald, K. A., O'Dell, M. W., Mastrogiovanni, A. R., & Lin, C. D. (2011). The Mini-Mental State Examination and Montreal Cognitive Assessment in persons with mild subacute stroke: relationship to functional outcome. *Archives of Physical Medicine and Rehabilitation*, *92*(5), 792-798. <https://doi.org/10.1016/j.apmr.2010.12.034>
- US Department of Veterans Affairs. (2019). Patient aligned care team. *Patient Care Services*. Retrieved from [www.patientcare.va.gov/primarycare/pact/resources.asp](http://www.patientcare.va.gov/primarycare/pact/resources.asp)
- Wolf, T. J., Stift, S., Connor, L. T., Baum, C., & Cognitive Rehabilitation Research Group. (2010). Feasibility of using the EFPT to detect executive function deficits at the acute stage of stroke. *Work*, *36*(4), 405-412. doi:10.3233/WOR-2010-1045.

**CURRICULUM VITAE**

