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Functional Cognition In Long-Term Care: Implementing Allen'S Cognitive Level Screen

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FUNCTIONAL COGNITION IN LONG-TERM CARE: IMPLEMENTING ALLEN'S
COGNITIVE LEVEL SCREEN

by

Sarah Janean Schumacher

Occupational Therapy Doctorate, University of North Dakota, 2022

A Scholarly Project

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of the

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APPROVAL

This scholarly project, submitted by Sarah Schumacher, in partial fulfillment of the requirement for the Degree of Occupational Therapy Doctorate from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

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_4/13/22_
Date

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<div align="center">PERMISSION</div>

Title: Functional Cognition in Long-Term Care: Implementing Allen's Cognitive Level Screen

Department: Occupational Therapy

Degree: Occupational Therapy Doctorate

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Abstract

Title: Functional Cognition in Long-Term Care: Implementing Allen's Cognitive Level Screen

Purpose: It is motivating to many individuals to remain as independent as possible for as long as possible. As we age, there is a shift to balancing needed support while maintaining independence. According to Allen (1991), cognition is the number one factor affecting an individual's ability to live independently. Within long-term care, specifically assisted living facilities, cognitive screening processes are in place to measure one's cognition, however, often the tools in place do not measure functional cognition (Stewart, O'Riley, Edelstein, & Gould, 2012). The purpose of this scholarly project is to provide staff within long-term care the education and resources to improve the screening process to measure functional cognition and determine supports to ensure both safety and independence of residents within the facility.

Method: In addition to completing a needs assessment with stakeholders at a local long-term care facility, an extensive review of the literature was conducted to gather the most up-to-date information on widely used cognitive screening tools used within long-term care facilities and the effect of cognition on one's health, well-being, and quality of life. Several occupational therapy models were considered through the development of this product including the Person-Environment-Occupation (PEO) model, Environment-Health-Occupation-Well-Being (E-HOW) model, and the Cognitive Disabilities Model. Based on the needs identified, an educational in-service was created and delivered to staff on the Allen's Cognitive Level Screen and associated cognitive levels.

Summary: An educational training was developed using the PEO, E-HOW, and Cognitive Disabilities models to understand the new screening tool and structure the in-service. The training session was designed to fill the gap between cognitive screening tools used in long-term care facilities and those that are evidence-based. Training materials created include: an instructor's guide for an in-service training addressing the need for a new assessment, as well as a detailed description of the Allen's Cognitive Disabilities Model, cognitive levels, and the screening tool; "Quick Guide" handouts on the cognitive levels and screen implementation; and a handout of useful community resources for residents.

Chapter I: Introduction

Mild cognitive impairment goes beyond the changes in cognitive functioning that exist with normal aging. According to Weir (2019), approximately 15 to 20 percent of people over age 65 meet the criteria for mild cognitive impairment. Stewart, O'Riley, Edelstein, and Gould (2012) found that there has been an increasing emphasis on the detection of mild cognitive impairment in recent years due to findings that mild cognitive impairment often progresses to Alzheimer's Disease. This brought additional attention to cognitive screening instruments in long-term care facilities and amplified the need for early cognitive screening and screening instruments that are sensitive to subtle cognitive deficits (Stewart et al., 2012). The need for psychometrically sound, brief cognitive screening tools has become increasingly important as the proportion of older adults increases. Due to this increase, practitioners are now struggling to find the time, best methods, and instruments for detecting cognitive impairment (Stewart et al., 2012).

A common screening tool used within long-term care facilities is the St. Louis University Mental Status (SLUMS) exam to screen residents upon admission, however, this screening tool has poor accuracy in identifying cognitive needs and supportive interventions (Edwards, Al-Heizan, & Giles, 2019). Upon completing a review of the literature, concerns began to emerge. The SLUMS only screens for mild cognitive impairment and identifies dementia among highly educated patients (Edwards, et al., 2019). For those patients with lower education, this screen may not be accurate. Additionally, a screen cannot diagnose dementia, so the terminology of this tool may be misleading (Stewart et al., 2012). Racial and ethnic differences were also evident on SLUMS performance, specifically African American and Hispanic minorities being more likely

to score within the mild cognitive impairment range than Caucasians taking the same screen (Stewart et al., 2012).

Employing evidence-based practice when assessing cognition in long-term care facilities is important in providing the most appropriate and effective care. After a thorough review of the literature, it was determined that the SLUMS is not a comprehensive tool in understanding individual independence and needed support, only assessing orientation, memory, attention, and executive functioning (Edwards et al., 2019) without measuring the functional cognition (Stewart, et al., 2012) needed to live independently. Lastly, there is limited research on this tool, and specifically, little data regarding the reliability and validity of this measure, restricting the ability for the tool to be generalized to long-term care.

Purpose

This scholarly project will address the limited cognitive screening process identified by a local long-term care facility in Grand Forks, North Dakota. Currently, the site utilizes the SLUMS to inform the placement of their residents in the most appropriate living environment, however, research shows this is not a comprehensive or accurate tool in measuring functional cognition (Edwards et al., 2019). This scholarly project will provide education on the Allen's Cognitive Level Screen (ACLS) and associated Allen's cognitive levels to better inform staff on what to look for during the initial cognitive screen and throughout the care they receive while staying in long-term care. This more thorough assessment will provide in-depth evidence in which to base resident placement, provide needed support and resources to identify concerns earlier, and prevent reactive complications to residents' health and well-being.

Theoretical Frameworks

The Person-Environment-Occupation (PEO) model was used to help guide and organize this project. The PEO model focuses on individual qualities, environmental supports and obstacles, and the various factors that go into an occupation (Baptiste, 2017). Specifically, this model considers the dynamic interaction between each component (the person, environment, and occupation) and how these components can influence occupational performance, focusing on the fit between the person and their environment as they age. It is an assumption of the model that the characteristics of the person and the environment predict functional performance while considering a diverse collection of abilities (Law et al., 1996). Inclusion of the PEO model in the modification of the current cognitive screening process will certify the use of a holistic approach when addressing the needs of the individuals residing in long-term care facilities and ensure residents are able to live in an environment that best matches their needs.

