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Promotion of Self-Management Skill Development Through an Incentive Driven Home Exercise Program

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A Capstone Project Entitled

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Abstract

Individuals with disabilities are at an even greater risk for a lack of physical activity and engaging in health promoting behaviors. Home exercise programs (HEP) have been effective in improving patient outcomes and preventing further disability. The purpose of this doctoral capstone experience (DCE) was to develop an incentive-driven home exercise program in order to facilitate self-management skills among youth and older adults at an outpatient clinic and determine if the program would increase adherence to a HEP. A HEP workbook was created, and an incentive program was tied to the workbook. Therapists distributed the workbooks to clients and supplemented it with materials fit for the individual. Program effectiveness was measured by five therapists through completion of a pre-/post-HEP adherence tracking log. Average HEP adherence pre-program implementation across four weeks was approximately 49.25% while average adherence post-program implementation was 64.96%. Overall HEP adherence at the clinic increased by approximately 15% after one month of program implementation. Therapists reported clients enjoyed the competition and a possibility to win a prize, more clients were bringing in their HEP workbooks, and the clinic benefited from this program. Further investigation is needed to determine whether an incentive-driven HEP program can be effective long-term in improving self-management skill development and increasing client adherence to home programs.

Promotion of Self-Management Skill Development through an Incentive Driven Home Exercise
Program

According to the Centers for Disease Control and Prevention, seven of the top ten causes of death in the United States were attributed to chronic diseases in 2014 (Centers for Disease Control and Prevention [CDC], 2017b). Factors such as physical inactivity and unhealthy eating not only contribute to the development of obesity, but other related conditions such as cardiovascular disease, diabetes, and cancers (CDC, 2017b). Engaging in regular physical activity throughout the week can decrease the risk of developing certain illnesses. Physical activity and maintaining a healthy weight can help build strong bones, relieve pain, reduce symptoms of anxiety or depression, is associated with fewer hospitalizations, and can improve engagement in functional meaningful activity (CDC, 2007).

Recently, there has been a strong shift towards preventative healthcare approaches with a focus on health and wellness. There are a number of different health and wellness initiatives taking place across workplaces, schools, social media, and in the community. The National Wellness Institute (n.d.) defines health and wellness as, “. . . an active process through which people become aware of, and make choices toward, a more successful existence.” Jirikowic and Kerfeld (2016) reported that children with disabilities were more likely to be sedentary and less likely to engage in health-promoting physical activity than those without disabilities. Children with disabilities are at an even greater risk, as a lack of physical activity can further exacerbate problems leading to immobility and decreased participation (Jirikowic & Kerfeld 2016; Rimmer, Rowland, & Yamaki, 2007). Establishing skills that are related to a physically active lifestyle in childhood translate to a greater adherence to physical activity and exercise in adulthood

(Rimmer, Chen, McCubbin, Drum, & Peterson, 2010).

Participation in a home exercise program (HEP) is something that healthcare practitioners often prescribe to help improve patient outcomes and prevent further disability. For children and older adults, a HEP encourages these individuals to take a more active role in the rehabilitation process and facilitates self-management skills. However, non-adherence to HEPs is a common problem that healthcare practitioners face (Medina-Mirapeix et al., 2017). Lambert et al. (2017) reported that approximately 70% of individuals do not follow through with HEPs and that adherence only declines with time. Factors that contribute to non-adherence include the following: low motivation, pain, poor self-efficacy, limited experience with exercise, and decreased social support (Lambert et al., 2017; Medina-Mirapeix et al., 2017).

Previous studies have assessed factors such as parent and caregiver involvement and how the exercise is prescribed in relation to adherence to home exercise programs (Basaran, Karadavut, Uneri, Balbaloglu, & Atasoy, 2014; Emmerson, Harding, & Taylor, 2017; Kara & Ntsiea, 2014; Lambert et al., 2017; Lillo-Navarro et al., 2015). Rimmer and Rowland (2008) stated that finding strategies to increase physical activity among children with disabilities is one of the most important challenges that pediatric rehabilitation and healthcare professionals face. There is a need to develop alternative means to help facilitate patient engagement in home exercise programs. The purpose of this doctoral capstone experience (DCE) is to develop an incentive-driven home exercise program in order to facilitate self-management skills among youth and older adults with neuromotor disorders at an outpatient clinic, as well as to determine if the incentive-driven program increases adherence to home exercise program prescription.

Background and Significance

In 2008, it was estimated that medical care costs related to obesity was \$147 billion in the United States (CDC, 2017b). A majority of health experts agree that physical activity is important to maintain good health and prevent the onset of disease (CDC, 2017b; DeVahl, King, & Williamson 2005; Rimmer, Chen, McCubbin, Drum, & Peterson 2010). The CDC (2017a) defines physical activity as, “Any bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure” (CDC, 2017a, p. 1). Similarly, exercise is a form of physical activity that is planned, structured, and a repetitive bodily movement with the goal to maintain or improve physical fitness (CDC, 2017a).

Rehabilitation professionals play an integral role in encouraging increased participation in physical activity through their ability to have direct and relatively consistent contact with family members of those with a disability (Rimmer & Rowland, 2008). For individuals with disabilities, barriers that prevent engagement in physical activity include access, proper instruction, programming, and support (Noerr, 2018; Rimmer & Rowland, 2008). Rimmer and Rowland (2008) suggested setting realistic goals, performance feedback, individualized communication strategies, equipment adaptations, and reinforcement strategies as possible interventions to facilitate effective participation in exercise programs. Further investigation into barriers and facilitators, specifically aspects that are modifiable, can assist healthcare professionals in developing effective health promoting activities.

Parent & Caregiver Involvement

Clinicians often report non-adherence to home exercise programs from their clients (Basaran et al., 2014; Medina-Mirapeix, 2017; Proffitt, 2016). Children with disabilities are at an even greater risk for low levels of adherence (Basaran et al., 2014; Lillo-Navarro et al., 2015).

