

5-12-2019

# Community Living in Context: Rural, Suburban, and Urban Differences Among Older Money Follows the Person Participants

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## Recommended Citation

Ligus, Kaleigh, "Community Living in Context: Rural, Suburban, and Urban Differences Among Older Money Follows the Person Participants" (2019). *Master's Theses*. 1354.  
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**Community Living in Context: Rural, Suburban, and Urban Differences Among Older**

**Money Follows the Person Participants**

**Kaleigh Ligus**

**B.S., University of Saint Joseph, 2015**

**A Thesis**

**Submitted in Partial Fulfillment of the**

**Requirements for the Degree of**

**Master of Arts**

**at the**

**University of Connecticut**

**2019**

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**2019**

**APPROVAL PAGE**

**Master of Arts Thesis**

**Community Living in Context: Rural, Suburban, and Urban Differences Among Older  
Money Follows the Person Participants**

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## **Abstract**

Older adults (65+) are a growing and significant population in the United States. Due to medical conditions and other social factors, some older adults may move to institutional settings to receive care. The Money Follows the Person (MFP) Rebalancing Demonstration is a federal initiative that offers Medicaid recipients the opportunity to live independently in the community by facilitating transitions from institutional settings. A secondary data analysis was performed using longitudinal data from a Quality of Life (QoL) survey conducted with 1,577 older adults in Connecticut (CT). The purpose of these analyses was to explore potential differences among rural, suburban and urban dwelling older MFP participants in CT. This study sought to examine potential relationships between rural residence and three domains: health outcomes, community living and life satisfaction. First, health outcomes were assessed using rates of acute care utilization, reinstitutionalization and self-rated health. Next, the study examined differences in transportation and community integration among the sample. Finally, the study examined differences in life satisfaction among participants in the three geographical categories. Overall, there were no differences between groups in any dependent variable at the twenty-four month follow ups. At the six month follow up, rural residents reported greater difficulties with transportation and urban residents reported higher levels of community integration than either rural or suburban residents. At the twelve month follow up, rural residents reported a higher instance of reinstitutionalization and suburban residents reported greater self-rated health. This research has the potential to inform policymakers about the impacts of the MFP program regarding rural, suburban, and urban older adults.

## **Community Living in Context: Rural, Suburban, and Urban Differences Among Older Money Follows the Person Participants**

There is a demographic shift occurring worldwide with older adults living longer than ever before (Johnson, Jr. & Parnell, 2016-17). In the U.S., the current life expectancy from birth is 78.6 (Xu, Murphy, Kochanek, Bastian & Arias, 2018). The federal government expects the number of U.S. older adults (65+) to reach 72 million by the year 2030, representing twenty percent of the population (Centers for Disease Control and Prevention [CDC], 2013). Research shows that most older adults prefer to age-in-place and live independently in the community (Poo, 2015). However, a portion of older adults who have medical and social needs that require formal care move into a skilled nursing facility (SNF) to receive this care (Luppa, Luck, Weyerer, König, Braehler et al., 2010). It is estimated that over sixty percent of older adults will need long-term services and supports (LTSS) at some point in their lives (Ryan & Edwards, 2015). Medicaid is the largest payer of LTSS in the country and contributes to the sustainable coordinated care to people with disabilities and chronic conditions who need assistance with activities of daily living (ADLs) and independent activities of daily living (IADLs) (Medicaid, 2019; Reaves & Muscumeci, 2015). Disabled individuals may use LTSS through either institutional care or home and community-based services (HCBS) (Reaves & Muscumeci, 2015).

Older adults may enter institutional care, such as SNFs, due to illness, frailty or lack of appropriate at-home caregiving assistance and remain living there until death (Luppa et al., 2010; Poo, 2015). According to the CDC (2017), as many as 1.4 million people nationwide lived at a SNF in 2014 and 85% of those residents were older than 65 (Centers for Medicare and Medicaid Services [CMS], 2015). The cost of SNFs can place a large burden on families and government insurance providers such as Medicare and Medicaid. The average private pay facility rates in CT

in 2018 was \$422 a day (Kaiser Family Foundation, 2017; The CT Partnership for Long-Term Care, 2018).

Many older adults would choose to live in the community rather than a SNF when faced with the need for care (Ryan & Edwards, 2015). In *The Age of Dignity*, author Ai-Jen Poo states, “nearly 90 percent of Americans feel institutions are not [a place to die]. The great majority of us want to live and age at home” (2015, p.2). Living in a subpar SNF can potentially deprive an older adult of dignity and independence, thereby reducing one’s self-esteem and limiting one’s quality of life (Degenholtz, Resnick, Bulger & Chia, 2014; Johnson & Bibbo, 2014). To address some of these issues, in 2005, the Money Follows the Person (MFP) Rebalancing Demonstration was developed through federal legislation to help rebalance the federal LTSS system. MFP intends to improve home and community-based services (HCBS) infrastructure in states and increase personal choice and control for those living in institutions by helping them transition to the community with the necessary supports (S.1394, 2003). MFP transitions Medicaid recipients, of any age, who have lived in institutions (such as nursing homes, group homes with more than four residents and rehabilitation hospitals) for at least ninety days back into the community, if they want to leave (Irvin, Bohl, Stewart, Williams, Steiner et al., 2017). MFP participants may transition to single family dwellings, apartments and/or live with family and receive HCBS through contracted agencies in their region (Irvin et al., 2017). As of 2018, national data shows that over 75,000 individuals have transitioned through this legislation, including 5,074 CT participants (LeadingAge, 2018; UConn Health Center on Aging, 2019).