Additionally, the Environment-Health-Occupation-Well-Being (E-HOW) Model (Pizzi & Richards, 2017) and the Allen's Cognitive Disabilities Model (ACDM) (Allen, 1991) were used as added models to structure the development of the project. The E-HOW model focuses on participation in meaningful occupations, with overall health and quality of life as the desired outcome rather than performance in these tasks. This model also suggests that with a supportive environment and social network, any imbalance in life can be corrected through meaningful occupations (Pizzi & Richards, 2017). The ACDM addresses cognition through the interaction between a person's actual abilities, what they are motivated to achieve, and what is realistic. The ACDM evaluates functional cognition and global processing through six hierarchical cognitive levels, pinpointing specific skills expected at each cognitive stage to make recommendations for the safe use of an individual's remaining abilities (Allen, 1991). Inclusion of these models will certify the language is consistent with the ACLS and that all components of the individuals'

environment, health, occupations, and well-being are integrated, as research indicates leisure, health, and quality of life are important in the reduction of cognitive decline.

Significance to Occupational Therapy

Participation in occupations enhance ones' ability to adapt to cognitive dysfunction (American Occupational Therapy Association, 2019). Exposing older adults to novel stimuli and engaging them in mentally challenging activities has been associated with decreased age-related cognitive decline (Myers, 2008). According to Allen (1991), cognition is the single most important factor to consider when determining an individual's independence. Due to this, cognitive screening measures within long-term care facilities are essential.

Cognitive screening tools are used to identify individuals with deficits in functional cognition and to establish an individual's baseline cognitive function. Ensuring an evidence-based, comprehensive tool is in place is critical in ensuring residents of long-term care receive the support they need to be successful in their home and within the community. Cognitive screening tools are also used to monitor cognitive functioning as individuals progress through life (Stewart et al., 2012; Edwards et al., 2019). After an exhaustive review of the literature, the most appropriate and comprehensive cognitive screening tool within the long-term care setting is the ACLS. An educational in-service will be conducted to introduce the facility to the tool and provide education on the implementation and scoring of this measure.

Introduction to Chapters

This scholarly project consists of five chapters describing the processes completed throughout the duration of this project. Chapter one is an introduction to the product in its entirety. Chapter two consists of an extensive literature review outlining the need for an improved cognitive screening tool in long-term care settings as well as a brief overview of the

product. Chapter three describes the methodology used to develop this screening tool. Chapter four provides a summary of the product, and chapter five is a discussion of the product including limitations and future recommendations. For access to the full product, please contact the author of this scholarly project.

Chapter II: Review of the Literature

As individuals age, many families look to long-term care facilities to care for and support their loved ones when they are no longer able to do so themselves. It is anticipated by 2030, older adults will account for approximately 20% of the total population (Jewell, Pickens, Hersch, & Jensen, 2016). With the overall population age increasing, there are accompanied risk factors such as higher concerns regarding mild cognitive impairment (Stewart et al., 2012). Mild cognitive impairment within long-term care facilities is not being recognized or accurately identified, and individuals in minority populations are being represented as less cognitively able than they are (Stewart et al., 2012). Additionally, the understanding of the neuropsychology of aging adults within long-term care settings is lacking. Direct caregivers in this setting are not being provided the proper education to recognize and effectively care for individuals with mild cognitive impairments (Kusmaul, 2016). Education that specifically prepares hands-on workers, such as certified nursing assistants (CNAs), to address the complex interaction between chronic health, functional and cognitive decline, and psychosocial well-being in later life is discussed in higher education degree programs, but it is omitted in paraprofessional training programs (Kusmaul, 2016). Despite their extensive caregiving role, CNAs have minimal mandatory training on cognition. Quality education for CNAs and other direct care staff on the diverse capabilities of aging individuals at various cognitive stages is essential to providing effective hands-on support for vulnerable and marginalized older adults in long-term care.

Functional cognition is an emerging construct in occupational therapy practice, and as such, the literature does not have one agreed upon definition of the term. For use throughout this project, functional cognition will be defined as the global functioning of the brain's cognitive processes that guide how people use and integrate thinking and processing skills to accomplish

everyday activities (American Occupational Therapy Association, 2019; McCraith & Earhart, 2018).

Theoretical Frameworks

The detection of mild cognitive impairment within long-term care is becoming increasingly important due to the rising number of older adults. Research indicates a link between mild cognitive impairment and dementia (Stewart et al., 2012). Current cognitive screening measures are not detecting mild cognitive impairment or providing enough information to effectively support individuals within long-term care facilities (Stewart et al., 2012). By improving the cognitive screening procedures within long-term care facilities, the author hopes to increase the detection of mild cognitive impairments to better assist individuals in maintaining independence in activities of daily living (ADLs) while providing enough support to remain safe in their environment.

Due to the dynamic nature among the person, environment, task, cognitive abilities, and performance within long-term care, this project was developed with consideration to the Person-Environment-Occupation (PEO) model. The PEO model is constructed of three domains: the person, environment, and occupation (Baptiste, 2017). When the fit between the above domains is maximized, so is occupational performance and independence (Baptiste, 2017). Occupational performance is the outcome of the interaction among these domains and is described as the experience of being meaningfully engaged in purposeful activities and tasks within an environment (Law et al., 1996). The importance of this model relies on recognizing the significance of the dynamic relationship between the person, their environment, and occupations in order to find the best fit. In addition to the three domains of the PEO model, cognition plays a

major role in occupational performance and should not be separated. Changes in one domain often lead to changes in the others and impact overall occupational performance.