Factors that can contribute to non-adherence may include age, marital status, socioeconomic status, severity of the functional limitation, stress, educational status, and employment of the caregiver (Basaran et al., 2014). Active participation of parents during home activity programs is key to successful therapy interventions (Lillo-Navarro et al., 2015). Basaran et al. (2014) found that exhaustion and burnout of caregivers is an important predictor in relation to enabling adherence. The complexity and amount of exercises, presence of pain, and parent/caregiver confidence are other factors that affect follow-through with a home exercise program (Lillo-Navarro et al., 2015). Home exercises that can be easily incorporated into a family daily routine are one means to overcome the challenges related to adherence to a HEP (Lillo-Navarro et al., 2015).

HEP Prescription

Patients who follow through with their home exercise programs often experience better treatment outcomes (Emmerson, Harding, & Taylor, 2017). Traditionally, home exercise programs are prescribed in a paper handout format with written notes/pictures. Emmerson, Harding, and Taylor (2017) assessed how the mode of delivery of an HEP impacted adherence and functional outcomes among patients who had a stroke and were experiencing upper limb deficits. The use of smart technology was not found to be superior in comparison to traditional methods of HEP delivery (Emmerson, Harding, & Taylor, 2017). In contrast, Lambert et al. (2017) found that home exercise programs that were provided on a technological application with remote support increased patient adherence when compared to paper handouts among those with musculoskeletal conditions. Additionally, Kara and Ntsiea (2015) evaluated whether the inclusion of written and pictorial home exercise prescription impacted adherence to HEP in comparison to no written and pictorial features. Although no significant difference was found,

emotional/physical support from family members or caregivers improved adherence to a home exercise program (Kara & Ntsiea, 2015).

Further research in regards to the method of delivery that home exercise programs are prescribed is still needed. Conflicting evidence exists as to whether traditional methods or the use of smart technology is more effective in influencing client adherence with home exercise programs (Emmerson, Harding, & Taylor, 2017; Lambert et al., 2017). Proffitt (2016) examined current occupational therapy practices in regards to the usage, prescription, and clinical reasoning behind home exercise programs. A majority of HEPs span 16-30 minutes daily and focused heavily on preparatory activities that included stretching, active range of motion, and fine motor activities (Proffitt, 2016). However, occupational therapists did not agree in regards to the practices used to implement and progress a HEP. Determining appropriate methods of HEP prescription can facilitate greater adherence among patients with neurological conditions leading to increased functional recovery, improved outcomes, and greater patient satisfaction (Proffitt, 2016).

Self-Management

Self-management programs have the ability to enhance individual empowerment, promote responsibility for management of the client's current condition, and assist the client in making informed lifestyle decisions (Musekamp, Bengel, Schuler, & Faller 2016). Musekamp et al. (2016) assessed the relationship between participation in a self-management skill development program with quality of life and depression. Greater improvement in self-management skill development was associated with improved long terms outcomes such as quality of life or course of disease (Musekamp et al., 2016). Additionally, Cahill, Polo, Egan, and Marasti (2016) reviewed the current literature in regards to self-management interventions for

children with diabetes. There was large support in regards to parent involvement in self-management interventions for children in order to hold them more accountable. Specifically, parent involvement led to increased adherence to self-management routines, increased use of self-management skills, and increased parents' perception in their child's ability to contribute to successful management (Cahill, Polo, Egan, & Marasti, 2016).

Role of the Occupational Therapist in Health and Wellness

Occupational therapists are skilled in promoting healthy lifestyle changes through their knowledge and understanding of how physical and mental health impact the disease process and performance patterns (Cahill, Polo, Egan, & Marasti, 2016). The *Occupational Therapy Practice Framework: Domain and Process, 3rd edition* describes how the profession has a unique role in assessing an individual's health management and health maintenance capabilities (American Occupational Therapy Association, 2014). Specifically, occupational therapy (OT) practitioners are trained in developing, managing, and maintaining routines related to overall health and wellness. Occupational therapists have a number of different theoretical models that guide their practice. The focus of the Model of Human Occupation (MOHO) is on the mind/body connection and that motivation and performance of occupations are interconnected (Cole & Tufano, 2008). The MOHO describes function as when an individual can choose, organize, and perform occupations that are personally meaningful (Cole & Tufano, 2008). Being able to target a client's volition and engagement in meaningful activities is what makes occupational therapy unique.

In addition to volition, performance capacity and habituation are also core tenets to the MOHO. Understanding one's roles, skills, and abilities can guide occupational therapy practitioners throughout the OT process to help clients develop occupational competence. In the

United States, over 80% of therapists across various practice settings reported using the MOHO in everyday practice (Lee et al., 2012). Cole (2010) described the value of the MOHO in facilitating OT practitioners to better understand client's self-perceptions of their capacity and efficacy before setting physical activity goals and intervention planning. Chen, Neufeld, Feely, and Skinner (1999) assessed patient cooperation and satisfaction with HEPs in relation to the MOHO. Their results supported the role of the MOHO's volitional system, but other factors such as roles and interests did not contribute significantly to compliance with exercise (Chen et al., 1999). Venable, Hanson, Shechtman, and Dasler (2000) further supported the MOHO theory through their findings. Older adults who participated in the occupations of exercise individually or in a group experienced a change in the mind-brain-body performance subsystem results leading to increased independent functioning (Venable et al., 2000).

Volition is intrinsic and is sometimes triggered by external rewards. With the creation of a HEP, incentives may have the capability of facilitating adherence. Strohacker, Galarraga, and Williams (2014) defined incentives as a stimulus that is contingent upon the performance of a desired behavior, with the intent of increasing frequency of that behavior. DeVahl, King, and Williamson, (2005) found that for students in a voluntary 12-week exercise program, adherence in the group with greater reward structure was stronger than those without an additional incentive. Additionally, Ngo et al., (2014) evaluated the effectiveness of an incentive-driven intervention to increase the amount of time children spent outdoors. At six months, there was found to be an increase in time spent outdoors by children; however, at the end of the trial there was no significant difference (Ngo et al., 2014).

