Impact of Simulation and Settings Upon Student Attitudes Towards Older Adults

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Impact of Simulation and Settings Upon Student Attitudes Towards Older Adults

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Abstract

Background: In educational programs, ageist biases and attitudes of healthcare students are prevalent and have been addressed through various methods, including simulation-based learning (SBL). Limited research has explored the impact of simulation on ageist biases and attitudes of occupational therapy assistant (OTA) and physical therapist assistant (PTA) students. Furthermore, there is no research comparing the setting of SBL with a standardized patient (SP) on ageist attitudes of healthcare students. *Purpose:* The purpose of this study was to examine the impact of a simulation setting with an older adult SP for OTA and PTA students on their attitudes toward older adults. *Method:* 26 OTA and PTA students were recruited from a small community college. The quasi-experimental counterbalanced design study incorporated a home-based simulation and an acute care-based simulation. The Fraboni Scale of Ageism (FSA) and the Ambivalent Ageism Scale (AAS) instruments were administered before the SBL experiences and after each simulation. *Results:* The FSA did not indicate any statistically significant differences in student attitudes from the pre-simulation to the last simulation or between the two different settings. The AAS indicated significant differences between pretest and the last simulation and found significant differences when comparing the pretest to the home-based simulation and acute care-based simulation. *Conclusion:* This study demonstrates the impact of an SBL experience with an SP, specifically impacting benevolent ageist attitudes, which can guide educators in addressing ageism in healthcare students and promoting positive attitudes towards older adults through SBL experiences.

Keywords: ageism, healthcare student, older adult, simulation-based learning

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The overall population of the United States is aging rapidly. The number of individuals 65 years and older has experienced a 36% population increase from 2009 to 2019 (Administration on Aging [AoA], 2021). In addition, it is expected there will be 80.8 million older adults in the United States by 2040, doubling the number of older adults as of 2019 (AoA, 2021). The significant demographic shift of the older adult population requires a responsive healthcare system able to provide the appropriate medical care for this group (Fulmer et al., 2021).

Ageism has far-reaching implications regarding the healthcare of older adults worldwide, frequently leading to communication errors and detrimental health outcomes including over-treatment and under-treatment (Ben-Harush et al., 2017; Chang et al., 2020; Heyman et al., 2020; Ouchida & Lachs, 2015). In the United States alone, age discrimination, negative age stereotypes, and negative perceptions of aging contribute to an estimated $63 billion in healthcare expenditure every year (Levy et al., 2020). In addition, ageist beliefs and attitudes are noted across various healthcare student populations including students within medicine (Ben-Harush et al, 2017; Lucchetti et al., 2017), nursing (Ben-Harush et al. 2017; Meriç et al., 2019; Rababa et al., 2020a), physical therapy (Blackwood & Sweet, 2016), speech and language (Heape et al., 2020) and occupational therapy (Friedman & VanPuymbrouck, 2021) fields.

Various methods have been employed in the healthcare educational setting to address student beliefs, attitudes, and stereotypes of older adults. These methods include workshops, lectures, service-learning experiences, aging simulation experiences, gamification, community interaction, and simulation-based learning (Ross et al., 2018). A systematic review of the literature indicates educational methods that combine both a formal knowledge component with

an experiential aspect were most effective in changing healthcare students' attitudes toward older

adults (Chonody, 2015). Simulation-based learning (SBL), which provides a hands-on

experience whereby students can apply their clinical judgment and problem-solving skills, has

been utilized successfully throughout medical and nursing education (Herge et al., 2013;

Rutherford-Hemming et al., 2019).

Problem Statement

Due to the significant expected population shift, healthcare must be responsive to the

growing need of this demographic, including examining the impact of ageist attitudes on

healthcare provision. Future healthcare students must be adequately prepared to work with older

adults, including being advocates for this population to provide appropriate and adequate

healthcare services. As such, educational programs must include effective methods to challenge

the ageist beliefs and attitudes of the healthcare student. SBL has been identified as one effective

method for students to garner clinical experience (Braude et al., 2015; Mehdi et al., 2014;

Williams & Song, 2016), increase confidence (Alanazi et al. 2017), encourage interprofessional

teamwork (Bethea et al., 2019), and improve communication with older adults (Skinner, 2017).

Although the literature heavily explores these areas, there is a lack of literature on the efficacy of

SBL relating to student attitudes and beliefs regarding older adults. In addition, research around

simulations that have involved older adults and scenarios has focused mainly on frailty, end-of-

life planning, dementia, incontinence, and acute illness (Mehdi et al., 2014), which may reinforce

negative student attitudes and beliefs.

Purpose Statement

The purpose of this study was to examine the impact of a simulation setting on

occupational therapy assistant (OTA) and physical therapist assistant (PTA) students' attitudes

toward older adults. More specifically, it explored differences in student attitudes between

working with a standardized patient within an acute care SBL setting and a standardized patient

in a home-based SBL setting.

Research Question

To address the study purpose, the following research question was answered: What is the

difference in OTA and PTA student attitudes towards older adults when participating in an acute

care simulated setting as compared to a home-based simulated setting?

Research Objectives

The following objectives were met to answer the study research question.

1. To determine if simulation-based learning experiences with an older adult standardized

   patient impact OTA and PTA student attitudes towards the older adult population,

   measured by the Ambivalent Ageism Scale and the Fraboni Scale of Ageism.

2. To explore the differences in attitudes of OTA and PTA students when participating in an

   acute care simulation as compared to a home-based simulation as measured by the

   Ambivalent Ageism Scale and the Fraboni Scale of Ageism.

Significance of the Study

Ageist attitudes, stereotypes, and biases are prevalent in healthcare students (Blackwood

& Sweet, 2016; Friedman & VanPuymbrouck, 2021; Heape et al., 2020; Lucchetti et al., 2017;

Rababa et al., 2020b). Healthcare educators have a responsibility to address these attitudes

throughout the curriculum to facilitate healthy views of the older adult as students prepare for

clinical practice. This study explored the gaps in the literature regarding the efficacy of SBL in

addressing OTA and PTA student attitudes toward the older adult and the impact of the SBL

setting in reinforcing or challenging student attitudes. Results from this study can inform

healthcare educators in designing SBL experiences that reduce ageist attitudes and beliefs of students in preparation for working with older adults.

Literature Review

Older adults experience a lower quality of healthcare and provision of services from the healthcare systems in the United States as compared to younger Americans, resulting in an increased risk for over-treatment, under-treatment, and miscommunication (Ouchida & Lachs, 2015). Although there are several root causes, the lack of an adequately prepared healthcare workforce is a significant contributor to this systemic issue (Ouchida & Lachs, 2015; Rowe et al., 2016). Specifically, a shortage of healthcare workers trained in geriatrics is impacting care for an increasing population of older adults (Ouchida & Lachs, 2015; Rowe et al., 2016). In addition to an ill-prepared workforce, research has established the significant impact of ageism and age discrimination among healthcare workers, contributing to healthcare disparities for older adults and resulting in poorer health outcomes compared to younger counterparts (Chang et al., 2020; Ouchida & Lachs, 2015).

Ageism is a term that describes the attitudes and behaviors toward others or oneself that are influenced by stereotypes, prejudices, and discrimination based on age (World Health Organization [WHO], 2021). Ageism can take on many forms. It can be implicit or explicit, it can be hostile or benevolent, and it can be self-imposed or systemic (WHO, 2021). In a systematic review of 422 studies globally, it was revealed that ageism impacted the health outcomes of older adults in 95.5% of the studies reviewed (Chang et al., 2020). Outcomes most commonly impacted by ageism included: exclusion from health research, devaluing of an older adult, denied access to healthcare and treatments, reduced longevity, poor quality of life, poor social relationships, and increased physical and mental illness (Chang et al., 2020). Older adults

are frequently excluded from research trials, although many of the trials may impact older adults more often than younger participants (Chang et al., 2020). Withholding treatments from patients due to age or dismissing physical or cognitive changes as expected as a person ages can result in under-treatment or misdiagnosis of the older adult (Chang et al., 2020; Ouchida & Lachs, 2015). Contrary to undertreatment, older adults are at risk for over-treatment, which can include recommendations of specific tests and scans only based on the patient's age or recommending procedures or surgeries without considering the comorbidities or contexts surrounding the patient (Ouchida & Lachs, 2016). Clear communication regarding older adults' goals and preferences is critical for making sound medical decisions, yet healthcare providers have been shown to be less patient, less responsive, and more patronizing with older adults as compared to younger patients (Ouchida & Lachs, 2016).

Although researchers recognize the impact of the current disparity across healthcare providers and systems, it is crucial to consider how ageism and age discrimination have roots in healthcare education and training. Healthcare students, specifically students in medicine, occupational therapy, physical therapy, nursing, physician assistant, and pharmacy, exhibit implicit or explicit negative attitudes and biases toward older adults (Friedman & VanPuymbrouck, 2021; Gallo, 2019; Jester et al., 2020).

Determinants of Ageism

Around the age of four, children begin to assimilate societal and cultural cues toward age stereotypes, which continue to be reinforced over time (WHO, 2021). Recent systematic reviews have sought out the determinants associated with ageism, identifying factors relating to ageist attitudes across adult participants globally. Factors that attributed to higher levels of ageism were anxiety towards aging, fear of death, younger age, and having negative exposure to older adults

(Marques et al., 2020). In addition, being male and less educated also correlated with higher

levels of ageism (Officer et al., 2020). On the contrary, factors associated with lower levels of

ageism included individuals with specific personality types such as conscientiousness,

agreeableness, and extraversion, quality of contact with older adults, including relatives, and

positive experiences with older adults (Marques et al., 2020). Lastly, cultural belief systems play

a role in ageism and ageist beliefs. More recently, the literature indicates that eastern cultures

tend to have more negative attitudes toward aging as compared to western cultures (North &

Fiske, 2015; Officer et al., 2020). Increased population aging rate can result in conflicts over

resource management and cultures that view older adults as unique individuals instead of a

collective group can account for cultural beliefs towards aging (North & Fiske, 2015). As a

result, although cultures may highly respect older adults, ageist beliefs can still permeate

throughout a culture.

Factors Related to Ageist Attitudes in Healthcare Students

Several demographic factors have also been researched to establish correlations with

ageist attitudes and biases, specifically among healthcare students. As a person ages, it is

hypothesized that they will become more accepting of the aging process; however, the

relationship between students' age to their attitudes towards ageism is inconclusive (Cooney et

al., 2021). In some studies, student age has been shown to positively relate to improved attitudes

toward older adults as older students tend to have more positive attitudes as compared to younger

students (Cooney et al., 2021; De Biasio et al., 2016; Gallo, 2019; Jackson et al., 2017). Yet,

additional research indicates no significant difference between attitudes and student age

(Fernandez et al., 2018). The relationship between the gender of a student and attitudes toward

aging is also inconclusive, as some research demonstrated more negative attitudes among male

students as compared to females (Allué-Sierra et al., 2023; De Biasio et al., 2016; Jackson et al., 2017; Smith et al., 2017) and others did not demonstrate a significant difference (Jester et al., 2020; Rababa et al., 2020a; Urgulu et al., 2019).