Within PEO, the person is defined as a unique being composed of mind, body, and spiritual qualities including self-concept, personality style, cultural background, and personal competencies. The person includes physical, cognitive, sensory, affective, and spiritual components (Baptiste, 2017). The environment is described through cultural, temporal, socio-economic, institutional, physical, and social considerations that interact with the person as they engage in occupations (Baptiste, 2017). This should be altered or modified based on an individual's skills and abilities. Occupations are meaningful, self-directed tasks and activities in which a person engages in and often revolve around maintaining independence with older adults. Occupations can be broken down into activities and tasks. An activity is the basic unit of a task, or a piece of a task, and a task is a larger composition of activities (Law et al., 1996). The purpose of the PEO model is to find the best fit among the person, environment, and their occupations to increase overall performance. This project works toward this goal by more accurately identifying a person's cognitive abilities in order to adjust the support within their environment to improve performance, safety, and independence in ADLs.

In addition to the PEO model, this project was informed by Environment–Health–Occupation–Well-Being (E-HOW) model and Allen's Cognitive Disabilities Model (ACDM). The E–HOW model provides a framework for practitioners to focus on well-being and quality of life as the outcome of their practice (Pizzi & Richards, 2017). This model compliments the PEO model, as it, too, stems from a dynamic systems perspective. An assumption of the E-HOW model states that an imbalance in any area of a person's life demands a shift or rebalancing of those factors through occupational interventions to promote improved quality of life and well-

being as defined by the person (Pizzi & Richards, 2017). Similarly to PEO, the domains in the E-HOW model fluctuate to ensure well-being. Unlike the PEO model, however, the E-HOW model focuses on occupational participation rather than performance. It states that in combination with a positive, supportive, and compassionate environment, occupational participation can improve quality of life and well-being (Pizzi & Richards, 2017). This supports the argument that participation in occupations with others can boost health and well-being. Research shows that forming social networks and engaging in activities boosts overall health and reduces cognitive decline in aging individuals (Cornwell & Waite, 2009). Incorporation of the E-HOW model is crucial to remaining focused on concrete strategies to reduce the likelihood of mild cognitive impairment before it begins, allowing individuals to remain as independent as possible for as long as possible.

Lastly, the ACDM focuses on the dynamic interaction of the biopsychosocial perspective of function including an individual's realistic abilities, motivation, and possibilities for daily life (Allen, 1991). Claudia Allen, the creator of this model, changed the view of practice from what an individual is lacking to that of functional cognition, stating cognition has the largest impact on an individual's independence (Allen, 1991). Global cognitive processing is the way an individual takes in sensory information and cues, how they make sense of that information, and respond with a behavior (Allen, 1991). The ACDM focuses on global functioning and safety, stating that attending to environmental cues is needed to prevent and reduce the risk of danger to oneself and others (Allen, 1991).

The observation of these concepts led to the development of a sequence of six cognitive levels, which are known as Allen's cognitive levels. These levels, from lowest to highest cognitive ability include Automatic, Postural, Manual, Goal-Directed, Independent Learning, and

Planned actions (Allen, 1991). These levels were broken down into modes to further describe an individual's performance on tasks (Earhart & Elgas, 2017), adding intervals of 0.2 between each level to make it a 52-point scale for differentiating an individual's cognitive abilities. Allen's cognitive levels were designed to correspond to Allen's Cognitive Level Screen (ACLS) and measure an individual's cognitive abilities, what is being attended to, and what is being thought about to make recommendations for the safe use of an individual's remaining abilities (Allen, 1991; Allen, Reyner, & Earhart, 2008; McCraith & Earhart, 2018). The six cognitive levels are organized in a hierarchical fashion to show progression and decline in a person's cognitive abilities. It is assumed that an individual within a certain level will have skills from the previous level but not yet gained skills in the higher cognitive levels. For example, if an individual is at cognitive level four, it can be assumed that they have mastered all skills expected of levels three and below but have not yet acquired skills required at levels five and six, thus describing the person's current cognitive abilities and needed supports.

At Allen's Cognitive Level 1, automatic actions, individuals are dependent on 24-hour nursing care. Individuals are bedridden and able to locate and respond to internal and external noxious stimuli. They begin to move themself in bed, which is often associated with spontaneous gross motor actions, and are able to tolerate passive range of motion exercises. Modes within Level 1 are described in Table 1.1 (Pollard, 2003).

Table 1.1. Allen's Cognitive Level 1

Level 1 Automatic	Significant Behaviors	Functional Milestones
1.0	Withdraw from stimuli	
1.2	Respond to stimuli	

1.4	Locate stimuli	• Ability to localize
1.6	Moving in bed	food within the mouth to
1.8	Raise body parts	navigate swallowing (1.4)

Note. Adapted from "Allen Cognitive Levels: Meeting the Challenges of Client Focused Services Written for Health Care Professionals Working in the Tertiary, Primary, and Community Care Sectors," by D. Pollard, 2003.

At Allen's Cognitive Level 2, postural actions, individuals continue to require 24-hour nursing care, however, the individual begins to assist with daily routines and cares. Individuals begin moving against gravity and can be transferred for bathroom activities. As an individual approaches level 3, they begin wandering and understand the use of grab bars and railing for support but have little insight into their environment and safety hazards. Individuals begin communicating through 1–2-word utterances. Modes within Level 2 are described in Table 1.2 (Pollard, 2003).

Table 1.2. Allen's Cognitive Level 2

Level 2 Postural	Significant Behaviors	Functional Milestones
2.0	Overcome gravity	• Weight bear through
2.2	Stand and use righting reactions	lower extremities (2.2)
2.4	Aimless walking	• Cruise-walk (2.4)
2.6	Walk to self-identified location	• Eat finger foods (2.4)
2.8	Use railing and grab rails for support	• Express two-word utterances and participate in AROM (2.6)

At Allen's Cognitive Level 3, manual actions, 24-hour care continues to be necessary, but for task set-up, cueing, and supervision. Individuals at this level begin to notice and understand the use of objects, allowing them to perform routine daily cares. The ability for new learning, hand-eye coordination, and dexterity develops. Modes within Level 3 are described in Table 1.3 (Pollard, 2003).