Token economies serve as another means to impact outcomes and have been considered a best practice behavior strategy in the school systems (Soares, Harrison, Vannest, & McClelland,

2016). Soares et al. (2016) described token economies as a secondary reinforcement system whereby items that are essentially neutral are awarded based on the demonstration of desirable behaviors. Token economies have been found to be effective in schools, residential treatment centers, mental health hospitals, prison or detention centers, and colleges (Soares et al., 2016). Soares et al. (2016) described the positive effects token economies have on students with emotional and behavioral problems, intellectual problems, attention deficit hyperactivity disorder, learning disabilities, and schizophrenia. Token economies were associated with positive outcomes in social, behavioral, and academic areas among individuals with autism and developmental disabilities (Soares et al., 2016) in addition to improving work performance, social interactions skills, and daily care skills among individuals with a psychotic disorder (Soares et al., 2016). A systematic review by Strohacker, Galarraga, and Williams (2014) concluded that the effectiveness of reinforcing exercise behavior with material incentives is still unclear and that further research is needed to determine sustainable and effective incentive-driven procedures. Perhaps token economies may serve as another means to target a client's volition for home exercise completion. In designing HEP workbooks, the healthcare practitioner must consider the population/diagnosis, which incentives motivate these individuals, which skills/abilities they possess, and how their habits/roles will impact adherence.

Summary of Literature

The literature indicates that there are several approaches to consider for fostering the development of self-management skills through a HEP (Basaran et al., 2014; Musekamp et al., 2016; Emmerson, Harding, & Taylor, 2017; Kara & Ntsiea, 2015; Lillo-Navarro et al., 2015). Factors such as parent/caregiver involvement and the means in which the exercise is prescribed can have a direct impact on levels of adherence and the development of self-management skills.

There is a need for healthcare practitioners to re-assess the methods in which HEPs are prescribed for individuals with disabilities. Promoting self-management skills through home exercise programs can help these individuals develop the skills needed to prevent further complications and debility in the future. Based on the literature, parent/caregiver involvement and incentives were incorporated into the home exercise program workbook. Addressing these factors, with the guidance of a skilled interdisciplinary team may lead to increased adherence to HEPs, the development of self-management skills, and overall improved patient outcomes.

Screening and Evaluation

Before beginning a formal needs assessment, it is important to examine the structure of an organization, condition, and their population to establish a community profile (Scaffa & Reitz, 2010). In some regards, I already had a good knowledge base about my site as I previously worked there as a therapy technician and administrative assistant. However, in order to better understand the dynamics of my site, I explored the clinic's website and social media blogs. Based on this exploration, I found in addition to occupational therapy, physical therapy, and speech therapy, the clinic has offered applied behavioral analysis therapy for the past few years. The number of older adults the clinic treats is growing, the staff is expanding, clinic remodels and additions are taking place, there are free monthly knowledge based workshops, and a number of other different initiatives are taking place.

In general, occupational therapists are responsible for evaluating and determining the needs of their clients (AOTA, 2014). Scaffa and Reitz (2014) defined a "need" as a gap in what currently exists and the desired state for a particular group secondary to an identified issue. In regards to this doctoral capstone experience, my client is the outpatient therapy clinic. A needs assessment at the clinic was conducted to identify and prioritize current issues that exist. As a

part of my needs assessment, I conducted informal interviews with some key informants at the clinic, including the chief operations officer/clinical director, assistant clinical director, two occupational therapists, a physical therapist, and the fitness therapist. Some of the potential needs consisted of the following: a parent support group, closed head injury support group for adolescents, education on a sensory diet, parent/caregiver health and wellness, disease management program, and a home exercise workbook program. Throughout the interview process, I also had the opportunity to observe different disciplines and the overall dynamics of the clinic for approximately two weeks. As I collected the data about the needs identified in the interview, I synthesized and analyzed continuously to determine if any commonalities existed. Health and wellness, disease management, and the need for a HEP workbook appeared to be common threads based on the needs assessment and interviews. I then reviewed the current literature I had collected and further investigated the literature through the search all feature in the EBSCOhost database. Before selecting a specific need and presenting it to the clinic's stakeholders, I reflected on my own personal vision and how it fits into the clinic's mission. Scaffa and Reitz (2014) describe a mission statement as the organization's core and underlying purpose for existence. A mission statement serves as the foundation to guide employees and inform consumers of their intended purpose. This particular clinic “. . .is dedicated to improving the lives of children and adults with neuromotor disorders through intensive and unique therapy approaches” (Crawl Walk Jump Run Therapy Clinic, 2017). The clinic's mission aligns with my own personal passion, which is for health and wellness and assisting others in leading more meaningful lives through engagement in healthy occupations. The clinic strives to educate parents and family members and assist their clients in reaching their maximal functional potential. Based on the data accumulated and its relationship to my passion, I presented the idea

of an HEP workbook to the chief operations officer/clinic director. It was determined that the clinic could benefit from an incentive-driven HEP workbook to foster the development of self-management skills and in turn improve the quality of life for youth and older adults.

Before implementing a program, evaluation methods were established to determine the merit, worth, and value of a program (Scaffa & Reitz, 2014). I began a formative evaluation process, which consisted of providing credible and relevant information concerning a program's theoretical framework, design, activities, and operation (Scaffa & Reitz, 2014). The MOHO was the theoretical framework chosen to guide my DCE. The MOHO views occupational performance as a complex dynamic system. A large focus of the MOHO is on an individual's volition, habituation, and mind-brain body performance (Venable et al., 2000). Targeting a client's volition or desire to adhere to a prescribed HEP was important to consider in relation to incentive options. A client's habits and roles must be considered when prescribing HEPs that will be realistic and feasible to incorporate outside of therapy. The mind-brain body connection or an individual's client factors are the driving force in determining what is going to be prescribed in a HEP to enhance occupational performance. The design of the program consisted of developing a HEP workbook with certain activities based on an individual therapist's expertise and client-centered principles. In addition to the HEP workbook an incentive program was tied to the workbook to promote adherence. These actions were to assist the clinic in making changes to current HEP prescription to improve patient outcomes, facilitate adherence, and increase therapist productivity by decreasing time spent on HEP development. A qualitative design approach through the use of interviews/surveys, observation, and review of current resources was conducted. By following this process, the information gained will assist clinic stakeholders in making changes that will lead to improved outcomes and future practices.