One aspect of MFP that has not yet been evaluated are outcome differences comparing where older adults transition to, such as: rural, suburban, and urban environments. Rural residents, when compared to non-rural residents, traditionally face issues with health care

utilization due to a lack of transportation to medical appointments and scarce medical infrastructure (National Rural Health Association [NRHA], 2019; New England Rural Health Roundtable [NERHR], 2014). These factors may contribute to why rural older adults often rate their health as poorer than non-rural residents (Bolin et al., 2015; Goins, Williams, Carter, Spencer & Solovieva, 2006). Rural residents often rely more on federal assistance programs than non-rural residents (NERHR, 2014). Older adults transitioning to rural dwellings through MFP may be at risk for negative health outcomes, disparities of life satisfaction and health due to the lack of mobility and available services in the community.

This study analyzed secondary data from a state-wide survey administered by the UConn Health Center on Aging between 2009 and 2017 among older MFP participants. The purpose was to explore whether there were differences among rural, suburban and urban residence in health care outcomes: acute care utilization, reinstitutionalization and self-rated health; community living including community integration and transportation and finally, life satisfaction. This research has the potential to inform both policymakers and researchers of rural health about the discrepancies among older MFP participants.

### **Literature Review**

The increase in life expectancy has caused population numbers to rise over the last several decades (CDC, 2013). Humans are living longer due to medical advances and better knowledge of health outcomes; older adults can work and be active longer and see many generations of family grow older (Wheeler, 2010). However, older adults are an especially vulnerable population due to multi-morbidity, polypharmacy and income disparities (Cubanski, Koma, Damico & Neuman, 2018; Ward & Schiller, 2013). Those living with disabilities face

additional medical needs and therefore need further supports and services to encourage independent living.

One important consideration for long-term services and supports (LTSS) is the degree to which the services provide opportunities for personal choice and control (Abbott, Klumpp, Leser, Straker, Gannod et al., 2017). A common response to changing healthcare policy is the shift from disease-centered care to person-centered care (Kogan, Wilber & Mosqueda, 2017). Older adults who have multifaceted medical needs may move into nursing homes to receive formal care; however, the quality of life in nursing homes is not always optimal and may hinder some older adults (Johnson & Bibbo, 2014) which may deprive them of dignity and independence, therefore, reducing one's self-esteem (Degenholtz, Resnick, Bulger & Chia, 2014).

In response to the historical bias toward institutional care, the increase in person-centered care, and the choice and control movement, the federal government approved new legislation in 2005 to rebalance the LTSS system through the Money Follows the Person (MFP) program (S.1394, 2003; Irvin et al., 2015a). The Deficit Reduction Act of 2005 approved funds to rebalance LTSS Medicaid spending (Irvin et al., 2015a). The cost of nursing home care has continued to rise over the last several decades adding expenses to Medicaid-sponsored coverage. Medicaid provides government-sponsored health insurance to low-income individuals (at or below the federal poverty level) but also insures individuals with physical, developmental and mental health disabilities (Klees, Wolfe & Curtis, 2016). Since the Affordable Care Act's 2010 expansion of Medicaid, a greater number of people meet Medicaid eligibility in states that elected to expand their programs (Klees et al., 2016).

### **Money Follows the Person**

The MFP program provides transition and care planning services to Medicaid recipients who have lived in institutional care for at least ninety days and want to move back to the community. The program allows them access to necessary supports through HCBS, ensuring that the community care plan costs do not exceed that individual's institutional costs (Irvin et al., 2017). Home care agencies coordinate HCBS throughout the state through a care manager, transition coordinator and housing coordinator (Irvin et al., 2017). The MFP program is specifically a transition program and provides care coordination to participants for the first 365 days after transition (Irvin et al., 2017). After 365 days, the participant transitions solely to Medicaid HCBS program coverage. In CT, the cost of services and supports during the transition and following the 365-day period are covered by Medicaid and are managed and distributed by the CT Department of Social Services (DSS). DSS determines individual budgets for participants through a standardized assessment and offers a comprehensive package of HCBS to participants after transitioning (CHCPE, 2019; Irvin et al., 2017). While the program is offered to a range of people with disabilities, or anyone on Medicaid who meets the MFP criteria, this study focuses solely on older adults (age 65+). Connecticut offers older adult participants a Medicaid HCBS waiver called the CT Home Care Program for Elders (CHCPE) which provides in-home supports and services including but not limited to: assistive technology, care management services, personal care attendant services and chore assistance (CHCPE, 2019).

MFP is a federal program and has been implemented in forty-seven states as of 2017 (Irvin et al., 2017). The majority of research completed on MFP outcomes has been published in reports by Mathematica Policy Research, Inc. (Mathematica) (Irvin et al., 2017; Irvin et al., 2015a; Irvin et al., 2015b). Mathematica developed and oversees the administration of a Quality

of Life (QoL) survey created in 2007 and assesses outcome measures of participants at twelve and twenty-four months after transition.

States that utilize the program have published additional research regarding the unique experiences of their MFP participants, from the QoL survey data, including CT. Research published on MFP participants in CT shows that participants are generally pleased with their participation and live satisfied lives two years following transition (Robison, Porter, Shugrue, Kleppinger & Lambert, 2015). According to the most recent national data for all MFP transitions between 2008 and 2013 in 33 states, MFP participants report higher life satisfaction one and two years after transition and ADL needs were met at higher levels when compared to institutional care (Irvin et al., 2017). Robison et al. (2015) report that low self-rated health and increased age, among other significant factors, were predictors of reinstitutionalization among the CT sample. Further, national data also suggests that MFP participants are satisfied with their living arrangements and over time and experience fewer barriers to community integration (Irvin et al., 2017). With respect to acute care services such as emergency room visits and overnight hospital stays, Mathematica reports that community-based MFP participants are less likely to utilize either than pre-transition and less than half (42%) of participants have at least one instance of reinstitutionalization (return to institutional care, after departure) within six months of transition (Irvin et al., 2017). Outcomes among rural, suburban and urban environment participants have yet to be evaluated among the national evaluation and CT's MFP program.