Table 1.3. Allen's Cognitive Level 3

Level 3 Manual	Significant Behaviors	Functional Milestones
3.0	Grasps objects	
3.2	Distinguishes objects	• Object permanence (3.4)
3.4	Sustains actions on objects	
3.6	Notes the effects of actions on objects	• Ability to sustain a repetitive action (3.4)
3.8	Uses all objects and senses completion of an activity	

At Allen's Cognitive Level 4, goal-directed actions, is the first level at which the resident moves away from 24-hour nursing care to living alone with frequent check-ins to monitor safety. Specifically, this occurs at level 4.6. Individuals can scan their environment, actions can be combined and sequenced to achieve an intended purpose, skills that are personally important are attempted, and completion of goals is rewarding. Individuals can walk to familiar locations,

however, problem-solving skills are limited. Cueing and assistance is needed to complete home

maintenance chores and money management. Modes within Level 4 are described in Table 1.4

(Pollard, 2003).

Table 1.4. Allen's Cognitive Level 4

Level 4 Goal-Directed	Significant Behaviors	Functional Milestones
4.0	Sequence self through steps of an activity	• Ability to self-sequence through a routine daily task (4.0) • Live alone with daily checks (4.6)
4.2	Differentiate between parts of an activity	
4.4	Completes a goal	
4.6	Scans the environment	
4.8	Memorizes new steps	

Note. Adapted from "Allen Cognitive Levels: Meeting the Challenges of Client Focused Services Written for Health Care Professionals Working in the Tertiary, Primary, and Community Care Sectors," by D. Pollard, 2003.

At Allen's Cognitive Level 5, independent learning, individuals can live alone with

weekly check-ins to ensure safety. Individuals learn cause and effect, engage in self-directed

learning, consider social standards, and consult with others. Individuals are able to anticipate

challenges and dangers and are capable of childcare and driving. Individuals could succeed in

supported employment with a job coach. Modes within Level 5 are described in Table 1.5

(Pollard, 2003).

Table 1.5. Allen's Cognitive Level 5

Level 5 Independent Learning	Significant Behaviors	Functional Milestones
5.0	Learns to improve the effects of actions	
5.2	Improves the fine details of actions	Anticipate hazards of driving and childcare (5.6) Work competitively (5.6)
5.4	Engages in self-directed learning	
5.6	Considers social standards	
5.8	Consults with others	

Note. Adapted from "Allen Cognitive Levels: Meeting the Challenges of Client Focused Services Written for Health Care Professionals Working in the Tertiary, Primary, and Community Care Sectors," by D. Pollard, 2003.

At Allen's Cognitive Level 6, planned actions, the individual considers hypothetical and abstract ideas. Thinking and learning rises above the demands needed to survive and individuals can plan for the future, anticipate hazards, show empathy towards others, and understand various opinions and scenarios. There is no apparent cognitive dysfunction at this level (Pollard, 2003).

The ACDM provides a simple, yet complete description of the various stages of cognition. This model will help both staff and individuals better understand mild cognitive impairment and their current cognitive abilities, leading to the presentation of appropriate activities and support to remain successful in ADLs.

Cognition and Occupations

Humans are occupational beings and there is a clear link between cognition and participation in occupations. Residents living in long-term care facilities recognize meaningful and novel activities as important to their physical and mental health (Uemura, Hoshino, Igarashi,

& Nishio, 2018), however, the amount of time residents spend unengaged ranges from 41-72% of the day (Uemura et al., 2018). Constructs within the field of occupational therapy state that a link exists between the body and mind and a lack of occupation can bring about disease or illness, with occupation serving as the curative tool (Kielhofner, 2009). Participation in occupations enhances one's ability to adapt to cognitive dysfunction, increases self-efficacy, and perceived quality of life (American Occupational Therapy Association, 2019). The interaction between a person's cognitive functioning, client factors, occupational engagement, and individual environment is transactional in nature, and as such, cognitive functioning is always embedded in occupational performance and unable to be assessed in isolation (American Occupational Therapy Association, 2019).

Impact of Social Support on Cognition

Loneliness has reached critical rates in long-term care facilities (Rafeedie, Metzler, & Lamb, 2018). Health risks associated with social isolation and loneliness have been compared to the dangers of smoking cigarettes and obesity, with individuals perceived social isolation leading to higher rates of morbidity, mortality, depression, and cognitive decline **(**Cornwell & Waite, 2009). While loneliness may affect people of all ages, older adults are uniquely vulnerable. Loss of friends and family, widowhood, fewer social connections through work and community groups, and other common experiences that come with aging may lead to or exacerbate feelings of loneliness (Quan, Lohman, Resciniti, & Friedman, 2019). Older adults are more likely to encounter health-related issues and end of life events, making them more susceptible to health concerns and in need of social support. Older adults that can withstand and adapt to socially isolating circumstances may have improved physical, mental, and cognitive health statuses compared to those who feel isolated (Cornwell & Waite, 2009).

The methods for addressing loneliness and depression within long-term care facilities often include limited social events, such as games, arts and crafts, and other social gatherings within the facility, however, there is little evidence of their effectiveness (Rafeedie et al, 2018). Quan et al. (2019) found that psychological therapies, leisure, and skill development interventions in long-term care facilities led to significant decreases in reported loneliness after the intervention. Laughter, horticultural, and reminiscence interventions showed the greatest decreases in loneliness (Quan et al., 2019). Research also shows that individuals with social support, real or perceived, experience less loneliness, a reduction in stress, improved self-esteem and sense of control, and diminished cognitive decline related to aging. These individuals also tend to have more coping strategies to deal with these stressors (Cornwell & Waite, 2009).