The use of surveys and questionnaires are common data collection methods to track home exercise program adherence (Basaran et al., 2014; Medina-Mirapeix et al., 2017). In order to further diagnose and measure problems related to HEP adherence among clients at the clinic, several therapists were asked to measure adherence four weeks pre- and post-program implementation. Similar to Medina-Mirapeix et al., (2017), adherence was measured by a ratio of the number of days doing the exercises in the previous week over the number of recommended days per week. During the program planning process, a survey was distributed to different disciplines (OT, PT, SLP) to determine which resources they readily used, opinions on what made adherence to a HEP successful, and their perspective on appropriate/feasible incentives.

This screening and evaluation process is similar to what is seen in existing areas of practice when evaluating a individual client. For occupational therapists working in traditional practice settings, they screen their client for needs, further evaluate if necessary, and analyze the information gathered to determine a plan of care (AOTA, 2014). This clinic benefits from having an occupational therapy student completing this project as the profession is grounded in a holistic perspective considering all aspects of the client/organization. Occupational therapists do not simply assess client factors, they assess occupations, performance skills, performance patterns, and the context/environment through which an individual is surrounded (AOTA, 2014). Throughout this HEP workbook and incentive program creation, an interdisciplinary approach was utilized so all aspects of the person and their environment could be considered fully.

Interdisciplinary professionals often prescribe home exercise programs to supplement the interventions they provide in the clinic. Depending on the individual's insurance and financial standing, outpatient therapy services may only be provided one or two days a week for a total of 120 minutes. The amount of time a clinician spends with their patient per week is a small portion

of an overall week. Therefore, work outside of therapy, through prescribed home exercise programs, is important to complete to further maximize on the progress made during therapy. Chen et al., (1999) prescribed a home exercise program for sixty-two outpatients at an orthopedic upper extremity facility upon evaluating factors that influenced patient cooperation and satisfaction with HEPs. Results indicated that volition was a key component to compliance to with home exercise programs and that encouraging patients to become actively involved in their treatment was crucial for treatment effectiveness (Chen et al., 1999). Additionally, Bhalerao, and Varadharajulu (2016), studied the effects of a community-based monitored home exercise program in stroke survivors and found significant improvements in motor performance and functional independence in comparison to the control non-monitored group. In addition to outpatient settings, inpatient settings pre- and post-surgery are also taking advantage of home exercise program prescription to improve patient outcomes. Sokk et al., (2017) measured improvements in muscle strength, knee range of motion, and stride length in patients with knee osteoarthritis through a prescribed home exercise program eight weeks prior to total knee arthroplasty (TKA). Statistically significant differences have also been found through HEP prescription twelve months post TKA in regards to improve functional gains (Anneli et al., 2017). Prescribing home exercise programs has been critical to the rehabilitation process and is something that clinicians often take advantage of regardless of what practice setting they work in.

Implementation

The program planning process began by developing a measure to determine program effectiveness. Three physical therapists, two occupational therapists, and one speech language pathologist tracked current client adherence to the HEPs prescribed for half of their caseload for

four weeks before and four weeks after the implementation of the incentive-driven HEP.

Therapists were provided with the option to complete a log of adherence on either a secured Google document or a hard written copy (see Appendix A). During this time, a brief survey was distributed to the interdisciplinary staff in order to gain a better sense of which resources staff were currently utilizing for HEPs, opinions on what makes adherence to a HEP successful, and perspectives on appropriate/feasible incentives (see Appendix B). In order to protect patient information, the surveys and adherence logs did not leave the clinic. These items were kept in the clinic office, which is secured through a password-protected keypad. During the pre-program measuring phase, prior to the start of the incentive-driven HEP program, I had the opportunity to collaborate with the lead therapists of each department, to gather additional information on features for the workbook as well as locate current resources. This included three different meetings with a physical therapist (PT), occupational therapist (OT), and speech language pathologist (SLP).

The information from the survey was analyzed, and common themes were established. Therapists expressed that they utilized simple handouts, picture cards, charts to track participation, and internet websites with HEP information. Some common topics addressed in HEPs included the following: reflexes, sensory diets, heavy work, strengthening/endurance exercises, strategies to decrease tactile defensiveness, communication checklists, pre-linguistic skills, and activity of daily living (ADL) skills. There were three common themes that therapists identified that made their clients successful with a HEP: parent participation, parent/client motivation, and activities that were easily incorporated into their daily routines. Therapists identified the following incentives that could increase HEP adherence: physical check-off sheet,

ability to pick a fun activity next session, reward (Goldfish crackers, fruit snacks, etc.), and raffle tickets for a larger prize.

Based on information obtained from the surveys and interviews with the lead therapists from each department, the next step consisted of developing the HEP workbook. A thorough review of current departmental HEP resources were analyzed and organized. This included reviewing current OT HEP handouts and collaborating with another OT student who was in the process of organizing the discipline's resources, as well as printing and organizing commonly used SLP handouts. I also held two separate sessions with an SLP and PTA to take pictures of certain HEPs. The clinic had expressed their desire to create their own reflex handouts, and these pictures would be included in them. These additions were made to the departmental HEPs based on therapist feedback and a mock HEP workbook was created. A proposal of estimated start-up/yearly costs and a mock HEP workbook was presented to the chief operations officer/clinical director for review. In collaboration with chief operations officer, it was determined that a folder with a weekly planner (see Appendix C) would be incorporated inside the HEP workbook. The HEP workbook would also hold a general welcome letter describing the HEP workbook purpose and incentive program. Therapists would then provide education and specific HEPs of their choosing to supplement the HEP workbook to keep home programming client-centered for each individual. It was determined that if clients were compliant with their prescribed HEPs they could enter their name each week to be selected for a monthly drawing. At the end of the month, a winner would be chosen at random, and they would be deemed the clinic's HEP Star of the Month. If consent was provided, this individual would have their picture displayed in the clinic and be able to choose a small prize.

After the owner approved the cost proposal, I collaborated with the office manager to order the HEP Incentive Program supplies. The next step consisted of putting together the HEP workbooks, organizing departmental resources, gathering and staging supplies for the incentive program, and putting together a HEP toolkit bin where resources would be held. Therapists were instructed to provide the HEP workbooks at their discretion to current patients for one month. Any new incoming patients were administered the HEP workbook upon evaluation. Clients were instructed to bring their HEP workbook to each session, and at their last session for the week, their therapist for that day would determine if compliance was met.

