

NURSING HOME ADMISSIONS:

AN ANALYSIS OF SECONDARY DATA

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Chapter I

Introduction

The landscape of America is changing. Older adults over the age of 60 are projected to be 26 % of the population by the year 2050. Currently, older adults over 60 years of age compose 18 % of the population (Administration on Aging, 2010). These changes in demographic landscapes will be important for those making policy, those living in communities with older adults, and even those who provide direct services for communities in general, as they will be receiving an influx of older adults. The United States as a whole in every capacity (housing, economics, and society) will be affected by these changes.

As the baby boomer generation ages they will face many decisions about their health and lifestyle. In addition to general concerns about aging, they may begin to think about the places in which they live and if their living arrangements meet their changing needs.

As people age changes in the ability to perform necessary tasks in their homes arise (Erickson, Krout, Ewen, & Robison, 2006). Although it has been shown that many older adults would choose to live independently, they may eventually need long-term care (Choi, 2004). In data from 2006, an estimated 900,000 people lived in assisted living accommodations (Chen, et al., 2008). With the increase in the number of individuals in the older population, the number living in assisted living will also likely increase.

Older adults have many options when it comes to residential placement. They may choose to live: their current homes, in a senior independent living facility, in non-senior population housing, with a relative, with a child, in an assisted living facility, or in a nursing home (Choi, 2004). The choice of living space for elders may be dependent on a multitude of factors, some including cultural perceptions, family arrangements, and economic factors (Choi, 2004). There is a wealth of data on the demographics of those in nursing homes and assisted living facilities. Several studies have found that those at risk for entrance into a nursing home are more likely to be Caucasian, are of an advanced age, have specific types of chronic illness, have limitations on their ability to perform daily functions, have mental or cognitive decline, and live alone (Choi, 2004). Poverty also may play a key role in whether a person moves into a nursing home. Those unable to afford in-home care may be moved into nursing homes and will use Medicaid as the primary source of payment (Ness, et al., 2004).

Previous studies have focused on the impact of relocation from several points of assessment including psychological, social, economic, and demographic. Researchers have studied the impact on mental health and quality of life (Kelley-Gillespie & Farley, 2007; James and Sweaney 2010). There also have been reflections on the repercussions

on family dynamics following an elder member's move into a nursing home (Gladstone, Dupuis, & Wexler, 2006). A few researchers have focused on the economic impact of elder care and the strain that it puts on public assistance programs like Medicaid and Medicare (Chen and Thompson 2010; Kaye, Harrington, & LaPlante, 2010) and the economic impact of nursing care in general (Mayhew, Karlsson, Rikayzen, 2010; Ness, Ahmed & Aronow, 2004). Still more have categorized the type of person who currently lives in nursing homes (Friedman, Steinwachs, Rathouz, Burton, Mukamel, 2005; Himes & Hogan and Eggebeen, 1996; Davis and Laplane, 2004; Ness, et al, 2004; Painter & Lee, 2009). There have also been several comparison studies on how different segments of the population use nursing homes to care for their elderly (Davis & Lapane, 2004; Himes & Hogan 1996). Researchers have even taken a step further and theorized the decision making process of choosing to live in an assisted living facility (Chen et al, 2008).

Although these studies have given insight to the reasons elders choose to move, their applications are limited because of small sample sizes (Chen, et al, 2008). Previous articles have yet to be supported or refuted quantitatively. However, these qualitative theories can provide an in-depth analysis of a phenomenon that quantitative research is unable to do.

Statement of the Problem

The problem of the study was to provide an analysis of secondary data of the Health and Retirement Survey to assess the differences among elders who are permanent, temporary, or are non-residents of nursing homes.

The Purpose of the Study

The purpose of the study is to discover what is important for older adults when they transition into nursing homes. The study dissects the differences among three groups: permanent nursing home residents, temporary nursing home residents, and those in other living arrangements or non-nursing home residences. The results of this study can help policy makers, family members and older adults make informed decisions about their care, and if they need nursing home care, or if other alternatives like in-home care or assisted living facilities may be better options. It also seeks to highlight what differences may exist among the groups to determine if it is possible to create programs for those at risk for nursing home care to deter or delay entrance. The data used in the study is from the Health and Retirement Survey conducted by the University of Michigan and funded by the National Institute on Aging.

Significance of the Study

This study is significant because with the influx of baby boomers and their possible long- term care needs it is very important to identify who needs nursing home care, and who can use less expensive alternative care. Findings from this study can have an impact on both the financial wellbeing of aging individuals and government spending since nursing home care on average is more expensive than any other type of living option and is primarily paid for by public funding (Kaye, Harrington, & LaPlante, 2010).

Delimitations of the Study

The delimitations of the study were:

1. This study was an analysis of secondary data of the HRS Study

2. The study includes several cohorts: AHEAD', CODA', HRS', war-babies', early boomers', and mid boomers'. A new cohort has been added every six years starting in 1993. All participants are 51 years and older, and become entrants to the study at the age of 51.
3. The HRS study sample is multi-stage, clustered probability framework from a household screening of 69,337 housing units for all but two waves. The CODA and AHEAD cohorts were derived from Medicare enrollment records. The study oversamples African Americans, Hispanic people, and those who live in Florida.
4. This study matched those in the 2008 wave of the HRS study who are in nursing homes temporarily and those who are permanent residents of nursing homes, with those who are not residents of nursing homes, of the same age, similar health, and similar levels of ADL deficiency, to create comparison groups.
5. The study used one year of data from the longitudinal survey.
6. Descriptive statistics, two-way ANOVA, chi-squared and matching techniques were used to analyze the data.