Several interpersonal factors relate to student attitudes toward older adults. Prior experiences and the quality of close relationships with older adults positively correlate with more favorable attitudes toward aging in healthcare students (Allué-Sierra et al., 2023; Blackwood & Sweet, 2017; Cooney et al., 2021; Jackson et al., 2017; Jester et al., 2020; Smith et al., 2017). The quality of experiences and interactions with older adults is more impactful on attitudes, as compared to the number of experiences (Allué-Sierra et al., 2023; Cooney et al., 2021; Jackson et al., 2017). In addition, the context in which these interactions take place is important. Students who have lived with older adults or had more positive personal or clinical experiences with older adults tend to have less ageist attitudes as compared to those who had more negative experiences (Allué-Sierra et al., 2023; Blackwood & Sweet, 2017; Cooney et al., 2021; Smith et al., 2017). These positive experiences are expected to provide students with opportunities to disrupt their biases and stereotypes towards aging, resulting in improved attitudes (Cooney et al., 2021).

Lastly, a person's self-directed perceptions and knowledge of the aging process can shape a student's attitude toward aging. That is, healthcare students who view their own aging process with great acceptance tend to have diminished ageist attitudes as compared to those who are fearful or uncertain about aging (Cooney et al., 2021; Jackson et al., 2017). This positive view of the student's own life and aging course influences how they view older adults and their aging process. Additionally, a student's knowledge of aging has been positively correlated with improved attitudes toward older adults (Cooney et al., 2021; Rababa et al., 2020a; Rababa et al.,

2020b), supporting the integration of coursework in health sciences that address knowledge of the aging process to affect student attitudes (McCloskey et al., 2020).

In the United States, there are approximately 7,500 board-certified geriatricians and less than 1% of registered nurses who have geriatric certification, despite national efforts to increase this number to support the rapidly growing older adult population (Rowe et al., 2016). Although much of this is due to financial aspects such as lower reimbursement for Medicare recipients, research has noted that stereotypes and biases also significantly influence current healthcare professionals' interest in working with older adults (Ouchida & Lachs, 2015; Rowe et al., 2016). The influence of attitudes and biases toward interest in working with the older adult population is also evident in healthcare student populations. Research demonstrates a strong relationship between students' positive attitudes and increased knowledge of aging to an increased desire to work with older adults (Even-Zohar & Werner, 2020; Jackson et al., 2017; Lee et al., 2017). Factors contributing to this relationship include experiences with older adults and a high sense of self-confidence in caring for older adults (Lee et al., 2017). The literature mostly supports the idea that knowledge of aging increases the desire to work with the older adult population (Even-Zohar & Werner, 2020; Horowitz et al., 2014, Obhi & Woodhead, 2016).

Addressing Ageism in Education

To address the shortage of providers who currently treat the older adult population, educational programs have recognized the need to address ageism in students. Various means and methods to address ageism have included traditional didactic courses, service-learning experiences, workshops, clinical experiences, aging empathy suits, gamification, empathy skills training, reflective journaling, and simulation (Burnes et al., 2019; Chonody, 2015; Gallo, 2019).

Addressing students' knowledge of aging is one way to address ageism in students (Even-Zohar & Werner, 2020; Jackson et al., 2017; Lee et al., 2017). Pedagogical methods to improve or alter knowledge typically include traditional instructional formats such as workshops and courses specifically focused on the unique needs of older adults through education on normal aging, conditions, and addressing stereotypes (Burnes et al., 2019; Chonody, 2015). Although instructional classroom interventions can improve student attitudes toward aging, research has demonstrated increased effectiveness when instructional-based pedagogy is coupled with an experiential aspect (Burnes et al., 2019; Chonody, 2015). More specifically, curricula in which experiences involve empathy-building activities have shown more significant results in changing student attitudes (DeBiasio et al., 2015; Samra et al., 2013). Examples of these types of experiences that develop empathy in students are encounters with older adults through mentorships, interviews, clinical rotations, or simulated aging experiences (Samra et al., 2013).

Although experiences with older adults mostly have an overall positive effect on students' attitudes toward older adults, the literature cautions instructors to consider the importance of environmental and personal contexts surrounding the experiences with older adults. The importance of context has been demonstrated through a few studies, which have shown student attitudes across several different healthcare fields worsen over the course of their education (DeBiasio et al., 2015; Jester et al., 2020) or after a two-week medical internship in geriatric settings (Kusumastuti et al., 2017). To be noted, students across these studies were exposed to experiences with older adults who required acute medical needs. On the contrary, students exposed to positive experiences and community-dwelling older adults demonstrated decreased ageist beliefs (Cadieux et al., 2019; McCloskey et al., 2020; Meric et al., 2019; Ross et al., 2018). These studies highlight the importance of considering the context surrounding the

encounters students have with older adults as students who participate in experiences with community-dwelling older adults made significant positive changes in student attitudes as compared to students who only had contact with frail older adults (Ross et al., 2018).

Not only do well-designed curricular aspects improve attitudes toward aging, but healthcare students have also noted how views on age from faculty, clinical instructors, and other healthcare professionals have negatively or positively influenced their own perceptions of age through the overt and subtle language used by these individuals during their coursework, clinical placements, and work experiences (Blackwood & Sweet, 2017; Dahlke et al., 2020). One study indicated that 47% of medical and nursing students have witnessed ageism from other healthcare providers to older adults while on clinical rotations (Dobrowolska et al., 2019).

Theoretical Foundations in Education

As educators seek to address student attitudes through curricular and pedagogical means, there are theoretical approaches that may assist to guide curricular development related to changing and influencing student attitudes. Transformative learning theory is described as transforming prior information, mindsets, and assumptions to new information and perspectives; therefore, shifting an individual's prior assumptions (Mezirow, 2007). This approach focuses on the process of challenging and changing fixed belief systems, established perspectives, stereotypes, and biases through intentional learning experiences and reflection (Lucchetti et al., 2017; Van Schalkwyk, et al. 2019). Intentional learning experiences including service-learning, mentorship, simulations with debriefing, or various forms of self-reflection are all successful ways to integrate transformative learning into various healthcare educational programs, resulting in students embracing broader worldviews, influencing attitudes, new interpretations, and a heightened awareness of others (Van Schalkwyk et al., 2019).

The constructivist framework is an active learning method that supports the need for an experiential component that can effectively influence student attitudes toward ageism (Burnes et al., 2019; Chonody, 2015). The constructivist framework focuses on how students construct knowledge, based on problem-solving, through realistic and complex situations (Niederriter et al., 2020). This framework provides hands-on, immersive experiences in which students develop meaning and understanding, within a realistic context (Niederriter et al., 2020).

Lastly, the influence of learning from peers and instructors must also be considered in educational and clinical settings. Social learning theory describes how a learner's behaviors can be affected or changed through the observation of others or interaction (Bandura, 1971). Classmates and instructors can influence the behaviors or attitudes of healthcare students. The literature has demonstrated the impact of social learning theory as students have formulated new positive or negative attitudinal behaviors via observation of their instructors and clinical supervisors (Dahlke et al., 2020; Dobrowolska et al., 2019). Thus, educators and clinical instructors must be mindful of their own implicit and explicit biases regarding their own attitudes towards aging as demonstrated to students.

Simulation-Based Learning

Simulation-based learning (SBL) is one form of experiential learning, which also incorporates transformative learning theory, the constructivist framework, and social learning theory. SBL is defined as "an educational strategy in which a particular set of conditions are created or replicated to resemble authentic situations that are possible in real life" (INACSL Standards Committee, 2016, p. S44). SBL can provide the means to link the cognitive domain of learning, such as theories and knowledge, to psychomotor domains in practice, all within the context of critical thinking skills (Eide et al., 2019; Koukourikos et al., 2021). SBL can take

place through various means, such as a written case study, video of a patient, role-playing,

standardized patient, manikin, part-task trainer, or virtual reality (Bennett et al., 2017; Grant et

al., 2021; Koukourikos et al., 2021). SBL also provides a safe environment to practice various

competencies without harm to a real patient (Koukourikos et al., 2021; Mehdi et al., 2014).

There are several overarching benefits to integrating SBL into healthcare education

programs. Not only is simulation well-received by healthcare students (Grant et al., 2021;

Niederriter et al., 2019; Walls et al, 2019), but simulation has been shown to effectively improve

clinical knowledge, critical thinking, and skill refinement (Alanazi et al., 2017; Davis & Nye,

2017; Eide et al., 2020). SBL can be utilized to build and remediate specific clinical skills or

competencies in isolation, such as catheter placement, colostomy care, transfer training, or

assessing vitals. Beyond basic skill development and refinement, SBL can introduce students to

complex scenarios which are developed to build students' critical thinking skills (Kourkourkios

et al., 2021).

Additionally, positive professional identity (Bethea et al., 2019; Grant et al., 2021) and

overall student confidence (Imms et al., 2019; Kourkourikos et al., 2021; Pritchard et al., 2016)

are strengthened through simulation experiences. Student confidence in managing specific

scenarios they may encounter as a practitioner is significantly improved (Mehdi et al., 2014). In

one study, students expressed a realization of the level of their knowledge and expressed a sense

of improved confidence in applying their content knowledge through SBL experiences (Skinner,

2017).

Simulation also effectively provides significant opportunities for students to improve

communication with patients and teams (Grant et al., 2021; Imms et al., 2019; Kourkouikos et

al., 2021; Negri et al., 2017). SBL experiences with role-playing or standardized patients are

highly effective to develop communication skills in healthcare students, especially in navigating conflicts, discussing ethical concerns, and communicating sensitive or difficult news to a client or caregiver (Negri et al., 2017).

Lastly, simulation is an effective means to strengthen and build interprofessional team skills across medical professions (Bethea et al., 2019; Koukourikos et al., 2021). SBL is used to facilitate the process of interprofessional collaboration, understand the various team members' roles, and encourage client-centered care (Grant et al., 2021). Increased opportunities for interprofessional education collaboration are a focus of both occupational therapy and physical therapy accreditation guidelines as of recent and can provide an avenue for interprofessional collaboration in the educational setting (Bethea et al., 2019).

Simulated-Based Learning in Geriatrics

SBL has been used specifically within the context of geriatric training for healthcare students. Many of the same benefits derived from general SBL experiences are also captured within geriatric-based simulations, including increased self-confidence to care for the older adult (Braude et al., 2015; Mehdi et al., 2014), improved knowledge and perceptions of geriatric healthcare (Fisher and Walker, 2013), and improved knowledge of chronic health conditions for the older adult (Torkshavand et al., 2020).

Specific scenarios used in SBL for the older adult have included continence care, elder abuse, dementia care, end-of-life issues, fall management, acute illness, delirium, and interprofessional management (Braude et al., 2015; Fisher & Walker, 2013; Mehdi et al., 2014). Although these topics are appropriate for the acute care settings many healthcare students will practice in, there is limited literature regarding SBL experiences in community-based practice settings for the older adult. Only one study was located, a smaller mixed-methods study of 21

students, who completed a simulation in a home-based scenario (Skinner, 2017). Results indicated improved perceptions of older adults through qualitative means but no significant difference regarding students' knowledge of aging (Skinner, 2017).