Leadership and Staff Development

In order to facilitate successful service provision with program implementation it was important that I demonstrated effective leadership skills throughout the process. According to the results from the *Strengthsfinder 2.0* quiz, discipline, empathy, consistency, positivity, and futuristic were among my top five strengths (Rath, 2017). My futuristic mindset allowed me to partner with certain individuals at the clinic who were also eager to put my vision into motion. This strength allowed me to excel in the area of developing a start-up program. Staying disciplined and consistent during program planning and implementation ensured timelines and objectives were met. Harnessing my passion for health and wellness, as well as demonstrating positivity and enthusiasm throughout the project helped foster a positive context to initiate a new program. Rath (2017) describes positivity as planning highlighted activities where small achievements are turned into events or regular celebrations, which others can look forward to. This idea for action describes the basis of my incentive program. If a client adheres to their prescribed home exercise program, they will have the opportunity to be rewarded and recognized

for their accomplishment. My strengths are common threads and skills that can be seen throughout the program implementation process that enabled me to be successful.

In order to facilitate effective service provision of this program a brief in-service was held for staff at the clinic. Services at the clinic are provided on a one-to-one basis, giving therapists the opportunity to individually introduce the HEP workbook to each client and describe how this program could improve outcomes for them. Education was provided on the format of the incentive program, features of the HEP workbook, location of supplies, and any additional questions were addressed at this time. Providing education to staff ensured therapists were confident and competent with the format of the program. It also served as an opportunity for therapists to self-reflect on HEP prescription and encouraged them to be more accountable to continue to provide education to individuals at the clinic.

Discontinuation and Outcome Phase

In order to measure program effectiveness, it was important that outcome measurements were completed. As a part of my post-program assessment, therapists were asked to track HEP adherence for approximately four weeks after program implementation. Therapists were provided an additional hard copy of the tracking table in the same format as the pre-measurement tracking table and access to a secured Google document depending on their preference. Tracking HEP adherence approximately one month after program implementation allowed for an objective measure on whether the use of an HEP incentive-driven program improved client follow-through. The post-program measurement results allowed the clinic to reassess the format of the program and any future changes that could be made in order to make it more successful.

As a result of the incentive-driven HEP program, results pre- and post-program did not indicate substantial significant change in regards to overall adherence to home programs.

Average pre- program was approximately 49.25% adherence for four weeks, while post-program results indicated roughly 64.96% (Appendix D). Average adherence did trend upward by approximately 15%. However, these results should be interpreted with caution as this was not a formal research study and there was a lack of control by the investigator. The clinic was closed one day during this time period, some clients did not show up for their scheduled treatment or took a break from therapy, and therapists were off certain days which impacted adherence tracking. General feedback was sought from therapists on aspects that went well during the month and things that could be improved upon. Some suggestions for improvement were to have a separate adult incentive program and include a blank table of all exercises that were provided with a check off system. Therapists reported clients enjoyed the competition and possibility of a prize, and more patients were bringing in their folders the month following program start-up. They reported that the HEP incentive program was something that the clinic needed and filled a gap in regards to service delivery.

Additionally, as a part of the discontinuation phase, program sustainment was taken into consideration. Scaffa and Reitz (2014) describe sustainment as a crucial component in the program design and implementation. This process involves ongoing evaluation, ongoing service development, program modification to continue to meet the clinic's desired needs, and effective marketing (Scaffa & Reitz, 2014). In collaboration with my site mentor, it was determined that a therapy technician would be responsible for keeping track of HEP inventory, assembling workbooks, and organizing supplies for the incentive-driven program. In order to ensure a smooth transition of this process, three meetings were held with the lead individual responsible for program sustainment. In regards to ongoing service development and program modification,

a member of the therapy team would be held responsible secondary to their expertise and skilled training with past program development.

Continuous Quality Improvement

Continuous quality improvement (CQI) is a management process that assesses the organization of people, equipment, and procedures in place that are set to reproduce a series of intended tasks yielding a desired result (AOTA, 2011). Within CQI, Six Sigma Strategic Planning is a process that has extended into the healthcare setting that aims to eliminate waste and enhance manufacturing process. This strategic planning process was designed to define, measure, analyze, implement, improve, and control (AOTA, 2011). Applying this framework to the incentive-driven home exercise program will allow the outpatient clinic to respond to society's needs accordingly. Within the discontinuation phase, the program resides at the control level of the CQI process.

Ideally, the plan is to continue to implement the HEP workbooks along with the incentive-driven HEP program on a long-term basis. However, my time as a DCE student at the clinic only spanned one month after program initiation. It was challenging for me to predict changes and modifications that would need to be made after only one month. Programs terminate for many reasons such as inadequate planning for sustainment, lack of buy-in by the community, and financial barriers (Scaffa & Reitz, 2014). In regards to the HEP incentive program, it was essential that I planned for ongoing program management in order to ensure follow-through.

Furthermore, the clinic's needs are ever changing, and it is important that they stay current with the changes in society and the surrounding community. Clientele at the clinic dramatically increases in the summer months secondary to children being on summer vacation from school. A lack of community buy-in will also be a large component of the HEP incentive

program to consider. Clients may not be motivated to complete home exercises, they may lose interest in the incentives offered, report lack of time, or they may not find the connection to participate in a HEP meaningful. In addition to these anticipated barriers, responding to staff needs, incorporating evidence-based practice, and having a system to measure quality outcomes throughout the program must be consistently re-evaluated. Although my time may be limited at the clinic, the designated individual in charge of sustainment may consider re-administering the therapist survey, tracking HEP adherence at six months after program start-up, or surveying clients to get feedback about the new program.

In order to plan for continuous quality improvement, it was important that I provided the proper education to the designated individuals in charge. A meeting with the lead individual in charge took place to ensure a smooth transition process. The HEP tool kit with all resources regarding program development and sustainment were reviewed. This included the original cost proposal, inventory list, original copies of weekly planners/HEP client instructions, several key interdisciplinary team HEPs, adherence tracking tables for outcome measurements/reassessment, and incentive program materials. Stressing the importance of CQI took place to ensure the program was currently meeting and could continue to meet its intended objectives of improving patient outcomes and quality of life through home exercise program adherence.