Limitations of the Study

The limitations of the study were:

1. Even though literature may suggest that other variables may have an influence on elder housing decisions this study is limited by the questions asked on the Health and Retirement Survey.

2. Some variables considered by the literature to be important were missing a significant number of observations and could not be used in the analysis, like sensitive information pertaining to household income and racial characteristics.
3. Assisted Living facility residents were not included in the analysis because of a low number of observations reporting they lived in this type of housing.
4. Data is self-reported and may contain inaccurate information from the respondents.
5. The HRS sample size is limited by budget constraints and is oversampled for certain populations, which could affect data analysis.
6. This study only used data from the 2008 wave of the survey. Although questions are included about what has happened between the previous wave , larger patterns that may occur over long periods of time may be missed in analysis.

Assumptions of the Study

The assumptions of the study were:

1. The Health and Retirement Survey conducts research in an unbiased and ethically responsible manner.
2. The respondents have answered questions with reasonable honesty.
3. The breadth of questions asked of respondents will sufficiently explain some of the differences between older adults who are in nursing homes and other types of housing.

4. Data will sufficiently explain differences without express knowledge of older adults long-term patterns. Questions in the survey also help to understand chronic issues that have occurred over time without the use of additional survey data.

Hypotheses:

It is hypothesized that individuals in various living arrangements will differ based on demographic characteristics, functional limitations, health services and insurances, family structure and physical health. The hypotheses for each of these areas are listed below.

Demographics:

1. Individuals in the temporary and permanent nursing home groups will be more likely to be older and female (Cai, Salmon, and Rogers, 2009).

Functional Limitations:

2. Individuals who do not live in nursing homes (temporarily or permanently) will have fewer ADL deficiencies than those who are permanent and temporary residents of nursing homes (Diehl, Marsiske & Horgas, 2006).

Health Services and Insurance:

3. Individuals in temporary or permanent nursing home residents will be more likely using Medicaid and Medicare (Friedman, Steinwachs, Rathouz, Burton, & Mukamel, Chen and Thompson 2010; Kaye, and Harrington, & LaPlante, 2010).

Family Structure:

4. Individuals who do not live in a nursing home will have more relatives near (Choi, 2004 and Chen, 2008).

5. Individuals who do not live in a nursing home will have more social visits with other people than those who are in nursing homes (James and Sweaney, 2010 and Himes, Hogan, & Eggebeen, 1996).

Physical Health:

6. Individuals, who live in nursing homes, temporarily or permanently, will be more likely to have had a fall (Dunn, Furner, and Miles, 1993).

Definition of Terms and Abbreviations

1. IADL/ADL- Is an acronym for activities for daily living and instrumental activities for daily living, these activities include but aren't limited to: incontinence, difficulty preparing meals; difficulty shopping for groceries; difficulty with yard work; difficulty lifting ten pounds; and difficulty sitting for two hours.
2. HRS- Health and Retirement Survey, conducted by the University of Michigan, supported by the National Institute of Health.
3. LTC- long-term care, used when talking about a type of facility that provides care for an individual including meals, nursing, and bedside.
4. Older Adults- the survey begins when adults become 51 years of age and for the purposes of this study all references of older adults, unless referring to other literature, are above this age.
5. Independent Living- Those living independent includes those living in residential facilities for older adults but receive no help with ADL's.

6. Assisted Living Facility- Semi-independent living facilities, with little help from staff to residents for ADL's.
7. Nursing Home- Living facilities who offer instrumental help with ADL's.
8. Continuing Care Facility- continuing care facilities offer help throughout a continuum of care ranging from those who live independently, to those who need help with most or all ADL's.

Chapter II

Introduction

The purpose of the study was to examine elderly transitions into nursing facilities. The study uses longitudinal data from the University of Michigan's Health and Retirement Survey to support or refute hypotheses. The information given in this chapter includes the following: (a) Older Adults Now, (b) Older Adults in the Future, (c) Living Arrangements, (d) Theories on Housing Decisions, and (e) Summary,

Older Adults Now

According to the Administration on Aging's Profile on Older Americans: 2010. The older adult population is 1 in 8 Americans. In 2009, almost 20% of the older adult population was a minority- 8% African American, 8% Hispanic, 3% Asian or Pacific Islander and less than 1% American Indian or Alaskan Natives. Women outnumber men, 135 to 100, and this difference increases with age. The number of people who are over the age of 45, who will be 65 within the next two decades will increase by 26%. Older Americans who are 65 can expect to live an average of 18.6 additional years

Older Americans also vary on income; median household incomes average \$25,877 for single males, and \$15,282 for single women. For families with older adults the average income is \$43,702. Older adults typically receive income from Social Security, 87%; Assets, 54%; pensions, 28%; government pensions, 14%, and earnings, 25%. There were 3.4 million older adults were below the poverty level in 2009 (Administration on Aging, 2010).

Older men are more likely to be married than older women. Almost 12% of the older adult population are separated or divorced, and widows make up 41% of older women's marital status, and 4% of both older men and women were never married. In 2009, over half of older adults lived with their spouses, 72% of older men, and 40% of older women, if they were not in an institution. The proportion of Older adults living with their spouses decreases as people age, especially for women, and only 28.2% of women 75 years old and older will still live with a spouse (Administration on Aging, 2010).