Although SBL experiences incorporating geriatric care have been used as an effective experiential component in healthcare educational programs, there are inherent and unique challenges. SBL experiences must have a level of realism or fidelity which includes an accurate portrayal of the client, with the student being fully immersed in the situation (Cowperthwait, 2020; Siew et al, 2021). This requires designing an SBL in which the experience closely resembles real life, which can be challenging to achieve when attempting to create scenarios that are meant to present the clients holistically. Manikins and partial task simulators can be effective for training a technical clinical skill, yet do not provide the contextual, emotional, cognitive, or communicative aspects of client care with an older adult (Koukourikos et al., 2021). In role-play or standardized participant simulation-based experiences, many studies included students, faculty, or live actors who are portraying the role of the client (Bethea et al., 2019; Grant et al., 2021; Pritchard et al., 2016). Utilizing younger students, faculty, or live actors who are attempting to portray a client in an SBL experience may also provide an unrealistic representation of an older adult. Yet, incorporating older adults into SBL can present some additional factors to consider such as actual physical, cognitive, and sensory considerations an older adult may present with, such as decreased activity tolerance due to cardiovascular changes and hearing or vision changes (Smith et al., 2021). Therefore, the development of SBL may require additional collaboration and support for the participants which may be considered an additional barrier (Smith et al., 2021).

Standardized Patient

Effective SBL experiences require fidelity and realism, which can be difficult to attain as a simulation is an attempt to replicate a real scenario (Cowperthwait, 2020; Koukourikos et al., 2021). Integration of a standardized patient (SP) into a simulation is one way to increase the fidelity of an SBL experience and is one of the most common methods of providing SBL, especially within areas of improving student communication, confidence, and physical examination skills (Alanazi et al., 2017; Herge et al., 2013; Negri et al., 2017).

The terms standardized patient, simulated patient, and simulated participant have been used in the literature interchangeably; however, the International Nursing Association of Clinical and Simulation Learning (INACSL) Standards Committee (2016) uses the term standardized patient (SP) as the universal term and was used throughout this study as it encapsulates the broad range in which an SP works and allows for individuality for patient-based care (Nestel et al., 2018). An SP is a person who is "trained to consistently portray a patient or other individual in a scripted scenario for the purposes of instruction, practice, or evaluation" (INACSL Standards Committee, 2016, S45). Although any person can act as the patient, best practice indicates the integration of an SP who closely matches the patient's physical characteristics to maintain simulation fidelity, including age (Cowperthwait, 2020; Lewis et al., 2017). This provides students with an experience with an older adult, bringing perspective regarding the aging experience and navigating the healthcare system (Davis & Nye, 2017; Thompson et al., 2017).

Literature supports higher student satisfaction when completing an SBL experience with an SP as compared to a manikin most likely due to the impact of realism when working with a live person (Lucktar-Flude et al., 2012; Pritchard et al., 2016). Overall, the use of an SP during SBL experiences has demonstrated positive outcomes in the development of technical, non-

technical, and cognitive skills of students (Williams & Song, 2016). Substituting up to 25% of

clinical experiences with simulation with an SP in the physical therapy curriculum has shown a

difference in student preparation as compared to the typical clinical placement (Pritchard et al.,

2016), demonstrating the strength of SP-based simulations on building capacity for healthcare

students. Specifically, within geriatric-based simulations, a study by Siew et al. (2020) reviewed

15 articles and noted significant improvements in students' knowledge of aging, clinical skills,

technical and non-technical skills, confidence, and interprofessional teamwork. There are limited

studies that include an SP and address student attitudes and perceptions toward older adults as

one of their outcomes. Skinner (2017) found improved student perceptions toward older adults in

a qualitative study. The use of an SP has also been noted to improve empathy among nursing

students (Arrogante et al., 2022). However, no studies have quantitatively addressed students'

ageist attitudes toward older adults as a primary outcome of an SBL experience that included an

SP. There is a need for research in this area, addressing the confluence of experiential and

transformational learning through SBL experiences and addressing healthcare students' attitudes

toward the older adult, including the impact of the setting context on student attitudes.

Method

Study Design

This quasi-experimental study incorporated a counterbalanced design to determine if the

setting of a simulation with a simulated older adult participant impacted the attitudes of

occupational therapy assistant (OTA) and physical therapist assistant (PTA) students toward

older adults. The counterbalanced study design was utilized to decrease the threat of participants

applying prior learning (Cottrell & McKenzie, 2011) as half the participants participated in an

acute care simulated setting first while the other half started in a home-based simulated setting

(see Figure 1).

Participants

A non-probability convenience sample of students in the OTA and PTA programs at

McHenry County College was recruited for this study. One cohort of students participated in the

study during the summer of 2022 and the second cohort of students participated in the fall of

2022. Participants in the study met the following inclusionary criteria: (a) current student in the

McHenry County College OTA or PTA program, (b) enrolled in the didactic portion of their

studies, and (c) not currently in the final semester of clinical or fieldwork.

An a priori sample size estimate was calculated using G*Power, version 3.1 (Faul et al.,

2007). As the data were not normally distributed, sample size estimates were calculated based on

the Friedman's ANOVA to determine differences within the assessment times. The following

parameters were selected for the calculation based on clinical judgment and Cohen's (1992)

recommendations: significance level alpha of .05, power of 0.80, a moderate effect size of $f =$

0.25, correlation among representative measures of 0.5, and a non-sphericity correction of 1.

Based on the calculation, a minimum sample size of 28 was needed to adequately power the

study.

Setting

The study took place at McHenry County College (MCC), a small community college

located in northern Illinois. The health care division at MCC is equipped with a simulated

hospital and simulated apartment. The simulated hospital setting consists of three patient suites,

two control rooms, and one debriefing room. Observation of the simulations in the hospital can

be completed through either the control rooms or the installed video system. The simulated

apartment setting contains a bedroom, bathroom, living room, and kitchen, which can be

observed from an installed video system.

Data

Data were collected using Qualtrics, a web-based survey software program. Demographic

data collected in this study included age (years), sex (male, female, other), and race/ethnicity

(Asian or Pacific Islander, Black or African American, Hispanic or Latinx, Native American or

Alaskan Native, White or Caucasian, Multiracial or Biracial, or Other). In addition, the following

student background information was collected: discipline (OTA, PTA), semester enrolled (1, 2,

3), types of experience with older adults (family, paid work, volunteer, leisure activities,

educational settings, no experience), and quality of experiences with older adults (very good,

good, acceptable, poor, very poor, no experience).

For the purpose of the study, an older adult was defined as a person who is 65 years or

older, to coincide with the definition of older adults on the instrumentation utilized in this study

(Fraboni et al., 1990). Attitudes toward older adults were operationalized using scores from the

Fraboni Ageism Scale (FAS) and the Ambivalent Ageism Scale (AAS). Palmore's Facts on

Aging Quiz 2 (FAQ-2) was used before the intervention to assess the participants' knowledge of

aging.

Instruments

Ambivalent Ageism Scale

The AAS captures the benevolent and hostile attitudes toward older adults (Cary et al.,

2017). The inclusion of benevolent attitudes makes the AAS unique from other assessments

(Cary et al., 2017; Kang, 2022). There are 13 statements in which participants note their level of

agreement, utilizing a seven-point Likert scale with scores ranging from 13-91. An overall

summed score is obtained, in which lower scores indicate more positive attitudes toward older

adults. Test-retest reliability performed at two weeks resulted in an $r = .80$ and an internal

consistency of $\alpha = .91$ (Cary et al., 2017). There is no information on the responsiveness of this

instrument at the time of this study. Permission was obtained from Dr. Alison Chasteen to utilize

this instrument for the study (See Appendix C). A copy of the instrument is located in Appendix

D.

Fraboni Scale of Ageism

The FSA measures the affective component of ageism and consists of 29 statements in

which a four-point Likert scale is utilized indicating responses from strongly disagree to strongly

agree to each statement (Fraboni et al., 1990). A summed score (29-116) is obtained with higher

levels of ageism indicated by higher overall scores. The instrument measures antagonistic and

discriminatory attitudes and beliefs (Rupp et al., 2005). Statements are aligned to avoidance,

antilocution, and discrimination levels of prejudice as defined by Allport (1958, as cited in

Fraboni et al. 1990). Whole scale internal consistency reliability is $\alpha = .86$ (Fraboni et al., 1990).

Factor analysis performed on the FSA revealed three factors, stereotypes, separation, and

affective attitudes (Rupp et al., 2005). The stereotypes factor is also defined as antilocution, a

type of prejudice in which someone verbalizes negative comments about a group but not directly

to the group or individual it is intended for, whereas the separation factor refers to the active

avoidance of the intended person or group (Rupp et al., 2005). Lastly, the affective factor

indicates the emotional responses and attitudes toward the group (Rupp et al., 2005). Internal

consistency among the three factors of stereotypes, separation, and affective attitudes are $\alpha =$

.79, .76, and .70 respectively (Rupp et al., 2005). Intercorrelations between the FSA and the

subscales of the Aging Semantic Scale are $\alpha = .77, .79, .78,$ and .79, demonstrating adequate

convergent validity (Rupp et al., 2005). There is no literature regarding test-retest reliability or

responsiveness to change at the time of this study. The FSA also demonstrates convergent

validity to the Attitudes Towards Old People Scale, $\alpha = .86$ (Rupp et al., 2005). Permission has

been obtained from Dr. Maryann Fraboni and Dr. Robert Saltstone to utilize this instrument for

the study (See Appendix A). A copy of the instrument is located in Appendix B.

Palmore Facts on Aging Quiz-2

The FAQ was initially developed as a true/false questionnaire which was revised (FAQ-

2) and then later reformatted into multiple-choice questions to increase the accuracy of the

instrument and to reduce the likelihood of participants making educated guesses between true

and false (Harris & Changas, 2005). The FAQ-2 consists of 25 multiple-choice questions which

are scored by summing the total number of correct responses, with higher scores indicating

increased knowledge (Harris & Changas, 2005). Internal consistency of the revised FAQ-2 is $\alpha =$

.36 (Harris & Changas, 2005). At the time of this study, there is no information on test-retest

reliability or responsiveness to change. Permission was obtained from Dr. Paul Changas to use

this instrument for the study (See Appendix E). A copy of the instrument is located in Appendix

F.

Procedures

Recruitment

Institutional Review Board approval was obtained from the University of Indianapolis,

along with a letter of cooperation from McHenry County College prior to recruitment. Since

participants were students at the institution where the primary researcher (R. S.) is employed,

and the OTA students have had courses and would have future courses with the primary

researcher, the risk of a power differential was considered. Due to the risk of the perception of

coercion or undue influence from the power differential, participants were considered a

vulnerable population (Manti & Licari, 2018; Office for Human Research Protections, n.d.). To

reduce the risk, recruitment took place at the end of the class time or during a break, which

allowed students to leave the classroom if not interested, and on a day the author did not teach a

course with the potential participants to further reduce the association between the primary

researcher and instructor of the OTA students.

A faculty member of the PTA program was the primary recruiter for the OTA students

and the author was the primary recruiter for the PTA students. Potential participants were

notified about the study through signage in the students' respective classrooms and the learning

management system approximately one week before the meeting took place. This announcement

invited them to stay after class to learn about the study. Two recruitment meetings were

scheduled at a time when students were on campus. One meeting was with the OTA students and

one with the PTA students, along with an in-person follow-up a few days later. These meetings

took place immediately after their class on that day and in their respective classrooms. The

recruiters utilized a script to reference so that all students were provided with the same

information including the purpose of study, location, and time requirements. In addition, the

script specifically stated that participation or lack of participation would not impact grades or

result in preferential selection for fieldwork or clinical placements.

Informed Consent

At the time of the recruitment meeting, participants were provided an initial written

informed consent document for their review. The document included an explanation of the study,

indicating voluntary and confidential participation, duration and time commitment, and risks and

benefits of participation. The document explicitly stated that study participation would not

impact course grades or give preference for clinical or fieldwork placements, participation would

be completely voluntary, and participants have the right to withdraw from the study at any time.