Home exercise programs are an essential component of the rehab process in an outpatient therapy setting. Changes in healthcare policy and insurance require therapists to be more conscientious as the time they have with clients in an outpatient setting is limited. Many individuals at the clinic may only spend two hours a week at therapy, leaving 166 hours outside of therapy each week. Therapists rely largely on home exercise programs to further supplement their treatment for this very reason. Time spent outside of therapy completing home programs is

equally important in order to improve patient outcomes. Therefore, continuing to re-evaluate effective measures to facilitate adherence through home exercise programs and strategizing on methods to continue to hold therapists more accountable to HEP prescription will improve performance of clients and best practice for the clinic.

Overall Learning

This doctoral capstone experience (DCE) has been a period of professional development as a future healthcare practitioner. It has allowed me to self-reflect on areas of continued growth and given me the opportunity to take on other roles outside of the traditional occupational therapy student. During my time at the outpatient clinic, my primary focus was on advanced clinical skills with a secondary focus on program development. It was challenging to find a balance between these two entities, but it served as a great opportunity for me to develop skills beyond the entry-level practitioner.

Time management, planning, and remaining flexible were skills necessary to succeed in this setting. This experience was highly self-directed and led me to take on more initiative in regards to my learning and needs. Even more, this experience was not structured like a traditional Level II fieldwork placement, in that I had to effectively collaborate and advocate with different disciplines for learning opportunities. This involved preparing my weekly schedule with certain time allocated to different disciplines to learn manual skills for the upper extremity, introduction to neurodevelopmental principles, feeding techniques, sensory integration interventions, etc. Something as simple as making my own weekly schedule involved going through several different avenues and methods of communication between staff and myself. This process started by planning my schedule for the week, getting it approved by my site mentor, inputting the information into the clinic's scheduling system, and collaborating with the staff and

therapy technicians to ensure this information was displayed on a daily schedule so therapists were aware if I was co-treating with them on any given day.

Additionally, effective and clear communication were essential when it came to articulating my role as a doctoral capstone student to staff at the clinic, colleagues, clients, and their families. A majority of my communication with clients and their families took place orally. However, with the incentive driven HEP program, one of my tasks consisted of developing a letter for clients and their families describing the format of the program. Based on the feedback from my site mentor on the letter, I quickly learned the need to articulate my language to a reading level that would be most appropriate for the given audience at the clinic. It was important that I considered the health literacy of the clinic's clientele and how to effectively communicate so that the information I provided on the educational handout would be understood. I found that it is essential to keep in mind who your target audience as well as the means of communication chosen.

Furthermore, I learned that there are many different components that go into managing a privately owned outpatient therapy clinic. Being able to work together as a team is an essential skill that all staff at the clinic must demonstrate in order to be successful. Therapists are just one member of the team, and it is important they understand the roles of the other team members to carry out effective services. Providers from all disciplines must come together to collaboratively improve work processes and, in turn, improve patient outcomes (Newhouse & Spring, 2010). Newhouse and Spring's (2010) ideal future encompasses "health care providers who are educated to deliver patient-centered care in interprofessional teams proficient in evidence-based practice, quality improvement, and informatics solution" (Newhouse & Spring, 2010, p. 1). Simply taking advantage of each team member's strengths and leadership skills yielded desired

outcomes in everyday practice. Demonstrating effective leadership and advocacy skills also involved having a good understanding of what was within each profession's scope of practice and knowing when it was most appropriate to refer to an individual with more expertise.

In spite of minimal change between pre- and post- program implementation with regards to overall HEP adherence this experience served as a great learning process. I learned the challenges in getting both staff and clientele on board in launching a new program. It can be difficult to come into an organization and understand their culture within a short time span. I think it is important to set realistic goals for yourself and the program; initially I had hoped that the new program would be 50-75% effective after one month, but it made a change of 15% more adherence. In collaboration with my site mentor, we discussed how the timing of program implementation may have been one factor that impacted adherence results. The clinic has undergone some organizational restructuring changes, and there has been a fair amount of change for staff in regards to employee policies and procedures. Whether or not I am given the opportunity to implement another program in the future or make changes to the HEP program, I would like to conduct more education for staff and clientele. In order to get others on board with a new program, I think it is important the staff are provided the proper education. Overall, I have gained a better understanding on the importance of providing the proper education to individuals on all levels in an organization when implementing organizational changes.

This doctoral capstone experience has provided me with the opportunity to develop skills beyond those of the entry-level practitioner. I have had the opportunity to collaborate with a certified orthopedic manual physical therapist on advanced manual skills for the upper extremity, an introduction to neurodevelopmental principles, and exposure to some unique treatment approaches/equipment. This self-directed experience has given me the opportunity to interact

with healthcare professionals and colleagues outside of the rehab team. Continued refinement and learning of clinical skills, exposure to roles and responsibilities of management, and the creation of a program has been an exciting and rewarding experience to enhance the development of the profession and my personal role as a future healthcare practitioner.

References

- American Occupational Therapy Association. (2011). *The occupational therapy manager* (5th ed.) Bethesda, MD: AOTA Press.
- American Occupational Therapy Association. (2014). Occupational therapy practice framework: Domain and process (3rd.). *American Journal of Occupational Therapy*, 68(Suppl. 1), S1-S48.
- Anneli, H., Nina, S., Arja, H., Mirja, V., Petri, S., Konsta, P., & Jari, Y. (2017). Effect of total knee replacement surgery and postoperative 12-month home exercise program on gait parameters. *Gait & Posture*, 53, 92-97.
- Basaran, A., Karadavut, K. I., Uneri, Ş. O., Balbalogu, U, O., & Atasoy, N. (2014). Adherence to home exercise program among caregivers of children with cerebral palsy. *Turkish Journal of Physical Medicine & Rehabilitation*, 60(2), 85-91.
- Bhalerao, S., & Varadharajulu, G. (2016). Effect of monitored home exercise program on quality of life in stroke survivors. *Indian Journal of Physiotherapy & Occupational Therapy*, 10(4), 122-124. doi:10.5958/0973-5674.2016.00132.5
- Cahill, S. M., Polo, K. M., Egan, B. E., & Marasti, N. (2016). Interventions to promote diabetes self-management in children and youth: A scoping review. *American Journal of Occupational Therapy*, 70(5), 7005180020p1-8. doi:10.5014/ajot.2016.021618
- Centers for Disease Control and Prevention (2007). *Physical activity and good nutrition: Essential elements to prevent chronic diseases and obesity, 2007*; 1-4.
Doi:10.1037/e599652007-001
- Centers for Disease Control and Prevention. (2017a). *Adult physical activity information*. Retrieved from https://www.cdc.gov/nchs/nhis/physical_activity/pa_glossary.htm