As individuals age, typical brain deterioration is associated with deficits in working memory, attention, and executive function (Myers, 2008). This impacts a person's planning, cognitive flexibility, self-monitoring, inhibition, and judgement, affecting their ability to live independently (Myers, 2008). An important component of reducing the risk of cognitive decline associated with aging is providing older adults with information about healthy behaviors. Myers (2008) studied nearly 10,000 women at least 65 years of age over a 15-year period to analyze whether certain health factors and behaviors were naturally protective against cognitive decline. Nine percent of the women maintained optimal cognitive function, 58-percent experienced minor decline, and 33-percent experienced major decline in cognitive functioning. The women who maintained optimal cognitive function participated in protective behaviors such as exercised regularly, maintained engagement in ADLs and instrumental activities of daily living (IADLs), and had access to a modest social network (Myers, 2008). While there may be some natural

protective factors against cognitive decline, it is an innate part of the aging process. It is common for aging individuals to require additional support to remain safe while engaging in ADLs.

Transitioning to Long-Term Care

Adjusting to a new environment and lifestyle takes time. When moving into long-term care, habits and routines get disrupted, especially surrounding meaningful occupations, as well as a loss in independence. Many individuals must shift from doing everything for themselves to accepting help from others, often including strangers. According to Brandburg (2007), there are four phases of adjustment when transitioning to a long-term care facility. The first is disorganization. During this phase a person may feel displaced, vulnerable, and even abandoned. The second phase is reorganization. During reorganization, individuals begin to accept living in long-term care and become more involved in their care. This phase can take as long as two to three months to achieve. The next phase of transition is relationship building. It is in this phase that individuals start making new friends within the facility and rebuilding relationships with family and friends, if necessary, as family dynamics are often strained during major life changes. The last phase is stabilization. This is when the individual begins to settle in and accept their new home, usually occurring around three to six months after admission. Not all individuals complete each phase of transition. When a person gets stuck in the disorganization or reorganization phases, there is a higher risk of cognitive decline and depression. Once an individual reaches the relationship building and stabilization phases, they are more likely to accept their current situation, regain interest in occupations, and build meaningful support systems (Brandburg, 2007). These phases are important to understand, as transitioning into long-term care is a major life shift and affects all aspects of an individual's health and well-being.

The transition framework is another way to understand and better support individuals during the shift from independent living to long-term care. First, individuals have an initial reaction to the change in living environment (Brandburg, 2007). This reaction varies greatly among individuals, ranging anywhere from denial and anger to gratitude and acceptance and is not dependent on whether the move was sudden or planned. Next is an adjustment period. This stage can be volatile, fluctuating from acceptance to denial, adjusting and readjusting to their new reality. Last is acceptance. This stage of the framework is when the individual comes to accept long-term care as their new home. This acceptance can occur either adaptively or maladaptively (Brandburg, 2007). Understanding these frameworks will help staff and family members support their loved ones though this transition.

With age, it is typical for individuals' occupations and roles to shift, and even slightly decrease in number. This can be due to health conditions, abilities, or preference changes. It is also considered normal for roles to shift during major life transitions such as moving into long-term care (Uemura et al., 2018). Uemura et al. (2018) assessed the number of daily activities performed by individuals in a long-term care facility and found that the number of activities after admission decreased considerably compared to those performed prior to admission. This indicates that after admission, residents in long-term care facilities are not engaging in as many meaningful occupations as they used to, which often leads to social isolation, depression, and cognitive decline (Uemura et al., 2018). Participation in previous roles, such as family roles, was one occupation that was identified to remain among most aging individuals, contributing to occupational engagement and quality of life, however, many of the diminished roles reported were IADLs such as maintaining a home, meal preparation, and caretaking (Uemura et al., 2018). Cognition plays a large role in the participation of meaningful occupations and is

involved in everything we do, from being a caretaker and home maintainer to making safe and informed decisions throughout the day. Without accurate knowledge of a person's current cognitive abilities, there is a greater chance for task frustration and safety concerns. One way to assess an individual's current cognition to ensure they are receiving the support they need is through a cognitive screening tool.

Cognitive Screening Tools

The use of cognitive screening tools within long-term care is essential in identifying a person's strengths, areas of need, and capabilities, allowing them to remain as independent as possible, however, few tools measure cognition in a functional manner. The ability to function safely requires attention to relevant sensory cues and information in the environment, especially unexpected or unfamiliar situations (McCraith & Earhart, 2018). Safe functioning requires processing and attaching meaning to new information, storing and retrieving relevant information, and responding safely (McCraith & Earhart, 2018). There are several cognitive screening measures that have been utilized in long-term care facilities over the past few decades, each with their own strengths and weaknesses (Stewart et al., 2012). A comparison of a few assessment tools was completed which included the Mini-Mental State Examination (MMSE), Montreal cognitive assessment (MoCA), St. Louis University Mental State (SLUMS) examination, and Allen's Cognitive Level Screen (ACLS) to determine the most comprehensive tool in measuring functional cognition of older adults in long-term care.

MMSE

The Mini-Mental State Examination is a brief cognitive screen designed to assess several domains of cognitive functioning including orientation, short-term memory, long-term memory, attention, concentration, receptive and expressive language skills, and visual construction

(Stewart et al., 2012). This screen consists of 30 items and takes 10 minutes to administer. One point is awarded per correct answer, with scores 23 and below yielding the best sensitivity in the detection of a cognitive impairment (Stewart et al., 2012). The MMSE is time and cost effective and is structured to be administered by a variety of professionals. The reliability and validity of this instrument is well established, with good test-retest reliability (Stewart et al., 2012). Limitations of this instrument include poor sensitivity for detecting mild cognitive impairment when administered to older adults and individuals with higher levels of education and has poor value in predicting the development of mild cognitive impairment (Stewart et al., 2012). Additionally, Stewart et al. (2012) found a variety of cognitive domains were not actively being measured. Specifically, the tool does not adequately assess organization, planning, attention, verbal fluency, reasoning/judgment, and cued verbal recall, rendering it unable to detect cognitive changes that occur with various diseases. Lastly, the MMSE is not in the public domain, limiting the availability of this tool to many organizations (Stewart et al., 2012).

