What Are the Impacts of an Increasing Elderly Population?

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Introduction

The elderly population is a growing demographic that requires special attention. This population, due to their age, health, and mental status, often require extra assistance in order to achieve regular daily functioning. As the elderly demographic grows over time, our society will be required to adapt and accommodate for this group. This paper will dive into the specifics of our changing elderly demographic and the impacts on health and cost, in an attempt to educate and begin discussing solutions. Specifically, the changes in age, sex and gender of the population will be researched. The implications of these factors discussed will include acute and chronic illness, basic healthcare, long-term care, cost consequences, and end-of-life care.

Population Demographic

"Between 2010 and 2050, the United States is projected to experience rapid growth in its older population. In 2050, the number of Americans aged 65 and older is projected to be 88.5 million, more than double its projected population of 40.2 million in 2010" (US Census Bureau, January 2018). Within the older population itself, the composition of age categories will be modified with time as well. Around 2011, there was a rise in the number of individuals aged 65-74, correlated with the baby boomers crossing into the elderly range. The baby boomers are the generation born following World War II, when there was a peak in birth rates. Additionally, according to the January 2018 Census Bureau Report, as the baby boomers age further, the majority of the elderly population will be over 70 by 2034. Figure 1 outlines the projected elderly age demographics from 2010 to 2050.

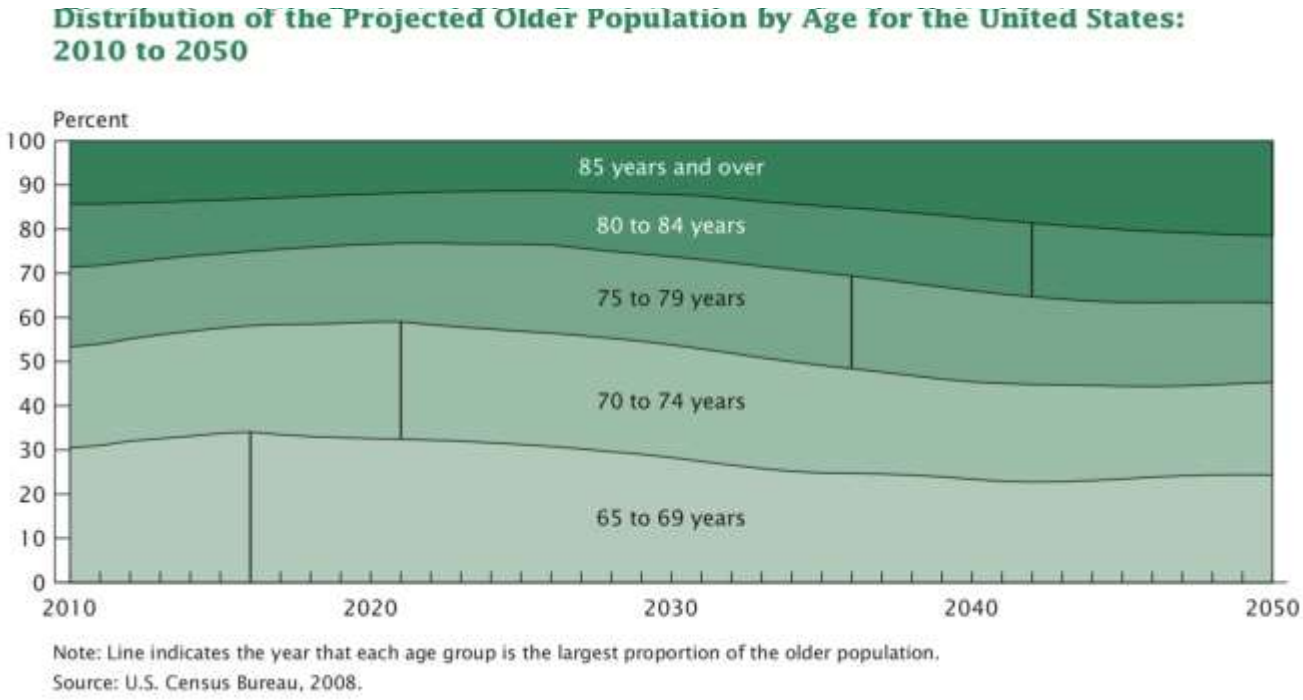

Figure 1: Age Demographic Variation Through History and Projections from 2010 until 2015 (US Census Bureau, January 2018).