Older adults who are not in an institution also vary on their living arrangements. Approximately 30.1% of older adults live alone, and the amount of older adults who live alone increase with their age (Administration on Aging, 2010). But, older adults have a variety of living arrangements such as living in their homes, a senior independent living facility, in non-senior living facility, with a relative, with a child, in an assisted living facility, or a nursing home (Choi, 2004).

Older Adults in The Future

The older population is projected to grow tremendously between the years 2010 and 2030 when the "baby boom" generation begins turning 65. The population aged 65 or older is expected to increase from 40 million in 2010 to 55 million in 2020, a 36 % increase. It is also projected that in 2030, there will be about 72.1 million older persons, which is double their population numbers from 2008. People 65 and over are expected to represent 19.3% of the population in 2030. Those in the population who are 85 and over are projected to increase from 5.8 million in 2010 to 6.6 million in 2020, or by 15%. Minority members of the population are projected to increase from 20.1% in 2010 to 23.6% of the elderly in 2020(Administration on Aging, 2010).

Living Arrangements

Importance

Older Adults living arrangements can have a concrete impact on their lives. It has the possibility to affect cognition as well as general health. Previous studies have correlated housing issues of accessibility and safety with latter injuries, hospital stays, and institutionalization (James & Sweaney, 2010). Homes are not only places for the elderly to perform daily living tasks, but also provide structures to hold meaning linking it to emotional and mental stability (James & Sweaney, 2010). In addition, the kind and quality of housing may also have effects on any disabilities older adults may have. Studies have shown that those who live in low-income public housing have a positive correlation with nursing home admission (Choi, 2004).

One of the most important factors of living arrangements may be health status, the baby boomer generation increases with age, the cost to care for them and their potential health issues is of increasing concern. Focus may be shifting to “quality of life” across a care continuum, allowing for cheaper options to be used when little care is needed, and transitioning to more skilled care as necessary. Older adults may first begin in independent senior living arrangements, and as care needs increase transition to assisted living facilities, and then to nursing homes, ensuring their quality of life meets their current health care needs.

Types of Housing

Throughout the literature there is several types of housing indicated that older adults tend to live in. These types vary depending on health, marital status, financial status, and other considerations. Some research also suggests that there are hindering and facilitating factors, such as: value judgments; attitudes about certain types of housing; knowledge about a particular type of housing arrangements; cost; and proximity of social support (Chen, 2008). In general there are types of housing situations that are common for elders: in their own homes; in a housing complex for elders (this type of facility may or may not have support services),;in a complex not specifically for older adults (Choi, 2004); with a relative; with another person who is not a relative (Himes, Hogan, & Eggebeen, 1996)

Housing Decisions

Older adults may choose their housing arrangements for several reasons. Even though it has been found that older adults, approximately 90%, would prefer to live

independently, that is not always a possibility (Sabia, 2008). Older adults may find that the cost of homeownership, such as taxes and upkeep may not be affordable. Health issues may also limit their ability to maintain duties associated with owning a home or living independently (Sabia, 2008). Access to social networks that can provide support is also important when choosing living arrangements (Himes, Hogan, & Eggebeen, 1996). Composition of neighborhood and community settings may also be an important determinant in elderly housing decisions.

Nursing Home Residents

The decision to enter a nursing home is a special consideration for older adults. Unlike other housing decisions, it is not associated with most adult's desires, but with losses (Sabia, 2008). Even for older adults who are in continuing care facilities, transitioning into nursing home care can represent a loss of agency and autonomy as well as a loss of social connections (Shippee, 2009). According to previous literature, the inhabitants of nursing homes have common demographic qualities that make them more likely to enter into long-term nursing home care. These qualities are racial, demographic, economic, and circumstantial (Kaye, Harrington, and LaPlante, 2010). Nursing home placement is likely for those with several or more ADL deficiencies or chronic disease (Manton, 2006). They are also more likely to live alone (Cai, Salmon and Rogers, 2009), have lost a spouse (Naditz, 2003), and need help managing their medications (Mitty, 2004). It also has also been observed that residents are more likely to be White, followed by African American, Latino/Latina, and least likely to be Asian/Pacific Islander, are of

advanced age, do not have children in the area, and have cognitive or mental issues (Chai, et al, 2009).

Theories on Housing Decisions

There is one theory that greatly influenced the work on this paper, Chen and colleagues' Qualitative Grounded Theory is used to specifically explain transitions into assisted living and long-term care facilities. Qualitative Grounded Theory is a general term for a type of qualitative research that involves careful reading of data from a source, then coding, with special attention to content, quality of information, and patterns. From this information themes are recognized and labeled. After this process hypotheses are developed and information is again processed to confirm the researcher's hypotheses (Chen, 2008).

The Chen and colleague' theory suggests that there are two types of events that are "push" factors: cumulative and sentinel, for those contemplating relocation to a nursing home. Elders may have a few cumulative events such as the loss of one or more activities for daily living, but a significant event usually gives the final push into plans to relocate. Five steps were discovered to occur after the initial decision to search for an assisted living or nursing home facility: (a) planning a transfer, (b) examining choices, (c) disposing unsuitable options, (d) and selecting a facility (Chen, 2008).

Theoretical frameworks described by Erickson et al. seem to support the Chen et al. theory. Lawton's ecological model of aging says that a person's behavior and contentment with life is based on the burdens of their environment and their perceived ability to meet those demands (Erickson, et al, 2006). This model is used to describe how

declining ability of older adults to meet the demands of their environment precedes the cognitive decision making process of searching for an environment where they are comfortable meeting its demands.

