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# Examining Racial Differences among Predictors of Home and Community-Based Service Use and Choice and Control in Older Adults in the Money Follows the Person Program in Connecticut

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Examining Racial Differences among Predictors of Home and Community-Based Service Use  
and Choice and Control in Older Adults in the

Money Follows the Person Program in Connecticut

Chanee Darnell Fabius, PhD

University of Connecticut, 2016

The purpose of this study was to explore racial differences in home and community-based service (HCBS) use and perceived choice and control in frail elders ages 65 and older participating in the Money Follows the Person (MFP) demonstration program in Connecticut using the Andersen Behavioral Model of Health Service Utilization (1995). The comparison of Black and White program participants provides insight both for clinicians who work directly with frail elders and for researchers who seek to contribute to the gerontological field. This dissertation used secondary data collected from quality of life (QOL) interviews of (N=659) MFP participants who have transitioned from a nursing home into a community-living arrangement. Data from a subsample (n=240) of participants were used to examine whether HCBS contributed to choice and control outcomes, as well to determine the factors that predict HCBS use. Choice and control was measured as choice and control in daily activities and choice and control in service coordination (choice in services; choice in paid help). Multivariate methods were used to predict service use and perceived choice and control. Results show that there are racial differences in choice and control in daily activities and service coordination. Further, functional services (homemaking, companion, and home-delivered meals services) predicted choice and control in daily activities as well as choice in services. Black participants with more Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living

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(IADLs) limitations were more likely to report choice in services, and Black women were less likely to use functional services. Lastly, among White participants, those receiving services from a live-in aide had lower choice and control in daily living activities, and for Blacks, participants with functional care had higher choice and control scores. Directions for future research are discussed. Study findings provide insight for the future of long term services and supports (LTSS).

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and Choice and Control in Older Adults in the  
Money Follows the Person Program in Connecticut

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B.S., Syracuse University, 2009

M.A., University of Saint Joseph, 2011

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APPROVAL PAGE

Doctor of Philosophy Dissertation

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DEDICATION

The dissertation is dedicated to my husband, Steven Fabius, my family, and my angels:

Janice Darnell Ford

Willie Floyd Smith and Dortheen Smith

Abraham Ford, Sr. and Marion Louise Ford

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## Chapter 1. Introduction

Choice and control play major roles in the lives of individuals. Home and community-based services (HCBS) strive to enhance feelings of choice and control among community-dwelling frail elders. Choice is defined as the act of selecting based on the availability of options, constraints, and opportunities (Crocket, 2002), and control is defined as an individual's ability to change the environment to fit their own needs (Rothbaum, Weisz, & Snyder 1982). Both can be measured in daily activities (i.e. when and what to eat, going to bed when one wants to) as well as in service coordination. For frail older adults transitioning from a nursing facility into a community living arrangement, choice and control may be predicted by a number of factors. HCBS are programs delivered in home and community settings designed to address the needs of individuals with functional limitations (Centers for Medicaid and Medicare Services, 2014). Service use among transitioning older adults is an important contributor to success in the community. Further, service use and perceived choice and control may differ by race, as previous research has established the existence of racial differences in HCBS use (Mui & Burnette, 1994; White-Means, 2000).

The Centers for Medicare and Medicaid services (CMS) have developed an initiative aimed at rebalancing long-term care between institutional and community-based care (Mor, et al. 2007). The Money Follows the Person (MFP) rebalancing and demonstration program was implemented as a way for states to reduce their dependence on institutional care (Peebles & Bohl, 2014). The MFP program facilitates discharges from nursing facilities into the community (Arling, Kane, Cooke, & Lewis, 2010; Henning-Smith & Shippee, 2015) by allowing participants to use Medicaid funds on HCBS rather than nursing home care. HCBS provided by

MFP aim to enhance choice and control among frail elders, but it is unclear the extent to which services successfully do this for frail elders transitioning out a nursing facility.

The Andersen Behavioral Model of Health Service Utilization (1995) was used to guide this dissertation. The model has traditionally been used to examine predictors of health service use, such as nursing home or hospital admissions, and HCBS. The Andersen model examines predictive factors of service use in four areas: predisposing, enabling, need, and environmental factors. Research examining the Andersen model (1995) in transition programs is scarce. Further, previous research has only focused on choice and control in daily activities in nursing home settings or in younger disabled populations, and research on choice and control in service coordination is limited and has yet to examine individuals participating in transition initiatives such as the MFP program.

This study's aim was two fold: (1) understand predictors of HCBS use and choice and control in daily activities and service coordination, and (2) examine racial differences in HCBS use and choice and control in daily activities and service coordination. This dissertation will address the gap in the literature by examining racial differences in choice and control in daily activities and service coordination, as well as HCBS use and choice and control in MFP participants aged 65+.

### **Purpose of study**

The purpose of this study is to examine racial differences in predictors of HCBS use and choice and control. The study aims to gain a better understanding of perceived choice and control in frail elders aged 65 and older transitioning from a nursing home into the community. The study will also examine HCBS type (homemaking and companion services, meals-on-wheels, visiting nurses, etc.) as a predictor of perceived choice and control. Choice and control will be examined in daily activities as well as in service coordination. This study is important because it

calls attention to trends in elder care and HCBS use. More specifically, this study is interested in gaining a better understanding of predictors of HCBS use and choice and control in Black and White frail elders who have transitioned from a nursing facility into a community living arrangement. This study acknowledges the need to study racial diversity among this unique population. Findings have the potential to improve and strengthen culturally competent HCBS delivery to consumers, and will also enhance the knowledge and understanding of choice and control among older adults transitioning from a nursing facility into the community.

### **Theoretical Framework**

Andersen's Behavioral Model of Health Service Utilization (1995) was originally proposed in the 1960s and is now in its fourth phase. The original model was designed to explore disparities in access to health services in the United States (Andersen, 1968, Andersen & Newman, 1973; Andersen, 1995). The initial aim of the model was to assist in understanding why families use health services, and it has since explored use of a number of health services by individuals. The model has also been used in studies of long-term care and race, and proposes that health service use is determined by societal factors, health service system factors, and individual factors (Bradley, et al., 2002).

The latest Andersen model (1995) proposes that predisposing, enabling, need, and environmental factors contribute to service use. Predisposing factors are characteristics that can predict propensity toward service use such as age, race, gender, and other demographics. Predisposing factors acknowledge that certain individual characteristics are more likely to contribute to the use of health services. Enabling factors account for the means available for individuals to use services such as income and health insurance. Need factors represent the most immediate cause of service use and includes measures of perceived illness (i.e. symptoms and

self-rated health) and evaluated illness (i.e. diagnosis) (Andersen & Newman, 1973; Andersen, 1995). Environmental factors include health care system (i.e. health policy and local resources) and physical environmental factors (i.e. geographic location, rural/urban setting) (Andersen, 1995; Wallace, Levy-Storms, Kington, & Andersen, 1998).

In older adults, the model (Andersen, 1995) has been used to predict hospital and nursing home admissions, use of home and community-based services, as well as consumer outcomes such as perceived health status, evaluated health status, and consumer satisfaction. This dissertation will investigate choice and control as a consumer outcome. The model has also been used to better understand predictors of HCBS use, as well as investigate racial differences in service use and consumer outcomes.

### **Research Objectives**

The primary aim of this study is to explore relationships between race, HCBS use, and choice and control in older adults aged 65+ participating in the MFP program in Connecticut using the Andersen Model of Health Service Utilization (1995). The model will also be used to investigate the impacts of predisposing, enabling, need, and environmental factors that predict perceived choice and control in daily activities and choice and control in services. Further, this study will examine the influence of type of HCBS used by participants on perceived choice and control. The main hypothesis of this study is that racial differences exist in HCBS use and perceived choice and control. Additionally, I hypothesize that predictors of HCBS use and choice and control will vary between Black and White participants.

### **Conclusion**

In sum, this dissertation will examine racial differences in predictors of HCBS and choice and control. This chapter discussed the purpose and rationale of the study, as well as introduced

the theoretical framework that will be used to guide this dissertation. The next chapter will review the literature on the Andersen model (1995) and the impact of race on the model and service use. Existing literature on choice and control in daily activities and service coordination will also be discussed.

## **Chapter 2. Literature Review**

### **Introduction**

This chapter will review the literature on the Andersen behavioral model of health service utilization (1995). First, an overview of the MFP program will be provided, followed by the conceptual framework guiding this study. I will then examine Andersen's model (1995) and its predisposing, enabling, need, and environmental factors. Lastly, literature addressing the outcomes in this study will be reviewed. Research and findings on race, particularly Black and White elders, will be discussed throughout the review.

### **Overview of Money Follows the Person**

The MFP Rebalancing Demonstration program was initiated in order to transition people out of nursing facilities or other institutions and allow individuals to receive appropriate home and community-based services in a community residential setting (Brown & Lipson, 2008; Nishita, Wilber, Matsumoto, & Schnelle, 2008). MFP is based on the idea that many Medicaid beneficiaries living in nursing homes desire to live in community settings and that they could do so with adequate support that costs less than what Medicaid spends on institutional care (Brown & Lipson, 2008). The MFP program offers supplemental services such as care coordination, personal assistance, and assistive technology for up to one year following a return to the community (Kaye, 2014). The program serves individuals across the life span, including younger adults with intellectual and physical disabilities, as well as older adults (Gaussoumis, Fike, Rahman, Enguidanos, Wilber, 2013).

The MFP program provides Medicaid eligible participants with the opportunity to receive home and community-based services following transitioning from a nursing facility. HCBS for elders typically consist of daily tasks performed by professionals that assist individuals with



activities of daily living (ADLs) such as bathing, dressing, walking, toileting, transferring from beds and chairs, and eating, as well as instrumental activities of daily living (IADLs) such as cooking, cleaning, laundry, medication management, money management, and transportation (Kane & Cutler, 2015). MFP participants work with transition and housing coordinators to aide in the discharge from a nursing home into the community and receive assistance with community supports, system navigation, accessing resources, and living arrangements. Service plans proposing HCBS are coordinated through collaboration between individuals, involved informal supporters (i.e. family and friends), and care managers.

Service plans are designed with participant safety, need, and wishes in mind. Service plans also consider future goals in choice of services. For example, program participants wanting to involve themselves more socially may wish to attend adult day centers. Plans are also designed with a budget in mind, as care cannot exceed the enforced per person cost-caps set forth by State and Federal regulations.

The following sections will present the conceptual model (Figure 1) guiding this study and will examine the Andersen Model (1995) and the factors that contribute to service use and consumer outcomes. Predisposing, enabling, need and environmental factors will be discussed first, followed by consumer outcomes.

## **Andersen's Predisposing Factors**

Predisposing factors in this study include age, race, gender, marital status, and transition challenges. Predisposing factors are typically characteristics that may precede illness that contribute to predicting service use. Traditionally, demographics have been considered predisposing characteristics (Andersen & Newman, 1973; Andersen, 1995). Characteristics such as age and gender represent biological factors that impact the likelihood that an individual or family would use health services. Predisposing characteristics represent traditional measures of social structures (Andersen, 1995). Marital status is considered a predisposing factor as well - in a meta-analysis predicting nursing home admission in the US, Gaugler, Duval, Anderson, & Kane (2007) found that older adults who were married or had more living children were less likely to enter a nursing home, where older adults who lived alone were more likely to be admitted. Additionally, being married and owning a home were associated with delayed nursing home admission in older adults (Gaugler, et al., 2007).

Gender differences are also present in nursing home transitions. Mudrazija, Thomeer, & Angel (2015) investigated the relationship between gender, the likelihood of discharge from long-term care facilities, and post-discharge living arrangements and found that women are more likely than men to be discharged from facilities in the first year of stay. Further, women are more likely to live alone or with family after leaving a nursing facility, where men are more likely to live with a spouse or transition to another facility (Mudrazija, Thomeer, & Angel, 2015).

Age also influences the likelihood of service use. In a study examining factors associated with urban African-American elders' utilization of home and community-based services, Lehning, Kim, & Dunkle (2013) used the Andersen Model to predict any service use as well as specific categories of service use (in-home services, functional care, household related services,

out-of-home services, and financial and legal services) and found that older age was significantly associated with using any service. Older age predicted any service use. Additionally, in a study examining sociodemographic factors that affect the rate of entry into and exit from long-term care, Martikainen, et al. (2009) found that being female, older age, living alone, and low socioeconomic status increased the risk for entering a nursing facility.

This study will also examine challenges present prior to transition as predictors of HCBS use and choice and control. Transition challenges represent constraints that MFP participants face prior to relocating from a nursing home into a community living arrangement. Challenges include, but are not limited to, housing, financial, and legal constraints. For example, housing challenges may include whether or not a participant has housing to transition to, a need for home modifications, or any evictions or unpaid rent that will impact a transition. Financial challenges include unpaid bills, Medicaid eligibility issues, as well as a lack of financial resources. While research has yet to target and examine transition challenges, studies have investigated issues that increase the likelihood of a successful or delayed community discharge. Facility related issues, physical and mental health, informal support, support services, insurance status, and housing have all been found to be predictors of community discharge (Arling, Kane, Cooke, & Lewis, 2010; Gassoumis, Fike, Rahman, Enguidanos, & Wilber, 2012; Mor, et al., 2007; Leedahl, et al., 2014). A full description of challenges and descriptions are included in Table 1.

The Andersen model proposes that race is a predisposing factor when predicting service use. This is partly explained by differences in health status between Whites and Blacks. Blacks in the U.S. have higher rates of death and disability, hypertension, diabetes, circulatory problems, arthritis, lower incomes, and worse living conditions in comparison to Whites (Wallace, Levy-Storms, Kington, & Andersen, 1998). Findings on racial differences in service

use vary. Some findings support claims that Blacks are less likely to use health services, (Ruggiano, 2012; Mui & Burnette, 1994), while other findings disagree, concluding that Blacks are more likely to use health services than Whites. Some reasons for the former include Blacks having less access to care than Whites due to lower incomes, lower rates of insurance, and a lower likelihood of having a regular source of care (Wallace, Levy-Storms, Kington, & Andersen, 1998). Preferences supported and affected by historical events and generational influences may impact whether or not older Blacks choose to use formal services. Older Blacks may also have a cultural aversion to services as a result of experiences such as discrimination (Lee, Peek, & Coward, 1998; Shellman, 2004).

### **Andersen's Enabling Factors**

Andersen & Newman (1973) further describe enabling factors as “a condition that permits a family to act on a value or satisfy a need regarding health service use,” (pg. 15). Enabling factors include community (health and community facilities) and personal (income, health insurance, etc.) resources that are available and provide the means for which participants are able to use health services (Andersen & Newman, 1973; Andersen, 1995; Bradley, et al. 2002). Research has investigated social relationships by examining indicators such as living arrangements and perceived social support (Mitchell & Krout, 1998, Howell, et al. 2007). This study will examine living arrangement and instrumental support as an enabling factor.