### **Rural Aging**

Approximately 15 percent of Americans (45 million) live in areas considered to be rural with approximately nine percent of CT residents (320,000) considered rural (Johnson, 2017; Mozdzer Gil, 2017). Rural areas tend to be further from major cities, have greater undeveloped

land space and have scarce resources like grocery stores and businesses (Johnson, 2017). Those living in rural areas may face additional issues with the lack of connections with neighbors, locals and community resources (NERHR, 2014). In general, rural residents tend to utilize government assistance programs, especially Medicaid services, more than non-rural residents potentially due to income disparities in those regions (NERHR, 2014). Additional concerns for rural residents include the proportion of rural residents who have a disability and rely on access to assistance networks (NERHR, 2014).

Rural aging is one of the fastest growing migration patterns in the U.S. with more older adults (65+) living in rural areas than urban areas (Cromartie & Nelson, 2009; Johnson, 2017; NERHR, 2014). Older adults may move to rural locations to leave more densely-populated urban areas and may downsize homes (Cromartie & Nelson, 2009). However, most older adults in rural areas are aging-in-place and continue to grow old in their homes (Johnson, 2017). Rural communities are considered to be a ‘double-jeopardy’ for Americans when faced with both an aging population and a lack of services and medical infrastructure (Joseph & Cloutier-Fisher, 2005).

Rural environments contribute to a host of issues faced by older adults accessing healthcare (J. Thorpe, C. Thorpe, Kennelty & Pandhi, 2011). Rural residents are more likely to live fifteen miles away from a hospital compared to non-rural residents and continuously report greater lengths of windshield time (the length of the drive) to obtain health care than non-rural residents (NERHR, 2014; National Advisory Committee on Rural Health and Human Services [NACRHHS], 2011). Having a driver’s license and access to a personal vehicle has the potential to enhance older adults’ access to medical appointments, however, the use of a personal vehicle and driving may not be possible for some older adults with disabilities. Also, rural residents

generally do not have access to public transit due to lack of infrastructure; the availability of public transit can be sparse, unusable, and/or unreliable. This deficit can impact or limit people's ability to attend medical appointments (Arcury, Preisser, Gesler & Powers, 2005).

Connecticut's rural residents live in a unique vicinity with proximity to large metropolitan cities such as New York and Boston, however, there are certain parts of CT that may lack proper care. Rural residents, in CT generally, have a greater risk of death and chronic illness, than suburban and urban residents (Mozdzer Gil, 2017). According to CT DSS (2019), Medicaid provides medical transportation to recipients in CT for Medicaid-covered services such as medical appointments, therapist visits, etc., however, this service has been criticized for reports of being late, not showing up before or after appointments or lacking the appropriate vehicles such as wheelchair accessible vans (Kovner, 2018). People who are unable to get to medical appointments due to limited transportation options may consequently be at risk for poorer health. The cost of medical transportation is a key factor, but also omits emergency needs at times that medical or public transit is not running, i.e.. holidays, weekends and nights (Mozdzer Gil, 2017).

Across multiple studies, older adults in rural environments rate their health as poor or fair more often than urban dwellers (Cohen, Cook, Sando & Sabik, 2018; Fan, Shah, Veazie & Friedman, 2011). Self-rated health represents the perception of one's health status or current health ranking, typically on a scale ranging from poor to excellent (Jylha, 2009). This rating views general well-being as subjective and explores respondent's health status at a given time. Further, a poor view of one's health may lead to a decrease in life satisfaction. A positive influence of social support may affect older adults' life satisfaction (Cheung & Pan, 2019). MFP participants receive HCBS including, but not limited to, personal care assistance and perhaps

differences in availability in agency support may influence life satisfaction among this population. Potential knowledge gaps in what is available in rural areas can lead to lower rates of HCBS use among this population (Sun, 2011). It has been suggested that the increase in availability of resources increases use, thus increasing health outcomes most often not seen in rural areas (Siconolfi et al., 2019).

Understanding how the rural environment affects older adults, especially those with Medicaid who once lived at an institution and now receive HCBS, can help to better create policies and programs to address the unique needs of these older adults. This study seeks to understand whether the influence of a social service program such as MFP (with the primary goal of transitioning to the community and preventing reinstitutionalization) is successful in its capacity to maintain participants' ability to live in the community independently in rural settings.

### **Current study**

The aims of the present study were to explore whether there were differences among the sample of rural, suburban and urban residents in three domains: health care outcomes, community living and overall life satisfaction among the older adult sample. The specific research questions are:

- 1) Is there a difference in health care utilization including emergency room, hospitalization and reinstitutionalization among rural, suburban and urban residents?
- 2) Do rural residents report lower rates of self-rated health compared to suburban or urban residents?
- 3) Is there a difference in community integration among rural, suburban and urban residents?

4) Are rural residents reporting a greater deficit in transportation mobility compared to suburban or urban residents?

5) Do rural residents report lower rates of life satisfaction compared to suburban or urban residents?

It is hypothesized that the rural residents in this sample of older adults, following transition from an institution through MFP, will differ in the three domains when compared to suburban or urban residents. To address these questions, the following hypotheses will be tested:

H<sub>1</sub>: Rural residents will have lower health care utilization rates (including acute care and reinstitutionalization) and lower self-rated health.