In addition to the increasing average age for the elderly population, the racial and ethnic diversity of the elderly population will increase as well. The United States has an ever-increasing racially diversified youth which, with time, directly impacts the racial demographic of the elderly. The percentage of the demographic that is White will decrease roughly 10 percent in the elderly population before 2050. It is estimated that 42 percent of the elderly population will be considered a minority by this time. Figure 2 illustrates the diversifying racial demographic among the elderly population from 2010 to 2050.

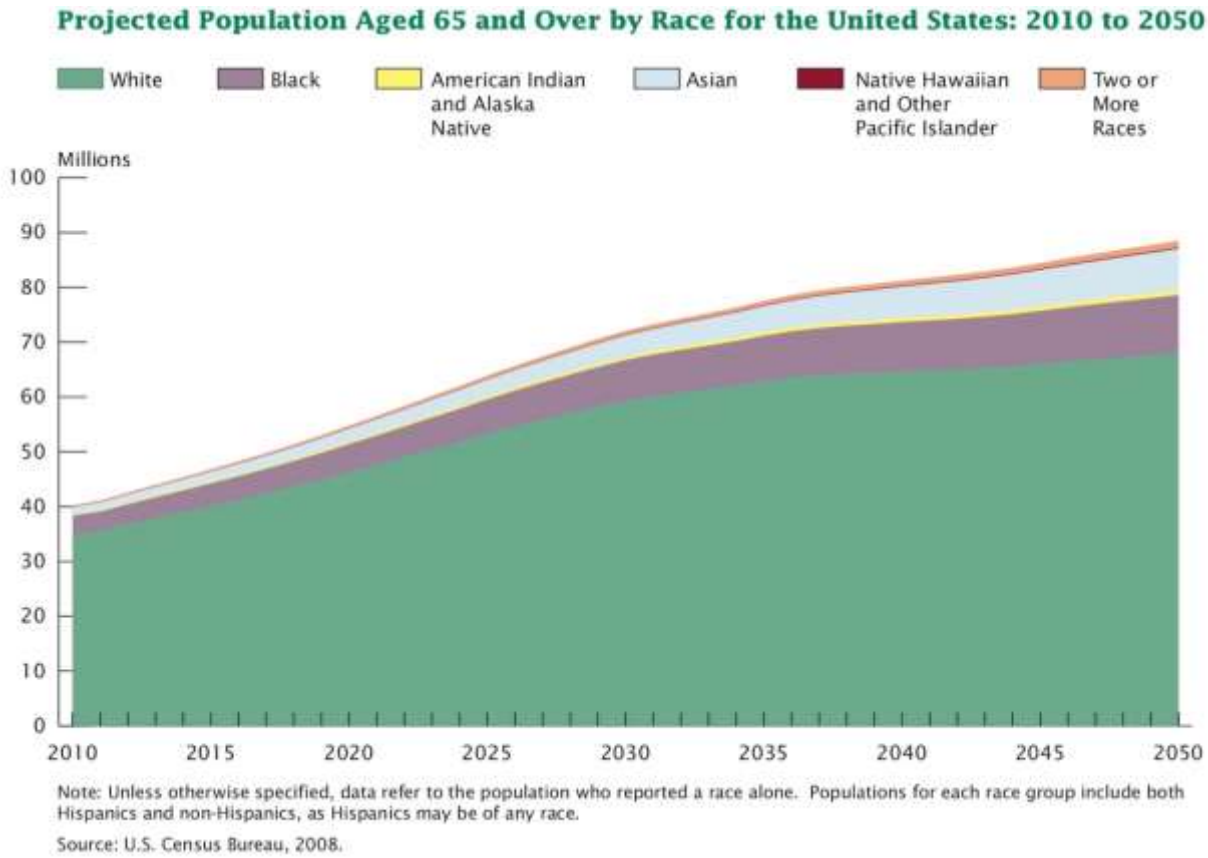

Figure 2: Racial Diversity in Elderly Population from 2010-2050 (US Census Bureau, January 2018).