Henning-Smith (2014) reports that living arrangements have the potential to impact one's psychological well-being. Findings on living alone have varied, supporting both successful community discharges from a nursing facility (Miller & Weisser, 2000) as well as nursing home placement (Howell, et al., 2007). The presence of another person (or group of people) in a household affects the social interaction, or lack thereof, between residents. Living arrangements

may represent a level of social support and caregiver proximity, but research has yet to investigate living arrangements in the context of HCBS. There are two bodies of thought concerning the use of HCBS and social support. One body of research notes that social support takes the place of formal support, while the other proposes that informal networks may act as a bridge between older people and formal services (Logan & Spitze, 1994).

Similar thoughts may apply to living arrangement and type of HCBS use. Living with family or with a spouse likely reflects the level of social support individuals are receiving from family members. For example, living with a spouse also provides support to older adults, as individuals are afforded someone who monitors their health and health-related behaviors (Liang, Brown, Krause, Ofstedal, Bennett, 2005). Living arrangements have been found to be an important predictor for receiving assistance and using both formal and informal sources of care (Norgard & Rodgers, 1997).

Current research acknowledges the existence of racial differences in living arrangements. Blacks are more likely to live with family than Whites (Himes, Hogan, & Eggebeen, 1996; Jacobsen, Kent, Lee, & Mather, 2011; Vespa, Lewis, & Kreider, 2013). Research suggests that the family life trajectories in minority groups of color in the United States are different than the family groups of Whites (Hutchinson, 2005). Expectations of familial responsibilities may influence living arrangement choice as well as the dynamic nature of Black households (Peek, Coward, & Peek, 2000; Peek, Koropecykj-Cox, Zsembik, & Coward, 2004). Findings show that older Blacks expect that they will receive care from their children more than older Whites (Lee, Peek, & Coward, 1998). Black Americans seem to provide more support to aging parents than White Americans do (Dilworth-Anderson, et al., 2005; Fingerman, VanderDrift, Dotterer, Birditt, & Zarit, 2011).

### **Andersen's Need Factors**

Need factors included in this study will be disability (ADL/IADL need) depressive symptoms, and financial inadequacy. Need factors have traditionally represented illness level in individuals, represent the most immediate cause of health service use (Andersen & Newman, 1973), and reflect the degree of disability in an individual (Bradley, et al. 2002). Need factors also include how people view their own health, and are both objective and subjective (Bradley, et al. 2002). Characteristics considered to be need factors include, but are not limited to: ADL and IADL need (Rabiner, 1992; Mitchell & Krout, 1998; Wallace, Levy-Storms, Kington & Andersen, 1998; Sudha & Mutran, 1999; Borrayo, Salmon, Polivka & Dunlop, 2002; White-Means & Rubin, 2004), chronic conditions (Mitchell & Krout, 1998; Wallace, Levy-Storms, Kington & Andersen, 1998; Borrayo, et al. 2002; Arcury, et al., 2005), depression and cognitive impairments (Mitchell & Krout, 1998; Bowen & Gonzalez, 2008), perceived health (Howell, et al., 2007; Bowen & Gonzalez, 2008) and perceived unmet needs (Howell, et al., 2007). ADL and IADL needs have been shown to predict service use (Mitchell & Krout, 1998; White-Means, 2000).

Needs have been found to be significant predictors of consumer outcomes and service use. Rabiner (1992) found that ADL dependency was a significant predictor of satisfaction with formal in-home services (HCBS). Further, Mitchell & Krout (1998) found that ADL capability was associated with a greater use of services primarily selected and used by the choice of individual, rather than by medical professionals.

Traditionally, financial status has been considered an enabling factor or resource. However, participants in the MFP program are required to be Medicaid eligible in order to receive care, and are of low socioeconomic status. For that reason, this study will not be using

socioeconomic status, but will use financial inadequacy as an enabling factor. However, perceived financial inadequacy represents a level of need in an individual or family. Beyond income level and socioeconomic status, perceived financial inadequacy provides information about whether individuals believe that their income is too low to make ends meet at the end of the month.

### **Andersen's Environmental Factors**

This study will include service area and type of housing as environmental factors. Environmental factors were included in Andersen (1995) model in order to recognize and consider physical, political, and economic components. Environmental factors are also referred to as contextual characteristics because they measure the context in which service utilization occurs (Phillips, Morrison, Andersen & Aday, 1998). For example, services may not be readily available in more rural towns compared to more densely populated cities. Schweppers, van Dongen, Dekker, Geertzen, & Dekker (2006) note that living conditions are also environment factors that may impact service utilization. Phillips, et al., (1998) conducted a systematic literature review and analysis to determine if previous studies of medical utilization have included environmental and provider-related variables and methods. Their findings showed that research has previously used urban/rural location, geographic region, and population density as physical environmental characteristics (Phillips, et al., 1998). The inclusion of service area in this study is representative of geographic location and may provide insight for HCBS delivery in particular areas in Connecticut, specifically as it relates to service availability.

### **Outcomes**

**Choice and Control.** The Andersen model (1995) proposes that outcomes influenced by previously mentioned factors and health behavior are directly tied to the improvement of factors

such as perceived health status, evaluated health status and consumer satisfaction. A primary goal of HCBS is to enhance perceived choice and control, the adapted model used to guide this dissertation proposes choice and control as an outcome.

Choice and control are best understood through the life course framework, which proposes that individuals construct their lives through choices, and actions they take within opportunities and constraints they have (Elder, 1998; Crockett, 2002), as well as by the structural and cultural arrangements of a given historical era (Hutchison, 2011). The framework examines choice and control through the context of human agency, which suggests that human behavior is not solely influenced by circumstances, but also by the exchange between intrapersonal, behavioral and environmental determinants. Control is an individual's ability to change the environment to fit his or her own needs (Rothbaum, Weisz, & Snyder 1982). Research has shown that when personal control is lacking, there are negative effects on wellness. When control is enhanced, older adults experience positive outcomes and overall successful aging (Mallers, Claver, & Lares, 2014). Additionally, wellness in older adults is enhanced through opportunities to make choices to rely on others and ask for and receive assistance (Mallers, Claver, & Lares, 2014).

Feelings of choice and control enable people to participate in the organization of their lives. Choice and control over how one lives is an opportunity to exercise autonomy (Hammel, et al., 2008), and choice is also a fundamental aspect of quality of life and places control in the hands of the individual, promoting positive self-image and behavior (Brown & Brown, 2009). Choice and control has also been found to increase feelings of life satisfaction (Robison, Porter, Shugrue, Kleppinger, & Lambert, 2015). The more opportunity there is for choice, the more control you experience (Brown & Brown, 2009; Agran, Storey, & Krupp, 2010). A choice can



range from a “yes” or “no” response to open ended questions that allow an individual to select from multiple options (Brown & Brown, 2009). Further, basic level choice-making requires an individual to select one stimulus over another based on personal preferences (Agran, Storey, & Krupp, 2010).

Choice and control can also be enhanced through social support that is not constricting or dependent in nature. Alternatively, choice and control may be limited the restriction of options or decision-making by family members. Choices may be made independently or by groups expressing the same interest (Brown & Brown, 2009). Further, in decisions about long term care, family members’ wishes may vary from an older family member’s (Kane & Kane, 2001). Additionally, family decisions involve what is best for both care recipients and caregivers (Kane & Kane, 2001).

Research on choice and control in frail elders traditionally has examined options presented to nursing home residents. Few studies have attempted to explore the meaning and implications of choice and control in community-dwelling frail elders. Choice and control have also been examined as a predictor of LTSS use such as nursing home admissions, however. For example, in their study examining predictors of life satisfaction and nursing home readmission after a community discharge among participants in the MFP Demonstration, Robison, et al. found that people with greater choice and control six-months after a nursing home discharge were only 78 percent as likely as others to be readmitted to a nursing facility at twelve months.

For the most part, research has examined choice and control in disabled populations, and emphasizes the need to understand experiences of choice by considering influence of social factors such as age, gender, culture, and economic status (Hammel, et al., 2008). Further, racial differences may be present in perceptions of choice and control for a few reasons. Blacks are

more likely to live with family (Vespa, Lewis, & Kreider, 2013), and older Blacks are more likely to expect children to provide informal care (Lee, Peek, & Coward, 1998). Blacks are more likely to receive assistance from family members in general (Peek, Coward, & Peek, 2000). Living with others may impact goals individuals have for themselves, as older adults and family members work collectively to set goals. As Blacks are more likely to live with family and expect children to care for them as they age, the need to plan collectively may impact them more.

While the aforementioned factors may influence perceived choice and control, in order to adequately examine the concepts, this study has operationalized them by predicting choice and control in two areas of MFP participants' lives. The next sections explore the literature on the ways in which choice and control will be examined in this study: in daily activities and in service coordination.

***Choice and control in daily living activities.*** Choice and control in daily living activities include decisions about activities and tasks such as: when and what to eat, when to go to bed, and watching television when you want to and has traditionally been investigated in nursing home residents, as well as in populations of people with developmental or intellectual disabilities (Bambara, Koger, Katzer, & Davenort, 1995; Kane, et al., 1997; Duncan-Myers, Huebner, 2000; Smith, Morgan, & Davidson, 2005; Finlay, Walton, & Antaki, 2008). Choice can be realized within the social context of a person's life, such as what food to eat at meal time and what to drink (Brown & Brown, 2009). For example, outings and simple daily activities can include elements of choice so that the person expressing preference feels empowered to consider their own daily wishes as important and realized (Brown & Brown, 2009).

In nursing homes, opportunities for residents to exercise choice and control are typically constrained. Nursing home routines usually bear no resemblance to real life and infringe on

autonomy in many ways (Kane & Kane, 2001). Frail elders using HCBS may experience similar constraints impacting perceived choice and control, as older people usually accept homecare on schedules, which means that bath time and bedtime are far from normal or in their control (Kane & Kane, 2001).

***Choice and control in service coordination.*** Choice and control in service use includes involvement in decisions about services, as well as choosing paid help. Older people receiving care at home may have difficulty expressing preferences, especially in matters of safety versus freedom (Kane & Kane, 2001). Additionally, traditionally, elders and caregivers were not encouraged to direct their own care due to assumptions by service providers concerning level of interest and inability to exercise control (Sciegaj, Capitman, & Kyriacou, 2004). Decisions about long-term care are usually made with crisis mentality and with sense of urgency (Kane & Kane, 2001). For example, hospital discharge decisions that require a service plan to be put in place require individuals, families, and professionals to decide what type of care is needed by considering benefits, risks, and costs of alternatives, and then decide on a provider (Kane & Kane, 2001).

Home and community-based services are expected to enable meaningful daily life for consumers and to foster their participation with the community to the extent they desire interaction with others (Kane & Cutler, 2015). However, Kane and Kane (2001) note that in older populations, long-term care emphasizes safety and protection, many times disregarding the wishes of the older person. Choices need to occur in environments allowing the freedom to select and should be free from negative consequences (Brown & Brown, 2009). For example, as older adults value control over how they arrange their homes and their possessions, who has access to their home, and how they organize and time their services (Kane & Cutler, 2015), they should

feel free to express choice in terms their services. Further, differences in race have been found in preferences for participation in service coordination. In a study examining racial and ethnic variations in elder preferences for consumer direction, Sciegaj, Capitman, & Kyriacou (2004), Black elders expressed the most desire for control over formal service workers.

**HCBS Use.** Research on long-term care has used the Andersen model to predict the likelihood of service utilization. Few studies have used the model to predict the type of services individuals and families use (Mitchell & Krout, 1998; Lehning, Kim, & Dunkle, 2013). Mitchell & Krout (1998) used data from a 1989-1991 study of the noninstitutionalized population (60 and older) living in North Carolina to determine whether predisposing, enabling, and need factors are better predictors of discretionary than non-discretionary services. Discretionary services were services used primarily based on the choice of the adult or their caregiver, such as meals on wheels. Non-discretionary services were those services that were either unavoidable or regulated by providers, such as hospitalization or at-home rehabilitation therapy. Using binary logistic regression to predict type of service used, the researchers found that there was a higher significance among predisposing characteristics (age, race, gender, rural residence, small town residence, and education) when predicting discretionary services. An increase in age, being Black, living in a rural setting and small town residents were more likely to use the most discretionary services. Need characteristics (ADLs, IADLs, chronic conditions, depression) were more significant when predicting non-discretionary services (Mitchell & Krout, 1998). These findings suggest that predisposing factors are greater predictors of services based heavily on individual choice, whereas need factors predict regulated services, and speak to the influence that each set of factors has on type of services used.

Other studies using the Andersen model have simply predicted the use of services. For example, Wallace, Levy-Storms, Kington, and Andersen (1998) examined racial differences in formal service use, and found that Blacks were less likely to use nursing homes in spite of higher levels of need and higher levels of Medicaid use and were more likely to use informal care in spite of lower marital rates. In an examination of racial and ethnic differences in the relationship between functional disability and the use of health care services, Bowen (2008) found that Blacks and Latinos visiting their physicians had associated with significantly more activity of daily living disabilities than Whites. Further, Blacks utilizing physician visits and hospital admissions, and Latinos utilizing hospital admissions had associated with more mobility disabilities than Whites. This study will determine whether predisposing, enabling, need, and environmental factors predict HCBS use in MFP participants. The study also seeks to understand differences and relationships that exist between HCBS use and choice and control in daily activities and service coordination.

### **Research Questions**

Several gaps exist in the literature and have shaped the research questions for this dissertation. First, research has yet to determine the predictors of choice and control, so there is no understanding of how the availability of options, constraints, and opportunities shape choice. It is also unclear how these factors impact an individual's ability to alter the environment to fit their needs. Secondly, the role of HCBS use in choice and control is unknown. As one aim of HCBS is to enhance feelings of choice and control, it is important to understand how HCBS use might impact both choice and control in daily activities and service coordination. Lastly, and importantly, the role of race remains unclear in perceived choice and control and HCBS use. As the aging population in the United States continues to grow and diversify, greater efforts should

be made understand the nuances that exist in perceived choice and control and HCBS use. The expansion of the aging population is also an indicator of a greater need for research committed to better serving frail elders. The existing gaps helped frame the direction of this dissertation as well as the research questions I will be answering.

The main hypothesis of this study is that racial differences exist in HCBS use and perceived choice and control. I also hypothesize that predictors of HCBS use and choice and control will vary between Black and White participants. Extant literature on the Andersen model (1995), choice and control, and HCBS use shaped the research questions presented in the next section. The research questions for the present study are as follows:

- (1) Do predisposing, enabling, need and environmental factors predict choice and control in daily activities and service coordination? Do findings vary by race?
- (2) Are there differences between HCBS type and perceived choice and control in daily activities? Are there relationships between HCBS type and choice and control in service coordination? Do these findings vary by race?
- (3) Do predisposing, enabling, need and environmental factors, and HCBS use predict choice and control in daily activities and service coordination? Do findings vary by race?
- (4) Do predisposing, enabling, need, and environmental factors predict HCBS type? Do these findings vary by race?