H<sub>2</sub>: Rural residents will have greater deficits in transportation compared to suburban or urban residents and experience lower rates of community integration.

H<sub>3</sub>: Rural residents will report lower ratings of overall life satisfaction when compared to urban and suburban residents.

## **Methods**

This study analyzed data from a longitudinal, secondary dataset, comprised of the CT MFP evaluation Quality of Life survey (QoL) which was collected by the UConn Health Center on Aging between 2009 and 2017. This section will explain the study participants, the QoL survey, the specific questions used to define the variables created, and the analysis employed.

### **Participants**

All participants included in this analysis are age 65+ and moved from an institutional care setting to community living through MFP from 2009 to 2017. In CT specifically, eligibility is determined using specific criteria by a care manager and participants sign a formal consent form including the permission to be contacted for follow-up Quality of Life (QoL) surveys. The

CHCPE waiver serviced participants who met nursing home level of care through HCBS in their homes. It is important to note that CHCPE services all older adults on Medicaid who meet nursing home level of care and not just those participating in MFP; all CHCPE participants are eligible to receive the same services. Participants can be referred to the program by inquiring or engaging with a SNF social worker to initiate the application process.

Due to the nature of the longitudinal study, all participants completed at least a six month follow up interview but not all participants had yet completed a QoL survey at twelve- and twenty-four months after transition because those surveys were not yet due. For participants who had not yet completed a twelve- or twenty-four month interview, all complete data from their earlier surveys were retained in the data analysis to provide a complete sample for the analyses focused on those earlier time points. Inclusion criteria reflects the aim of this study and as such reveals the actual change in outcomes on a longitudinal measure. The full participant pool was retained for the acute care and reinstitutionalization questions. However, participants living in an institutional care setting were removed from the participant pool to ensure the responses reflected community living for the remaining questions.

### **Secondary Data Set**

CT MFP participants' surveys included the full national MFP QoL survey, developed by Mathematica Policy Research, Inc. and an additional set of questions added by the CT evaluation team at UConn. The QoL survey asked questions of all MFP participants on a voluntary basis before transition, and at six- (unique to CT), twelve-, and twenty-four-months post-transition to measure various components of participants' quality of life before and after transition. Participants completed the survey by phone or in person. Baseline interviews (prior to transition) were conducted by community-based agency staff, called transition coordinators, contracted by

CT DSS. UConn Health Center on Aging researchers conducted all follow up interviews. The national survey items data were submitted to Mathematica on a quarterly basis to include in the national MFP program evaluation. Interviewers asked the questions directly to the participant, to the participant with another's assistance (family member, friend, or an unpaid caregiver) or as a proxy interview (completed without input by the participant with a family member, friend or unpaid caregiver). Mathematica's national QoL survey contains forty-two questions in seven modules: living situation, choice and control, access to personal care, respect and dignity, community integration and inclusion, satisfaction and health status. The national QoL survey was developed from several sources (Sloan & Irvin, 2007):

The majority of questions are based on the Participant Experience Survey (Version 1.0 of Mental Retardation/Developmental Disabilities 2003, MEDSTAT Group, Inc.), although a few items are drawn from other instruments (ASK ME!, Cash and Counseling, National Core Indicator Survey (NCI), Quality of Life Enjoyment and Satisfaction Questionnaire—Short Form, and the Nursing Home Consumer Assessment of Health Plans Survey (NH CAHPS).

States had the option to ask additional questions to enhance their understanding of MFP participants' experience. When the CT MFP program started in 2008, the CT MFP evaluation team added approximately fifty questions to the QoL survey to assess health care utilization, social engagement, financial adequacy, daily living activities and assistive technology and other device needs.

## **Dependent Variables**

**Health care utilization:** Connecticut created a set of questions to assess rates of acute care service use and reinstitutionalization. The following two questions determined acute care

utilization: ‘*Since you moved out of the nursing home in [month]/since the last interview, did you use an emergency room at a hospital?*’, ‘*Since you moved out of the nursing home in [month]/since the last interview, were you hospitalized overnight or longer?*’ The following question assessed reinstitutionalization: ‘*Since you moved out of the nursing home in [month]/since the last interview, were you admitted to a nursing home or other facility overnight or longer?*’ Participants answered all questions with dichotomous responses: yes or no. And provided further information on the specific reason of utilization using both qualitative and quantitative data collection methods (data not shown).

**Self-rated health:** Connecticut study investigators added the following question to address self-rated health: “*In general, would you say your health is:*”. Participants responded using a scale (excellent, good, fair, poor). This question was adapted from the RAND 26-Item Short Form Survey (SF-36) to assess self-reported patient outcomes (RAND, 2019).

**Community integration:** A five item scale created by Mathematica researchers was adapted from the Participant Experience Survey (Version 1.0 of Mental Retardation/Developmental Disabilities 2003) (MEDSTAT Group, Inc., 2003) to determine the level of community integration among participants. Questions include: ‘*Can you see your friends and family when you want to see them?*’, ‘*Can you get to the places you need to go, like work, shopping, or the doctor’s office?*’, ‘*Is there anything you want to do outside [the facility/your home] that you can’t do now?*’, ‘*Do you go out to do fun things in your community?*’ and ‘*Do you miss things or have to change plans because you don’t have a way to get around easily?*’. Respondents answered each question utilizing dichotomous responses: yes or no. These responses were summed on a scale of zero to five with higher scores indicating greater community integration.