Students were given one week to decide whether or not to participate in the study and submit

their signed informed consent to their primary recruiter if they agreed to participate. The study

began approximately two weeks after informed consent was obtained from the participants.

Throughout the study, participants continued to provide their informed consent at each data

collection point.

Randomization

Once participants provided consent, they were randomly placed into one of two groups,

Group A (acute care simulation first then the home-based simulation) and Group B (home-based

simulation followed by the acute care simulation. The creation of groups A and B was to adhere

to the counterbalance design of the study and demographic comparisons. Simple randomization

was performed by assigning each participant a number. These numbers were inserted into

www.randomlists.com, a computer-based random team generator, to create two separate groups.

Data Collection

Each participant created their own unique identifier which was used throughout the study

in an attempt to maintain confidentiality. In a pure counterbalance design, assessment is only

taken after each intervention (Cottrell & McKenzie, 2011). However, since one research question

asks if the simulations with an older adult (intervention) altered overall ageist attitudes, a pretest

was conducted. Another research question asks if there is a difference in attitudes based on the

simulation setting. Therefore, posttests after each simulation were obtained. To decrease the

threat to internal validity through retesting the three assessment points for the AAS and FSA

were spaced approximately four weeks apart.

Four weeks before the first simulation, participants completed the first data collection point, providing demographics, background, the FAQ-2, the AAS, and the FSA via a Qualtrics survey. The second and third data collection points occurred within a half hour of completing the simulation, which included completing the AAS and FSA. Typically, students within the healthcare programs at this community college participate in an immediate verbal debrief with the instructor and standardized patient. Therefore, to decrease the possibility of additional communication after the completion of the simulation scenario, which could impact their perceptions or attitudes, and to best standardize the study, the debriefing session was completed with a PTA or OTA instructor. The debriefing session followed a script of five questions which maintained the focus only on the provision of care and clinical reasoning skills.

Intervention

There were two simulation interventions for each participant. Each intervention was completed with a standardized patient who was an older adult trained by the primary researcher on how to portray the selected case for the simulation. There were two standardized patients, a retired nurse and a retired occupational therapist, who had a history of working with students in educational and clinical settings and were two years apart in age. Provision of scripts and training before the simulation provided for increased fidelity of the simulations. Approximately four days before each simulation, participants received occupational therapy and physical therapy evaluations with the plan of care and goals (see Appendix G), and additional resources regarding the client's diagnosis. The evaluations provided students with a continuum of goals which allowed students of all skill levels to ensure their ability to utilize interventions that match their developing skill sets, despite if they were in their first, second, or third didactic semester.

On the day of the simulation, participants entered the simulations and completed a 20- to 30-minute treatment session.

The acute care simulation portrayed an older adult who had chronic obstructive respiratory disease (COPD) and required moderate assistance and relied on a support system. It took place in a simulated hospital room while utilizing a nasal cannula for oxygen. The home-based simulation was completed in a mock apartment with the other standardized patient. This case consisted of an older adult with COPD who was mainly independent, uses a nasal cannula and condenser for oxygen, and required a home assessment and follow-up treatment session for safety.

Data Management

Pretest and posttest data were matched by the student-created unique study identifier. Data were downloaded from Qualtrics and entered into a password-protected Microsoft Excel spreadsheet by the primary researcher after the last data collection period. The primary researcher's password-protected personal computer was used for data storage. Printouts of the data spreadsheets were stored in a locked cabinet in a locked room and will remain there for three years after the study's completion. At that time, paper documents or printouts will be destroyed through a paper shredding service.

Statistical Analysis

Descriptive statistics were used to characterize participant demographics and status, including age, sex, race/ethnicity, student discipline of study, semester enrolled in the program, and quality and types of experiences with older adults. In addition, descriptive statistics were used to present outcome data, the FAQ-2, AAS, and FSA scores. Nominal data are reported as frequencies and percentages; medians and interquartile ranges for ordinal and non-normally

distributed interval and ratio data; means and standard deviations for normally distributed interval and ratio data.

Pre-simulation, Simulation 1, and Simulation 2 outcome data were compared using Friedman ANOVA tests since the data were not normally distributed. Assumptions for a Friedman ANOVA include (a) dependent groups (b) repeated measure of dependent variable three or more times (c) ordinal, interval, or ratio data (c) not normal distribution among groups, and (d) no expected interactions between participant and treatment (Kellar & Kelvin, 2013). When a significant difference was found within the three times, post hoc Wilcoxon signed-rank tests with Bonferroni correction were conducted.

The AAS and the FSA do not have a published minimal detectable change or a score that indicates clinical relevance; therefore, Cohen's d with a value of 0.50 was used to signify a moderate effect for the Friedman's ANOVA and Wilcoxon signed-rank test (Van den Berg, n.d.). Effect sizes were calculated based on the equations provided by Fields (2018) and the effect sizes were interpreted based on the recommendations of Cohen (1992).

The relationship between knowledge of aging as measured by the FAQ-2 and the AAS and FSA scores was also explored by using a Spearman Rho correlation test. Assumptions for the Spearman Rho test include (a) ordinal, interval, or ratio data (b) two variables of interest (c) the two variables are independent of each other, and (d) the participants are an independent random sample (Kellar & Kelvin, 2013). A correlation coefficient (*r)* between .50 to .70 was used to indicate a moderate correlation (Moore et al., 2013).

Statistical analysis was performed using IBM SPSS Statistics for Windows, Version 28.0 (IBM Corp., Armonk, NY). The normality of data was determined using Shapiro-Wilk tests, as

well as visual inspection of histograms and Q-Q plots. All comparisons were two-tailed and a significance level of less than .05 was considered statistically significant.

Results

Demographics

Initially, 30 participants enrolled in the study; however, four did not complete surveys in all three time periods. Therefore, the data for these students were excluded from the analysis, resulting in a final sample size of 26. Due to the randomization of the assignment groups at the start of the study to maintain the counterbalance design, there were 12 (46%) participants in Group A and 14 (54%) participants in Group B. Most of the participants were OTA students (N = 17, 65%) while 9 (35%) were PTA students and the majority were female (N = 23, 88%). The participants' median age (interquartile range) was 34.38 (18.00) years and the semester (1st, 2nd, or 3rd semester) the participants were enrolled in was 2.23 (1.00). Detailed demographics and participant status information are displayed in Table 1.

Overall Student Attitudes

To address the first objective of the study, a Friedman ANOVA test was used to determine if there was a difference in AAS and FSA scores over the three time periods. The results of the comparisons are found in Table 2. The median AAS score (interquartile range) for the pre-simulation was 27.50 (16.00), 28.50 (13.00) after the first simulation, and 25.50 (18.00) after the second simulation. The Friedman ANOVA, $X^2(2, N = 26) = 15.74$, $p < .001$ indicated there was a statistical difference in attitudinal scores across the three measures at an alpha .05 level. The overall effect size was large ($d = 1.01$). The pairwise post hoc analyses with the Wilcoxon signed-ranks test and Bonferroni correction at an adjusted alpha significance of .017 were used to analyze the differences between the pairs. The median difference between the pre-

simulation and the last simulation (Simulation 2) was 2.00 and the Wilcoxon signed-ranks test reported a $p = .003$ indicating a statistical difference. There was no statistical difference between the other pairs.

The median FSA score (interquartile range) for the pre-simulation was 97.00 (11.00), 98.00 (16.00) after the first simulation, and 100.00 (16.00) after the last simulation. Data from the FSA was analyzed using a Friedman ANOVA test as data were not normally distributed. The Friedman ANOVA, $X^2(2, N = 26) = 3.08$, $p = .214$ indicated that there was no significant statistical difference between scores; however, the effect size is moderate ($d = 0.41$).

The three factors of the FSA, stereotypes, separation, and affective attitudes were also analyzed (see Table 2). The data were not normally distributed; therefore, the Friedman ANOVA test was used. The median stereotype score (interquartile range) for the pre-simulation was 31.50 (5.00), 3.50 (6.00) after the first simulation, and 33.00 (9.00) after the last simulation. The Friedman ANOVA, $X^2(2, N = 26) = 4.79$, $p = .091$ indicated no significant statistical difference; however, a moderate effect size was noted ($d = 0.51$). The median separation score (interquartile range) for the pre-simulation was 29.50 (3.00), 30.00 (5.00) after the first simulation, and 29.50 (4.00) after the last simulation. The Friedman ANOVA, $X^2(2, N = 26) = 0.28$, $p = .870$ indicated no significant statistical difference. The median affective score (interquartile range) for pre-simulation was 17.00 (3.00), 17.00 (3.00) after the first simulation, and 17.50 (3.00) after the last simulation. The Friedman ANOVA, $X^2(2, N = 26) = 4.82$, $p = .090$ indicates no statistical significant difference; however, there is a moderate effect ($d = 0.51$).

Setting of Simulation

To address the second objective of the study, data were reorganized into settings to explore student attitudes based on the setting of the simulation. Differences between the pre-simulation and the two settings were analyzed.

Acute Care Setting

The Wilcoxon signed-ranks test was used to determine if there was a difference in scores for the AAS over the two times, pre-simulation and post-acute care simulation as data were not normally distributed. The median AAS score (interquartile range) for the pre-simulation was 27.50 (16.00) and 26.00 (17.00) after the acute care simulation. The Wilcoxon signed-ranks test $Z = -2.03$, $p = .042$ indicated there was a statistical difference in attitudinal scores between the pre-simulation AAS scores and post-acute care simulation AAS scores at an alpha .05 level. There is a moderate effect size ($d = 0.59$).

To analyze the difference between the FSA scores, a Wilcoxon signed-ranks test was used as data were not normally distributed. The pre-simulation median FSA scores (interquartile range) were 97.00 (11.00) at pre-simulation and 99.00 (14.00) post-acute care simulation. The Wilcoxon signed-ranks test $Z = -0.14$, $p = .886$ indicated no statistical difference at a .05 alpha level. Additionally, the FSA factors of stereotypes, separation, and affective were analyzed between pre-simulation and post-acute care simulations, and no significant statistical differences were found (see Table 3).

Home-Based Setting

Wilcoxon signed-ranks test was also used to analyze differences between the pre-simulation and post-home-based simulation setting as data were not normally distributed. The median AAS score (interquartile range) for the pre-simulation was 27.50 (16.00) and 29.00 (16.00) after the home-based simulation. The Wilcoxon signed-ranks test $Z = -3.14$, $p = .002$

indicated there was a statistical difference in attitudinal scores between the pre-simulation AAS

scores and post-acute care simulation AAS scores at an alpha .05 level. There is a large effect

size ($d = 0.97$).

The attitudes of students were also measured by the FSA. The median FSA scores for the

pre-simulation were 97.00 (11.00) and 99.50 (17.00) for the post-home-based simulation. The

Wilcoxon signed-ranks test $Z = -1.05$, $p = .296$ indicated no statistical difference at a .05 alpha

level. The FSA factors related to stereotypes, separation, and affective were examined before and

after the home-based simulations, and no statistically significant differences were detected (see

Table 2).

Knowledge of Aging FAQ-2

Participant knowledge of aging was assessed by the FAQ-2. Scores of the FAQ-2 were

analyzed as a whole group to explore the relationship between knowledge of aging scores and

scores on the FSA and AAS. The median FSA score (interquartile range) for the group was 9.50

(3). The bivariate Spearman correlation was $r(26) = -.15$, $p = .465$ for the FSA, and $r(26) = -.03$,

$p = .885$ for the AAS. This indicates the relationships between knowledge of aging and attitudes

towards aging among participants in this study were weak and not statically significant.