## **Conclusion**

The Andersen Behavioral Model of Health Service Utilization (1995) has been used in a number of ways to predict service use by considering the contribution of predisposing, enabling, need, and environmental factors. Race interacts and influences many of the factors. Nursing home transition programs have yet to be examined using the model, and the examination of

service use in terms of the type of services used in this population is of interest as HCBS continue to improve to assist frail elders to remain independent after transitioning back into the community. This chapter reviewed the literature on the Andersen model (1995) as well as racial implications on factors. The next chapter will discuss the methodology for the study.

## Chapter 3. Methodology

### Introduction

The purpose of this study was to determine racial differences in predictors of HCBS use and perceived choice and control in older MFP participants. The study was a secondary data analysis and used data from the Money Follows the Person (MFP) demonstration program in Connecticut. The sample consisted of a subset of the full Connecticut MFP population, only including Black and White participants ages 65 and older. This chapter will discuss the methodology for this study and describe the sample, measures, and analysis plan.

### Procedures

Older adults in this study were receiving services from the Connecticut Homecare Program for Elders. Participants were age 65 and older, spent at least 90 days in a skilled nursing facility or other long term care facility, and were Medicaid eligible prior to community discharge. Data for this study was obtained by transition coordinators (responsible for assisting in the transition from nursing home to community), as well as research staff at the University of Connecticut Health Center, Center on Aging.

**Quality of Life Survey.** The Quality of Life (QOL) survey is designed to capture changes in quality of life once participants transition home (Brown & Lipson, 2008). The QOL was adapted from the Participant Experience Survey (PES) (Galantowicz, 2003), and was completed at four time points: prior to transition out of the nursing home (baseline), and six months, twelve months, and twenty-four months post-transition. Baseline interviews were completed with transition coordinators assigned by local access agencies. Remaining interviews were completed with trained research assistants at the University of Connecticut Health Center, Center on Aging. Interviews were completed via phone or in-person with the participant whenever possible, with assistance from a proxy (typically an informal supporter), or with only a



proxy when necessary. The QOL collects information on seven domains: Satisfaction with living arrangements, unmet need for personal care, respect and dignity, choice and control, community integration and inclusion, overall satisfaction with life, and psychosocial health status (Brown & Lipson, 2008). This study used data from six-month interviews as well as administrative data obtained by MFP staff at baseline. Data sources for both dependent and independent variables are shown in Table 2.

### **Sample**

Response rates for six-month QOL interviews were 97 percent, after removing post-transition deaths from the denominator (6%). At the time of this study, 913 older adults participating in the MFP program had completed both baseline and six-month QOL interviews between December 2008 and June 2015. Participants were excluded if they were readmitted to a nursing facility, or relocated to another community living arrangement before completing their six-month QOL interview (n=211) because data collected at six months would refer to their original post-transition living arrangement. Additionally, participants missing living arrangement data or living with a roommate (n=18) were removed from the final sample. People living with a roommate were excluded because they represented <5% of the overall sample. Lastly, participants missing data on race or marital status, or who listed a race other than Black or White (n=25) were removed. This resulted in a final sample size of 659 participants aged 65 or older. Participants' age averaged 77.44 years ( $SD = 8.29$ ). Participants transitioned from a nursing home into the community between 2009 and 2015. Most of the participants were White (75%) and female (66%). 23% of participants were married.

## Measures

### Dependent Variables

**Choice and control.** Choice and control were evaluated in two ways: choice and control in daily activities and choice and control in service coordination. If a survey was completed by a proxy (i.e. family caregiver), similar worded parallel versions of questions were asked. No definition is given to participants or proxies for choice or control. The choice and control scale was developed by Mathematica and consists of 6 items. Questions include: *Can you go to bed when you want? Can you be by yourself if you want? When you're at home, can you eat when you want to? Can you choose the food that you eat? Can you talk on the telephone without someone listening in? Can you watch TV when you want to?* Responses for each item consist of a yes/no/sometimes response. Responses were recoded so that "yes and sometimes" constitute a "yes" response, and "no" remains a "no" response. Scale items, original coding, and recoding are presented in Table 3. Items were summed and a total score between 0-6 is given. Cronbach's alpha for the sample used in this study is .56. Brown & Lipson (2008) recommend a Cronbach's alpha of .70 or greater, however, the choice and control scale in this sample may be influenced by a number of factors, such as ADL/IADL function and informal support provided by family members.

Choice and control scores for the sample were highly skewed and non-normal ( $M=5.55$ ,  $S=.87$ ). Log transformative efforts were used, but skewness remained in place. In a regression analysis, a model with a highly skewed dependent variable would be deterministic. As a result, for the purpose of analysis, choice and control in daily activities was measured dichotomously, with total control (scale score of 6) over daily activities coded as 1, and less than total control in daily activities (scale score of 5 or less) coded as 0.

Choice and control in service coordination was measured using two questions. The first question, “*Did you pick the people that are paid to help you,*” was answered using a dichotomous yes/no response and was asked only if participants have answered yes to a previous question, “*Does anyone help you with anything like bathing, dressing or preparing meals?*” “*Think about the paid assistance that you’re currently getting. How often do you have as much choice about your paid services as you want,*” was the second question and was answered by choosing one response out of most of the time/ some of the time/ a little of the time/ not at all. Missing and “don’t know” responses were removed for the purpose of analysis. Questions, original coding, and recoding are presented in Table 4. Choice and control measures were taken from six-month QOL interviews.

**HCBS use.** A subsample (n=240) was used to analyze service type used by MFP participants based on the availability of care plans for analysis. Care plans were created with participants and their families (or other supporters), as well as care managers and include an outline of the type of service a person will be receiving as well as how many times a week and how many hours the service will be provided. Initial coding of care plans revealed eight services: (1) visiting nursing, (2) personal care attendant (PCA), (3) homemaker, (4) companion, (5) home health aide, (6) emergency response system (ERS), (7) adult day care, and (8) home delivered meals. Most participants in the subsample (97%) used visiting nursing services, so this service was not included in the analyses. Additionally, adult day care services represented < 10% of the subsample and were not included in the final analyses. ERS services provide a very minimal level of care and were also removed from the final analysis. Minimal grouping was used in order to categorize services in terms of type of care provide to a participant. The resulting three categories were constructed to reflect a modified version of HCBS categories devised by

Lehning, Kim & Dunkle (2013). The final categories for services resulted in the following: (1) Level 1 personal care (PCA live-in), (2) Level 2 personal care (PCA and home health aide services), and (3) Functional care (homemaker and companion services, home-delivered meals). The important distinction between PCA live-in services and PCA and home health aide services is that the former provides 24-hr care by living with the participant, and the latter provides hourly care. For example, a participant receiving Level 2 care may live alone but receive several hours of care a PCA or home health aide. For the purpose of analysis, each group was coded using dummy coding, creating three dichotomous groups.

### **Independent variables**

**Predisposing Factors.** Predisposing factors included in this study age, race, gender, marital status, and transition challenges. Age is recorded as age at the time of transition. Demographic variables included are race (White = 1; Black = 0), and gender (Male = 1; Female = 0), and marital status. Few participants identified as Hispanic (<10%), and were included and coded as their self-identified race. Participants who are married (either living together or living apart) are coded 1, and participants who are unmarried (legally separated, divorced, widowed, or single or never married) are coded 0. Transition challenges in the analysis include the following: physical health, mental health, financial, consumer engagement, waiver, housing, legal, other involve individual, facility, MFP, and service challenges. For the purpose of analysis, financial and legal challenges were combined to create one category. A second combined category consisted of facility, MFP, and service challenges. Each challenge was coded as yes (1) and no (0).

**Enabling Factors.** Enabling factors included in this study include were living arrangements and instrumental support. Living arrangements were coded at the time of

transition. Original coding for all participants of the MFP program revealed eight living arrangements: alone, spouse, parent, adult child, other family, roommate, live-in caregiver, and supervised housing. Living arrangements were recoded to represent four categories: 1) alone, 2) spouse, 3) other family, and 4) live-in/supervised housing. Supervised housing typically includes assisted living facilities. Each living arrangement category was coded using 0-1 coding.

Instrumental support was measured by asking participants: *During the last week, did any family member or friends help you with things around the house?* Responses are yes (1) and no (0).

Table 6 shows original coding and recoding for living arrangements and instrumental support.

**Need Factors.** Variables included in this study were ADL and IADL need, self-reported symptoms of depression, and financial inadequacy. ADL needs include: taking a bath and shower, getting dressed, eating, using the toilet, and getting in and out of a bed or chair. IADL needs include: preparing meals, shopping for groceries, doing routine household chores, managing money, taking medications correctly, getting to places out of walking distance, using the telephone, and getting around inside of the house. Descriptions for ADLs and IADLs are presented in Table 7. Needs were summed together to create a total number of impairments with one score reflecting number of ADL and IADL needs. Missing data were coded as missing values. Participants were coded as having depressive symptoms if they answer yes to either of the following two questions: *During the past week, have you felt sad or blue?* *During the past week, have you felt irritable?* Final coding resulted in a single variable representing depression with coding yes (1) or no (0). Financial adequacy was measured by asking participants the following question: *In general, how do your finances usually work out at the end of the month? Do you find that you usually end up with... (1) Some money left over, (2) Just enough to make ends meet, (3) Not enough to make ends meet.* “Some money left over” and “just enough to make

ends meet” were coded 1, and “not enough to make ends meet” and “don’t know” responses were coded 0. Table 8 provides coded and recoded responses for depression and financial inadequacy.

**Environmental Factors.** Environmental factors in this study included geographic region and type of housing. Service area is important for receiving services as more rural parts of the state have less availability and fewer service resources than more densely populated areas. The analysis used three access agencies that provide services to MFP participants. The access agencies represent geographic areas of Connecticut. One agency serves the Northwest, North Central, and Eastern regions of state. The second agency serves the South Central region of state. Lastly, the third agency serves Southwestern region of state. Examining geographic regions in this way provides information about specific access agencies that can potentially impact decisions made about current or future services or programmatic goals. Housing types include: apartment leased by participant, not assisted living; home owned by family member; home owned by participant; apartment leased by participant; apartment leased by family member; group home of no more than four people. There were no participants in the sample that lived in a group home setting, so this category was removed in the analysis. Final housing categories were living in apartment (1) and living in a home (0). Coded and recoded responses for service area and housing are shown in Table 9.

### **Analysis Plan**

The data in this study was analyzed using Statistical Package for the Social Sciences (SPSS) Statistics 21.0. Univariate statistics were used to provide general characteristics about the sample, and preliminary bivariate analyses were conducted to examine relationships between race, choice and control measures, and independent variables. Binary logistic regression was

used for all analyses. This type of regression is the most appropriate because of the dichotomous nature of the dependent variables, as well as the independent variables, which were categorical and continuous. Analysis plans for each research question are described below. For each logistic regression model described, tests of multicollinearity were run. Additionally, age and ADL/IADL impairments were centered in each regression model. For each model, chi-square tests and log likelihood indicate whether the set of factors in each model reliably predicts the outcome. Nagelkerke's statistic (pseudo  $R^2$ ) shows the total variance accounted for in the models.

To address question one, which examines whether predisposing, enabling, need, and environmental factors predict perceived choice and control in daily activities and service coordination, and whether these findings vary by race, binary logistic regression analyses methods were used in the total sample (N=659). First, tests for multicollinearity showed no strong correlations between independent variables. A series of logistic regression models were run to predict choice and control in daily living activities and service coordination. Initial models included all independent variables and were adjusted for better fit. For example, due to the high number of transition challenges, challenges were removed from the final models if they held no significant relationship with dependent variables. Missing responses and "don't know" responses were removed for the purpose of analyzing choice and control in service coordination. In order to examine predictors in each race group, separate logistic regression analyses were conducted in Black and White participants to examine predictors of choice in daily activities and service coordination.

The remaining analyses addressed research questions 2-4 by using the subsample (n=240). Binary logistic regression was used in order to examine research question two, which

seeks to understand if predisposing, enabling, need, and environmental factors, and HCBS type predict choice and control in daily activities and service coordination, as well as whether these findings vary by race. Race differences were examined by including interaction terms in the logistic regression models.

To address research question three which examined whether predisposing, enabling, need, and environmental factors predicted HCBS type, separate binary logistic regression models were run for each dichotomous outcome (Level 1 personal care, Level 2 personal care, and functional care). In order to examine the effects of race, interaction terms were included.

Lastly, to answer research question four, which was interested in whether there were relationships between HCBS and choice and control in daily activities and service coordination, chi-square analyses were used to determine relationships between type of HCBS and choice and control in daily living activities and service coordination. Findings were compared by examining relationships in each race group to investigate differences in choice and control.

Binary logistic regression models for the four research questions were fit separately for two samples. For research question one, models were fit for the total sample (N=659). Models for research questions 2-4 were fit for a subsample of n=240 participants, representing the group of individuals with available care plans describing the type of services they will be using following their community-discharge. For the most part, models mirrored each other, except when variables were removed in order to adjust for the smaller subsample. Descriptions of final models are included along with study findings in Chapter 4.

## **Conclusion**

To conclude, this dissertation used data from six-month QOL interviews, as well as data collected about participants between time of referral and transition into the community.



Predisposing, enabling, need, and environmental factors were used to predict HCBS type and choice and control in the study. The next chapter will discuss study results.

## Chapter 4. Findings

### Introduction

This chapter presents findings from the study. Sample characteristics will be presented, which include both univariate analyses providing descriptive information about the sample as well as well as bivariate findings describing relationships between race and predisposing, enabling, need, and environmental factors. The rest of the chapter examines each research question, with research question one presenting findings using the total sample (N=659) and the remaining questions presenting findings using the subsample (n=240).

### Sample Characteristics

Univariate analyses were performed to provide a frequency of the distributions of the study variables (independent and dependent) to better understand how they are distributed and also to examine their dispersion. The total sample includes 659 MFP participants 65 years of age and older. Participants completed both baseline and six-month QOL interviews. Tables 10 and 11 provide univariate and bivariate findings for both the total sample and subsample. It should be noted that in the subsample, univariate findings were similar, but bivariate relationships did not emerge as they did in the total sample. Univariate and bivariate findings discussed in this chapter represent the total sample (N=659).

The average age of participants was 77.44 years. Most participants were White, female, and unmarried. A larger percentage of participants lived alone, followed by living with other family or with a live-in caregiver or in supervised housing. Participants in this study reported having average of 7.37 ADL and IADL needs. Almost half of the sample reported depressive symptoms, and 35% reported financial inadequacy. Most participants (61%) lived in Region 1 (North), followed by Region 2 (25%; South Central), and Region 3 (14%; South West). Most

participants lived in an apartment setting (71%). 71% of participants reported choice and control in daily living activities, 79% reported having choice in services most or some of the time, and 42% reported choosing their paid help.