**Transportation:** One question in the QoL survey assessed transportation mobility. This question was singled out of the community integration scale to highlight transportation among this sample. Mathematica adapted this question from the Participant Experience Survey (Version 1.0 of Mental Retardation/Developmental Disabilities 2003) (MEDSTAT Group, Inc., 2003). The question was, ‘*Can you get to the places you need to go, like work, shopping, or the doctor’s office?*’ Participants responded using dichotomous responses: yes or no.

**Life satisfaction:** Participants answered the following question to assess global life satisfaction, ‘*Taking everything into consideration, during the past week have you been happy or unhappy with the way you live your life?*’ Responses were dichotomous: happy or unhappy (happy response indicated greater life satisfaction). Mathematica adapted this question from the Quality of Life Enjoyment and Satisfaction Questionnaire – Short Form (Q-LES-Q-SF) (Endicott, Nee, Harrison & Blumenthal, 1993).

### **Independent Variable**

Participants’ town of residence were coded into three geographic categories: rural, suburban and urban. The United States Census Bureau (USCB) defines an urbanized area (urban) as a town of >50,000 people; and an urban cluster (suburban) as >2,500 but <50,000 people. The USCB considers any town or city that does not fall under urban or suburban criteria to be rural (USCB, 2015). However, the CT Office of Rural Health (CT-ORH) further refines the definition of rural as: a population of 10,000 or fewer people and “a population density of 500 or less [sic] people per square mile” (CT-ORH, 2019).

In this study, these definitions were used to create three non-overlapping categories, which were used to categorize each town in CT where an MFP participant lived: rural (<10,000 and a population density of 500 or fewer), suburban (a population density of more than 500 and

<10,000 OR >10,000 and <50,000) and urban (>50,000, regardless of population density). This study utilized CT population data from 2017, accordingly, 49% (n=82) of the state's towns were suburban, 40% (n=68) were rural, and 11% (n=19) were urban (Table 1).

The analysis showed that more than half of participants (48%) resided in urban cities, 44% lived in suburban towns and 8% lived in rural towns (Table 1). There are 169 towns in CT and not all CT towns were represented in this sample, (n=133, 79%).

### **Analysis**

All statistical analyses were performed using SPSS Statistics Version 25. The independent variable was town designation: rural, suburban or urban. Responses of "Don't know" or "Refused" on any question were excluded from analysis by utilizing the valid percent. Chi-square tests were conducted ( $p < 0.05$ ) to establish relationships between variables.

To test H<sub>1</sub>, a chi-square test was performed to evaluate the relationship between rural, suburban or urban residence and emergency room use, hospitalization or reinstitutionalization at six, twelve and twenty-four months after transition, respectively. To test H<sub>2</sub>, a chi-square test explored the relationship between transportation mobility and residence at all three time points, respectively. ANOVA testing was used to determine associations between community integration and rural, suburban and urban residence at all three time points. Finally, to test H<sub>3</sub>, a chi-square test was conducted to determine associations between life satisfaction and residence at all three survey time points.

First, SPSS was used to establish means and frequencies of descriptive data including demographic information at program baseline. Data was sorted to include only participants who were 65 or older at the time of transition, were receiving CHCPE services and had completed at least the six-month QoL survey. Next, frequencies were run to display the means of age, gender

and other descriptive data. Next, chi-square analyses were conducted with all dependent variables and an ANOVA was run to determine a relationship among community integration.

## **Results**

The following section outlines the results of the participant sample (Table 1) and of the chi-square tests completed with the sample of rural, suburban and urban older MFP participants (Table 2). First, the results show the QoL survey response rates of health care utilization type separately (acute care: emergency room use and hospitalization) and reinstitutionalization. Next, the results show the responses for self-rated health among the sample. Subsequently, the results for the chi-square test of transportation and the results show the rates of life satisfaction stratified by town designation and survey time point. Finally, the ANOVA of community integration is shown.

### **Participants**

Total sample size included in the current analyses consisted of 1,577 older adults (65+) (Table 1). At transition, the average age of participants was 77.42 years (SD=8.31). The oldest participant was 104. Sixty-four percent (n=1,012) of the sample was female and 36% (n=565) was male. Seventy-five percent (n=1,180) of the sample was White while 23% (n=352) were Black and two percent (n=45) were another race. Eleven percent (n=174) of the sample was Hispanic.

<b>Table 1. Descriptive Data at Six Months</b>				
	Total n (%)	Rural	Suburban	Urban
Age (SD)	77.42 (8.31)			
65-74	657 (41.7)	56 (41.2)	248 (37)	353 (46)
75-84	574 (36.5)	42 (30.9)	261 (39)	271 (35.3)
85 and older	343 (21.8)	38 (27.9)	161 (24)	144 (18.8)
<b>Gender</b>				
Female	1,1012 (64.2)	82 (60.3)	431 (67.7)	445 (62)
Male	565 (35.8)	54 (39.7)	206 (32.3)	273 (38)
<b>Primary Language</b>				
English	1,396 (88.7)	129 (94.9)	628 (93.7)	636 (83.1)
Spanish	121 (7.7)	4 (2.9)	27 (4)	90 (11.8)
Other	60 (3.6)	3 (2)	15 (2)	39 (5)
<b>Race</b>				
White	1,180 (75)	119 (88.1)	571 (85.4)	488 (63.7)
Black	362 (23)	14 (10.3)	86 (12.9)	261 (34.1)
Other	35 (2)	3 (9)	12 (34)	17 (49)
<b>Ethnicity</b>				
Hispanic	174 (11)	4 (2.9)	39 (5.8)	131 (17.1)
Non-Hispanic	1,401 (89)	132 (97.1)	630 (94.2)	636 (82.9)
<b>Marital Status</b>				
Married	245 (16.3)	27 (20.6)	126 (19.4)	91 (12.6)
Widowed	488 (32.4)	47 (35.9)	217 (33.5)	224 (30.9)
Divorced	400 (26.6)	30 (22.9)	184 (28.4)	184 (25.4)
Never Married	289 (19.2)	20 (15.3)	93 (14.4)	176 (24.3)
Legally Separated/Living Apart	84 (5.6)	7 (5.3)	28 (4.3)	49 (6.8)
<b>Living Arrangement</b>				
Alone	539 (35.5)	36 (27.5)	204 (31.7)	297 (40)
With Family	546 (36)	50 (38.2)	227 (35.3)	217 (29.2)
With Other Than Family	366 (24)	5 (3.9)	16 (2.5)	38 (5.1)