<div align="center">

Discussion

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This study's purpose was to address two objectives: (a) to determine if simulation-based

learning experiences with an older adult standardized patient impact OTA and PTA student

attitudes towards the older adult population, measured by FSA, and the AAS and (b) to explore

the relationship between attitudes of OTA and PTA students when participating in an acute care

simulation as compared to a home-based simulation as measured by the FSA, and the AAS. The

findings from this study were that there was no change in attitudes as measured by the FSA;

however, positive changes in overall attitudes were indicated as measured by the AAS.

Student Attitudes Toward Older Adults

The use of an SP during SBL experiences increases student satisfaction with learning

(Lucktar-Flude et al., 2012; Pritchard et al., 2016); improves clinical care (Pritchard et al., 2016;

Williams & Song, 2016), and increases empathy (Arrogante et al., 2022). There is a lack of

current research on the impact of SBL with an SP on ageist attitudes of students, including a lack

of research on SBL with OTA and PTA students. This study explored whether or not there was a

significant difference in OTA and PTA student attitudes toward older adults as measured by two

instruments, the FSA and the AAS. Although the two instruments are moderately correlated (r =

.51-.71) and have good consistency (r = .08) (Kang, 2022), they yielded different results in this

study, regarding the significance of an overall change in student attitudes toward older adults

after participating in an SBL experience with an SP who is an older adult.

Student attitudes towards older adults, as measured by the FSA in this study, were not

impacted significantly after participating in a simulation with an older adult as an SP. Ageism is

multifaceted and can take on many forms. The FSA was specifically designed to measure the

antagonistic or hostile aspects of ageism (Rupp et al., 2005); therefore, the FSA reflects more of

the participants' negative attitudes toward older adults. While there is no specific score on the

FSA to determine the degree of ageist beliefs, higher scores indicate increased levels of ageism.

In this study, the three factors of the FSA, stereotypes, separation, and affective attitudes, also

did not yield any significant findings between pre-simulation and post-simulation experiences.

Although the FSA did not reveal a significant difference in attitudes between pre- and

post-simulation experiences, the AAS did show a significant difference in attitudes after

simulation experiences with an older adult as the SP. In contrast to the FSA, the AAS evaluates both benevolent and hostile ageism attitudes, with a larger focus on benevolent attitudes which includes 9 benevolent and 4 hostile statements (Cary et al., 2016). Although there is no cut-off score to determine if responses are ageist, lower summed scores of the AAS indicate lower ageist attitudes (Cary et al., 2017). This study suggests that the overall simulation experience, which included two simulations with a standardized patient, had a greater effect on improving benevolent ageist attitudes towards older adults than hostile attitudes, as suggested by the significant difference in AAS scores.

Experiences and exposure to older adults within an educational curriculum have been shown through multiple studies to increase empathy and general student attitudes toward older adults (Arrogante et al., 2022; DeBiasio et al., 2015; Samra et al., 2013). This study further demonstrates the impact of an SBL experience, specifically suggesting a significant impact in altering benevolent ageist attitudes of OTA and PTA students.

Setting of the Simulation's Impact on Attitudes

The context surrounding a student's experience with older adults can impact their attitudes, specifically when a student is working with a community-dwelling older adult as compared to a frail older adult (Ross et al., 2018). There is a paucity of research that compares the impact of different settings on student attitudes. Therefore, the study's second objective was to explore the effect of a specific simulation setting on participants' attitudes.

The findings from the FSA did not indicate any significant statistical differences between pre-simulation and the acute care setting or pre-simulation and the home-based setting. Again, there were no significant differences found within the three factors of stereotype, separation, and

affective. These results suggest that the simulation setting did not influence changes in participants' antagonistic ageist beliefs or hostile attitudes.

However, the results of the AAS demonstrated a statistically significant difference in attitudes of OTA and PTA students when comparing pre-simulation scores to post-home-based-simulation and pre-simulation to post-acute care simulation scores. Although both settings demonstrated statistically significant differences in attitudes, it should be noted there was an improvement in attitudes following the acute-care simulation and a worsening of attitudes after the home-based simulation. There was a moderate effect size between pre-simulation to post-home-based simulation as compared to a small effect size between pre-simulation to post-acute care simulation. There were no significant statistical findings regarding the sequence of the simulations upon the attitudinal scores for both the FSA and AAS.

Cooney et al. (2021) noted that a relationship between student age and attitudes toward older adults has been inconclusive; however, several studies have found a relationship between older student age and more positive attitudes (De Biasio et al., 2016; Gallo, 2019; Jackson et al., 2017). Although this study did not uncover any correlations between age and scores on the FSA or AAS, it should be noted that the instruments used in this study were initially validated on a younger group of participants. The participants in the FSA had a mean age of 22.15 and 22.6 (Rupp et al., 2005) and the AAS mean age was 18.91 and 26.9 (Cary et al., 2016). Whereas the mean age of the participants in this study was 34.38 years of age.

Limitations

Primary limitations for this study included the use of a convenience sample of students within a single college and two educational programs which may not be representative of all OTA and PTA students or educational programs. Additionally, the sample size of the study was

small, which could limit the statistical power or reproducibility of the findings. Data from the

participants may also demonstrate a response shift bias as participants rated themselves lower at

the pretest for both the FSA and AAS as compared to the data point after simulation 1. Lastly,

while the diversity of the participants was similar to that of the OTA and PTA educational

programs from which they were recruited, it may not be representative of the larger population of

therapy students.

Implications and Future Research

The predominant body of research on SBL focuses on older adult scenarios addressing

end-of-life issues, fall management, acute illness, dementia, elder abuse, and other situations

which portray a frail older adult (Braude et al., 2015; Fisher & Walker, 2013; Mehdi et al.,

2014). Furthermore, current research on SBL experiences with an SP as an older adult has

primarily focused on clinical and technical skills, the confidence of the student, and

interprofessional teamwork (Siew et al., 2020). This study addresses a gap in the literature

regarding the effect of SBL with an SP on students' attitudes toward older adults. In addition,

there is no published research on the experiences of OTA and PTA students with SBL with an

SP. This study also attempted to explore these gaps in the literature regarding the setting of

simulation on the ageist attitudes of students through the means of SBL with an SP.

Ageism is multifactoral and can take on many forms, two forms being hostile or

benevolent (WHO, 2021). The FSA is an instrument that measures hostile or antagonistic

attitudes and this study did not find a statistically significant difference in attitudes as measured

by the FSA. However, the AAS measures benevolent attitudes which this study did find

significant differences over time, both improving and worsening attitudes. Benevolent ageism

has also been termed as compassionate ageism in the literature and has also been recognized

more since the recent pandemic (Vervaecke & Meisner, 2021). Benevolent attitudes can be

described as patronizing behaviors or overaccommodation and have been explored throughout

research with sexism (Cary et al., 2016, Chasteen et al., 2021, Sublett et al., 2021). More recently

it has been explored regarding ageism. Benevolent ageism can be towards someone or a group of

people and tends to be quite subtle, which is the opposite of direct, hostile ageism (Chasteen et

al., 2021). Studies have indicated that benevolent attitudes are generally more accepted across

society and gender which can make it difficult to confront (Chasteen et al., 2021, Sublett et al.,

2021). Confronting benevolent ageism can be complex as one study noted that strong

confrontation regarding benevolent acts increased more negative attitudes toward an older adult

(Chasteen et al., 2021).

Benevolent ageism can appear in healthcare in a multitude of ways. For therapy

providers, this may arise through communication with older adult clients where the provider is

using elderspeak, where a clinician is assuming the client requires slow and simplified language

(Shaw & Gordon, 2021). Another form of benevolent ageism can also include a healthcare team

who is assuming a patient requires more services or medical equipment to remain safe in their

home based solely on the patient's age and regardless of their competence or motivations

(Vervaecke & Meisner, 2021). Clinicians need to recognize how the impact of benevolent

ageism in therapy decisions can contribute to learned helplessness (Vervaecke & Meisner, 2021),

which conflicts with most therapy goals of increased independence. This study begins to provide

needed research to explore how to impact future healthcare providers' benevolent attitudes

toward aging.

Future research is needed to further explore the overall impact of SBL on ageism and

attitudes of healthcare students, including the various forms of ageism. The WHO identifies

educational interventions as one of the three strategies to reduce ageism on a global level (2021).

This research can help educators to better understand and analyze how their creation of different

types of SBL experiences. In addition, educators may also consider the setting, or context, of

SBL experiences on the effectiveness to reduce ageism and promote more positive attitudes

among healthcare students. This can ensure that future healthcare professionals are equipped

with more positive attitudes toward their future patients who are older adults, leading to

improved higher-quality care. It is also imperative to conduct additional research on the impact

of SBL experiences with older adult SPs regarding differences in the impact on hostile and

benevolent attitudes. This can enable healthcare educators to create targeted interventions that

are effective in addressing ageism in healthcare students and promoting positive attitudes toward

older adults.

Conclusion

Ageism is a pervasive issue in healthcare and society, and reducing ageism is crucial for

improving the quality of care provided to older adults. Educational programs have utilized

various methods to address ageism through didactical and experiential methods leading to

positive outcomes and results, demonstrating effectiveness in reducing ageism among healthcare

students (Burnes et al., 2019; Chonody, 2015; Gallo, 2019). Research has also indicated the

importance of students having positive experiences with older adults in the community and how

the context, or setting, can contribute to reducing ageist attitudes in healthcare students (Cadieux

et al., 2019; McCloskey et al., 2020; Meric et al., 2019; Ross et al., 2018). The best practice in

educational programs is to integrate didactic and experiential components to foster attitude

changes among students (DiBiasio et al., 2015; Samra et al., 2013). SBL experiences with an

older adult as an SP is an effective intervention for students to gain experience before entering the healthcare field.

This study found that while there were no significant changes in antagonistic or hostile ageist attitudes as measured by the FSA, there were significant impacts in benevolent ageist attitudes as measured by the AAS, dependent upon the context of the simulation or over the course of the full simulation experience. These findings suggest that SBL experiences with an SP can have an impact on altering benevolent ageist attitudes toward older adults.

Addressing ageism in healthcare is not only an ethical imperative but also critical to improving health outcomes and enhancing the well-being of older adults. Educators should continue to prioritize experiential learning opportunities and exposure to older adults within educational curriculums to challenge future healthcare professionals' attitudes towards older adults.

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Table 1

Demographic Characteristics of Participants (N = 26)

Characteristic	All Participants	Group A ($n = 12$)	Group B ($n = 14$)
	N (%)	*N (%)*	*N (%)*
Sex			
Female	23 (88.5)	12 (100)	11 (78.6)
Male	3 (11.5)	0	3 (21.4)
Race			
White or Caucasian	21 (80.8)	8 (66.7)	13 (92.9)
Black or African American	1 (.04)	1 (8.3)	0
Hispanic or Latinx	1 (.04)	0	1 (7.1)
Asian or Pacific Islander	2 (.08)	2 (16.7)	0
Multiracial or Biracial	1 (.04)	1 (8.3)	0
Area of study			
OTA	17 (65.4)	10 (83.3)	7 (50.0)
PTA	9 (34.6)	2 (16.7)	7 (50.0)
Semester enrolled			
1st Semester	5 (19.2)	2 (16.7)	3 (21.4)
2nd Semester	10 (38.5)	5 (41.7)	5 (35.7)
3rd Semester	11 (42.3)	5 (41.7)	6 (42.9)
Experiences with older adults[a]			
Family	19 (73.1)	9 (75.0)	10 (71.4)
Paid work	12 (46.2)	3 (25.0)	9 (64.3)

Characteristic	All Participants	Group A (*n* = 12)	Group B (*n* = 14)
	N (%)	*N* (%)	*N (%)*
Leisure activities	4 (15.4)	1 (8.3)	3 (21.4)
Educational settings	10 (53.8)	5 (41.7)	5 (35.7)
Quality of experiences			
Very good	7 (26.9)	1 (8.3)	6 (42.9)
Good	13 (50.0)	8 (66.7)	5 (35.7)
Acceptable	6 (23.1)	3 (25.0)	3 (21.4)

Note. OTA = Occupational Therapy Assistant Program; PTA = Physical Therapist Assistant

Program; Group A = acute care setting followed by home-based setting; Group B = home-based

setting followed by acute care setting.