**White Participants.** White participants averaged 78.07 years of age, and over half (66%) were women. Roughly a quarter of Whites in the sample were married. The largest number of White participants had housing (36%) and service (48%) transition challenges. Among White participants, living alone was the most common living arrangements, followed by living with a live-in caregiver or in supervised housing. Just over half of Whites reported having received instrumental support in the past week from a family member or friend. White participants had an average of 7.41 ADL and IADL impairments. A little less than half reported depression symptoms, and 34% reported financial inadequacy. 63% were receiving services in Region 1, and over half (68%) of Whites lived in an apartment. Lastly, while most White participants reported choice and control in daily activities (70%) and choice in services (81%), a smaller number (42%) reported choosing their paid helpers.

**Black Participants.** The average age for Black participants was 75.52 years. Most (64%) were women, and 18% were married. The most common transition challenges were physical health (47%) and service (49%) transition challenges. For Blacks, living alone was also the most common living arrangements (42%), and the second most common was living with other family (31%). 67% report that their family or friends helped them in the last week. Black participants had an average of 7.27 ADL and IADL impairments. 36% reported depression symptoms, and 38% reported financial inadequacy. 56% were receiving services in Region 1, and 80% lived in an apartment setting. Lastly, among Blacks, 73% reported having choice and control in daily

activities, 75% reported having choice in services, and 44% reported that they chose the people paid to help them.

**Bivariate analyses.** Bivariate analyses were conducted in order to examine preliminary relationships between race and predisposing, enabling, need, and environmental characteristics. It should be noted that many of the bivariate relationships that emerged in the total sample were not present in the smaller sample. Independent samples t-tests showed that Blacks were more likely to be younger than Whites. Chi-square analyses revealed relationships between race and several transition challenges, depression, and receiving help from family or friends within the last week. Blacks had a greater chance of having challenges with housing, involved others (family supporters or medical professions), and finances or legal matters, and Whites were more likely to have no transition challenges at all. Blacks had a greater probability of living alone and with other family, while Whites were more likely to live with a spouse, with a live-in caregiver, or in supervised housing. Black participants were more likely to have received help from family and friends within the last week, and Whites also had a higher chance of reporting depression symptoms. Lastly, Blacks had a greater probability of living and receiving services in the Region 3 area of the state, and were more likely to live in an apartment setting than White MFP participants. Bivariate analyses were examined between race and choice and control outcomes and yielded no significant results.

*Choice and control.* Bivariate analyses were also calculated to examine relationships between choice and control in daily activities, choice in service coordination and independent variables (Table 12). Younger participants reported having more choice and control over daily activities than older participants. Men were more likely than women to report choice and control in daily activities. Further, participants who were unmarried had a greater likelihood of reporting

choice and control in daily activities. Participants with engagement and mental health transition challenges were less likely to report choice and control in daily activities. Those who were living alone were more likely to report choice and control in daily activities, and participants with more ADL/IADL impairments and financial inadequacy were less likely to report choice and control. Lastly, those living in an apartment had a greater likelihood of reporting total choice and control in daily activities.

Participants with engagement and mental health challenges, as well as those reporting financial inadequacy, were less likely to report having choice in services. Older participants were more likely to have chosen their paid help. Participants with mental health challenges were less likely to report that they chose their paid help, while participants who reported having received instrumental support in the past week were more likely to have chosen their paid help.

### **Research Question 1**

Do predisposing, enabling, need, and environmental factors predict perceived choice and control in daily activities and service coordination? Do these findings vary by race?

To answer this question, logistic regression models were run in order to determine predictors of each outcome: choice and control over daily activities, choice in services, and choosing paid help. Tests of multicollinearity were conducted in order to ensure that variables were not strongly correlated. Additionally, in order to allow for more parsimonious models, only transition challenges that held significant relationships with each outcome were included.

Findings for each outcome are presented below, followed by results of analyses examining race.

The final model consisted of *predisposing* (age, race, gender, marital status, engagement and mental health challenges), *enabling* (living arrangement, instrumental support), *need* (ADL and

IADL impairment, depression, financial inadequacy), and *environmental* (geographic region, housing type) factors. Dummy coding was used for categorical variables in the models.

Significant odds ratios were interpreted according to the reference category in all cases with the first category, except for race, gender, financial inadequacy and housing type. Age and ADL and IADL impairments are continuous. Chi-square tests and log likelihood indicate whether the set of factors in each model reliably predict the outcome. Nagelkerke's statistic (pseudo  $R^2$ ) shows the total variance accounted for in the models. Findings for the total sample are presented in Table 13.

**Choice and control in daily activities.** In the total sample (N = 659), factors from all categories (predisposing, enabling, need, and environmental) were contributors to perceived choice and control in daily activities. Engagement and mental health challenges were the only transition challenges included in the model. The model was statistically reliable ( $p < .05$ ), and accounted for 27% of the variance in choice and control in daily activities.

Participants who were older and those with mental health transition challenges were less likely to report having full choice and control over daily activities. An increase in age resulted in participants being roughly 4% less likely to report full choice and control in daily activities. Additionally, participants with mental health transition challenges were nearly 50% less likely to report choice and control in daily activities. Participants living with other family were 56% less likely to report total choice and control over their daily activities, in comparison to those living alone. The likelihood of reporting full choice and control over daily activities was also lower for those with a higher number of ADL and IADL impairments. Participants with more ADL and IADL impairments were 20% less likely to have choice and control over daily activities. Lastly,

participants receiving services in Region 2 were 1.8 times more likely to report choice and control in daily activities, compared to those living in Region 1.

**Choice and control in service coordination.** Logistic regression models were used to predict responses to two questions that indicate choice and control in service coordination. For the question, “*How often do you have as much choice about your paid services as you want,*” several characteristics from the predisposing, enabling, and need categories were contributors to participants reporting that they have choice in their services most or some of the time. Once again, engagement and mental health challenges were the only transition challenges included in the analyses. The model was significant ( $p < .05$ ) and accounted for 10% of the variance.

Participants with issues engaging in the transition process prior to leaving the nursing home were 46% less likely to report that they had choice in their services most or some of the time. A similar pattern existed for those living with a live-in caregiver or in supervised housing, with these participants being 50% less likely to report that they have choice in their services. Lastly, those with depression symptoms were 41% less likely to report choice in services, and those reporting financial inadequacy were 44% less likely to report choice. Environmental factors were not contributors to reporting choice about services.

The second question reflecting choice and control over service coordination was “*Do you pick the people paid to help you.*” The only variable found to be a significant contributor to reporting that a participant chose their paid help was mental health transition challenges. Participants with mental health challenges were 44% less likely to report that they picked the people paid to help them. The model predicting this outcome was not significant.

**Racial differences.** In order to examine differences in predictors of choice and control by race, logit models were run for each outcome in both White and Black elders. Contributors to

choice and control in daily activities among White participants (Table 14) included mental health challenges, living with other family, and ADL and IADL impairments (Nagelkerke  $R^2=.28$ ;  $p<.05$ ). White participants with mental health challenges were roughly 60% less likely to report choice and control in daily activities. Additionally, Whites living with other family were 63% less likely to report full choice and control, and those with a higher number of ADL and IADL impairments were 22% less likely to report full choice and control over their daily activities.

After controlling for the remaining independent variables, financial inadequacy was the only significant contributor to choice in services among Whites (Nagelkerke  $R^2=.12$ ;  $p<.05$ ). That is, White participants who reported not having enough money at the end of the month, or who didn't know the status of their finances, were 54% less likely to report that they had choice in their services most or some of the time. Lastly, and interestingly, older age was positively related to choosing paid help. The model was not significant.

Among Black elders (Table 15), both older participants and those with issues engaging in the transition process were less likely to report choice and control in daily activities (Nagelkerke  $R^2=.40$ ;  $p<.05$ ). An increase in age was associated with an 8% decrease in the likelihood that participants had choice and control in daily activities. Black participants with engagement challenges were 75% less likely to report choice and control in daily activities. Additionally, Black participants living in Region 2 (compared to Region 1) were more likely to report choice and control in daily activities. Several factors were significant predictors of having choice in services most or some of the time among Black participants, but the model was not significant. After controlling for other predisposing, enabling, need, and environmental factors, age, and ADL and IADL impairments were significantly associated with choice and control in service coordination. Older Blacks were 6% less likely to report that they had choice in their services



most or some of the time. Interestingly, having more ADL and IADL challenges was associated with reporting that one had choice in services most or some of the time among Blacks. Lastly, Black participants with mental health challenges were less likely to report that they chose their paid help. The model was not significant.

## **Research Question 2**

Are there differences between HCBS type and perceived choice and control in daily activities? Are there relationships between HCBS type and choice and control in service coordination? Do these findings differ between Black and White participants?

In order to examine the relationship between HCBS and choice and control in daily activities and service coordination, chi-square analyses were run in both the total sample and each race group. HCBS types were dichotomously coded and represented three distinct groups: (1) Level 1 personal care (live-in aide), (2) Level 2 personal care (personal care attendant and home health aide), and (3), Functional care (homemaking, companion, and home-delivered meals services). Choice and control in daily activities remained a dichotomous variable.

In the subsample (n=240) (Table 16), relationships emerged between all three types of services and choice and control in daily services. Participants receiving the Level 1 personal care, a live-in aide, were less likely to have choice and control over daily activities, whereas individuals receiving Level 2 personal care and functional services were more likely to have choice and control over daily activities. With regard to how often participants have choice over their services, the only relationship that reached a level of significance was that between the outcome and functional services. Individuals receiving homemaking, companion, or home-delivered meals services had a greater likelihood of reporting that they had choice in their

services some or most of the time in comparison to those receiving Level 1 or Level 2 personal care services. Lastly, regarding choosing paid help, participants receiving Level 2 personal care (personal care attendant or home health aide) were more likely to report that they chose their paid help than participants receiving Level 1 care or functional care services.

Among White participants (Table 17), the only relationships that emerged were those between both levels of personal care and choice and control in daily living activities. Participants receiving Level 1 personal care were less likely to report choice and control in daily activities (in comparison to Level 2 personal care and functional care), and those receiving Level 2 personal care were more likely to report choice and control in daily activities (compared to Level 1 personal care and functional care). Lastly, for Black MFP participants (Table 18), a relationship emerged between choice and control in daily activities and functional care, where Black participants receiving homemaking, companion, and home-delivered meals were more likely to report choice and control over daily activities, compared to those receiving Level 1 or Level 2 personal care.

### **Research Question 3**

Do predisposing, enabling, need and environmental factors, and HCBS use predict choice and control in daily activities and service coordination? Do findings vary by race?

The primary goals of research question three were to determine whether HCBS type contributes to perceived choice and control in daily activities and service coordination, as well as to examine any racial differences in the subsample (n=240). Logistic regression models were run in order to examine predictors of choice and control in daily activities and service coordination. Prior to the multivariate analyses, bivariate analyses were run between dependent variables and transition challenges to determine which challenges would be included in the final regression

models. Housing and mental health challenges were included in the final models, as well as a variable of interest, engagement transition challenges. Engagement challenges were included because they emerged as significant predictors of choosing paid help among Black participants in the total sample.

Living arrangements were removed from the final analyses due to the issue of multicollinearity. As living with a live-in caregiver or in supervised housing is highly correlated with having Level 1 personal care assistance, interpretations of results of a model including both variables would be inaccurate. To examine race, interaction terms were included in the regression models. Initial interaction terms in full models consisted of significant relationships between race and predisposing, enabling, need, and environmental factors. The final regression models only included interaction terms that were initial significant predictors of outcomes.

The final models consisted of *predisposing* (age, race, gender, marital status, and engagement, housing, and mental transition challenges), *enabling* (instrumental support), *need* (ADL and IADL impairments, depression, and financial inadequacy), and *environmental* (geographic region and housing type) factors. *HCBS* (Level 1 personal care, Level 2 personal care, and functional care) were also entered into the models as dichotomous variables. The interaction term included in the final model was *Race x ADL/IADL impairments*. Findings are reported in Table 19.

**Choice and control in daily activities.** As shown in Table 19, predisposing characteristics and HCBS predicted choice and control in daily activities. The model was significant ( $p < .05$ ) and accounted for 33% of the variance. Predisposing characteristics that significantly predicted choice and control in daily activities included housing and mental health transition challenges. Those with housing challenges were more than two times more likely to

report choice and control over daily activities, and those with mental health challenges were almost 70% less likely to report choice and control in daily activities. Participants receiving functional services were nearly four times more likely to report complete choice and control over daily activities. Lastly, the interaction term, *Race x ADL/IADL impairments* did not reach a level of significance.

**Choice and control in service coordination.** Following the results presented in Table 19, predisposing, and need characteristics were predictors of choice in service coordination. The model accounted for 23% of the variance and was significant ( $p < .05$ ). Engagement challenges were the only predisposing characteristics that were significant – participants with issues engaging in the transition process were roughly 60% less likely to report having choice over services most or some of the time. Need characteristics that significantly predicted choice in services were ADL and IADL impairments and financial inadequacy. Participants with more ADL and IADL challenges were nearly 20% less likely to report choice in services, and those reporting financial inadequacy were roughly 60% less likely to report choice in services. Enabling and environmental factors were not predictors of choice in services. Participants receiving functional services were more than three times as likely as others to report having choice most or some of the time over their services. Lastly, the interaction term reached significance, indicating that racial differences in choice in services were moderated by ADL and IADL impairments. A one-unit increase in ADL and IADL sum was associated with a 43% increase in the odds of reporting the choice in services among Black participants. Figure 2. depicts a visual representation of the moderation relationship between race and ADL/IADL impairment.

The model examining predictors of choosing paid help in the subsample was not

significant and yielded no significant results. Further bivariate analyses showed that relationships existed between choosing paid help and instrumental support, depression, and Level 2 personal care. Those receiving instrumental support were more likely to report choosing paid help,  $\chi^2(1, n = 240) = 5.11, p=.02$ . Participants reporting depression were less likely to report choosing paid help  $\chi^2(1, n = 240) = 3.71, p=.05$ . Lastly, participants receiving Level 2 personal care (personal care attendant; home health aide) were more likely to report that they chose their paid help,  $\chi^2(1, n = 240) = 4.21, p=.04$ . When included in the final regression model, however, these relationships did not hold significance.

#### **Research Question 4**

Do predisposing, enabling, need, and environmental factors predict HCBS type? Do these findings vary by race?

The purpose of research question four was to better understand the predictors of HCBS being used by MFP participants. Prior to performing the multivariate analyses, bivariate analyses were run and revealed relationships between HCBS type and predisposing, enabling, need, and environmental factors. First, MFP participants receiving the highest level of personal care (live-in care) tended to be women, unmarried, and receiving less instrumental support than others in the past week. Second, participants using the next level of personal care (personal care attendant or home health aide services) were more likely to be men, married, and living alone.