MoCA

The Montreal Cognitive Assessment is a 30-item screen used in detecting mild cognitive impairment and early-stage dementia that assesses performance in short term memory, visuospatial abilities, executive functioning, attention, concentration, working memory, language, and orientation to time and place (Stewart et al., 2012). This screening tool has standardized instructions, administration, and scoring procedures. It is translated into 27 languages, has been used with diverse samples, and modified for use with individuals with visual impairment (Stewart et al., 2012). Scores ranging from 26 to 30 indicate normal cognitive functioning, while scores 25 and below suggests the presence of mild cognitive impairment. To adjust for varying levels of education, one point should be added to the total score if the

individual has completed 10 to 12 years of education, and two points should be added to the total score if the individual completed 4 to 9 years of education (Stewart et al., 2012). The MoCA is superior to the MMSE in distinguishing between normal and impaired cognition. A perceived limitation to the MoCA is that individuals must be trained in order to administer this tool, which is why several organizations have opted to use the SLUMS over the MoCA. Another limitation is the unknown test-retest and in interrater reliability of the measure, as they have only been examined with small sample sizes and the most effective cut-off score is among discussion with several authors in the field (Stewart et al., 2012).

SLUMS

The St. Louis University Mental Status examination is a commonly used tool within long-term care facilities, and specifically the facility the author is working with. The SLUMS is an eleven-item, thirty-point tool which evaluates orientation, memory, attention, and executive functioning (Edwards et al., 2019). The screen is quick, taking roughly seven minutes to administer. Scores are categorized based on the highest level of education completed. If the individual being assessed has earned a high school education or above, a score of 27/30 is indicative of "normal" cognitive functioning. Scores between 21 and 26 indicate "mild neurocognitive functioning" and scores 20 and below indicates "dementia". If the individual has not completed high school, these cutoff scores vary slightly, with 25/30 indicating "normal" cognition, 20 to 24 representing "mild neurocognitive functioning", and scores 19 and below suggests "dementia" (Edwards et al., 2019). Strengths of the SLUMS include the standardization of the instructions and use of cutoff scores according to the highest level of education completed by the person being assessed (Stewart et al., 2012). Compared to the MMSE, the SLUMS showed a statistically smaller mean, lower rank scores, less skewness (Feliciano et al., 2013),

and is superior in distinguishing between normal and impaired cognition (Cummings-Vaughn et al., 2014). This means compared to the MMSE, the SLUMS was more precise in accurately identifying mild neurocognitive functioning,

Compared to the MoCA, the SLUMS examination does not differ substantially in the detection of cognitive dysfunction and has validity similar to the MoCA in the detection of mild cognitive impairment and dementia, suggesting these tools are similar in nature (Cummings-Vaughn et al., 2014). Based on the available research, limitations of the SLUMS include the absence of adequate psychometric data, test-retest reliability coefficients are not reported, limited validity data is available, racial and ethnic differences were noted, items are outdated, and the SLUMS does not measure functional cognition (Stewart et al., 2012). Limited research available on the SLUMS and the wording of the screen may be misleading (Stewart et al., 2012). After a thorough review of the literature and a comprehensive needs assessment with stakeholders, it was determined that the SLUMS is not measuring functional cognition, and therefore, not measuring the skills needed to promote independence with daily occupations or determine the needed supports to do so. There are more appropriate assessments that could be used in this setting to measure cognitive functioning related to an individual's independence.

ACLS

The Allen's Cognitive Level Screen is a standardized assessment that uses three increasingly complex leather lacing stitches to assess an individual's ability to problem-solve and concentrate on a task (Earhart & Elgas, 2017). The ACLS measures what a person is capable of, excluding any physical disability, and is used to provide a quick estimate of functional cognitive capacities affecting occupational performance (McCraith & Earhart, 2018). The goal of the ACLS is to improve the ability to collaborate with individuals with cognitive impairments and

their caregivers to find solutions to help them participate more fully in their valued occupations (Allen et al., 2007). The screen is validated against other assessments with high interrater reliability, sensitivity, and specificity in distinguishing between typical and cognitively impaired individuals (Edwards et al., 2019), with a "strong body of research supporting content, construct and concurrent validity across various versions" in relation to psychometric properties of the assessment (McCraith, 2016, p. 4). The ACLS also shows significant positive relationships between the scores and measures of occupational performance, concentration, working memory, processing speed, and executive functioning (McCraith & Earhart, 2018). Based on the above evidence, while the SLUMS, MMSE, and MoCA have their place, a more suitable cognitive screening tool selection for the use of placing and supporting residents appropriately is the ACLS.

Product

After a thorough review of evidence-based literature, it was determined that the cognitive screening tool currently in use at a local long-term care facility was not the most effective tool in measuring functional cognition in older adults. Through completion of a needs assessment with various stakeholders, the author came to the conclusion that resident needs within the facility were not being met, as residents did not feel as supported as they would have liked. Upon further discussion to better understand resident needs though observations, some residents disclosed they felt bored, unchallenged, and even restricted within the facility. Others described feeling unsafe within their living space and would appreciate more assistance but did not want to be a bother to hardworking staff. It was through skilled observation and communication with stakeholders that the author confirmed the current cognitive screening tool was not effective in determining the appropriate level of support for residents within its facility.