Litwak and Longino ‘proposed’ that there were three transitions relocations linked with life events in the latter age. The first is associated with disconnected from a work environment; those who make this move are usually married and have wealth. The subsequent move is in response to failing health. This move is usually relocation to a space closer to relatives and social supports. The third move is associated with a combination of illness and limited propinquity for support and leads to institutionalization (Erickson et al, 2008).

Another theory that seems to support the aforementioned theory is the “push and pull” theory of migration. This theory states that there are a multitude of pushing factors, such as a serious bout with an illness, and pull factors like having the ability to receive help quickly. Both push and pull factors influence a decision positively. (Erickson et al, 2008).

Summary

The population of older adults is growing (Administration on Aging, 2010). There are many decisions they will have to make concerning their welfare. Among the most important decision are their living arrangements, which can have a profound impact on their cognitive and physical health (James and Sweaney, 2010). One of the most important housing decisions is nursing home admission (Sabia, 2008). Multiple theories

have been cultivated to understand this decision-making process and further research is needed.

Chapter III

Introduction

The purpose of the study was to examine elderly transitions into nursing facilities. The study uses data from the University of Michigan's Health and Retirement Survey to support or refute hypotheses. The information given in this chapter includes the following: (a) arrangements for conducting the study (b) design of the study (c) variable selection process (e) an analysis of secondary data.

Arrangements for Conducting the Study

This study is an analysis of secondary data from the HRS study conducted by the University of Michigan. After an explanation of the study and information about faculty supervision and the department, permission to use the data was granted from the University of Michigan. The analysis of secondary data study is under the direction of the Center for Business and Economics Research in conjunction with the Fisher Institute for

Wellness and Gerontology to promote interdepartmental cooperation and increase the depth of scholarship.

Design of the Study

The HRS longitudinal survey has over 22,000 respondents who are over the age of fifty who have been surveyed bi-annually. This survey includes vital information pertaining to health, family structure, migration, and other variables (Health and Retirement Survey, 1992-2011).

The first stage of sampling insures, by using probability methods, the proportion of a group is to size from both Metropolitan and non-Metropolitan counties. This is preceded by a second sampling of areas within those areas differentiated in the primary units. The third piece of selection is followed by a complete listing of all housing units that are within the limits of the previously selected units. The third stage is a methodical selection of units from listings for the sample. The final part in the sampling design is the selection of an age-qualified person within the household unit. Study participant respond on average between 84% and 93% for all waves, with 66% overall response rates for subsequent waves after the initial interview. Interviews were conducted both by self-interviews, and if necessitated by proxy-interviews. Subjects who are initially institutionalized are not included in the study, but participants who move into institutions (prisons, nursing homes, etc) are not forced out from the study. Once a person is selected for the study, their household is included in the information, including spouses and those

who live with them. A family member may be used as the proxy or conduct an exit interview in case of mortality.

Variable Selection Processes

Previous Literature

Previous literature gives a base for variables. Each variable was chosen because it was a repetitive factor in the literature concerning nursing home admissions

Hypotheses:

It is hypothesized that individuals in various living arrangements will differ based on demographic characteristics, functional limitations, health services and insurances, family structure and physical health. The hypotheses for each of these areas are listed below.

Demographics:

- Individuals in the temporary and permanent nursing home groups will be more likely to be older and female (Cai, Salmon, and Rogers, 2009).

Functional Limitations:

- Individuals who do not live in nursing homes (temporarily or permanently) will have fewer ADL deficiencies than those who are permanent and temporary residents of nursing homes (Diehl, Marsiske & Horgas, 2006).

Health Services and Insurance:

- Individuals in temporary or permanent nursing home residents will be more likely using Medicaid and Medicare (Friedman, Steinwachs, Rathouz, Burton, & Mukamel, Chen and Thompson 2010; Kaye, and Harrington, & LaPlante, 2010).

Family Structure:

- Individuals who do not live in a nursing home will have more relatives near (Choi, 2004 and Chen, 2008).
- Individuals who do not live in a nursing home will have more social visits with other people than those who are in nursing homes (James and Sweaney, 2010 and Himes, Hogan, & Eggebeen, 1996).

Physical Health:

- Individuals who live in nursing homes, temporarily or permanently, will be more likely to have had a fall (Dunn, Furner, and Miles, 1993).

Health and Retirement Survey Concordance Variables

The Health and Retirement Survey has established a concordance to determine cross-wave equivalents for variables. These concordance documents were used along with information from previous studies to form a list of variables for the analysis of secondary data. Exclusion of some variables was not thought to compromise the integrity

of the research. For a complete list of variable selected from the HRS Study see Appendix A.

An Analysis of Secondary data

Core data from the 2008 wave was downloaded from the HRS website to SAS 9.2. The data is divided into three categories of comparison groups: those in nursing homes, which is subdivided into temporary (less than one hundred days) and permanent residents (greater than one hundred days), and those who are not in any of the above categories (this may include those who live in senior apartments, those who live with relatives, those who live independently, or those who live with others that are not relatives). To condense the sample of non-nursing home respondents, those who did not report responses to the following questions: those who did not answer to whether they had fallen in the study period were removed from the sample. Also excluded from the sample were those who had no difficulty walking. Those who got together with people more than an average five times per week; those who rated their health excellent, were above the average for nursing home responses were excluded. Those who live in a place that has an on-site care facility; those who've spent a night in a nursing home; those who lived in assisted living facilities; those in senior housing communities; and those below the average nursing home age of 80 were also removed from the sample. The

aforementioned hypotheses were then tested. Data downloaded from HRS contained no identification to subjects and therefore is exempt from the human subject review process.