Additionally, those receiving either one of those services were also more likely to have received support from family or friends in the past week, and were less likely to report depression. Lastly, men were more likely to be receiving functional services (homemaking and companion services; home-delivered meals), as well as those who were living alone, living in Region 3 (Southwest region) of the state, and living in an apartment setting.

To explore the main effects of predisposing, enabling, need, and environmental factors on each HCBS type, logistic regression was used. Living arrangements were not included in the analyses due to the issue of multicollinearity. Transition challenges yielded no significant results in a full model and were removed for the final reduced models. The final models consisted of *predisposing* (age, gender, race, marital status), *enabling* (instrumental support), *need* (ADL and IADL impairment, depression), and *environmental* (geographic region, housing type) factors. To determine whether race differences in services were moderated by independent variables, interaction terms between race and other predictors were included in the analyses if they had a significant bivariate relationship. The final models for Level 2 personal care and functional care included one interaction term, *Race x Gender*. The logistic regression model predicting Level 1 personal care did not include interaction terms due to small cell sizes. Only n=17 Black participants were receiving Level 1 personal care HCBS. In order to better understand the role of race in Level 1 personal care, bivariate tests were run to examine racial differences in predisposing, enabling, need, and environmental factors – racial differences were not present. Results are reported in Table 20. Findings for each dependent variable of interest are described below.

**Level 1 personal care.** Recalling that Level 1 personal care refers to participants receiving 24-hour care from a live-in aide, logistic regression showed that predictors were predisposing, enabling, and need factors. The model was significant ( $p < .05$ ) and accounted for 31% of the variance in Level 1 personal care. Women were 2.5 times more likely have a live-in caregiver, while married participants were 64% less likely to be receiving live-in care. Participants reporting instrumental support were also almost 70% less likely to receive Level 1 care, and those with more ADLs and IADLs were 29% more likely to have a live-in caregiver.

**Level 2 personal care.** Level 2 personal care refers to having a personal care attendant or a home health aide. Participants receiving either one of these services are receiving assistance with bathing or dressing. Predisposing, enabling, and need factors emerged as predictors of the outcome. This model was also significant ( $p < .05$ ) and accounted for 18% of the variance. Married participants were more than 2.5 times as likely to be receiving services from a PCA or a home health aide, and those reporting instrumental support were two times more likely to be receiving Level 2 care. Lastly, participants with more ADLs and IADLs were 11% less likely to be receiving Level 2 personal care.

**Functional care.** Lastly, services providing functional care are homemaking, companion, and home-delivered meals. Once again, predisposing, enabling, and need factors were predictors of functional care services. The model was significant ( $p < .05$ ) and accounted for 37% of the variance. Black participants were 3.6 times more likely to use functional services. Those with more ADLs and IADLs were 29% less likely to receive functional services, and those reporting financial inadequacy were 50% less likely to use functional services. The interaction term, *Race x Gender*, was significant in the model as well – for Black women (in comparison to White men), the odds of using functional services lessens by 85%.

## **Conclusion**

In sum, bivariate and multivariate methods were used to answer each research question of interest. Study findings were presented to show racial differences in choice and control outcomes as well as in HCBS use. The next chapter will summarize the results and discuss the main findings of the study.

## Chapter 5. Discussion

### Introduction

The primary aim of the present study was to examine racial differences in predisposing, enabling, need, and environmental predictors of choice and control and HCBS use in older adults transitioning from a nursing home into the community. The study also sought to understand racial differences in predictors of HCBS use, as well as examine racial differences in relationships between HCBS and choice and control outcomes. The Anderson Behavioral Model of Health Service Use (1995) was useful for this study because it provides a context for which choice and control may be realized and HCBS used. Choice and control was operationalized as (1) choice and control in daily services, (2) choice and control in service coordination (choice in services and choice in paid help). This study fills an important gap in the literature, as research has yet to examine the role of race in choice and control among frail elders.

Overall, there are four main findings from these analyses. First, there are racial differences in predisposing, enabling, need, and environmental factors predicting choice and control in daily activities and service coordination. Second, racial differences emerge when we look at the relationships between choice and control outcomes and HCBS use. Third, functional services predict choice and control in daily activities and choice in services - there is also an interaction effect between race and ADL and IADL impairments and choice in services. Lastly, there is both a main race effect and interaction effect between race and gender when predicting functional HCBS. It should be noted that bivariate analyses indicated no significant relationships between race and any choice and control outcome. This finding doesn't negate the importance of examining racial differences in choice and control outcomes, as health service research can benefit from studies that examine different groups of elders. The remainder of this chapter will



provide an in-depth discussion of study findings, highlighting main findings, and including suggestions for possible reasons for outcomes. The discussion of the results is organized according to the research questions.

### **Racial differences in predictors of choice and control in daily activities and service coordination.**

**Choice and control in daily activities.** Decisions about daily activities, such as when to go to bed and when to eat, are choices that are often easily overlooked as valuable decisions that people make in their everyday lives. It is not until the ability to make these decisions is challenged that their importance in supporting autonomy and independence is revealed. While institutionalized, individuals are often restricted in the choices that they are given, including decisions about day-to-day activities. Following a community discharge, the MFP program evaluation is interested in examining changes in quality of life among participants. The intent of research question one was to examine choice and control outcomes a bit further, mainly questioning the factors that contribute to being able to make choices in one's daily life, as well as about one's services.

In the total sample, older age, mental health challenges, living with family, and ADL and IADL impairments were all negatively related to choice and control over daily activities. Living in the Region 2 area of Connecticut was positively related to choice and control in daily activities. However, when the sample was divided and analyzed by race, interesting differences in contributors to choice and control in daily activities emerged. For example, among Whites, mental health challenges, living with other family, and ADL and IADL impairments were negatively related to choice and control in daily activities. Mental health challenges, which

capture mental health diagnoses such as depression and dementia is likely related to less choice and control because individuals may not have as much say in their daily schedules or activities. Additionally, the diagnosis of a cognitive impairment is many times viewed as rendering elders incapable of making their own decisions (Kane & Kane, 2001), which is a potential explanation for the negative relationship between mental health transition challenges and choice and control in daily activities.

White participants living with family may be less likely to have choice and control over daily activities due to the conflict between fully realized autonomy and convenience for families providing care. Many middle-age adults are part of what researchers have termed “the sandwich generation,” referring to people who have both child rearing and aging family member caregiving responsibilities (Miller, 1981; DeRigne, 2012). Adults in the sandwich generation are expected to provide financial, emotional, and (in some cases) physical assistance to older parents and children (Parker & Patten, 2013). As a result, decisions about daily activities may be made by family members living with the older adults to save time or to better convenience the family. Lastly, among White participants, ADL and IADL challenges are likely related to having less choice and control in daily activities due to the reliance on others to assist with tasks such as food preparation or physical assistance with transferring in and out of bed, limiting participants’ choice in activities such as what and when to eat and going to bed when they want to.

Among Black participants, older age and engagement transition challenges were negative predictors of choice and control in daily activities, while living in the Region 2 area of Connecticut predicted choice and control in daily activities. While all participants are over the age of 65, older individuals are likely living with more impairing diagnoses and are not able to,

or do not, participate in making decisions about daily living as often as younger Black participants.

Enhanced choice and control heavily relies on information provided by service providers about LTSS (Kane & Cutler, 2015). For MFP participants, engagement transition challenges reflect issues with any of the following: (1) disengagement or lack of motivation, (2) lack of awareness or unrealistic expectations regarding a disability or supports, (3) lack of independent living skills, and (4) language or lack of communication. Black participants with issues engaging in the transition process may lack knowledge or understanding about MFP program, how it works, and what to expect during or after the transition process. Individuals in this position are likely finding themselves in situations where they are unable to exercise choice and control. Engagement challenges are of interest because they include several problem areas that should be addressed in the future. For example, lack of awareness or unrealistic expectations about a health condition or services may represent an issue with the health literacy of the participant or involved family members, as well as the communicative methods professionals use to share information about the program with participants. Health literacy refers to the degree in which an individual is able to obtain, process, and comprehend basic health information and services needed to make appropriate health decisions (Institute of Medicine, 2004), and poor health literacy plays an important role in health disparities (Center for Prevention & Health Services, 2009).

Health literacy is also a reflection of the communication between MFP participants and service professionals. In a study examining psychosocial factors in long-term care use, Bradley et al. (2002) held focus groups with White and Black older adults and found that while both White and Black participants reported feeling uninformed about services, Blacks also indicated

that they didn't know how to access information about service options. In the case of frail Black elders aiming to transition into the community from a nursing home, health literacy, including the lack of information and lack of accessibility to information, may play a part in whether they fully understand the health conditions they are living with as well as the MFP program.

Geographic region corresponded to three access agencies that provide services to MFP participants. Black participants living in Region 2 had more choice and control over daily activities. This may be the case for a number reasons, such as availability of services or workforce factors. This is beyond the scope of this study, but the finding is a positive reflection on that particular area of the state, and future endeavors investigating service use of older MFP participants should work to better understand regional differences in services.

**Choice and control in service coordination.** Decisions about long-term care indicate the last chapter of life, as care shapes where and how individuals live, who they see, and relationships between families and community networks (Kane & Kane, 2001). Conceptually, enhancing choice and control is a good idea, but it isn't always applied in practice (Brown & Brown, 2009). Care professionals and families make an attempt to balance the right of the individual to make choice in their own life with the sense of responsibility to ensure and encourage safety in the community. Further, while in a nursing facility, residents are often involved in conversations about their services at a minimal level, and typically have little to no input in who is providing their personal care.

In the total sample, engagement challenges, living with a live-in aide or in supervised housing, depression symptoms, and financial inadequacy were all negatively related to choice in services, while only mental health challenges negatively contributed to choice in paid help. Once again, differences emerged when the analyses were run in each race group. White participants

reporting financial inadequacy were less likely to report that they had choice in their services some or most of the time. Individuals who don't have enough money to make ends meet at the end of the month or don't know the status of their finances may be receiving assistance from others managing both finances and services, or may feel an overall sense of lack of control due to lack of finances. Surprisingly, older age was positively related to choosing paid help. A potential explanation for this is that older participants are likely living with more functional impairments, and are in need of services beyond functional assistance, such as housekeeping or companion services, and are using personal care attendant or live-in services. It is likely that these individuals have more choice in services due to the need to see if workers that will be providing hands-on care are a good fit for the service. Participants with a live-in caregiver or living in supervised housing are also likely have more impairments and chronic conditions that result in the need for assistance with service coordination.

Among Black participants, older participants were less likely to report they had choice in services some or most of the time, but interestingly, those with more ADL and IADL impairments had an increased likelihood of reporting choice in services. Choice in services ranges from having a say in the schedule of workers to making decisions about which tasks aides will assist with. It is likely that in order to guarantee synergy between workers and care recipients, Black participants with an increased amount of ADL and IADL impairments are more involved in these decisions because they are receiving more personal care than those with less impairments.

Lastly, among Black participants, mental health transition challenges were negatively related to choosing paid help. Participants with cognitive impairments or other mental health diagnoses may be receiving assistance from others (i.e. family members) in selecting the workers

that are providing services in their homes. While this is likely the case, for individuals with a mental health diagnosis, such as dementia, it is difficult to determine if family members are accurately representing the wishes of the individual (Kane & Kane, 2001). While living with a cognitive impairment hinders elders in a number of ways, for the most part, individuals are still able to exercise choice (Kane & Cutler, 2015). Many times, an issue presents itself when the individual's choice doesn't align with the overall plans set forth by family members or care professionals.

### **Examining racial differences in relationships between choice and control outcomes and HCBS use.**

One of the primary aims of HCBS is to support and enhance choice and control in community-dwelling elders. The main finding that resulted from research question two was that racial differences exist in the relationships between choice and control in daily activities and HCBS. In the subsample, relationships were present between HCBS and choice and control outcomes. However, examining these relationships in each race group yielded interesting results. Among Whites, those receiving Level 1 personal care were less likely to report choice and control in daily activities (compared to those receiving Level 2 personal care or functional care services), while those who received Level 2 personal care were more likely to report choice and control in daily activities (in comparison receiving other services). These findings are not surprising given the fact that participants with a live-in aide are receiving 24-hour care, many times for intermittent needs. However, it is unclear whether it is the actual service that results in lower choice and control in daily activities due to restrictions placed on the elder, or the needs that warrant the service that impact feelings of choice and control.

For Blacks, choice and control in daily activities was higher for those receiving functional care (compared to Level 1 or 2 personal care). This is to be expected, as functional care (homemaking, companion, and home-delivered meals) is limited to services addressing IADL needs. These services are likely reflective of more choice and control in daily activities because they do not address activities that are impacted due to ADL needs, such as needing assistance getting in and out of bed.

### **Determining if HCBS and race contribute to feelings of choice and control in daily activities and service coordination**

**Choice and control in daily activities.** To better understand role of HCBS in choice and control in daily activities and service coordination, analyses were run using a subsample (n=240) of MFP participants. Participants receiving functional HCBS (homemaking, companion, and home-delivered meals), in comparison to those receiving Level 1 or Level 2 personal care, were more likely to report choice and control in daily activities. This finding was not surprising, as people receiving functional services may have fewer impairments than those receiving personal care. Further, functional services address IADL impairments such as meal preparation, shopping, household chores, and transportation, so services are likely not impeding on whether or not participants are able to express choice in daily activities such as when to go to bed, and being alone when you want to. Neither race nor the interaction term *Race x ADL and IADL impairments* were significant predictors of choice in daily activities.

Several other factors predicted choice and control in daily activities and service coordination. Mental health transition challenges were negative predictors of choice and control in daily activities, while those receiving functional services were more likely to report choice and

control in daily activities. Participants with housing challenges, however, were more likely to have choice and control in daily activities. Housing challenges include: (1) lacking housing to return to following a transition, (2) waiting for approval of housing from housing programs, (3) needing home modifications, (4) a delay related to housing professionals or staff, and (5) previous evictions or unpaid rent. While it's clear that housing transition challenges can represent a number of varying problems, participants who either lack housing to return to, or who are in need of home modifications may in fact have more choice than someone returning to a former living arrangement that may lack assistive technology or other accommodations needed for a successful transition. Additionally, people who lack housing challenges and eventually move in with family members may experience family members making decisions for them.

Mental health transition challenges, such as dementia or depression diagnoses likely impact a person's ability to exercise choice and control over daily activities. In a study examining how different patterns of sources of meaning of life impact psychosocial adaptation of older adults, bivariate analyses showed a negative correlation between depression and choice/responsibility (the degree to which a person perceives to have person agency in directing their own life) (Reker & Woo, 2011). It is likely that this relationship exists between depression and other mental health diagnoses and decisions about daily activities.