[a] Participants were able to select multiple options of experiences with older adults; therefore,

percentages will not equal 100%.

Table 2

Comparison of FSA Factor Scores Across Simulation Experience and Settings (N = 26)

	Pre-simulation	Post-Simulation 1	Post-Simulation 2		
	Mdn (IQR)	*Mdn* (IQR*)*	*Mdn* (IQR)	*p*	ES
AAS	27.50 (16.00)	28.50 (13.00)	25.50 (18.00)	<.001	1.01
FSA	97.00 (11.00)	98.00 (16.00)	100.00 (16.00)	.214	.410
Stereotype	31.50 (5.00)	30.50 (6.00)	33.00 (9.00)	.091	.510
Separation	29.50 (3.00)	30.00 (5.00)	29.50 (4.00)	.870	.012
Affective	17.00 (3.00)	17.00 (3.00)	17.50 (3.00)	.090	.510

Note. AAS = Ambivalent Ageism Scale; FSA = Fraboni Scale of Ageism; Mdn = Median; IQR = Interquartile range; ES = Effect size

Table 3

Comparison of AAS Scores Across Simulation Experience and Settings (N = 26)

	Pre-Simulation	Post-Home Based Setting			Post-Acute Care Setting		
	Mdn (IQR)	*Mdn* (IQR)	*p*	ES	*Mdn* (IQR)	*p*	ES
AAS	27.50 (16.00)	29.00 (16.00)	.002	.967	26.00 (17.00)	.042	.588
FSA	97.00 (11.00)	99.50 (17.00)	.296	.293	99.00 (14.00)	.886	.040
Stereotype	31.50 (5.00)	30.50 (8.00)	.088	.486	32.50 (6.00)	.186	.373
Separation	29.50 (3.00)	29.50 (4.00)	.459	.207	30.00 (5.00)	.940	.021
Affective	17.00 (3.00)	17.00 (3.00)	.140	.418	17.00 (3.00)	.360	.256

Note. AAS = Ambivalent Ageism Scale; FSA = Fraboni Scale of Ageism; Mdn = Median; IQR = Interquartile range; ES = Effect size

Figure 1

Counterbalanced Study Design
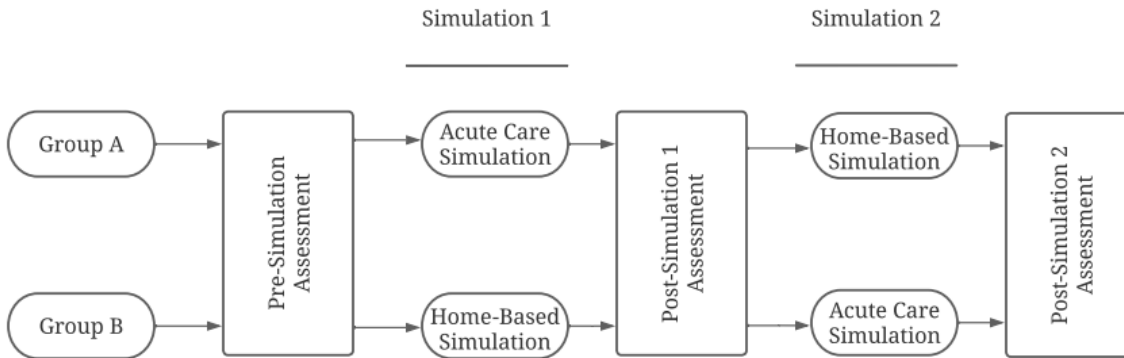
Note. This figure demonstrates the progression of each group through the simulation experiences. There were approximately four weeks between the pre-simulation assessment, simulation 1, and simulation 2.

Appendix A

Permission from the author for the Fraboni Scale of Ageism

Dr. Maryann Fraboni   Sat, Oct 9, 7:07 PM (2 days ago)   ☆   ↩   ⋮
to me ▾

Dear Rebecca,

Thank you for your email. Yes, you may digitalize the Fraboni Scale of Ageism (FSA) for the purposes of your dissertation research.

Your combined degree sounds very interesting, and potent I might add. Certainly, you will be well equipped for successive leadership roles as your career progresses. Your hypotheses in your dissertation research will be an excellent contribution to the literature on the development of simulations with respect to altering attitudes, specifically ageism. I am eager to hear the results. What population size do you anticipate? Where did you obtain the scoring key?

We have entered your information into our database of global research on ageism and wish you the very best in your endeavors. Would you be kind enough to keep me in the loop pertaining to your progress and final results?

If you have further questions please do not hesitate to contact me. I am always here to be of assistance.

Best,

Dr. Maryann Fraboni
705-303-5585
The International Consortium of Research on Ageism
Western University
London, Ontario
Canada

Appendix B

Fraboni Scale of Ageism

Next to each item, place the number that best describes your answer based on the following scale:

1= strongly disagree

2= disagree

3= agree

4= strongly agree

* Items are reverse-scored.

1. Teenage suicide is more tragic than suicide among the old.

2. There should be special clubs set aside within sports facilities so that old people can compete at their own level.

3. Many old people are stingy and hoard their money and possessions.

4. Many old people are not interested in making new friends preferring instead the circle of friends they have had for years.

5. Many old people just live in the past.

6. I sometimes avoid eye contact with old people when I see them.

7. I don't like it when old people try to make conversation with me.

*8. Old people deserve the same rights and freedoms as do other members of our society.

9. Complex and interesting conversation cannot be expected from most old people.

10. Feeling depressed when around old people is probably a common feeling.

11. Old people should find friends their own age.

*12. Old people should feel welcome at the social gatherings of young people.

13. I would prefer not to go to an open house at a senior's club, if invited.

*14. Old people can be very creative.

15. I personally would not want to spend much time with an old person.

16. Most old people should not be allowed to renew their driver's licenses.

17. Old people don't really need to use our community sports facilities.

18. Most old people should not be trusted to take care of infants.

19. Many old people are happiest when they are with people their own age.

20. It is best that old people live where they won't bother anyone.

*21. The company of most old people is quite enjoyable.

*22. It is sad to hear about the plight of the old in our society these days.

*23. Old people should be encouraged to speak out politically.

*24. Most old people are interesting, individualistic people.

25. Most old people would be considered to have poor personal hygiene.

26. I would prefer not to live with an old person.

27. Most old people can be intimidating because they tell the same stories over and over

28. Old people complain more than other people do.

29. Old people do not need much money to meet their needs.

Appendix C

Permission from the author for the AAS

Alison Chasteen <alison.chasteen@utoronto.ca>   Fri, Jul 2, 9:37 AM
to me

Hi Rebecca:

Attached is a copy of the scale and how to cite it as well as the article. Please do not distribute --- this is for your research purposes only.

Best regards,
Alison Chasteen

--
Alison Chasteen, PhD
Professor
Department of Psychology
University of Toronto
100 St. George Street
Toronto, ON M5S 3G3
Canada

416.978.3398
https://chasteen.psych.utoronto.ca/

Appendix D

The Ambivalent Ageism Scale

The Ambivalent Ageism Scale
Cary, L. A., Chasteen, A. L., & Remedios, J. (2017). The ambivalent ageism scale: Developing and validating a scale to measure benevolent and hostile ageism. *The Gerontologist, 57*(2), e27-e36.

Please indicate how much you agree or disagree with each of the following statements.

	Strongly Disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
It is good to tell old people that they are too old to do certain things; otherwise they might get their feelings hurt when they eventually fail. (B)	○	○	○	○	○	○	○
Even if they want to, old people shouldn't be allowed to work because they have already paid their debt to society. (B)	○	○	○	○	○	○	○
Even if they want to, old people shouldn't be allowed to work because they are fragile and may get sick. (B)	○	○	○	○	○	○	○
It is good to speak slowly to old people because it may take them a while to understand things that are said to them. (B)	○	○	○	○	○	○	○
People should shield older adults from sad news because they are easily moved to tears. (B)	○	○	○	○	○	○	○
Older people need to be protected from the harsh realities of society. (B)	○	○	○	○	○	○	○
It is helpful to repeat things to old people because they rarely understand the first time. (B)	○	○	○	○	○	○	○
Even though they do not ask for help, older people should always be offered help. (B)	○	○	○	○	○	○	○

Even if they do not ask for help, old people should be helped with their groceries. (B)	○	○	○	○	○	○	○
Most old people interpret innocent remarks or acts as being ageist. (H)	○	○	○	○	○	○	○
Old people are too easily offended. (H)	○	○	○	○	○	○	○
Old people exaggerate the problems they have at work. (H)	○	○	○	○	○	○	○
Old people are a drain on the health care system and the economy. (H)	○	○	○	○	○	○	○

(B) Benevolent item
(H) Hostile item

Note on scoring: To score the 13-item version of the AAS, calculate the average score across all 13 items. Alternatively, you can split the scale by finding the average score of benevolent- and hostile- items separately.

Note on scale items: Due to the fact that the AAS only contains four hostile items, we recommend using an additional scale in conjunction with the AAS. Please refer to the following paper: Fraboni, M., Saltstone, R., & Hughes, S. (1990). The Fraboni Scale of Ageism (FSA): An attempt at a more precise measure of ageism. *Canadian Journal on Aging*, **9**, 55–66. doi:10.1017/ S074980800016093

Appendix E

Permission from the author for the FAQ-2

RE: FAQ2 Multiple Choice `External` ⟩ `Inbox ×`   🖨 ↗

↩ **Changas, Paul** <Paul.Changas@mnps.org>   Tue, Oct 19, 8:50 AM   ☆   ↩   ⋮
to me ▾

Becky,

Should you decide to go this route, I would be happy for you to use the multiple choice version of the FAQ2 questionnaire by electronic means or in whatever platform is productive.

Whatever direction you go, I wish you the best in this research and in your program.