Supportive Housing/Other	68 (4.5)	8 (6.1)	26 (4.1)	34 (4.6)
Education Level				
Below High School	210 (21.9)	24 (27.9)	55 (15.6)	128 (26)
High School	347 (22.1)	30 (34.9)	144 (38.7)	171 (34.8)
Post-high school/Associates	275 (28.9)	21 (25.6)	124 (33.4)	129 (26.3)
Undergraduate Degree	66 (6.9)	3 (3.5)	28 (7.5)	35 (7.1)
Graduate Degree	28 (2.9)	6 (8)	11 (3)	11 (2.2)
No education	21 (2.2)	1 (1.2)	7 (1.9)	13 (2.6)
Participant Residence (by time point)				
Six Months		136 (8.6)	670 (42.5)	768 (48.7)
12 Months		136 (8.6)	637 (40.4)	718 (45.5)
24 Months		102 (6.5)	544 (34.5)	587 (37.2)
CT Town Designations				
Rural	82 (49)			
Suburban	68 (40)			
Urban	19 (11)			

**Quality of Life and Health Services Utilization by Rural, Suburban and Urban residence**

The following section will explore the chi-square results of the dependent variables in three domains: health outcomes, transportation and life satisfaction (Table 2). The section will also explore the results of the ANOVA for the community integration question (Table 3).

**Health outcomes**

To test hypothesis 1, that rural residents will have lower health care utilization rates (including acute care and reinstitutionalization) and lower self-rated health, a chi-square test was completed to evaluate potential relationships. There were no statistically significant findings at the six or twenty-four month follow-up. However, at the twelve-month interview, rural residents reported a higher instance of reinstitutionalization ( $\chi^2=9.335$ ,  $df(2)$ ) and suburban residents reported highest self-report health (excellent or good) ( $\chi^2=10.005$ ,  $df(2)$ ).

## Life Satisfaction

To test hypothesis 3, that rural residents will report lower ratings of overall life satisfaction when compared to urban and suburban residents, a chi-square test was conducted.

There were no statistically significant findings at any follow-ups.

**Table 2. Results by rural, suburban and urban residence (chi-square tests)**

		Rural n (%)			Suburban n (%)			Urban n (%)	
	6	12	24	6	12	24	6	12	24
Emergency room use	69 (51.9)	45 (36.9)	37 (49.3)	307 (46.2)	257 (43.5)	216 (51.3)	373 (49.7)	292 (44.3)	243 (55.6)
Hospitalization	50 (37.3)	33 (27.5)	29 (38.7)	232 (34.9)	193 (32.7)	171 (40.8)	269 (35.9)	212 (32.4)	195 (44.5)
Reinstitutionalization	32 (23.7)	27 (22)*	28 (38.4)	165 (24.7)	149 (35.1)*	144 (34.7)	148 (19.6)	135 (30.3)*	133 (30)
Self-rated health (Excellent/good)	64 (57.7)	59 (59)*	32 (54.2)	320 (58.8)	291 (62.6)*	182 (59.9)	361 (56)	287 (52.8)*	182 (53.4)
Self-rated health (Fair/poor)	47 (42.3)	41 (41)*	27 (45.8)	224 (41.2)	174 (37.4)*	122 (40.1)	284 (44)	257 (47.2)*	159 (46.6)
Transportation (Yes)	103 (90.4)*	93 (91.2)	58 (98.3)	499 (91.1)*	445 (94.7)	294 (94.8)	616 (94.5)*	518 (94.9)	319 (92.5)
Transportation (No)	11 (9.6)*	9 (8.8)	1 (1.7)	49 (8.9)*	25 (5.3)	16 (5.2)	36 (5.5)*	28 (5.1)	26 (7.5)
Life Satisfaction (Happy)	91 (84.3)	78 (81.3)	47 (82.5)	425 (82.8)	359 (82.5)	244 (84.7)	533 (86)	419 (81.7)	267 (83.2)
Life Satisfaction (Unhappy)	17 (15.7)	18 (18.8)	10 (17.5)	88 (17.2)	76 (17.5)	44 (15.3)	87 (14)	94 (18.3)	54 (16.8)

Notes. \*p<.05

## Community Living

To test hypothesis 2, that rural residents will have greater deficits in transportation compared to suburban or urban residents, a chi-square test was conducted (Table 2). There were no statistically significant findings at the twelve- or twenty-four-month follow-up. However, at the six-month interview, rural residents reported greater difficulty in accessing transportation ( $\chi^2=6.55$ , df (2)).

To explore whether rural residents experience lower rates of community integration, an ANOVA was run to compare scores among rural, suburban and urban residence. There were no statistically significant findings at the twelve- or twenty-four-month follow-up. However, at the six month interview, urban residents reported higher rates (3.57) of community integration compared to rural (3.39) or suburban (3.37) residents on a scale of zero to five ( $F=2,1321=4.600, p=0.010$ ).