The author introduced the facility to a more appropriate and comprehensive tool to be used within the long-term care setting, the ACLS. In doing so, an educational in-service was provided to staff on the various cognitive levels and the implementation of the new tool. The author created and provided easy-to-use handouts to reference behaviors within each cognitive level and a step-by-step guide on how to implement and score the ACLS. Additionally, the author created a handout for both staff and residents of the long-term care facility with local community resources available to them. Through the implementation of this product, the author hopes to improve quality of life for more residents within this long-term care facility by feeling safe, supported, and cognitively engaged within their living environment.

Chapter III: Methodology

The impending loss of one's independence weighs heavily on an aging individual. The purpose of this scholarly project was to provide long-term care facilities with the most comprehensive tool in screening for functional cognition, allowing individuals to maintain as much independence as possible as they age. By improving the current screening procedures within long-term care facilities, health care professionals will have a greater understanding of an individual's strengths while providing support as needed so residents can remain as independent as possible for as long as possible.

Research

Multiple databases, textbooks, and credible online sources were referenced throughout the literature review. Several scientific journals were accessed and reviewed through databases including CINAHL Complete, PubMed, Embase, and OT Search. Key search terms included "older adult", "geriatric", "SNF", "long-term care", "occupational therapy", leisure", "social participation", "occupational deprivation", "cognition", "functional cognition", "independence", and "independent living". After completion of an initial literature review, the author synthesized the information and identified two broad areas of interest regarding occupational therapy in long-term care: social participation and independence. After completion of a needs assessment and discussion with stakeholders, it was determined that residents maintaining as much independence as possible was an area in need for improvement, specifically, the current initial screening process was not sufficient in determining the functional cognition needed to place individuals or provide support to do so. A more specific literature review was then conducted focused on cognitive screening tools for older adults. Additional key search terms included "cognitive screens", "cognitive dysfunction", "ACLS", "Allen's cognitive levels", "Allen's cognitive

disabilities model", "SLUMS", "MoCA", "MMSE", "aging", "social support", "effect of cognition on independence", and "effect of cognition on participation".

Articles that met inclusion criteria included residents in any long-term care setting (i.e., skilled nursing, senior living, assisted living, independent living, or nursing home), adults over the age of 55, articles in English or had an English translation, and those discussing cognition related to general health and well-being. Articles were excluded from this project if they involved individuals under the age of 55, took place in acute care facilities, involved specific diagnoses, or included full cognitive assessments rather than screening measures.

Theoretical Base

Information obtained through the literature and the needs assessment was reviewed and analyzed using the Person-Environment-Occupation (PEO) model. The PEO model examines the impact of the client and their environment on occupational performance (Law et al., 1996). Within a local long-term care system, the fit between a resident's capabilities and the support available within the facility do not always match. This can lead to a lack of participation in meaningful activities due to lack of support to participate or absence of activities stimulating the client. By improving the cognitive screening measure within in long-term care facilities, residents will have support and activities based on their current cognitive needs, allowing residents to utilize the skills and independence they have maintained while ensuring safety. This will provide the best fit between the client and their environment, leading to increased independence and overall participation in meaningful activities. The use of a secondary model, Allen's Cognitive Disabilities Model, was incorporated into this product to ensure carry-over of language and structure similar to Allen's Cognitive Level Screen. This model emphasizes the impact of cognitive capacities on functional performance, specifically addressing the interplay

among an individual's abilities, motivation, and possibilities related to external factors (Allen, 1991).

Project Procedures

This scholarly project includes an exhaustive review of the literature, an initial needs assessment with stakeholders, and the trialing of a new cognitive screening tool within the long-term care facility. Throughout this placement, the author expanded on and finalized the needs assessment, establishing a need for an improved cognitive screening measure upon admission to long-term care facilities. The author researched several common cognitive screening tools used within long-term care and concluded that Allen's Cognitive Level Screen would best meet the needs of the facility and its residents.

From there, the author spent time getting to know and understand resident wants and needs, challenges, successes, and concerns with their current living situation through skilled observation and discussion with stakeholders. This information was gathered and used to direct the author towards community resources and activities that would be a just-right challenge for residents. These resources were compiled into a user-friendly handout and made available to residents within the facility. Additionally, the author researched several resident diagnoses to better understand common diseases within long-term care to better support and ensure safety of residents. The author spent time becoming familiar with the admissions process at the site, gathering information on where the gaps within the process were and how the overall process could be improved to benefit the residents being served. The author observed various interdisciplinary team members' responsibilities in the admissions process to gain an in-depth understanding of each member's role in the process.

Next, the author became proficient in understanding Allen's Cognitive Disabilities Model, Allen's cognitive levels, and administration of Allen's Cognitive Level Screen. Guides were created to assist long-term care staff in understanding and using Allen's cognitive levels and implementation of the screen. The author presented the new cognitive screening tool and procedures through an educational in-service for nursing staff at the long-term care facility. For access to the product materials, please contact the author of this scholarly project.

Ethical Considerations

Several ethical matters were considered regarding this scholarly project. First, implementation of this product will improve the ability to interpret assessment results with more certainty, follow through with recommendations, and limit safety concerns while permitting as much independence as possible. Throughout the admissions process, all residents moving into long-term care will be assessed using the ACLS, preventing any biases in subject selection from occurring. All cognitive screening results are confidential and only available to the resident, approved caregivers, and the direct care team. Lastly, the risk for participation is low, as frustration tolerance with tasks being the only known risk for participation in this screen.

Chapter IV: Product Overview

The product of this scholarly project consisted of an educational in-service for staff, reference guides on the implementation of Allen's Cognitive Level Screen (ACLS) and cognitive levels, as well as a handout of community resources that may benefit residents within the long-term care setting. The purpose of the in-service was to educate staff on the current literature surrounding cognitive screening tools, inform them of suitable cognitive screening tools for the long-term care setting, and instruct them on the implementation of the ACLS.