Lastly, the sex demographic within the elderly population will experience changes as the gap between the life expectancy of men and women slims. Traditionally, women have outlived men leading to higher proportion of females than males in the elderly population. This trend continues to exist, but as men begin to increase their longevity, a better balance of the sexes will be created. Specifically, in 2050, 55% of the populated is expected to be female, leaving the other 45% to be male (US Census Bureau, January 2018).

An increasing average age, diversified race, and a balanced sex ratio will make up the new older age group, in sharp contrast to previous generations. While the implications of these changes are the prevalent issue of this paper, the reasons behind the transformation is also worth

nothing. There are a variety of reasons behind the increase in average age of the elderly. The largest of these reasons can be attributed to the aging of the baby boomer generation. Following World War Two, there was a massive increase in the number of babies born; this was mostly related to financial and timely reasons. Due to the preceding war, families had to put off having children. Additionally, many male soldiers died or became injured in war, decreasing the number of men capable of having children. Following the end of the war, American males returned home and were able to devote themselves to family. Furthermore, the economy experienced an upswing at the end of the war, pulling the nation out of the Great Depression. Because of these reasons, more births occurred during this time period than any other time in history. As this population ages into its seventies, the demographics of the elderly reflects that change. Secondly, increases in medicine and technology have allowed people to live past their former life expectancy. Medical advances, such as antibiotics and vaccines, have eliminated many premature deaths that would have otherwise been very common. Even since the 1980's, there has been changes in the leading causes of death in the elderly. Previously, Pneumonia and Influenza were the fourth leading cause of death in people 65 years and older, while currently, these do not even make the top ten list. Additionally, Chronic Obstructive Pulmonary Disease was the fifth leading cause of death, and it has now has been eliminated from the top ten list (National Center for Health Statistics, 2018). Eradication of these fatal diseases increase the life span of the elderly and has increased the population of the 'oldest old', or those over 85 years of age.

The underlying reasons for the change in the racial demographic are slightly less clear. Prominently, immigration has resulted in a more diverse demographic. America, being known as the melting pot, has had a reputation for a diverse racial group and blending of these racial groups across generations. Secondly, Non-Hispanic whites are the only population group in

which death rates are higher than birth rates. Due to this, white racial groups are decreasing in stock, while minority groups are increasing (Chappell, 2017). Figure 3 illustrates the specific regions of the world where immigrants living in America in 2015 have moved from throughout recent decades. The highest percentage of immigration having occurred after 2000, especially for countries such as Asia and Latin America (US Census Bureau, August 29, 2015).

Figure 3: Immigration by region of the world for immigrants in America in 2015 (US Census Bureau, August 29, 2015).

Year of Entry of the Foreign-Born Population by Sex and World Region of Birth: 2015

Sex and year of entry	Total		World region of birth													
			Asia		Europe		Latin America								Other areas[2]	
							Total Latin America		Mexico		Other Latin America[1]					
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent			Number	Percent
Both sexes	42,184	100.0	12,601	100.0	4,305	100.0	22,112	100.0	11,904	100.0	10,207	100.0			3,167	100.0
Entered 2000 or later[3]	18,634	44.2	5,833	46.3	1,435	33.3	9,499	43.0	4,849	40.7	4,651	45.6			1,867	58.9
Entered 1990-1999	10,419	24.7	2,793	22.2	1,078	25.0	5,914	26.7	3,572	30.0	2,342	22.9			634	20.0
Entered 1980-1989	6,779	16.1	2,231	17.7	515	12.0	3,730	16.9	1,969	16.5	1,761	17.3			302	9.5
Entered 1970-1979	3,703	8.8	1,314	10.4	377	8.7	1,856	8.4	1,034	8.7	822	8.1			156	4.9
Entered before 1970	2,650	6.3	430	3.4	900	20.9	1,112	5.0	480	4.0	632	6.2			208	6.6
Male	20,467	100.0	5,869	100.0	1,843	100.0	11,166	100.0	6,295	100.0	4,871	100.0			1,589	100.0
Entered 2000 or later[3]	9,082	44.4	2,659	45.3	651	35.3	4,838	43.3	2,576	40.9	2,262	46.4			934	58.8
Entered 1990-1999	5,120	25.0	1,338	22.8	497	27.0	2,966	26.6	1,849	29.4	1,117	22.9			319	20.1
Entered 1980-1989	3,362	16.4	1,046	17.8	227	12.3	1,926	17.2	1,085	17.2	841	17.3			163	10.2
Entered 1970-1979	1,793	8.8	649	11.1	145	7.9	926	8.3	547	8.7	379	7.8			73	4.6
Entered before 1970	1,110	5.4	176	3.0	323	17.5	511	4.6	238	3.8	274	5.6			99	6.2
Female	21,717	100.0	6,732	100.0	2,462	100.0	10,945	100.0	5,609	100.0	5,336	100.0			1,578	100.0
Entered 2000 or later[3]	9,551	44.0	3,174	47.1	784	31.9	4,661	42.6	2,272	40.5	2,389	44.8			932	59.1
Entered 1990-1999	5,299	24.4	1,455	21.6	581	23.6	2,949	26.9	1,723	30.7	1,225	23.0			315	19.9
Entered 1980-1989	3,417	15.7	1,185	17.6	288	11.7	1,805	16.5	885	15.8	920	17.2			139	8.8
Entered 1970-1979	1,910	8.8	665	9.9	232	9.4	930	8.5	486	8.7	443	8.3			83	5.3
Entered before 1970	1,540	7.1	253	3.8	577	23.4	601	5.5	242	4.3	358	6.7			109	6.9