Table 3. ANOVA of Community Integration					
Six Month					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.127	2	6.564	4.600	.010**
Within Groups	1884.839	1321	1.427		
Total	1897.966	1323			
Twelve Month					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.184	2	3.092	2.363	.095
Within Groups	1465.355	1120	1.308		
Total	1471.539	1122			
Twenty-Four Month					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.504	2	.252	.197	.821
Within Groups	912.116	713	1.279		
Total	912.620	715			
Notes. **p<.01					

## Discussion

This study was an analysis of MFP, a complex social service program. Longitudinal data analysis showed that rural, suburban and urban residence affected reinstitutionalization, self-rated health, community integration and transportation among this sample. Overall, there were no statistically significant differences between the groups at the twenty-four month follow up. At the twelve-month interview, rural residents reported a higher instance of reinstitutionalization and suburban residents reported the highest self-rated health (Excellent or Good). At the six-

month interview, rural residents reported greater difficulty in accessing transportation and urban residents reported higher rates of community integration. There were no statistically significant findings at any follow-ups regarding life satisfaction. All participants of this study were eligible to receive the same services through the CHCPE waiver. Differences in the groups can potentially be explained by the availability of resources by location.

Hypothesis 1, that rural residents will have lower health care utilization rates (including acute care and reinstitutionalization) and lower self-rated health was not supported. In fact, this study showed that rural residents reported higher instances of reinstitutionalization compared to suburban or urban residents. Also, at the twelve month interview, urban residents reported the poorest health.

The statistically significant finding that urban residents report excellent or good self-rated health less often at twelve months (but not at six or twenty-four months) compared to suburban or rural residents requires further exploration. As this is a longitudinal study, it is interesting that the reported health ratings for participants would fluctuate. This result has the potential to inform the greater research community about the influence of health care access and self-perceived health status with urban residents having greater proximity to infrastructure. With regard to this study, the increase in HCBS and ability to access agency care may have acted as a preventive method for acute service utilization for the rural and suburban residents. Further research should explore the predictive nature of each of these dependent variables such as self-rated health and reinstitutionalization.

Rural residents reported higher instances of reinstitutionalization at twelve months, but not six or twenty-four months. This result does support previous research that rural residents have a greater chance of returning to a SNF (Coburn, Ziller, Paluso, Thayer & Talbot, 2019).

However, the finding that reinstitutionalization was higher in rural residents only at twelve months after transition should be explored further. This statistically significant finding is important to both policymakers and stakeholders of social service program implementation. This perhaps explains why there were no significant differences in emergency room visits and hospitalizations for rural residents. This finding was surprising because of the nature of the access to hospitals for rural residents. The landscape of CT lends itself to the lack of community hospitals (Mozdzer Gil, 2017). However, the use of HCBS may potentially act as a mediator for the use of acute care services for rural residents. It has been suggested that agency support in rural environments is lacking, however, this study has shown that rural residents do not experience disparities compared to suburban and urban residents.

Hypothesis 2, that rural residents will have greater deficits in transportation compared to suburban or urban residents and experience lower rates of community integration was somewhat supported. Rural residents reported lower rates of transportation compared to suburban or urban residents at six months, but not at 12 or 24 months.

Community integration including the ability to access community infrastructure was assessed using a five-point scale. Urban residents reported higher rates of community integration at six months than the other two groups. The purpose of MFP is to encourage transitioning to the community to encourage independent living. The concept of aging-in-place encourages the use of one's environment successfully. One explanation could be that this research shows that MFP encourages the use of community services effectively leading to a lack of differences among rural, suburban and urban groups after the initial advantage in the months following transition for urban residents.

Transportation barriers are a major factor in the loss of healthcare access for many people with disabilities (McDoom, Koppelman & Drainoni, 2012). This research does support the notion that rural older adults lack appropriate transportation in the first six months, but only when asked about general access to transportation after transition. Medicaid provides medical transportation services to any MFP recipient (DSS, 2019). This question encompassed more than just medical appointments, therefore, it is possible that any differences account for the ability to get to other places (shopping, events, etc.). However, the problems with the Medicaid medical transportation vendor did not affect the findings with regard to location over the longer term. Perhaps participants in rural areas learned how to navigate the transit system or asked other people for rides and were able to access medical appointments and other community activities through other means by the twelve or twenty-four month follow ups. In addition, the increase in doctor's visits within the first few months after transition may also explain early difficulty in accessing the community. Potential ways to mitigate issues include telehealth and the ability for technology to monitor patient conditions (Syed, Gerber & Sharp, 2013). However, future policymakers should also consider the availability of internet connectivity for these rural residents.

There were no statistically significant differences between the three groups regarding life satisfaction at any time point. On average, life satisfaction was above 80% was for all groups at all three time points. This finding is relieving to understand that living in a rural environment did not predict negative life satisfaction.

Recent legislative changes including person-centered care embolden community dwelling older adults to age-in-place. The transition from institutional care to community living signifies an important step in encouraging aging-in-place for older MFP participants. The program intent

is to encourage the ability for all participants, including older adults to live successfully and independently in the community with the proper services and supports. Of significance for this research is the understanding that aging-in-place would encourage the use of home-based services for any older adult (Wiles, 2008).

The MFP program has provided generally positive results for participants nationally and in CT (Irvin et al., 2017; Robison et al., 2015). However, future research could examine differences in quality of life outcomes and health service utilization for MFP participants under age 65 living in rural, suburban or urban towns to identify potential constraints that may impact those of different ages and disabilities. Previous research on older MFP participants yielded interesting results including differences between living arrangements, race and choice and control (Fabius & Robison, 2019). The present study could also be stratified further by demographics: gender, race, living arrangement, etc. Further research could also consider the potential impacts of rural residents' loneliness.