Chapter IV

Introduction

It is hypothesized that individuals in various living arrangements will differ based on demographic characteristics, functional limitations, health services and insurances, family structure and physical health. Results are offered in two sections: categorical variables and continuous variables. Within those sections lies the data from each of the categories listed in the hypothesis section: demographics, functional limitations, health services and insurance, family structure, and physical health.

The information will be presented in the following manner: (a) presentation of results for continuous and categorical variables with tables for descriptive statistics (b) ANOVA results with the Tukey post-hoc procedure (c) presentation of results for categorical variables with tables for chi-square tests with Marascuilo post hoc procedure. Sample sizes for each group are consistent throughout the statistical analyses and are as follows: the total sample (N=17,217), the nursing home group (n=247), the non-nursing home group (n=487) and temporary nursing home group (n=213). All procedures are conducted using a significance level of $(p > 0.05)$.

Descriptive Statistics

Table 1

Descriptive Statistics for Continuous Variables

	N	Mean	SD
Demographics			
Current Age Calculation			
Total Sample	17,217	69.15	0.49
Nursing Home	247	83.65	8.99
Non-Nursing Home	487	86.98	83
Temporary Nursing Home	213	83.00	9.07
Functional Limitations			
ADL Deficiencies			
Total Sample	123	83.60	24.93
Nursing Home	45	95.37	23.60
Non-Nursing Home	13	74.00	22.79
Temporary Nursing Home	33	81.36	20.81
Family Structure			
Number of Times Get Together With People			
Total Sample	17,143	5.37	62.86
Nursing Home	247	21.10	140.71
Non-Nursing Home	485	9.32	90.26
Temporary Nursing Home	212	30.90	166.20
Physical Health			
Number of Times Fallen			
Total Sample	4,318	5.47	15.89
Nursing Home	139	9.20	22.58
Non-Nursing Home	105	3.63	5.53
Temporary Nursing Home	131	9.78	22.03

Table 2.

Descriptive Statistics for Categorical Variables

	Total Sample	Nursing Home	Non-Nursing Home	Temporary Nursing Home
	F (%)	f (%)	f (%)	f (%)
Demographics				
Sex of Individual (male)	7,022 (41)	64 (26)	222 (46)	70 (33)
Sex of Individual (female)	10,195 (59)	183 (74)	265 (54)	143 (67)
Functional Limitations				
Helper Relationship (Relative)	963 (61)	4 (2)	64 (65)	11 (7)
Helper Relationship (Non-Relative)	611 (39)	193 (98)	35 (35)	156 (93)
Health Services and Insurance				
Medicare				
Yes	11,470 (67)	230 (93)	477 (99)	199 (94)
No	5,747 (33)	17 (7)	10 (1)	14 (6)
Medicaid				
Yes	1,652 (10)	114 (46)	54 (11)	78 (37)
No	15,565 (90)	133 (54)	433 (89)	135(64)
Family Structure				
Relatives Near	4,858 (28)	101 (41)	130 (27)	87 (41)
No-Relatives Near	12,359 (72)	206 (59)	357 (73)	126 (59)

Demographics

As shown in Table 1 the total sample has a significantly lower mean age of 69.5 (SD=0.49) than all three subgroups nursing home 83.65 (SD=8.99), non-nursing home 86.98 (SD=3.64) and temporary nursing home 83 (SD=9.07). Those in the non-nursing home group have the highest mean age, followed by the nursing home, and temporary nursing home groups.

As shown in Table 2 almost 20% more females (59%) are in the total sample than males (41%). In the nursing home group there are 64 males (26%) and 183 (74%) females. In the non-nursing home group there is less of a difference in proportion for males ($f=222$, 46%) and for females ($f=265$, 54%). The temporary nursing home groups shows the greatest difference in proportion between males ($f=70$, 33%) and females ($f=143$, 67%)

Functional Limitations

As seen in Table 1, the nursing home group has a higher mean of ADL deficiencies 95 (SD=23.60) than the total population, 83.60 (SD=24.93). The non-nursing home group has the lowest average of ADL deficiencies 74 (SD=22.79) and the temporary nursing home group falls between those in the total sample and the nursing home group 81.36 (SD=20.81). Functional Limitations

As shown in Table 2, a similarity exists between the proportion of those in the total sample and non-nursing homes who receive help from a relative for any ADL deficiencies ($f=963$, 61%) and ($f=64$, 65%) respectively. They also conversely have a similar proportion for receiving help from a non-relative ($f=611$, 39%) and ($f=35$, 35%). The nursing home and temporary nursing home groups also have similar proportions although their helpers are usually non-relatives ($f=193$, 98%) and ($f=156$, 93%) while relatives help much less ($f=4$, 2%) and ($f=11$, 7%)

Health Services and Insurance

As shown in Table 2 the proportions of those in the total sample ($f=11,470$, 67%) receiving Medicare differ greatly from those in the sample groups nursing home ($f=230$, 93%), non-nursing home ($f=477$, 99%), and temporary nursing home ($f=199$, 94%).

Those on Medicaid in the total sample also have vastly different proportions from the total sample ($f=1652$, 10%) compared to ($f=114$, 46%) of the nursing home group, ($f=54$, 11%) of the non-nursing home group, and ($f=78$, 37%) of the temporary nursing home group.