**Choice and control in service coordination.** There was an interaction effect between race and ADL and IADL impairments when predicting choice in services in a regression model that includes predisposing, enabling, need, and environmental factors, along with HCBS. ADL and IADL impairments were negatively related to choice in services, but in the interaction term, impairments moderated race, indicating that for Blacks, having more ADLs and IADL impairments increased the likelihood of reporting choice in services. This follows the analyses



completed in research question one examining predictors of choice in services among Black participants, where those with more ADL and IADL impairments were more likely to report having choice in services. This finding holds true even after introducing HCBS into the analysis.

When HCBS type was examined in the logistic regression models predicting choice in services and choosing paid help, several interesting findings emerged. For example, engagement transition challenges and financial inadequacy maintained their negative relationship with choice in services. Similar to choice and control in daily activities, participants receiving functional care services were more likely to report choice in service coordination, supporting the idea that people receiving either less care or a lower level of care are more likely to feel that they can express choice and control.

### **Understanding the role of race in predictors of HCBS use.**

Research has previously examined predictors of HCBS use in community-dwelling elders. Research has not, however, examined predictors in frail elders who have transitioned from a nursing facility to a community living arrangement. The purpose of research question three was two-fold. First, I set out to determine which predisposing, enabling, need, and environmental factors predicted Level 1 personal care, Level 2 personal care, and functional services among MFP participants. Second, as the literature varies in findings regarding racial differences in HCBS use, interaction terms were included in the logistic regression analyses. A final interaction term, *Race x Gender*, was included in the final reduced model.

Race emerged as a predictor of functional services. Recall that functional services include homemaking, companion, and home-delivered meals. Black participants were more likely to use functional services. However, there was an interaction effect, indicating that Black women were

less likely to use functional services. This may be in part explained by the fact that women were more likely to use Level 1 personal care (live-in caregiver), likely due to older age and more care needs. In fact, in the subsample (n=240), women were older than men (women, age *M*, 79.32; men, age *M*, 76.77), and had more ADL and IADL impairments (women, ADL and IADL impairments *M*, 8.28; men, ADL and IADL impairments *M*, 7.51), likely resulting in the need for a higher level of care. Further, a smaller percentage of woman were married, reducing the odds that a woman would be receiving informal support from a spouse that could take the place of a live-in caregiver.

Not surprisingly, participants with greater ADL and IADL needs were less likely to use both functional and Level 2 personal care (personal care attendant, home health aide) services, but were more likely to use Level 1 personal care. Participants receiving assistance from a live-in aide are individuals who, without an aide, would likely remain in a nursing facility due to their care needs. In a study examining whether or not the formal home health care market is equitable or produces racial disparities in use, White-Means & Rubin (2004) found that older people with more ADLs and IADLs have greater home health care use. This likely translates to those living with a formal caregiver, as live-in aides provide assistance to older adults who require intermittent care to address needs with daily care.

Financial inadequacy was positively related to functional service use, meaning that participants who reported either not having enough money to make ends meet (at the end of the month) or not knowing their financial status were more likely to use homemaking, companion, or home-delivered meal services. Previous research has examined financial status in terms of income and have followed a similar pattern, with results reflecting the inverse, where those with

higher incomes were less likely to use home health care services in general (White-Means & Rubin, 2004).

Married participants were less likely to use Level 1 personal care services, but were more likely to use Level 2 personal care services. This is not surprising, as living with a spouse typically provides opportunities for informal support that replace the need for a live-in caregiver. In general, spouses play an important role to a frail partner, as married people are better able to cope with poor health (Liang, Brown, Krause, Ofstedal, & Bennett, 2005), likely lessening the odds that individuals will require care from a live-in aide. Similarly, participants who reported receiving instrumental support in the past week – that is, receiving assistance from family or friends in the past week – were less likely to use Level 1 care and were more likely to use Level 2 care. This may follow the same pattern applied to married participants in that instrumental support may take the place of a live-in caregiver, even if family members are not living in the same household with the older adult.

## **Conclusion**

This chapter presented an in depth discussion that summarized the main findings of the study, as well as provided potential explanations for results yielded from the study. Main findings highlight the racial differences in perceived choice and control and HCBS use among White and Black elders participating in the MFP program in Connecticut. Results also provide direction for future research. The last chapter will discuss the implications of the study, as well limitations and suggestions for future research.

## Chapter 6. Conclusion

### Implications

By 2040, people age 65+ are projected to represent 21.7% of the American population, which is a substantial increase from 14.1% in 2013. Additionally, between 2013 and 2030, the population of older non-Hispanic Whites is expected to increase by 50%, and for older non-Hispanic Blacks, the population will increase by 99% (Administration on Aging, 2014). As the population increases in number, LTSS initiatives will need to be strengthened to address the needs of older adults who are living longer with more chronic health conditions and impairments. Research efforts should also pay attention to racial differences that make the life experiences of elders unique. This study accomplished this by examining the factors that contribute to perceptions of choice and control in White and Black frail elders who have transitioned from a nursing facility into the community.

Overall, the present study yields several interesting findings about racial differences in predisposing, enabling, need, and environmental characteristics that contribute to choice and control in daily activities and service coordination. The study also provides important information about racial differences in HCBS use and choice and control outcomes among frail elders participating in the MFP program in Connecticut. Findings have the potential to provide a context for understanding choice and control in frail elders, particularly those transitioning from a nursing facility into the community, as HCBS aim to increase feelings of autonomy in service recipients.

For both White and Black MFP participants, while it appears that older age, as well as ADL/IADL impairments negatively predict choice and control in daily activities, it is possible for the variables to have positive relationships with choice and services and choosing paid help.

Findings from this study indicated that older White participants had greater odds of having choice over their services, and Black participants with more ADL and IADL impairments had a greater chance of choosing their paid help. This speaks to the need to continue to make distinctions between different types of choice and control. While a factor may hinder elders from fully expressing one form of choice and control, the same characteristic may promote another form of choice and control.

Racial differences that emerged through this study provide opportunities for intervention. For example, engagement transition challenges emerged as a significant negative predictor of choice and control in daily activities in Black participants. Service providers should address this issue by examining (1) reasons as to why Black participants have issues engaging in the transition process, and (2) implementing effective practices that better equip Black participants and families with the knowledge needed to make informed decisions about MFP program and the transition process. Further, by examining predictors of HCBS use, this study also gives insight into the use of the Andersen model (1995) in frail elders transitioning into the community after a nursing home stay. As transition initiatives increase and older people are given the opportunity to return to the community, there will be a greater need for understanding trends and factors that contribute to service utilization in diverse populations.

This study also presented important findings about HCBS use and choice and control in daily activities and service coordination. Participants with a live-in aide were less likely to have choice and control in daily services, prompting the question of how service providers can enhance choice and control in daily services among frail elders with 24-hour care. The trend in the use of live-in aides is likely to at least remain in place, if not increase over time as initiatives such as the MFP program work to rebalance LTSS between institutional and community-based

care. Frail elders receiving live-in services were more likely to have greater ADL and IADL needs, and were less likely to be married or receiving instrumental help in the past week. HCBS should target efforts on finding ways to increase choice and control in daily living for those receiving 24-hour care in the community.

### **Limitations and future research**

This study had several limitations that also provide direction for future research endeavors. This study sought to learn more about choice and control in daily activities and service coordination. Future research should work to fine-tune the measures used to examine these outcomes in frail elders. While this study used the choice and control scale (for daily activities) created for the MFP program, future research should work to develop stronger measures of choice and control in frail elders, as research has primarily focused on choice and control in daily activities in disabled populations and younger adults. It should be noted that while this study used a dichotomized measure of choice and control in daily activities due to a high mean score ( $M=5.55$ ;  $SD=.87$ ), scores baseline (prior to community discharge) were lower ( $M=4.77$ ;  $SD=1.36$ ), indicating that choice and control in daily activities increase following a transition into the community.

Second, the data used in this study come from one MFP program in one state, so findings may not be generalizable to the larger population of MFP participants. Future research should aim to examine choice and control outcomes in larger datasets that are representative of program participants nationwide. Research examining HCBS use in the MFP program (or similar initiatives) should also implement more effective ways of obtaining data regarding services used by participants. Lastly, while the focus of this dissertation was on differences between Black and White elders, studies should examine choice and control outcomes in other racial and ethnic

groups, as Hispanic, American Native and Native Alaskan, and Asian populations are projected to substantially increase over the next several decades (Administration on Aging 2014).

### **Conclusion**

In sum, the findings of this study provide important insights into racial differences in predictors of choice and control in both daily activities and service coordination for older adults who have transitioned from institutional care to a community living arrangement with HCBS. Findings have the potential to influence the future direction of transition initiatives, and contribute to the current body of knowledge by using the Andersen Behavioral Model of Health Service Use (1995) in transitioning elders and exploring racial differences in service use and choice and control in this population of frail older adults.

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Figure 1. Conceptual model adapted from Andersen (1995)

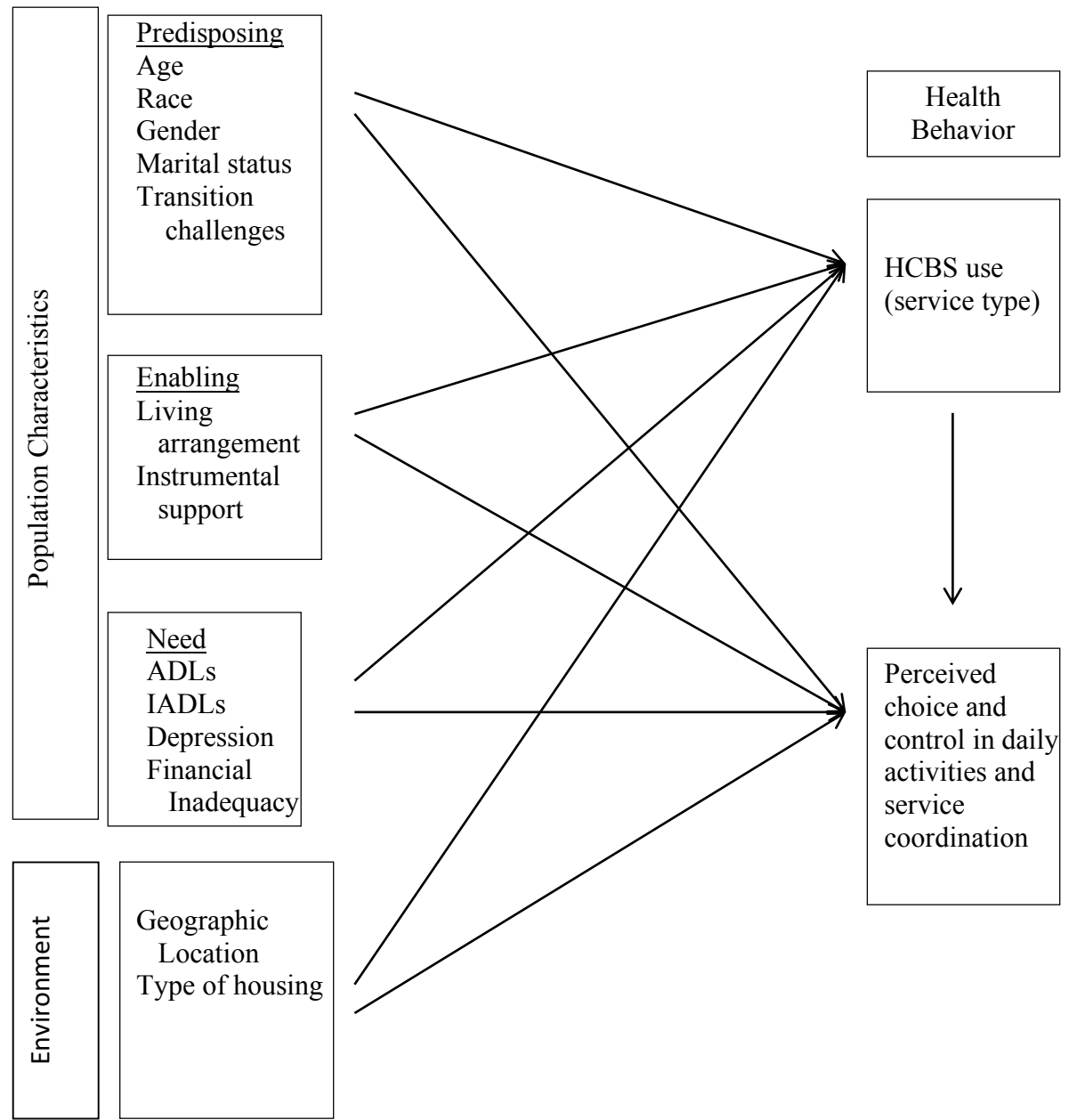


Table 1. Descriptions of transition challenges

Transition Challenge	Description
Physical Health	<ul style="list-style-type: none"> <li>• Current, new, or undisclosed physical health problem or illness</li> <li>• Medical testing issues or delays</li> <li>• Inability to manage physical disability or physical illness in the community</li> <li>• Missing or waiting for physical health related documents or records</li> </ul>
Mental Health or illness	<ul style="list-style-type: none"> <li>• Current, new, or undiagnosed mental health problem or illness</li> <li>• Current history of substance/alcohol abuse with risk of relapse</li> <li>• Dementia or cognitive issues</li> <li>• Inability to manage mental health/illness in community</li> </ul>
Financial or insurance benefits	<ul style="list-style-type: none"> <li>• Lack of or insufficient financial resources</li> <li>• Consumer credit or unpaid bills</li> <li>• Cash benefits and other financial benefits or issues</li> <li>• Medicaid eligibility or insurance issues</li> </ul>
Consumer engagement, awareness, and skills	<ul style="list-style-type: none"> <li>• Disengagement or lack/loss of motivation</li> <li>• Lack of awareness or unrealistic expectations regarding disability or needed supports</li> <li>• Lack of independent living skills</li> <li>• Language or communication skills</li> </ul>
Services and supports	<ul style="list-style-type: none"> <li>• Lack of transportation, PCA, home health, or other paid support staff</li> <li>• Lack of mental health services or supports (in facility or in community)</li> <li>• Lack of alcohol, substance abuse, or addiction services (in facility or in community)</li> <li>• Lack of assistive technology or durable medical equipment (excluding home modifications)</li> <li>• Lack of any other services or supports</li> <li>• Lack of unpaid caregiver (including family or friends to provide needed care for informal support)</li> </ul>
Waiver or state plan and HCBS	<ul style="list-style-type: none"> <li>• Targeted waiver full</li> <li>• Ineligible for or denial of HCBS program or waiver services</li> <li>• Current waivers or HCBS programs do not meet consumer needs</li> <li>• Waiting for evaluation application review</li> </ul>