- Centers for Disease Control and Prevention. (2017b). *Chronic diseases: The leading causes of death and disability in the United States*. Retrieved from <https://www.cdc.gov/chronicdisease/overview/index.htm>
- Centers for Disease Control and Prevention. (2017c). *Obesity fact sheet*. Retrieved from <http://www.cdc.gov/ncbddd/disabilityandhealth/documents/obesityfactsheet2010.pdf>
- Chen, C.-Y., Neufeld, E S., Feely, C. A., & Skinner, C. S. (1999). Factors influencing compliance with home exercise programs among patients with upper-extremity impairment. *American Journal of Occupational Therapy*, 53, 171-180.
- Cole, M. & Tufano, R. (2008). *Applied theories in occupational therapy: A practical approach*. Thorofare, NJ: SLACK Incorporated.
- Crawl Walk Jump Run Therapy Clinic. (2017). Retrieved from <http://www.crawlwalkjumpruntherapy.com/>
- DeVahl, J., King, R., & Williamson, J. W. (2005). Academic incentives for students can increase participation in and effectiveness of a physical activity program. *Journal of American College Health: J of ACH*, 53(6), 295-298.
- Emmerson, K. B., Harding, K. E., & Taylor, N. F. (2017). Home exercise programmes supported by video and automated reminders compared with standard paper-based home exercise programmes in patients with stroke: A randomized controlled trial. *Clinical Rehabilitation*, 31(8), 1068-1077. doi:10.1177/0269215516680856
- Jirikowic, T. L., & Kerfeld, C. I. (2016). Health-promoting physical activity of children who use assistive mobility devices: A scoping review. *American Journal of Occupational Therapy*, 70, 7005180050. <http://dx.doi.org/10.5014/ajot.2016.021543>
- Kara, S., & Ntsiea, M. V. (2015). The effect of a written and pictorial home exercise prescription

- on adherence for people with stroke. *Hong Kong Journal of Occupational Therapy*, 26, 33-41. doi:10.1016/j.hkjot.2015.12.004
- Lambert, T. E., Harvey, L. A., Avdalis, C., Chen, L. W., Jeyalingam, S., Pratt, C. A., & ... Lucas, B. R. (2017). An app with remote support achieves better adherence to home exercise programs than paper handouts in people with musculoskeletal conditions: A randomized trial. *Journal of Physiotherapy*, 63(3), 161-167. doi:10.1016/j.jphys.2017.05.015
- Lee, S. W., Kielhofner, G., Morley, M., Heasman, D., Garnham, M., Willis, S., & ... Taylor, R. R. (2012). Impact of using the Model of Human Occupation: A survey of occupational therapy mental health practitioners' perceptions. *Scandinavian Journal of Occupational Therapy*, 19(5), 450-456. doi:10.3109/11038128.2011.645553
- Lillo-Navarro, C., Medina-Mirapeix, F., Escolar-Reina, P., Montilla-Herrador, J., Gomez-Arnaldos, F., & Oliveira-Sousa, S. L. (2015). Parents of children with physical disabilities perceive that characteristics of home exercise programs and physiotherapists' teaching styles influence adherence: A qualitative study. *Journal of Physiotherapy*, 61(2), 81-86. doi:10.1016/j.jphys.2015.02.014
- Medina-Mirapeix, F., Lillo-Navarro, C., Montilla-Herrador, J., Gacto-Sánchez, M., Franco-Sierra, M. Á., & Escolar-Reina, P. (2017). Predictors of parents' adherence to home exercise programs for children with developmental disabilities, regarding both exercise frequency and duration: A survey design. *European Journal of Physical and Rehabilitation Medicine*, 53(4), 545-555. doi:10.23736/S1973-9087.17.04464-1
- Musekamp, G., Bengel, J., Schuler, M., & Faller, H. (2016). Improved self-management skills predict improvements in quality of life and depression in patients with chronic disorders. *Patient Education and Counseling*, 99(8), 1355-1361. doi:10.1016/j.pec.2016.03.022

- National Wellness Institute. (n.d.). *The six dimensions of wellness*. Retrieved from http://www.nationalwellness.org/?page=Six_Dimensions
- Newhouse, R. P., & Spring, B. (2010). Interdisciplinary evidence-based practice: moving from silos to synergy. *Nursing Outlook*, 58(6), 309-317. doi:10.1016/j.outlook.2010.09.001
- Ngo, C. S., Pan, C., Finkelstein, E. A., Lee, C., Wong, I. B., Ong, J., & ... Saw, S. (2014). A cluster randomised controlled trial evaluating an incentive-based outdoor physical activity programme to increase outdoor time and prevent myopia in children. *Ophthalmic & Physiological Optics: The Journal of the British College of Ophthalmic Opticians (Optometrists)*, 34(3), 362-368. doi:10.1111/opo.12112
- Noerr, K. L. (2018). The influence of assistance in home-based exercise programs for individuals with intellectual disabilities. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 78, 10-B(E).
- Proffitt, R. (2016). Home exercise programs for adults with neurological injuries: A survey. *American Journal of Occupational Therapy*, 70, 7003290020. <http://dx.doi.org/10.5014/ajot.2016.019729>
- Rath, T. (2017). *Strengthsfinder 2.0*. New York: Gallup Press.
- Rimmer, J. H., Chen, M. D., McCubbin, J. A., Drum, C., & Peterson, J. (2010). Exercise intervention research on persons with disabilities: What we know and where we need to go. *American Journal of Physical Medicine and Rehabilitation*, 89, 249–263. <http://dx.doi.org/10.1097/PHM.0b013e3181c9fa9d>
- Rimmer, J. H., & Rowland, J. L. (2008). Physical activity for youth with disabilities: A critical need in an underserved population. *Developmental Neurorehabilitation*, 11, 141–148. <http://dx.doi.org/10.1080/17518420701688649>