Paul

Paul Changas
Executive Officer
Research, Assessment & Evaluation
Metropolitan Nashville Public Schools

Appendix F

Palmore's Facts on Aging Quiz – Multiple Choice Version

FACTS ON AGING QUIZ (FAQ2)   **751**

APPENDIX

Palmore's Facts on Aging Quiz (FAQ2)
Multiple-Choice Version

1. In old age, a person's height:
   a. does not change
   b. only appears to change
   * c. tends to decline
   d. depends on how active one is

2. As compared to younger persons, more older persons (65 or over) are limited in their activity by which type of illnesses?
   a. acute illnesses (short-term)
   b. colds and flu
   c. infections
   * d. chronic illnesses

3. Which type of illnesses do older persons have less frequently than younger persons?
   a. chronic illnesses
   b. colds and flu
   c. infections
   * d. acute illnesses

4. Compared with younger persons, older persons have:
   a. more injuries in the home
   b. have about the same number of injuries in the home
   * c. have less injuries in the home
   d. are twice as likely to be injured in the home

5. Older workers:
   a. have higher rates of absenteeism than younger workers
   b. cannot be depended upon
   c. have about the same rates of absenteeism as younger workers
   * d. have lower rates of absenteeism than younger workers

6. The life expectancy of African Americans at age 65:
   a. is higher than that of whites
   b. is lower than that of whites
   * c. is the same as that of whites
   d. has never been determined

7. Men's life expectancy at age 65 as compared to women's life expectancy:
   * a. is lower
   b. tends to be returning to what it was in the 1940s
   c. is about the same
   d. is higher

8. What percent of medical expenses for the aged does Medicare pay?
   * a. nearly 50 percent
   b. nearly 70 percent
   c. nearly 100 percent
   d. about 15 to 20 percent

9. Social Security benefits:
   * a. automatically increase with inflation
   b. are not subject to change
   c. are not adjusted to meet inflation
   d. are often cut back in times of inflation

10. Supplementary Security Income (SSI):
    * a. guarantees a minimum income for the needy elderly
    b. provides extra income for all the elderly
    c. supplements the income of the elderly in nursing homes
    d. pays medical expenses for the elderly

11. As far as the aged getting their proportionate share of the nation's income:
    a. most of the aged live below the poverty level
    b. the aged are the poorest group in our society
    * c. the aged do get their proportionate share of income
    d. the income gap between the aged and other adult groups continues to widen

12. Compared to persons under 65, rates of criminal victimization among the elderly are:
    a. higher
    * b. lower
    c. much the same
    d. steadily increasing

13. Regarding crime and the elderly:
    * a. they are more fearful of crime than are younger persons
    b. they fear crime the same as other age groups
    c. they are less fearful of crime than are younger persons
    d. most elderly persons have no fear of crime

14. The most law abiding of all adult age groups are:
     a. the middle-aged
     b. persons in their 30s
     c. young couples
   * d. the elderly

15. Regarding the number of widows and widowers among the
     aged:
     a. their numbers are about equal
   * b. their are nearly 5 times as many widows as widowers
     c. there are about twice as many widowers as widows
     d. the number of widows is rapidly increasing

16. When it comes to voter participation rates:
     a. the aged seldom vote
     b. those ages 35–44 tend to have higher rates than the eld-
        erly
     c. college students have higher rates than do the elderly
   * d. older people have higher rates than the rest of the popula-
        tion

17. In reference to public office:
     a. there is no relationship between age and public office
     b. older people are seldom found in public office
   * c. there are proportionately more older persons in public of-
        fice
     d. there are proportionately more younger persons in public
        office

18. the proportion of African Americans among the aged is:
   * a. growing
     b. declining
     c. very small compared with other minority groups
     d. staying about the same

19. Participation in voluntary organizations:
   * a. usually does not decline among healthy older persons
     b. drops among healthy older persons
     c. rises among healthy older persons
     d. is highest among the youth

20. The majority of old people live:
     a. alone
     b. in institutions
   * c. with their spouses
     d. with their children

21. The rate of poverty among the elderly
 *   a. is lower than among those under 65
     b. is higher than among those under 65
     c. is the same as it is for other age groups
     d. is high as a result of their having fixed incomes

22. The rate of poverty among aged African Americans:
     a. is less than that of whites
     b. is about the same as that of whites
 *   c. is about triple that of older whites
     d. continues to increase

23. Older persons who reduce their activity tend to be:
     a. happier
 *   b. not as happy as those who remain active
     c. more well-adjusted than those who remain active
     d. healthier

24. When the last child leaves home, the majority of parents
     a. have serious problems of adjustment
 *   b. have higher levels of life satisfaction
     c. try to get their children to come back home
     d. suffer from the "empty nest" syndrome

25. The proportion of the widowed among the aged:
 *   a. is gradually decreasing
     b. is rapidly increasing
     c. has remained the same in the last half century
     d. is unrelated to increasing longevity

Appendix G

Acute Care Simulation Evaluations

McHenry County College Hospital
Occupational Therapy Evaluation

Patient Name:	Alice Smith
Treating Clinician:	Emily Baker, OTR/L
Date of Birth:	6/30/1949
Date and Time:	11/13/2022 1505-1540
Referring Physician	Dr. Bernard Jones

Patient Information and History	
MD Order:	OT evaluation and treatment
Reason for Referral:	Client admitted to hospital for increased shortness of breath and weight gain. Patient fell at home on 11/12/2022, stating she became tangled in her oxygen tubing as she was walking between the kitchen and the bathroom. No fractures per x-rays, however does have bruising over R hip.
Primary Diagnosis:	CHF exacerbation COPD exacerbation
Past Medical History:	Essential tremor Hypertension Ileostomy
Prior Functional Status:	Pt is single, lives a ranch home with 2 steps to enter. Walk-in shower with grab bars and tub seat. Comfort-height toilet, no grab bars. Use of O2 at home. Patient independent with most ADL and simple IADL at home, including bathing and dressing. Patient cooks simple meals on cooktop and microwave, manages medications. Family drives her for shopping and appointments.
Patient's Subjective	"I cannot believe how difficult all of this is right now"
Weight Bearing Status:	FWB BUE and BLE
Safety Measures:	Fall Risk
Rehabilitative Prognosis:	Excellent
Mental Status/ Cognition:	AXOX4 LTM appears WFL STM appears WFL Follows 2-3 step direction Attention WNL

Vitals:	BP 132/76, O2 98% @ 4L, HR 71, RR 15

Performance Skills and Components:

Motor & Perceptual Skills:

Hand Dominance: R handed

Gross Motor: RUE WFL; LUE WFL

Fine Motor: significant tremors impacting FMC bilaterally

Bilateral Integration: WFL

Visual Motor: WFL

Perceptual: WFL

UE Sensation: WFL

Pain: 4/10

Site: R hip

Quality of Pain: Sore, tender

Range of Motion and Manual Muscle Testing						
	MMT		AROM		PROM	
	Right	Left	Right	Left	Right	Left
Shoulder:						
-Flexion	4/5	3/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
-Abduction	4/5	4/5	WFL	WFL	WFL	WFL
-Adduction	4/5	4/5	WFL	WFL	WFL	WFL
-Internal Rotation	4/5	4/5	WFL	WFL	WFL	WFL
-External Rotation	4/5	4/5	WFL	WFL	WFL	WFL
Elbow:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
Forearm:						
-Supination:	4/5	4/5	WFL	WFL	WFL	WFL
-Pronation:	4/5	4/5	WFL	WFL	WFL	WFL
Wrist:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL

-Ulnar Deviation	4/5	4/5	WFL	WFL	WFL	WFL
-Radial Deviation	4/5	4/5	WFL	WFL	WFL	WFL
Grip Strength:	**Right**	40 lbs	**Left**	35 lbs		

Current Levels of Function	
Grooming	Minimum Assistance
UB Bathing	Minimum Assistance
LB Bathing	Moderate Assistance
UB Dressing	Minimum Assistance
LB Dressing	Moderate Assistance
Toileting	Minimum Assistance
Toilet Transfer	Minimum Assistance
Shower Transfer	Unable to assess
Meal Prep	Unable to assess
Bed Mobility	Minimum Assistance
Ambulation	Minimum Assistance with Rolling Walker

Assessment:	
Skilled analysis of safety or Deficit Area or Problems:	Patient presents with overall generalized weakness and poor activity tolerance with safe completion of ADL and functional mobility. Patient's decreased strength and endurance places her at a high fall risk. Patient demonstrates good motivation and prior level of independence, indicating good potential. Patient would benefit from skilled OT to address ADL retraining, functional mobility training, education and compensatory strategies to increase her safety and independence with ADLs and transfers.

Goals:
1. Patient will safely complete upper body ADL in standing at sink by 11/17/22.
2. Patient will complete upper body dressing while seated at edge of bed with supervision by 11/17/22.
3. Patient will verbalize 3 energy conservation strategies to perform with basic ADL tasks by 11/16/22.
4. Patient will perform supine to sitting at edge of bed with supervision by 11/16/22.
5. Patient will independently initiate breathing techniques/strategies when noting shortness of breath by 11/17/22.

Plan of Care	
Discharge Recommendations:	SNF vs. Home health pending patient progress
Frequency of Occupational Therapy:	1x daily until transferred to next setting.

Interventions (CPT Codes):
97166 – OT Evaluation Moderate Complexity

Emily Baker, OTR/L
Therapist Name: Emily Baker, OTR/L

Date and Time: _____11/13/2022 1505-1540_____

McHenry County College Hospital
Physical Therapy Evaluation

Patient Name:	Alice Smith
Treating Clinician:	Morgan Adcock, PT
Date of Birth:	6/30/1949
Date and Time:	11/13/22 1245-1320
Referring Physician	Dr. Bernard Jones

Patient Information and History	
MD Order:	PT evaluation and treatment
Reason for Referral:	Client admitted to hospital for increased shortness of breath and weight gain. Patient fell at home on 11/12/2022, stating she became tangled in her oxygen tubing as she was walking between the kitchen and the bathroom. No fractures per x-rays, however does have bruising over R hip.
Primary Diagnosis:	CHF exacerbation COPD exacerbation
Past Medical History:	Essential tremor Hypertension Ileostomy
Prior Functional Status:	Pt is single, lives a ranch home with 2 steps to enter. Walk-in shower with grab bars and tub seat. Comfort-height toilet, no grab bars. Use of O2 at home. Patient independent with most ADL and simple IADL at home,

	including bathing and dressing. Patient cooks simple meals on cooktop and microwave, manages medications. Family drives her for shopping and appointments.
Patient's Subjective	"It is so hard to even get out of bed right now."
Weight Bearing Status:	FWB BUE and BLE
Safety Measures:	Fall Risk
Rehabilitative Prognosis:	Excellent
Mental Status/ Cognition:	AXOX4 LTM appears WFL STM appears WFL Follows 2-3 step direction Attention WNL
Vitals:	BP 132/76, O2 98% @ 4L, HR 71, RR 15

Current Levels of Function	
Toilet Transfer	Minimum Assist to bedside commode
Bed Mobility	Minimum Assistance
Supine to Sit	Minimum Assistance
Sit to Stand	Minimum Assistance
Static Sitting	Good
Dynamic Sitting	Good-
Static Standing	Good-
Dynamic Standing	Fair+
Ambulation level/distance	20 ft with Minimum Assistance
Ambulation device	RW
Comments	Client reports fatigue with basic functional transfers in acute care setting.