The in-service was presented to the team of nurse managers at the long-term care facility, as they are responsible for assessing cognition during the admission process. Prior to beginning the in-service, staff was asked to complete a survey to determine their current knowledge of cognitive screening tools within the long-term care setting. The in-service began with an overview of the session objectives and an outline for the session. Then, the concerns with current cognitive screening procedures were addressed including evidence-based literature on the current cognitive screening tool, the Saint Louis University Mental Status (SLUMS), as well as the suggested replacement, the ACLS. Next, an introduction to Allen's Cognitive Disabilities Model was discussed alongside Allen's cognitive levels. Then, implementation of the ACLS was described from start to finish, including the use of Allen's cognitive levels to interpret the score from the screen in order to make an informed decision on the level of support required for an individual. The in-service concluded with a case study. This included working through various scenarios during the screen and interpreting the results from the screen to make an educated decision on an individual's needed level of support. The staff was asked to complete the same survey after the session to determine if the in-service was effective in increasing staff knowledge of appropriate cognitive screening tools for the long-term care setting.

Following the in-service, the developed "Quick-Guides" to Allen's cognitive levels and the ACLS were explained and handed out to the nurse managers to use as a reference when completing the screen. Additionally, printed copies of the community resources handout were provided to staff for dissemination to residents within the facility. For access to the product materials, please contact the author of this scholarly project.

This product is intended to be utilized by occupational therapists, nurses, or other healthcare professionals completing the cognitive screening portion of the admission process within long-term care facilities. The product was designed to educate staff on the ACLS and to provide resources to guide staff through the tool in the future. Additionally, it was intended that the nurse managers further educate and share recommendations with their direct-care team on Allen's cognitive levels as they come in contact with the residents most often and should be educated on how to recognize shifts in the mental statuses to ensure cognitive changes are detected early. To sustain the use of this product over time, extensive notes on the in-service education were provided to aid staff in leading the session, as well as copies of all the materials created and used during the in-service.

Chapter V: Discussion

Product Overview

The purpose of this scholarly project was to address the limited cognitive screening process identified by long-term care facilities. Research shows that there has been an increasing emphasis on the detection of mild cognitive impairment in recent years due to findings that mild cognitive impairment often progresses to Alzheimer's Disease (Stewart et al., 2012). This amplified the need for early cognitive screening and screening instruments that are sensitive to subtle cognitive deficits in long-term care settings, as cognition is a crucial factor when determining an individual's independence (Allen, 1991). Ensuring an evidence-based, comprehensive tool is in place is critical in ensuring residents of long-term care receive the support they need to be successful in their home and within the community (Stewart et al., 2012). This scholarly project provided staff within long-term care the education and resources to improve the screening process to measure functional cognition and determine supports to ensure both safety and independence of residents within the facility.

Through a needs assessment with stakeholders at a local long-term care facility and an extensive review of the literature, it was determined that the Allen's Cognitive Level Screen (ACLS) better informs staff than other similar screens on what to look for during the initial cognitive screen and throughout the care they receive while staying in long-term care. This more comprehensive assessment provides in-depth evidence in which to base resident placement, provides needed support and resources to identify concerns earlier, and prevents reactive complications to residents' health and well-being.

An educational training was developed using the Person-Environment-Occupation (PEO), Environment-Health-Occupation-Well-being (E-HOW), and Allen's Cognitive

Disabilities model (ACDM). The PEO model focuses on the dynamic interaction between the person, their environment, and meaningful occupations to enhance occupational performance (Baptiste, 2017). The E-HOW model concentrates on participation in meaningful occupations rather than the performance in those occupations, stating improved health and well-being comes from engaging with others in a supportive environment (Pizzi & Richards, 2017). Lastly, Allen's Cognitive Disabilities Model addresses cognition through the interaction between a person's actual abilities, what they are motivated to achieve, and what is realistic using a hierarchical scale to pinpoint current cognitive capabilities (Allen, 1991).

The training session was designed to educate staff on cognitive screening tools used in long-term care facilities, specifically those that are evidence-based. Training materials created include: an instructor's guide for an in-service training addressing the need for a new assessment, as well as a detailed description of the Allen's Cognitive Disabilities Model, cognitive levels, and the screening tool; "Quick Guide" handouts on the cognitive levels and screen implementation; and a handout of useful community resources for residents.

Strengths and Limitations

Through the development of this scholarly project, various strengths and limitations were identified. Strengths of this project include evidence-based research on the suggested cognitive screening tool, the use of multiple models to structure the project, and implementation of a screen that addresses functional cognition including descriptions of possible symptoms, cues, attention, and other abilities at each cognitive level, making it easy for family and caregivers to determine safety support. Limitations of this project include the use of a new theoretical model, as there is little evidence of its effectiveness in practice, requirement of buy-in from facilities to

follow-through with the use of the product, the complexity of the screening tool to use in practice, and the lack of simple orientation questions on the screen.

Implications for Practice

This scholarly project was developed with the intention of implementing a more appropriate, research-based cognitive screening tool in a local long-term care facility. The ACLS is a more thorough assessment of cognition, providing increased information and solutions to busy healthcare professionals. Due to the high-level structure of the assessment, the product could be altered to include implementation by Certified Nursing Assistants in the future. The screen will allow for more accurate resident placement, which in turn will increase resident safety, quality of life, and reduce risk and liability concerns for the facility.

Recommendations

The author recommends the facility purchase their own set of screening materials, including the manual and leather lacing materials for both the ACLS and the Large Allen's Cognitive Screen (LACLS). For sustainability of the product, it is recommended that the facility provide training on the ACLS and associated cognitive levels to all new staff, as well as a brief refresher course to all staff annually.

Conclusion

This scholarly project was created to address the concerns surrounding cognitive screening tools in long-term care settings. An educational in-service was developed for staff to instruct them on the implementation of the ACLS and the evidence behind it. Handouts were created for staff to reference as they learn the new tool. With implementation of the ACLS, it is anticipated that more residents will receive the assistance they need to feel more confident and safer in their living space and community, leading to increased health and quality of life.

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