Housing	<ul style="list-style-type: none"> <li>• Lacks affordable, accessible community housing, ineligible for or waiting for approval from RAP or other housing programs</li> <li>• Needs housing modifications before transition</li> <li>• Delays related to housing authority, agency, or housing coordinator</li> <li>• Housing related legal, criminal or credit issues, including evictions or unpaid rent</li> </ul>
Legal or criminal	<ul style="list-style-type: none"> <li>• Consumer criminal history</li> <li>• Probate court issues</li> <li>• Missing or waiting for identity, birth certificate, or other related records</li> <li>• Legal representative issues</li> </ul>
Facility related	<ul style="list-style-type: none"> <li>• Facility staff or administration issues</li> <li>• Waiting for, loss of, or absence of discharge planning</li> <li>• Evaluation of consumer by facility issues</li> <li>• Nursing home or facility closure</li> <li>• Level of care (ASCEND) issues</li> </ul>
Other involved individuals	<ul style="list-style-type: none"> <li>• Issues with spouse/partner, family, or friends</li> <li>• Physical health provider/doctor opposed, unsupportive, or unresponsive</li> <li>• Mental health provider/doctor opposed, unsupportive, or unresponsive</li> <li>• Other provider or state agency opposed, unsupportive, or unresponsive</li> </ul>
MFP office or transition coordinator	<ul style="list-style-type: none"> <li>• Transition plan not approved</li> <li>• Waiting for response, approval, etc. from MFP Office</li> <li>• Lack of time for transition coordinator to follow up</li> </ul>

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Table 2. Variables and data sources

Variable	Source
Consumer Outcomes	
Choice and control in daily activities	Six-month QOL
Choice and control in service coordination	Six-month QOL
Health Behavior	
HCBS type	Online database
Predisposing factors	
Age	Online database
Race	Online database
Gender	Online database
Marital status	Online database
Transition challenges	Online database
Enabling factors	
Living arrangement	Online database
Received help from family	Six-month QOL
Need factors	
ADLs/IADLs	Six-month QOL
Depression	Six-month QOL
Financial Inadequacy	Six-month QOL
Environment factors	
Service area/geographic location	Online database
Type of housing	Online database

Table 3. Choice and control in daily activities and recoded responses

Choice and Control in Daily Activities Scale Items	Responses	Recoded Responses
Can you go to bed when you want?	1 – Sometimes	1 - Yes
	2 – Yes	
	0 – No	
Can you be by yourself when you want to?	1 – Sometimes	1 - Yes
	2 – Yes	
	0 – No	
Can you eat when you want to?	1 – Sometimes	1 - Yes
	2 – Yes	
	0 – No	
Can you choose the foods that you want to eat?	1 – Sometimes	1 - Yes
	2 – Yes	
	0 – No	
Can you talk on the phone without someone listening in?	1 – Sometimes	1 - Yes
	2 – Yes	
	0 – No	
Can you watch TV when you want to?	1 – Sometimes	1 - Yes
	2 – Yes	
	0 – No	
Don't know	Missing values	
Refused	Missing values	
Missing	Missing values	

Table 4. Choice and control in service coordination and recoded responses

Choice and Control in Service Coordination Questions	Responses	Recoded Responses
How often do you have as much choice about your paid services as you want?	1 – Most of the time 2 – Some of the time 3 – A little of the time 4 – Not really at all	1 – Most/Some of the time  0 – A little of the time/Not really at all
Did you pick the people that are paid to help you	1 – Yes 0 – No	
Don't know	Missing values	
Refused	Missing values	
Missing	Missing values	

Table 5. HCBS typology and description

Type of service	Description
Homemaking	Housekeeping, cooking, laundry
Companion	Companionship, supervision, sometimes transportation
Home Health Aide	Bathing, dressing, toileting, other physical care (non-medical)
Personal Care Attendant	Housekeeping, cooking, laundry, physical care (bathing, dressing, toileting)
Adult Day Center (Care)	Day program, nurse on staff, meals provided, medication administration available
Visiting Nurse	Medication administration assistance, chronic disease management
Emergency Response system	Lifeline button (bracelet or necklace)
Meals on wheels	Home-delivered meals



Table 6. Living arrangements and instrumental support response codes

Item	Code	Recode
Living arrangement		
Alone	1	1
Spouse	2	2
Parent	3	
Adult Child	4	3
Other Family	5	
Roommate	6	N/A
Live-in Caregiver	7	4
Supervised Housing	8	
Instrumental Support		
During the last week, did any family member or friends help you with things around the house?	1 - Yes	
	0 - No	

Activity	Description
<b>ADLS</b>	
Taking and bath and shower	Sponge bath, tub bath or shower
Getting dressed	Taking clothes out of drawers, using fasteners, etc.
Eating	Ability to cut food, use fork or spoon, swallow food.
Using the toilet	Using the toilet, ostomy/catheter care, etc. If incontinent, choose cannot do at all.
Getting in and out of a bed or chair	Ability to move from bed to a chair or to a wheelchair.
<b>IADLS</b>	
Preparing meals	Can mean just a light meal, like a sandwich or soup
Shopping for groceries	Shopping for food or other goods, counting change, etc.
Doing routine household chores	Housecleaning, laundry, etc.
Managing money, including keeping track of bills	Keeping track of any income and paying bills on time
Taking medications correctly	Taking correct medication and dose at the correct time, etc. Includes monitoring glucose level if needed.
Getting to places out of walking distance	Traveling outside of the home
Using the telephone	Dialing the number and/ or communicating over the phone.
Getting around inside the house	Ability to move around inside the home

Table 7. Description of ADLs and IADLs

Table 8. Depression symptoms and financial inadequacy response codes

Item	Code	Recode
Depressive symptoms		
During the past week, have you felt sad or blue?	1 - Yes	
	0 - No	
During the past week, have you felt irritable?	1 - Yes	
	0 - No	
Financial Inadequacy		
In general, how do your finances usually work out at the end of the month?	1 – Some money left over	
	2 – Just enough to make ends meet	0
	3 – Not enough to make ends meet	1
	997 – Don't know	

*Note.* Depressive symptom will be coded (1) if participants respond yes to either item (*During the past week, have you felt sad or blue? During the past week, have you felt irritable?*) and (0) if responses to both questions are no.

Table 9. Environmental factors and response codes

Item	Code	Recode
Service area		
Region 1	1	
Region 2	2	
Region 3	3	
Housing type		
Home owned by family member	1	1
Home owned by participant	2	
Apartment leased by family member	3	2
Apartment leased by participant	4	
Group home, no more than four people	5	N/A
Blanks	Missing value	

Table 10. Predisposing, enabling, need, and environmental factors by race

Characteristic	Total N = 659 (100%)	White n = 495 (75%)	Black n = 164 (25%)
<i>Predisposing</i>			
Age in years, M (SD)*	77.44 (8.29)	78.07 (8.44)	75.52 (7.52)
Gender, %			
Male	34	34	36
Female	66	66	64
Married, %	23	25	18
Transition Challenges, %			
Engagement	21	21	22
Housing*	38	36	45
Involved others**	12	10	20
Mental health	23	23	23
Physical health	45	44	47
Services	48	48	49
Financial/Legal*	23	21	28
None*	28	30	21
<i>Enabling</i>			
Living Arrangement, %**			
Alone	34	32	42
Spouse	16	17	10
Other Family	25	23	31
Live-in Caregiver/Supervised housing	25	27	18
Instrumental Support** %	57	53	67
<i>Need</i>			
ADLs/IADLs, M (SD)	7.37 (3.51)	7.41 (3.51)	7.27 (3.50)
Depressive symptoms, %*	44	47	36
Financial Inadequacy, %			
Just enough/a little left over	63	64	60
Not enough/don't know	35	34	38
<i>Environment</i>			
Service area, %*			
Region 1	61	63	56
Region 2	25	25	24
Region 3	14	12	20
Housing type, %**			
Home	29	32	20
Apartment	71	68	80

*Choice and control*

Choice and control in daily living activities	71	70	73
Choice in services	79	81	75
Choice in paid help	42	42	44

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*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Numbers for indicators vary due to item specific missing data.

<sup>a</sup>4% of the sample is missing depressive symptoms.

<sup>b</sup>8% of the sample is missing service area/access area

<sup>c</sup>Sample size for “Choice in services” and “Choice in paid help” is n=535.

<sup>d</sup>Independent sample t-tests used for bivariate analyses for age and ADL/IADL impairments, chi-square tests used for remaining variables.

Table 11. Subsample predisposing, enabling, need, and environmental factors by race (n=240)

Characteristic	Total N = 659 (100%)	White n = 495 (76%)	Black n = 164 (24%)
<i>Predisposing</i>			
Age in years, M (SD)*	78.46 (8.10)	79.18 (8.28)	76.21 (7.13)
Gender, %			
Male	34	32	40
Female	66	68	60
Married, %	22	23	17
Transition Challenges, %			
Engagement	23	21	29
Housing	46	43	55
Involved others**	13	9	24
Mental health	23	22	26
Physical health	49	48	53
Services	50	49	52
Financial/Legal	23	24	21
None*	28	32	17
<i>Enabling</i>			
Living Arrangement, %			
Alone	27	25	35
Spouse	16	18	10
Other Family	24	23	28
Live-in Caregiver/Supervised housing	33	35	28
Instrumental Support, %	60	58	67
<i>Need</i>			
ADLs/IADLs, M (SD)	7.73 (3.38)	7.79 (3.33)	7.53 (3.52)
Depressive symptoms, %	47	49	40
Financial Inadequacy, %			
Just enough/a little left over	61	61	60
Not enough/don't know	39	39	40
<i>Environment</i>			
Service area, %			
Region 1	61	64	50
Region 2	26	24	31
Region 3	13	12	19
Housing type, %*			
Home	32	36	21
Apartment	68	64	79

*Choice and control*

Choice and control in daily living activities	69	69	70
Choice in services	78	79	77
Choice in paid help	48	48	47

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Numbers for indicators vary due to item specific missing data.

<sup>a</sup>2% of the sample is missing depressive symptoms.

<sup>b</sup>Sample size for “Choice in services” is n=211

<sup>c</sup>Sample size for “Choice in paid help” is n=208.

<sup>d</sup>Independent sample t-tests used for bivariate analyses for age and ADL/IADL impairments, chi-square tests used for remaining variables.



Table 12. Bivariate comparisons of predisposing, enabling, need, and environmental factors for choice and control outcomes

Independent variables	Choice and control in daily activities (N=659)	Choice and control in service coordination	
		Choice in services (n=535)	Choose paid help (n=535)
<i>Predisposing</i>			
Age in years, M (SD)	$p < .001^{***}$	$p > .05$	$p < .05^*$
Choice and control (1)	76.43 (8.36)	77.54 (8.33)	78.92 (8.44)
Choice and control (0)	79.75 (7.81)	78.96 (8.57)	77.34 (8.13)
Gender, %	$p < .05^*$	$p > .05$	$p > .05$
Male	76	79	40
Female	68	80	43
Marital status, %	$p < .05^*$	$p > .05$	$p > .05$
Married	64	78	43
Unmarried	73	80	42
Transition Challenges, %			
Engagement	$p < .05^*$	$p < .05^*$	$p > .05$
Yes	64	72	43
No	72	81	42
Housing	$p > .05$	$p > .05$	$p > .05$
Yes	73	78	40
No	69	80	44
Involved others	$p > .05$	$p > .05$	$p > .05$
Yes	70	73	39
No	71	80	42
Mental health	$p < .01^{**}$	$p < .05^*$	$p < .05^*$
Yes	61	73	33
No	74	81	45
Physical health	$p > .05$	$p > .05$	$p > .05$
Yes	71	78	42
No	73	80	42
Services	$p > .05$	$p > .05$	$p > .05$
Yes	71	78	44
No	71	80	40

Financial/Legal	$p > .05$	$p > .05$	$p > .05$
Yes	75	74	42
No	69	81	42
None	$p > .05$	$p > .05$	$p > .05$
Yes	72	80	43
No	70	79	42
<i>Enabling</i>			
Living Arrangement, %	$p < .001^{***}$	$p > .05$	$p > .05$
Alone	87	85	40
Spouse	62	77	47
Other Family	60	78	46
Live-in			
Caregiver/Supervised housing	64	75	38
Instrumental Support%	$p > .05$	$p > .05$	$p < .05^*$
Yes	67	79	45
No	74	79	37
<i>Need</i>			
ADLs/IADLs, M (SD)	$p < .001^{***}$	$p > .05$	$p > .05$
Choice and control (1)	6.53 (3.35)	7.34 (3.36)	8.23 (3.25)
Choice and control (0)	9.22 (3.11)	7.89 (3.57)	7.84 (3.32)
Depressive symptoms, %	$p > .05$	$p > .05$	$p > .05$
Yes	70	76	40
No	71	82	44
Financial Inadequacy, %	$p < .01^{**}$	$p < .01^{**}$	$p > .05$
Yes	62	83	41
No	75	73	44
<i>Environment</i>			
Service area, %	$p > .05$	$p > .05$	$p > .05$
Region 1	69	81	41
Region 2	74	79	47
Region 3	73	72	39
Housing type, %	$p < .05^{***}$	$p > .05$	$p > .05$
Home	60	80	41
Apartment	76	78	46

Note.  $*p < .05$ .  $**p < .01$ .  $***p < .001$

For age and ADL/IADL variables, choice and control (1) and (0) refer to binary coding schemes used to measure choice and control outcomes.

<sup>a</sup>Independent sample t-tests used for bivariate analyses for age and ADL/IADL impairments, chi-square tests used for remaining variables.