Family Structure

Table 1 shows that the average number of times those in the sample get together with other people is significantly less for those in the total sample 5.47 (SD=15.89) and those not in nursing homes 9.32 (SD=90.26) than those who are in nursing homes 21.10 (SD=140.71) and those in temporary nursing homes 30.90 (SD=166.2).

As displayed in Table 2 the total sample's proportion of relatives near ($f=4,858$, 28%) is similar to the proportion of the non-nursing home group ($f=130$, 27%), and both are significantly less than the proportions of both the nursing home ($f=101$, 41%) and temporary nursing home ($f=87$, 41%).

Physical Health

As presented in Table 1 the number of times fallen is significantly higher for those in nursing homes 9.20 (SD=22.48) and those temporary in nursing homes 9.78 (SD=22.03) than those in the total samples 5.47 (SD=15.89) and those not in nursing homes 3.63 (SD=5.53).

Analysis of Variance

Table 3.
Analysis of Variance for Continuous Variables

	F	ρ	Difference Between Means		
			Non-Nursing Home-Nursing Home	Non-Nursing Home-Temporary Nursing Home	Nursing Home-Temporary Nursing Home
Demographics					
Current Age Calculation	34.07(46.37)*	< .001	3.32*	3.97*	0.65
Functional Limitations					
ADL deficiencies	6.31(507.13)*	0.00	-21.37*	-7.364	14.04*
Family Structure					
Number of Times Get Together With People	2.37(1559.86)	0.09	-11.77	-21.57	-9.80
Physical Health					
Number of Times Fallen	3.56(367.43)*	0.02	-5.580	-6.15*	-0.57

Note. Mean square errors are in parentheses. * $p < .05$. All variables have 2 degrees of freedom.

Demographics

As shown in Table 3, there is a significant difference between the mean age of the groups $F(2,944)=34.07$, where $p < .001$. The post-hoc test revealed a significant difference in means between the non-nursing home group and the nursing home group, where the mean age of the nursing home group was greater by an average of 3.32 years. The non-nursing home group mean age was 3.97 years more than the temporary nursing home group. There is no significant difference between those in the nursing home and temporary nursing home groups. This information supports the hypothesis that those in nursing homes will have a greater average age than those who are not in a nursing home.

Functional Limitations

In Table 3, a significant difference exists in the mean number of ADL deficiencies $F(2,88)=5.31, p=0.002$. Differences in means were found between the non-nursing home and nursing home groups, with the non-nursing home group having an average of 21.37 less ADL deficiencies than the nursing home group. The nursing home group also had an average of 14.04 more ADL deficiencies than the temporary nursing home groups. The information collected partially supports the hypothesis that those in nursing homes will have more ADL deficiencies; however, no difference in those who were temporarily in the nursing home and those not in nursing homes was identifying, which supports the null hypothesis.

Family Structure

As presented in Table 3 a significant difference was not identified between the mean number of times that groups were together with other people $F(2, 941)=2.37, p=0.09$. This information supports the null hypothesis that there is no difference in the number of times people get together whether they are in nursing homes or not in nursing facilities.

Physical Health

As displayed in Table 3 there is a significant difference in the mean number of times those in the sample had a fall within the sample wave $F(2,372)=3.56, p=0.02$. There were significant differences between the non-nursing home and temporary nursing home groups. The mean number of falls among the non-nursing home is 6.15 less than the temporary group. This information partially supports the null hypothesis;

temporary residents of nursing homes were more likely to have had a fall than non-residents of nursing homes. Data do not show a significant difference in those permanently in nursing homes and those not in nursing homes or between those temporarily in nursing homes and those permanently in nursing homes.

Chi-Square Analysis with the Marascuilo Procedure for Categorical Variables

Table 4.

Chi-Square Analysis for Categorical Variables

	X ²	Absolute Difference			Critical Range		
		Non-Nursing Home Nursing Home	Non-Nursing Home Temporary Nursing Home	Nursing Home Temporary Nursing Home	Non-Nursing Home Nursing Home	Non-Nursing Home Temporary Nursing Home	Nursing Home Temporary Nursing Home
Demographics							
Sex of Individual	29.65	0.19*	0.12*	0.06	0.07*	0.05*	0.08
Functional Limitations							
Helper Relationship	202.80	0.62*	0.58*	0.04*	0.08*	0.08*	0.03*
Health Services and Insurance							
Medicare Coverage	33.06	0.04*	0.04*	0.004	0.03*	0.02*	0.04
Medicaid Coverage	213.70	0.41*	0.24*	0.16*	0.088*	0.05*	0.05*
Family Structure							
Relatives Live Near	45.30	0.14*	0.15*	0.004	0.08*	0.06*	0.09

Note. The Marascuilo procedure, the test is significant if the absolute difference between the sample proportions between two groups is greater than the critical range between two groups, where $p < .05$. All variables have 2 degrees of freedom. The critical value for all variables is 5.99

Demographics

As seen in Table 4 the chi-square test revealed a difference in sex $\chi^2(2, n=1,860) = 45.70, p=0.00$ and there were significant differences between the non-nursing home and nursing home groups, both temporary and permanent. According to the descriptive statistics, the nursing home group has 20% more women than the non-nursing home group. The temporary nursing home group has 13% more women than the non-nursing home group. Both measures support the hypothesis that women are more likely to comprise the temporary and permanent nursing home groups.