Range of Motion and Manual Muscle Testing						
	MMT		AROM		PROM	
UE	Right	Left	Right	Left	Right	Left
Shoulder:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
-Abduction	4/5	4/5	WFL	WFL	WFL	WFL
-Adduction	4/5	4/5	WFL	WFL	WFL	WFL

-Internal Rotation	4/5	4/5	WFL	WFL	WFL	WFL
-External Rotation	4/5	4/5	WFL	WFL	WFL	WFL
Elbow:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
Forearm:						
-Supination:	4/5	4/5	WFL	WFL	WFL	WFL
-Pronation:	4/5	4/5	WFL	WFL	WFL	WFL
Wrist:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
	MMT		**AROM**		**PROM**	
LE	Right	Left	Right	Left	Right	Left
Hip:						
-Flexion	4-/5	4-/5	WFL	WFL	WFL	WFL
-Extension	4-/5	4-/5	WFL	WFL	WFL	WFL
-Abduction	4-/5	4-/5	WFL	WFL	WFL	WFL
-Adduction	4-/5	4-/5	WFL	WFL	WFL	WFL
Knee:						
-Flexion	4-/5	4-/5	WFL	WFL	WFL	WFL
-Extension	4-/5	4-/5	WFL	WFL	WFL	WFL
Ankle :						
-Dorsiflexion	4-/5	4-/5	WFL	WFL	WFL	WFL
-Plantar flexion	4-/5	4-/5	WFL	WFL	WFL	WFL
Comments:						

Assessment:	
Skilled analysis of safety or Deficit Area or Problems:	Patient admitted to hospital due to CHF and COPD exacerbation, resulting in decreased activity tolerance, decreased balance, and generalized weakness, impacting her safety with completing safe mobility. Client would benefit from skilled PT to address mobility, balance, strength and safety education.

Goals:
1. Patient will ambulate 100ft with rolling walker and supervision by 11/17/22.
2. Patient will complete supine to sitting at edge of bed with modified independence by 10/15/22.
3. Patient will complete home exercise program with independence by 11/17/22.

4. Patient will complete sit<>stand from various surfaces with supervision by 11/18/22.

Plan of Care	
Discharge Recommendations:	SNF vs. Home health pending patient progress
Frequency of Occupational Therapy:	1x daily until transferred to next setting.

Interventions (CPT Codes):
97162 – PT Evaluation Moderate Complexity

Morgan Adcock, PT
Therapist Name: Morgan Adcock, PT

Date and Time: _____**11/13/2022 1245-1320**_____

Home Health
Occupational Therapy Evaluation

Patient Name:	Hannah Jones
Treating Clinician:	Kenneth Czepanksi, MS, OTR/L
Date of Birth:	03/26/1948
Date and Time:	11/13/22
Referring Physician	Dr. Irene Davidson

Patient Information and History	
MD Order:	OT evaluation and treatment
Reason for Referral:	Client admitted to hospital for increased shortness of breath and weight gain due to CHF and COPD exacerbation and fall at home onto her R hip with no acute fractures. Patient discharged from hospital on 11/12/22 to home.
Primary Diagnosis:	Generalized weakness
Past Medical History:	HTN, Hypercholesteremia, Bilateral cataract surgery (Nov 2019), Left total hip replacement (July 2020)
Prior Functional Status:	Pt is single, lives in a ranch home with 1 step to enter. Tub shower with grab bars and tub seat. Raised toilet seat. Rollator walker. Use of O2 (2L) at home. Patient mod I with most ADL at home, including bathing and dressing. Patient cooks small meals (mainly microwave), manages medications. Friend drives her for shopping and appointments.

Patient's Subjective	"It is so good to finally be home"
Weight Bearing Status:	FWB BUE and BLE
Safety Measures:	n/a
Rehabilitative Prognosis:	Excellent
Mental Status/ Cognition:	AXOX4 LTM appears WFL STM appears WFL Follows 2-3 step direction Attention WNL
Vitals:	BP 128/70, O2 97% @ 2L, HR 72, RR 16

Performance Skills and Components:
Motor & Perceptual Skills: Hand Dominance: R handed Gross Motor: RUE WFL; LUE WFL Fine Motor: WNL Bilateral Integration: WFL Visual Motor: WFL Perceptual: WFL UE Sensation: WFL
Pain: 1/10 Site: R hip Quality of Pain: Sore, tender

Range of Motion and Manual Muscle Testing						
	MMT		**AROM**		**PROM**	
	Right	Left	Right	Left	Right	Left
Shoulder:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
-Abduction	4/5	4/5	WFL	WFL	WFL	WFL
-Adduction	4/5	4/5	WFL	WFL	WFL	WFL
-Internal Rotation	4/5	4/5	WFL	WFL	WFL	WFL
-External Rotation	4/5	4/5	WFL	WFL	WFL	WFL

Elbow:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
Forearm:						
-Supination:	4/5	4/5	WFL	WFL	WFL	WFL
-Pronation:	4/5	4/5	WFL	WFL	WFL	WFL
Wrist:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
-Ulnar Deviation	4/5	4/5	WFL	WFL	WFL	WFL
-Radial Deviation	4/5	4/5	WFL	WFL	WFL	WFL
Grip Strength:	**Right**	40lbs	**Left**	35lbs		

Current Levels of Function	
Grooming	Independent up at sink
UB Bathing	Independent (sponge bathing only at this time)
LB Bathing	Supervision while sitting on toilet (sponge bathing only at this time)
UB Dressing	Independent
LB Dressing	Supervision
Toileting	Modified Independent
Toilet Transfer	Modified Independent
Shower Transfer	Patient notes she has not attempted shower transfer at this time
Meal Prep	States friend has been bringing meals. Has not attempted meal prep.
Bed Mobility	Modified Independent
Ambulation	Modified Independent with rollator

Assessment:	
Skilled analysis of safety or Deficit Area or Problems:	Patient lives alone in 1 story ranch and was previously independent with all ADL and most IADL. Patient currently demonstrates decreased activity tolerance which impacts her ability to fully participate in her home environment, especially in areas of bathing, meal preparation, and home management. Patient to benefit from skilled OT to address ADL and IADL retraining, education and compensatory strategies including energy conservation and work simplification to increase her safety and independence with ADLs and IADLs and to reduce risk of falls at home.

Goals:	
LTG:	1. Patient will safely complete bathing in shower, using DME as needed, with modified independence by 11/26/22.
-STG:	1a. Patient will perform shower transfer with modified independence by 11/22/22
LTG:	2. Patient will complete a simple meal in kitchen with modified independence, while utilizing learned energy conservation and work simplification strategies by 11/26/2022.
-STG:	2a. Patient will verbalize at least 5 energy conservation or work simplification strategies to utilize with ADL or IADL by 11/21/22
LTG:	3. Patient will complete simple home management tasks with modified independence by 11/26/22.
LTG:	4. Patient will independently complete home exercise program by 11/24/22.

Plan of Care	
Discharge Recommendations:	To self-care at home with assistance as needed from friends.
Frequency of Occupational Therapy:	2x/week for 2 weeks

Billing:
1 OT Unit

Kenneth Czepanski, MS, OTR/L
Therapist Name: Kenneth Czepanski, MS, OTR/L

Date and Time: 10/13/2022   10:12AM-11:15AM

Home Health
Physical Therapy Evaluation

Patient Name:	Hannah Jones
Treating Clinician:	Anya Fisher, PT
Date of Birth:	11/13/1948
Date and Time:	1305-1400
Referring Physician	Dr. Irene Davidson

Patient Information and History	
MD Order:	PT evaluation and treatment

Reason for Referral:	Patient admitted to hospital for increased shortness of breath and weight gain due to CHF and COPD exacerbation and fall at home onto her R hip with no acute fractures. Patient discharged from hospital on 11/12/22 to home.
Primary Diagnosis:	Generalized weakness
Past Medical History:	HTN, Hypercholesteremia, Bilateral cataract surgery (Nov 2019), Left total hip replacement (July 2020)
Prior Functional Status:	Pt is single, lives a ranch home with 1 step to enter. Tub shower with grab bars and tub seat. Raised toilet seat. Use of cane in home and outside of home. Use of O2 (2L) at home. Patient mod I with most ADL at home, including bathing and dressing. Patient cooks small meals (mainly microwave), manages medications. Friend drives her for shopping and appointments.
Patient's Subjective	"I feel shaky and unsteady at times"
Weight Bearing Status:	FWB BUE and BLE
Safety Measures:	n/a
Rehabilitative Prognosis:	Excellent
Mental Status/ Cognition:	AXOX4 LTM appears WFL STM appears WFL Follows 2-3 step direction Attention WNL
Vitals:	BP 128/70, O2 97% @ 2L, HR 72, RR 16

Current Levels of Function	
Toilet Transfer	Modified Independent
Bed Mobility	Independent
Supine to Sit	Modified Independent with bed rail
Sit to Stand	Modified Independent
Static Sitting	Good+
Dynamic Sitting	Good
Static Standing	Good
Dynamic Standing	Good
Ambulation level/distance	120 ft with Supervision

Ambulation device	Rollator
Comments	Patient requires extra time with transfers and ambulation in the home due to decreased endurance.

Range of Motion and Manual Muscle Testing						
	MMT		AROM		PROM	
UE	Right	Left	Right	Left	Right	Left
Shoulder:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
-Abduction	4/5	4/5	WFL	WFL	WFL	WFL
-Adduction	4/5	4/5	WFL	WFL	WFL	WFL
-Internal Rotation	4/5	4/5	WFL	WFL	WFL	WFL
-External Rotation	4/5	4/5	WFL	WFL	WFL	WFL
Elbow:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
Forearm:						
-Supination:	4/5	4/5	WFL	WFL	WFL	WFL
-Pronation:	4/5	4/5	WFL	WFL	WFL	WFL
Wrist:						
-Flexion	4/5	4/5	WFL	WFL	WFL	WFL
-Extension	4/5	4/5	WFL	WFL	WFL	WFL
	MMT		AROM		PROM	
LE	Right	Left	Right	Left	Right	Left
Hip:						
-Flexion	4-/5	4-/5	WFL	WFL	WFL	WFL
-Extension	4-/5	4-/5	WFL	WFL	WFL	WFL
-Abduction	4-/5	4-/5	WFL	WFL	WFL	WFL
-Adduction	4-/5	4-/5	WFL	WFL	WFL	WFL
Knee:						
-Flexion	4-/5	4-/5	WFL	WFL	WFL	WFL

-Extension	4-/5	4-/5	WFL	WFL	WFL	WFL
Ankle :						
-Dorsiflexion	4-/5	4-/5	WFL	WFL	WFL	WFL
-Plantar flexion	4-/5	4-/5	WFL	WFL	WFL	WFL
Comments:						

Special Tests:
Berg Balance Scale: 42 - unable to turn 360 in less than 4 seconds and perform tandem/SLS
Pain: 3/10; R upper thigh

Assessment:	
Skilled analysis of safety or Deficit Area or Problems:	Patient presents with generalized weakness and decreased endurance following recent hospitalization. Mild balance impairment also places patient at risk of falls in the home. Patient would benefit from skilled PT to address mobility, balance, strength and safety education.

Goals:	
LTG 1:	1. Patient will increase SLS to 4 seconds on R/L to decrease risk of falls by 11/26/22.
STG 1a:	1a. Patient will increased UE MMT to 4+/5 to allow for reaching tasks into upper and lower cabinets by 11/19/22.
LTG 2:	2. Patient will demonstrate modified independence with ambulation around home with single point cane by 11/26/22.
STG 2a:	2a. Patient will ambulate 100 ft with single point cane and supervision in home environment, demonstrating good- balance by 11/22/22.
LTG 3:	3. Patient will be independent with home exercise program by 11/26/22.

Plan of Care	
PT POC	Patient will benefit from therapeutic exercise for LE/UE strengthening; gait training and static/dynamic balance education; and education for safety to decrease falls risk.
Discharge Recommendations	Patient may benefit from outpatient PT once no longer homebound. Will continue to assess.
Frequency of Physical Therapy:	2x/week x 2 weeks

Interventions (CPT Codes):
1 PT Unit

<u>Anya Fisher, PT</u>
Therapist Name: Anya Fisher, PT

Date and Time: <u>   11/13/22   1305-1400   </u>