Table 13. Logistic regression models for choice and control in daily activities and service coordination (N=659)

Independent variables	Choice and control in service coordination		
	Choice and control in daily activities (N = 659)	Choice in services (n=535)	Choose paid help (n=535)
	Odds ratio 95% CI	Odds ratio 95% CI	Odds ratio 95% CI
<i>Predisposing</i>			
Age	.96** .94, .99	.98 .95, 1.01	1.02 1.00, 1.05
Female	.79 .48, 1.28	1.33 .79, 2.24	1.14 .74, 1.77
Black	1.31 .80, 2.16	1.46 .86, 2.49	.89 .57, 1.37
Married	.73 .33, 1.59	1.01 .40, 2.52	.98 .48, 1.99
<i>Transition Challenges</i>			
Engagement	.62 .37, 1.04	.54* .31, .94	1.18 .73, 1.89
Mental	.52* .31, .88	.67 .38, 1.18	.56* .34, .91
<i>Enabling</i>			
Living Arrangement			
Spouse	.59 .21, 1.63	.44 .14, 1.41	1.22 .51, 3.10
Other Family	.44* .22, .88	.55 .26, 1.21	.88 .48, 1.61
Live-in Caregiver/Supervised housing	.55 .29, 1.03	.50* .26, .97	.84 .50, 1.44
Instrumental support	1.55 .95, 2.53	1.02 .60, 1.74	1.20 .79, 1.84

<i>Need</i>			
ADLs/IADLs	.80***	1.02	1.00
	.74, .87	.93, 1.10	.93, 1.07
Depressive symptoms	1.11	.59*	.79
	.73, 1.68	.36, .94	.54, 1.15
Financial Inadequacy	.69	.56*	1.17
	.46, 1.05	.35, .89	.80, 1.71
<i>Environment</i>			
Region 2	1.80*	1.02	1.46
	1.05, 3.08	.57, 1.80	.92, 2.26
Region 3	.92	.61	.98
	.50, 1.67	.32, 1.16	.56, 1.70
Home	.91	1.25	1.14
	.56, 1.48	.70, 2.26	.71, 1.81
Constant	5.39	8.65	.68
Model summary			
Chi-square	119.73	31.55	18.53
(df, p-value)	(16, <.001)	(16, <.05)	(16, >.05)
-2 Log likelihood	562.06	462.38	660.21
Nagelkerke $R^2$	.27	.10	.05

Note. CI = confidence interval

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Table 14. Logistic regression models for Choice and control in daily activities and service coordination among White participants (n=495)

Independent variables	Choice and control in service coordination		
	Choice and control in daily activities (n=479)	Choice in services (n=405)	Choose paid help (n=407)
	Odds ratio 95% CI	Odds ratio 95% CI	Odds ratio 95% CI
<i>Predisposing</i>			
Age	.98 .95, 1.01	.99 .96, 1.03	1.03* 1.01, 1.06
Female	.85 .49, 1.48	1.39 .75, 2.57	1.22 .74, 2.01
Married	.90 .36, 2.22	1.29 .40, 4.13	1.30 .57, 2.94
Transition Challenges			
Engagement	.79 .43, 1.47	.62 .32, 1.22	.95 .54, 1.67
Mental	.39* .21, .71	.62 .31, 1.25	.71 .40, 1.25
<i>Enabling</i>			
Living Arrangement			
Spouse	.61 .19, 1.97	.36 .09, 1.51	1.19 .43, 3.33
Other Family	.37* .16, .87	.46 .17, 1.19	.93 .45, 1.93
Live-in Caregiver/Supervised housing	.52 .25, 1.09	.52 .23, .17	.78 .42, 1.44
Instrumental support	1.48 .84, 2.61	1.05 .56, 1.96	1.12 .69, 1.83

<i>Need</i>			
ADLs/IADLs, M	.78***	.95	.98
	.72, .86	.86, 1.05	.90, 1.06
Depressive symptoms	1.29	.60	.91
	.80, 2.10	.34, 1.03	.59, 1.40
Financial Inadequacy	.73	.46*	1.20
	.45, 1.19	.26, .81	.77, 1.87
<i>Environment</i>			
Region 2	1.61	.88	1.39
	.86-3.02	.45, 1.73	.83, 2.34
Region 3	.71	.54	.75
	.35, 1.44	.25, 1.19	.37, 1.50
Home	1.06	1.37	1.06
	.60, 1.86	.70, 2.67	.63, 1.78
Constant	6.22	13.31	.58
Model summary			
Chi-square	92.68	29.69	16.22
( <i>df</i> , <i>p-value</i> )	(15, <.001)	(15, <.05)	(15, >.05)
-2 Log likelihood	420.67	327.55	490.85`
Nagelkerke $R^2$	.28	.12	.06

*Note.* CI = confidence interval

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Table 15. Logistic regression models for Choice and control in daily activities and service coordination among Black participants (n=164)

Independent variables	Choice and control in daily activities (n=153) Odds ratio 95% CI	Choice and control in service coordination	
		Choice in services (n=130) Odds ratio 95% CI	Choose paid help (n=128) Odds ratio 95% CI
<i>Predisposing</i>			
Age	.92* .87-.98	.94* .88, 1.00	1.01 .96, 1.07
Female	.37 .11-1.32	.96 .30, 3.05	.65 .23, 1.82
Married	.49 .08-2.94	.70 .12, 3.94	.45 .09, 2.30
<i>Transition Challenges</i>			
Engagement	.25* .08, .84	.38 .12, 1.20	1.86 .67, 5.21
Mental	1.10 .31, 3.94	.83 .28, 2.43	.29* .10, .81
<i>Enabling</i>			
Living Arrangement			
Spouse	.25 .02-2.67	.55 .05, 5.72	.94 .12, 7.61
Other Family	.47 .11-2.04	.69 .13, 3.55	.68 .20, 2.29
Live-in Caregiver/Supervised housing	.45 .11-1.82	.36 .10, 1.37	1.20 .37, 3.88
Instrumental support	1.67 .53-5.32	.84 .28, 2.57	1.81 .68, 4.83

*Need*

ADLs/IADLs, M	.89	1.27*	1.05
	.75, 1.05	1.05, 1.52	.90, 1.21
Depressive symptoms	.52	.53	.52
	.19, 1.48	.19, 1.52	.21, 1.28
Financial Inadequacy	.60	1.00	1.10
	.23, 1.54	.40, 2.54	.49, 2.47
<i>Environment</i>			
Region 2	3.40*	1.30	1.44
	1.00, 11.70	.41, 4.12	.53, 3.94
Region 3	1.99	.80	1.53
	.54, 7.36	.24, 2.59	.55, 4.28
Home	.51	.76	1.89
	.16-1.67	.17, 3.35	.62, 5.77
Constant	15.15	11.97	.86
Model summary			
Chi-square	46.23	16.10	14.66
(df, p-value)	(15, <.001)	(15, >.05)	(15, >.05)
-2 Log likelihood	122.38	119.32	156.83
Nagelkerke $R^2$	.40	.18	.14

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*Note.* CI = confidence interval

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$



Table 16. Bivariate analysis comparing HCBS to choice and control in daily activities and service coordination (n=240)

	Choice and Control in daily activities	Choice in services	Choose paid help
	%	%	%
Personal Care Level 1	$p < .001^{***}$	$p > .05$	$p > .05$
Yes	54	75	41
No	77	80	52
Personal Care Level 2	$p < .05^*$	$p > .05$	$p < .05^*$
Yes	76	81	54
No	60	75	40
Functional Care	$p < .001^{***}$	$p < .05^*$	$p > .05$
Yes	87	86	51
No	58	74	46

Note. CI = confidence interval

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Table 17. Bivariate analysis comparing HCBS to choice and control in daily activities and service coordination among White participants (n=182)

	Choice and Control in daily activities	Choice in services	Choose paid help
	%	%	%
Personal Care Level 1	$p < .001^{***}$	$p > .05$	$p > .05$
Yes	53	74	43
No	78	82	52
Personal Care Level 2	$p < .01^{**}$	$p > .05$	$p > .05$
Yes	77	81	53
No	58	76	42
Functional Care	$p > .05$	$p > .05$	$p > .05$
Yes	87	87	54
No	58	75	46

Note. CI = confidence interval

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Table 18. Bivariate analysis comparing HCBS to choice and control in daily activities and service coordination among Black participants (n=58)

	Choice and Control in daily activities %	Choice in services %	Choose paid help %
Personal Care Level 1	$p>.05$	$p>.05$	$p>.05$
Yes	56	80	33
No	75	75	53
Personal Care Level 2	$p>.05$	$p>.05$	$p>.05$
Yes	71	79	56
No	67	71	29
Functional Care	$p<.05^*$	$p>.05$	$p>.05$
Yes	87	83	45
No	56	71	48

Note. CI = confidence interval

\* $p<.05$ . \*\* $p<.01$ . \*\*\* $p<.001$

Table 19. Logistic regression models for Choice and control in daily activities and service coordination including HCBS (n=240)

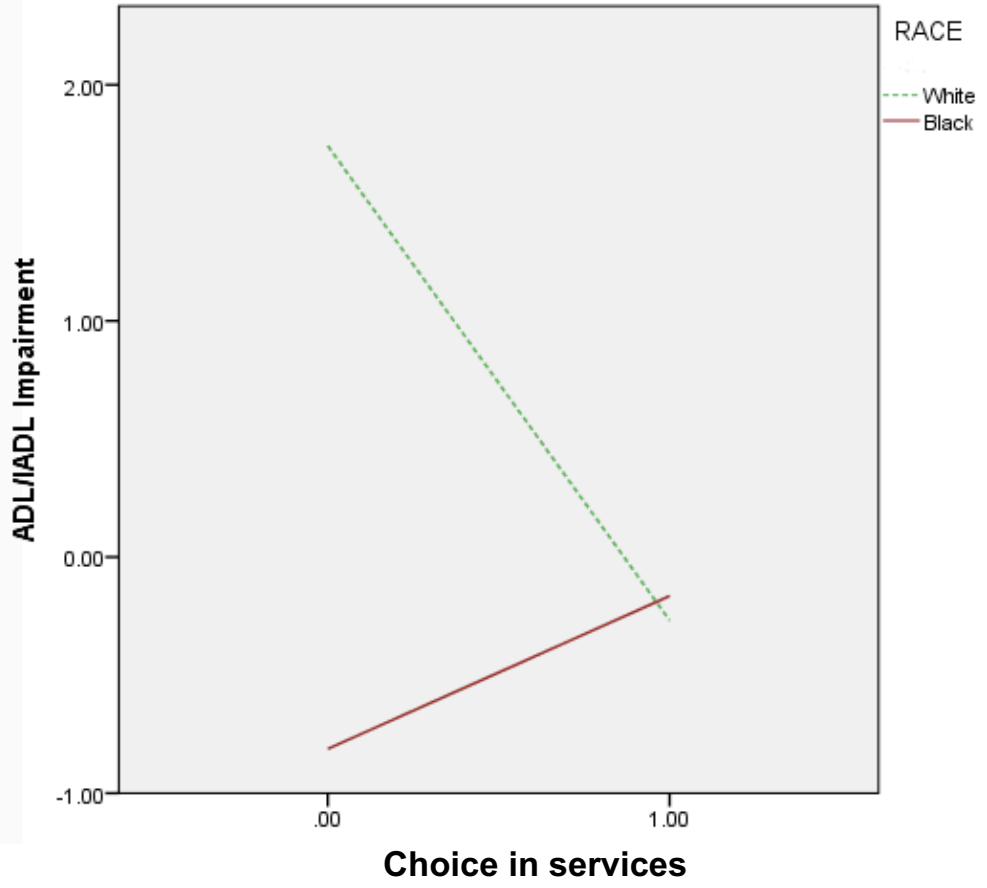
Independent variables	Choice and control in daily activities (n=232) Odds ratio 95% CI	Choice and control in service coordination	
		Choice in services (n=211) Odds ratio 95% CI	Choose paid help (n=208) Odds ratio 95% CI
<i>Predisposing</i>			
Age	.96 .92, 1.00	.99 .95, 1.04	.99 .96, 1.03
Female	.68 .30, 1.53	1.73 .72, 4.18	1.16 .57, 2.37
Black	.70 .31, 1.57	.69 .27, 1.73	.75 .37, 1.54
Married	.74 .31, 1.78	1.05 .38, 2.93	1.37 .59, 3.17
<i>Transition Challenges</i>			
Housing	2.16* 1.02, 4.51	.97 .42, 2.62	.83 .44, 1.54
Engagement	.59 .25, 1.42	.39* .15, 1.00	1.04 .48, 2.22
Mental	.32** .14, .74	.66 .26, 1.66	.74 .34, 1.59
<i>Enabling</i>			
Instrumental support	1.06 .50, 2.27	.91 .39, 2.16	1.79 .92, 3.48
<i>Need</i>			
ADLs/IADLs, M	.89 .77, 1.03	.81* .68, .96	1.01 .88, 1.15
Depressive symptoms	1.58 .79, 3.14	.58 .27, 1.28	.57 .31, 1.05
Financial Inadequacy	.58 .29, 1.18	.41* .19, .91	1.27 .68, 2.38

<i>Environment</i>			
Region 2	1.27 .54-2.99	2.19 .79, 6.04	1.08 .52, 2.26
Region 3	.59 .20, 1.72	.85 .24, 3.00	1.67 .64, 4.37
Home	.93 .43, 2.02	1.30 .52, 3.28	1.05 .51, 2.15
<i>HCBS</i>			
Level 1 Personal Care	.48 .05, 4.90	3.19 .44, 23.24	1.42 .31, 6.48
Level 2 Personal Care	.71 .08, 6.45	2.65 .45, 15.58	2.41 .62, 9.32
Functional Care	3.94** 1.43-10.85	3.18* 1.03, 9.80	.98 .44, 2.21
<i>Interactions</i>			
Race x ADL/IADL impairments	1.25 .97-1.62	1.43* 1.08, 1.90	1.05 .83, 1.31
Constant	4.58	2.05	.41
<i>Model summary</i>			
Chi square ( <i>df</i> , <i>p-value</i> )	58.29 (18, <.001)	31.66 (18, <.001)	17.03 (18, >.05)
-2 Log likelihood	213.70	173.93	254.66
Nagelkerke $R^2$	.33	.23	.11

*Note.* CI = confidence interval

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Figure 2. Moderation relationship between ADL/IADL impairment and race



Note. ADL/IADL impairments shown are centered mean scores

Table 20. Logistic regression models predicting HCBS (n=240)

	Level 1 Personal Care (n=240)	Level 2 Personal Care (n=240)	Functional Care (n=240)
	Odds ratio 95% CI	Odds ratio 95% CI	Odds ratio 95% CI
<i>Predisposing</i>			
Age	1.03 .99, 1.08	.98 .95, 1.02	.98 .94, 1.02
Female	2.51* 1.20, 1.23	.81 .39, 1.70	1.03 .45, 2.36
Black	.69 .32, 1.52	2.80 .78, 10.12	3.63* 1.00, 13.11
Married	.36* .15, .86	2.60* 1.18, 5.74	1.36 .58, 3.19
<i>Enabling</i>			
Instrumental support	.28*** .14, .57	2.03* 1.09, 3.78	1.48 .74, 2.97
<i>Need</i>			
ADLs/IADLs, M	1.29*** 1.15, 1.44	.89* .81, .98	.71*** .63, .80
Depressive symptoms	1.30 .69, 2.46	.64 .36, 1.15	.55 .28, 1.09
Financial Inadequacy	.81 .42, 1.54	1.39 .76, 2.53	.50* .25, 1.01
<i>Environment</i>			
Region 2	.63 .29, 1.38	1.51 .75, 3.03	1.46 .68, 3.12
Region 3	.84 .32, 2.20	.78 .33, 1.84	2.45 .93, 6.51
Lives in home	1.59 .77, 3.29	.65 .33, 1.27	1.85 .86, 3.97
<i>Interactions</i>			
Race x Gender		.43 .10, 1.96	.14* .03, .73
Constant	.67	.92	.39
<i>Model summary</i>			
Chi square (df, p-value)	58.98 (11, <.001)	33.42 (12, <.001)	71.63 (12, <.05)
-2 Log likelihood	239.27	276.41	227.65
Nagelkerke R <sup>2</sup>	.31	.18	.37

Note. CI = confidence interval

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$