Health care policymakers and researchers should continue to consider the notion of aging-in-place when researching rural aging. This study utilized a single-minded operationalization of health care utilization in an emergent time indicating use rather than access to preventative services (screenings, clinics, doctors, specialists, etc.). It should be noted that proximity to health care may influence older adults' choice to obtain services (Hanlon, 2018). This study showed that proximity may not be a predictor of health outcomes. Perhaps the use of HCBS can act as a mediator for the need to use health services. Health care providers should attend to the needs of all citizens regardless of proximity to large cities, where rural older adults may have to extend their resources to receive care. The demographic shift of older adults living

longer lends itself to further explore how health care access research conforms less to the individual need to how access to care influences daily life (Hanlon, 2018).

### **Limitations**

There are several limitations to this study as presented. One limitation to this research is the categorization of rural, suburban and urban towns. While this study did use recent population data and utilized accurate definitions of rural, suburban and urban towns according to the USCB and CT-ORH, the merging of these definitions may skew the results. The USCB does not consider most of CT to be rural. According to the latest information from the USCB, only 36 towns are rural in CT where this study considers 68 to be rural (2015). The methods used here to describe the rurality of CT are sound in their capacity to describe rurality based on population data and use local (CT-ORH) designations to create a more meaningful view of rurality in the state. However, it should be noted that the percentages here are not reflective of the USCB designations. In addition, this study has a small sample of rural residents. On average, eight percent of the participants in this sample were rural residents at any time point. When comparing differences between the groups, there lacks a credibility to the findings based on the small sample size.

Another limitation to this study is older adults participating in this program are afforded access to Medicaid-funded transportation to medical appointments. As discussed above, the question may skew responses to the lack of mobility for community events/activities rather than just medical appointments. While this question is useful in its simplicity, the results may not accurately reflect access to medical transportation. These transportation services are important for the safety and security of the participants. The question remains then, how well does this

provided transportation cover the participants' needs? Further research should examine the effectiveness of the funded transportation.

### **Conclusion**

This research has the potential to inform both MFP health researchers and policymakers for Medicare and Medicaid about the potential differences among rural, suburban and urban residents regarding health outcomes and community living. While the findings from this study did not support the three proposed hypotheses fully, there were several aspects of this research that should be considered in health research related to rural, suburban, and urban living. This study has the potential to inform the greater health research community of the impacts of the living location on the MFP program on older adults. Prior research indicates that rural residents have greater transportation barriers and lack sufficient health care access. Older adults living with disabilities have greater needs and cost, on average, more than those without disabilities. However, this research shows that the Medicaid supported HCBS may mitigate some issues related to access. Further research should explore access to in-home services as a mediator for outside health care utilization such as the preventive features and increase in person-centered care.

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## Appendix 1. Selected Questions from the Quality of Life (QoL) Survey

### MODULE 5: COMMUNITY INTEGRATION AND INCLUSION

I'd like to ask you a few questions about things you do. Can you see your friends and family when you want to see them?

Interviewer: Code "yes" if respondent indicates that they have either gone to see friends or family or that friends and family have come to visit them.

Yes 01

No 02

DON'T KNOW DK

REFUSED R

Can you get to the places you need to go, like work, shopping, or the doctor's office?

Yes 01

No 02

DON'T KNOW DK

REFUSED R

Is there anything you want to do outside [the facility/your home] that you can't do now?

Yes 01

No 02

DON'T KNOW DK

REFUSED

I'd like to ask you a few questions about how you get around. Do you go out to do fun things in your community?

Probe: These are things that you enjoy such as going to church, the movies or shopping?

Yes 01

No 02

DON'T KNOW DK

REFUSED R

When you want to go somewhere, can you just go, do you have to make some arrangements, or do you have to plan many days ahead and ask people for help?

Decide and Go 01

Plan Some 02

Plan Many Days Ahead 03

DON'T KNOW DK

REFUSED R

N/A

Do you miss things or have to change plans because you don't have a way to get around easily?

Probe: Do you have to miss things because it is hard for you to get there?

Yes 01

No 02

Sometimes 03

DON'T KNOW DK

REFUSED R

Is there any medical care, such as a medical treatment or doctor's visits, which you have not received or could not get to within the past month?

Probe: The medical care includes doctor visits or medical treatments that you may need.

Yes 01

No 02

DON'T KNOW DK

REFUSED R

Taking everything into consideration, during the past week have you been happy or unhappy with the way you live your life?

Happy 01

Unhappy 02

DON'T KNOW DK

REFUSED R

SELF-RATED HEALTH

In general, would you say your health is:

Excellent

Good

Fair

Poor

Do not know

Refused

#### EMERGENCY ROOM USE

Since we spoke to you on [date], did you use an emergency room at a hospital?

Yes  Go to Question 103a

No  Go to Question 104

Do not know  Go to Question 104

Refuse  Go to Question 104

#### HOSPITALIZATIONS (STAY OVER AT LEAST ONE NIGHT)

Since we spoke to you on [date], were you hospitalized overnight or longer?

Yes  Go to Question 104a

No  Go to Question 105

Do not know  Go to Question 105

Refuse  Go to Question 10

#### RE-INSTITUTIONALIZATION

Since we spoke to you on [date], were you admitted to a nursing home or other facility overnight or longer?

Yes  Go to Question 105a

No  Go to Question 106

Continually institutionalized since time of last interview  Go to Question 106

Do not know  Go to Question 106

Refuse  Go to Question 106