Health Services and Insurance

As shown in Table 4 a significant difference ($\chi^2(2, n=1659) = 33.06, p=0.00$) exists between those who have Medicare coverage, with significant differences between the percentages for non-nursing home (98%) and nursing home groups (93%), and the non-nursing home and temporary nursing home groups (94%). Descriptive statistics show that those who are in nursing homes use Medicare 5% more than those in non-nursing homes and that those who are in temporary nursing homes are 5% more likely to use Medicare. This supports the hypothesis that those in nursing homes will be more likely to use Medicare.

Table 4 shows a significant difference in those covered by Medicaid ($\chi^2(2, n=1659) = 213.68, p=0.00$), and differences between all samples. This information, coupled with the descriptive statistics suggests those who are in nursing homes are 35% more likely to use Medicaid and those who are in temporary nursing homes are 26% more likely to use Medicaid, and those in nursing homes use Medicaid 9% more than

those in temporary nursing homes. All information supports the hypothesis that enrollment in Medicaid increases with movement into a temporary and permanent nursing care.

Family Structure

As displayed in Table 4, the chi-square test reveals that there is a difference in whether or not relatives are near ($\chi^2(2, n=1,747)=45.30, p=0.00$). There were 14% more of the nursing home group that had relatives near than the non-nursing home group, and the temporary group had 14% more relatives near than the non-nursing home group. The information gathered does not support the hypothesis that those who are in not in nursing homes are more likely to have relatives near.

Functional Limitations

As presented in Table 4 there is a significant difference in the chi-square test $\chi^2(2, n=463) = 363.53$. The Marascuilo procedure revealed there was a significant difference between all sample proportions. The descriptive statistics suggest it is more likely that those in nursing homes and temporary nursing homes will have ADL helpers that are not relatives, and those who are not in any type of nursing home are more likely to be helped by relatives.

Chapter V

Introduction

Information in this discussion chapter is presented in the following manner (a) demographic variables, (b) functional limitations, (c) health services and insurance, (d) family structure, (e) physical health, and (f) conclusions and recommendations

Demographic Variables

The information gleaned from the data supports findings from previous literature that there are greater amounts of those who are the oldest old and those who are women in nursing homes. This is not inherently a problem, but there may be reasons for women not living independently as long. Previous literature suggests several reasons: finances and loss of a spouse, a woman may lose the income needed to maintain independence and therefore be more likely to enter a nursing home (Sabia, 2008).

Functional Limitations

The data support the hypothesis to some extent, but the temporary group seems to have similar levels of ADL deficiencies than the non- nursing home group. The most plausible explanation is that the temporary group is in the nursing home for rehabilitation

purposes perhaps from a fall, an injury or acute illness that does increase the number of ADL deficiencies and increasing number of falls could be used as a warning sign that other disabilities are causing increased loss of balance and motor control (Dunn, Furner, & Miles, 1993).

Health Services and Insurance

One of the biggest issues with older adult care is funding. Studies have shown, and this data supports the finding that older adults in nursing homes, whether temporary or permanent, are more likely to use Medicare and Medicaid (Chen and Thompson, 2010) for payment of services. As more adults reach older ages, focusing on lowering the cost of care and/or finding an alternative method of paying for care will become increasingly important. Previous studies have shown an increased risk of institutionalization in a nursing home among lower income individuals (Chen and Thompson, 2010).

Family Structure

The evidence from the data did not support the hypothesis that those in nursing homes will have less relatives near. This could be for several reasons. Previous studies have shown that family dynamic and personal beliefs can influence whether or not a person goes into a nursing home (Choi, 2004). Also, if the family or caregiver is overwhelmed by the cost or involvement of caring for a loved one, it may also be a push factor in a person going to a nursing home, whether or not they are near to family or a caregiver (Chen et.al, 2008 and Gladstone, Dupuis, & Wexler, 2006).

Physical Health

The data found in the analysis supports the hypothesis and previous literature that those in nursing homes will be more likely to have fallen (Dunn, Furner, & Miles, 1993). This is very important in helping individuals remain in their homes. The temporary nursing home group is shown to be more likely to have a fall than those in the permanent group, suggesting that rehabilitation services that can be done in the community or at home may be a good way to reduce the number of individuals who have temporary stays in nursing home. Those in the permanent nursing home group showed no difference in the number of falls as the temporary or non-nursing home group. A possible explanation may be that falls are not be a factor in long-term nursing home care, because they may not affect ADL's in the same way chronic disease or multiple health issues may. A temporary nursing home stay may be all that is needed if there are no other health issues compounding a fall.

Conclusions and Recommendations

Previous literature has been plagued with small sample sizes. This study offers a step toward being able to generalize reasons for nursing home admissions to the broader population of older adults; however, there is more work to be done. This sample has issues with low response rates on sensitive questions such as race and ethnicity and income information. These factors have been shown to be important in smaller samples; researchers need to devise ways to collect sensitive information to obtain a more accurate data set. Further research is needed to include more variables that can influence why people go into nursing homes and programs need to be created to keep people out of

nursing homes. This research also uses only one year of the Health and Retirement Survey. Further research could include several waves of information to get a better understanding of trends, cumulative, and acute factors for institutionalization. Further research may also use multivariate analysis to understand how factors interact with each other to provide an even greater understanding of the factors that influence nursing home admissions.

While this thesis is a start to understanding the reasons why older adults need nursing home care there is much work to be done, and it is becoming increasingly more important that it be done expeditiously. The populace of older adults is growing and so should research and knowledge about this population.