- Rimmer, J. H., Yamaki, K., Davis Lowry, B. M., Wang, E., & Vogel, L. C. (2010). Obesity and obesity-related secondary conditions in adolescents with intellectual/developmental disabilities. *Journal of Intellectual Disability Research*, 54(9), 787-794.
- Scaffa, M. E. & Reitz, S.M. (2014). *Occupational therapy in community –based practice settings (2nd ed.)*. Philadelphia: F.A.Davis.
- Soares, D. A., Harrison, J. R., Vannest, K. J., & McClelland, S. S. (2016). Effect size for token economy use in contemporary classroom settings: A meta-analysis of single-case research. *School Psychology Review*, 45(4), 379-399.
- Sokk, J., Ratsepoo, M., Kums, T., Ereline, J., Haviko, T., Gapeyeva, H., & Paasuke, M. (2017). Motor performance in patients with knee osteoarthritis after 8-week home exercise program. *Acta Kinesiologiae Universitatis Tartuensis*, 23, 74-85.
- Strohacker, K., Galarraga, O., & Williams, D. M. (2014). The impact of incentives on exercise behavior: a systematic review of randomized controlled trials. *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine*, 48(1), 92-99.
doi:10.1007/s12160-013-9577-4
- Venable, E., Hanson, C., Shechtman, O., & Dasler, P. (2000). The effects of exercise on occupational functioning in the well elderly. *Physical & Occupational Therapy in Geriatrics*, 17(4), 29-42.

Appendix D. Tables

Figure 1
HEP Adherence Pre-Program Implementation

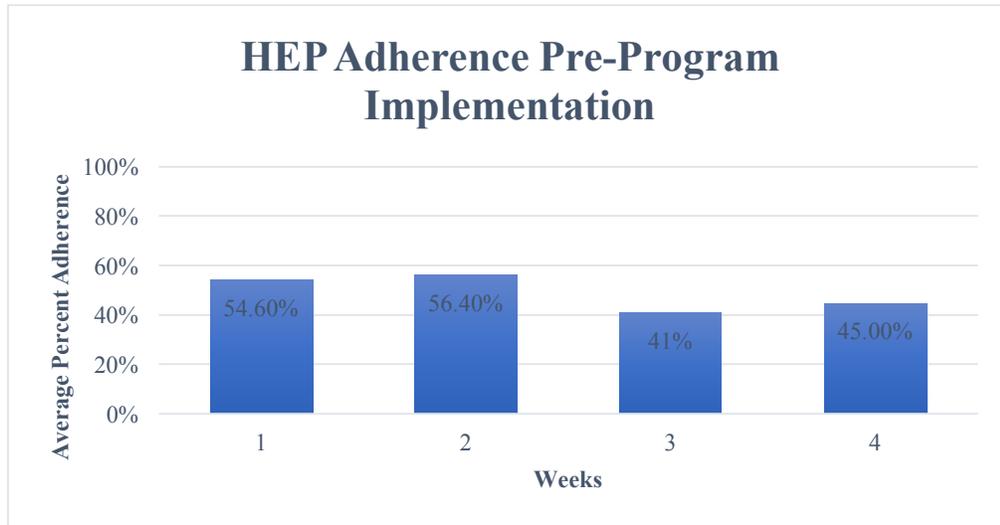


Figure 1. Therapists (2 DPT, 1 PTA, 1 OTR, and 1 COTA) measured adherence by a ratio of the number of days doing the exercises in the previous week over the number of recommended days per week. The bar graph illustrates average of HEP adherence across four weeks pre program.

Figure 2
HEP Adherence Post-Program Implementation

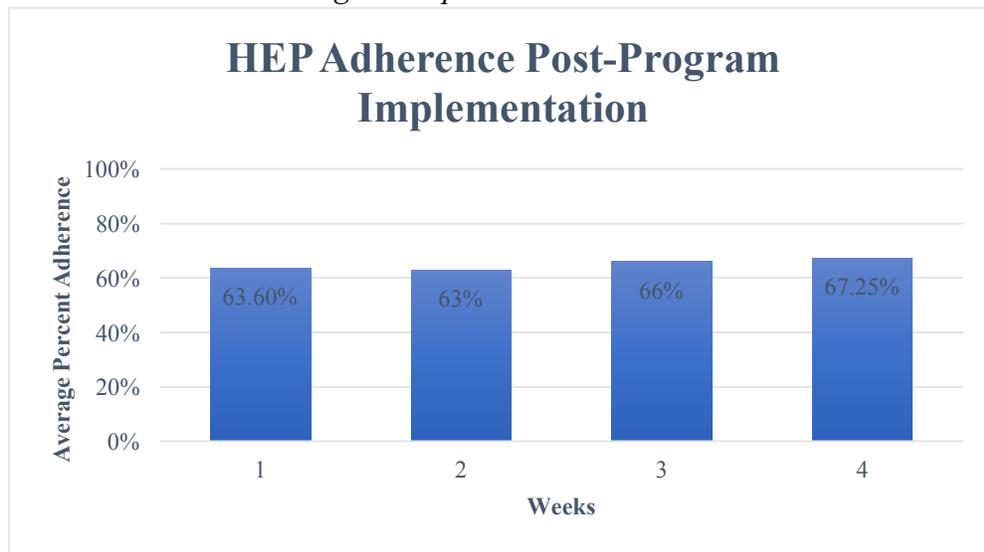


Figure 2. Therapists (2 DPT, 1 PTA, 1 OTR, and 1 COTA) measured adherence by a ratio of the number of days doing the exercises in the previous week over the number of recommended days per week. The bar graph illustrates average of HEP adherence across four weeks post program.