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APPENDIX A

Variable Information

Table 1.a

Variables Used to Separate Groups

	HRS Section	Variable Name	Coding	Study Use
Separation Variables				
Respondent In Nursing Home	Coverscreen (Respondent)	LA028	1. Yes 5. No 8. DK 9. RF Blank. (Inapplicable)	Creates Nursing Home Group
Rate Health	Physical Health (Respondent)	LC001	1. Excellent 2. Very Good 3. Good 4. Fair 5. Poor 8. DK 9. RF Blank. Blank	Deletes those in non-nursing home group that rated health above good, the average for nursing home respondents
Rate Health from Previous Wave	Physical Health (Respondent)	LC002	1. Better 2. About the Same 3. Worse 8. DK 9. RF Blank. Inapplicable	Deletes those in the non-nursing home group that rated health better
Number of Nights Spent in Nursing Home	Health Services and Insurance	LN116	Continuous Number 998. DK 999. RF	Temporary nursing home group is respondents who were nursing homes less than 100 days
Number of Times Fallen	Physical Health (Respondent)	LC080	Continuous Number 98. DK 99. RF	Deletes respondents from non-nursing home group that entered don't know or refused

Note. DK responses indicate the respondent did not know a response to the question. RF response indicated that the respondent refused to answer the question.

Table 1.b

Variables Used to Separate Groups (continued)

	HRS Section	Variable Name	Coding	Study Use
Separation Variables				
On-Site Nursing Care Facility	Housing (Household)	LH131	1.Yes 2. No 8. DK 9. RF	Deletes observations in non-nursing home group that have care facility on-site
Type Home	Housing (Household)	LH002	1.Mobile Home 2. One-Family House 3. Two-Family House 4.Apartment/Townhouse 10. Condo 11. Senior Housing/Retirement Center/Retirement Home 12. Assisted Living 13. Nursing home 97. Other 98. DK 99. RF Blank. Blank	Deletes Observations in non-nursing home group that are in Senior Housing and Assisted Living
Current Age Calculation	A:Coverscreen (Respondent)	LA019	Numeric entry	Deletes entries under the average nursing home age:80
Difficulty Walking	Functional Limitations and Helpers(Respondent)		1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.	Deletes observations in non-nursing home group that

Get Together With People	Parents, Siblings, and Transfers	LF176	0-83 Actual Value 998. DK 99. RF	answered don't know or refused Deletes observations in the non-nursing home that meet above the average for nursing home
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Note. DK responses indicate the respondent did not know a response to the question. RF response indicated that the respondent refused to answer the question.

Table 2.a

IADL/ADL variables used for ADSUM

	Variable Name	Coding
IADL/ADL Variables		
Difficulty-Shopping For Groceries	LG044	1. Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank.
Difficulty-Taking Meds	LG051	1. Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank.
Managing Money Help	LG061	1. Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank.
Difficulty With Balance	LG210	1. Often 2. Sometimes 3. Rarely 4. Never 8. Don't Know 9. RF/Blank
Difficulty-Dressing	LG014	1. Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank.
Difficulty-Walking	LG016	1. Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank.
Difficulty-Getting Out of	LG025	1. Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank.

Bed		
Difficulty-Bathing	LG021	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.
Difficulty-Eating	LG023	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.
Difficulty-Using Toilet	LG030	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.

Note. All IADL/ADL variables come from Section G: Functional Limitations and Helpers
 .DK responses indicate the respondent did not know a response to the question. RF
 response indicated that the respondent refused to answer the question.

Table 2.b

IADL/ADL Variables Used For ADSUM (continued)

	Label	Coding
<hr/> IADL/ADL Variables <hr/>		
Difficulty-Walking Several Blocks	LG001	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.
Difficulty-Getting Up From Chair	LG005	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.
Difficulty-Stooping	LG008	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.
Difficulty-Reaching Arms	LG009	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.
Difficulty-Pull/Push Large Objects	LG010	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.
Difficulty-Picking Up A Dime	LG012	1.Yes 5. No 6. Can't Do 7. Won't Do 8. Don't Know 9. Refused Blank. Blank.

Note. All IADL/ADL variables come from Section G: Functional Limitations and Helpers. DK responses indicate the respondent did not know a response to the question. RF response indicated that the respondent refused to answer the question.

Table 3.

Variables Used For Analysis

	HRS Section	Variable Name	Label	Coding
Demographics				
Current Age Calculation	Cover Screen (Respondent)	LA019	R Current Age Calculation	Numeric entry
Sex of Individual	Pre-Load (Respondent)	LX060_R	Sex of Individual Updated	1. Male 2. Female
Functional Limitations				
ADL deficiencies (ADL SUM)	--	ADL SUM	Dummy Variable	--
Helper Relationship	Functional Limitations and Helpers	LG033_1	ADL Helper Relationship R-1	1-19 (Relatives) 20-22 (Non-Relatives) [other entries had no observations]
Family Structure				
Number of Times Get Together	Parents, Siblings, and Transfers	LF176	Number of Times Get Together With People (How often	Continuous Number 998. DK 999. RF

			do you get together with [people in or near the facility/any of your neighbors] just to chat or for a social visit?)	
Relatives Near	Parents, Siblings, and Transfers	LF174		1. Yes 5. No 8. DK 9. RF Blank. Blank
Physical Health				
Number of Times Fallen	Physical Health	LC080		Continuous Number 98. DK. 99.RF.
Health Services and Insurance				
Medicare	Health Services and Insurance	LN001	Medicare Coverage	1. Yes 5.No 8. DK 9. RF Blank. INAP

Note. DK responses indicate the respondent did not know a response to the question. RF response indicated that the respondent refused to answer the question.