The changes in the sex demographic among the elderly revolves primarily around increased life span for males. Uniquely from previous generations, less males are dying in wars. Smoking rates have decreased over the past decades, especially among men, leading to longer life spans. In addition, a male centric health care system leads to diagnosis and treatment plans that focus on male versions of diseases rather than female, so therefore, there is a higher positive prognosis for men than women for specific diseases. According to the 2017 National Center for Health Statistics, currently, the life expectancy of a man of 65 years of age is a further 18 years, while that of a woman of the same is 20.5 years. Women are also currently experiencing higher

rates of certain diseases. The percent of elderly women over 75 experiencing obesity is 32.7%, while men over 75 have a percentage rate of 28%. Similarly, there is 78.7% rate of hypertension in elderly women, compared to 67.4% in elderly men (National Center for Health Statistics, 2017). These causes are narrowing the gap in longevity between men and women and balancing the ratio sexes in the elderly population.

Impacts of Age on Health

The elderly are, nonetheless, at increased risk of death as a function of their age. There are different risk factors associated with different illnesses and injuries. The progression of death can follow one of two paths; it can be sudden and shocking or slow and expected. Falls are by far the leading cause of all unintentional, accidental deaths in the elderly, far surpassing both homicide and suicide. Within this category, unintentional falls is the highest cause of injury among the elderly. Falling occurs among all age groups but is much more prevalent and fatal in the elderly population. According to the Center for Disease Control, in 2012/2013, falls were the leading cause of unintentional injury deaths, peaking at 55%. Other causes of unintentional deaths include suffocation and motor vehicle crashes (National Center for Health Statistics, 2015).

The elderly population is immensely more likely to be diagnosed with delirium than any other age group. Delirium is the result as a decreased ability for cognition and attention. Delirium has high occurrence rates, at 14% to 56%, and hospital mortality rates occurring at 25% to 33% (Leslie, 2008). According to the study, delirium was correlated with shorter life spans. More predominantly, each day survived costs more for someone with delirium than someone

with not; this is likely due to the level of care required for these persons for daily activities of living.

Financial Situation of Elderly and Rising Healthcare Costs

As the population ages, the burden to care for dependent individuals must be considered. The elderly population is often a retired community without active income. For a population requiring extensive medical care, the elderly often cannot sustain the costs. According to the United States Census Bureau, the median household income of those over 65 is $38, 515. This is drastically less than that of younger population groups, with the average household income across all ages reaches, $59,039. Beyond that, 8.8% of the elderly population is officially considered to be in poverty while 13.7% of this group are included in the supplemental poverty rate (US Census Bureau, August 3, 2018).

Without a doubt, the cost of health care in America is sky rocketing; there has been an increase in the percent of annual income spent on healthcare among citizens. This transition is due to a variety of factors, such as the cost of innovative medical technology. In addition to the rising costs, the elderly population is burdened with their reliance on medical care. This population group commonly is faced with multiple chronic disorders. Common diseases such as cancer, cardiovascular disease and diabetes are experienced in conjunction with each other. This comorbidity doubles, or even triples, health care costs as diagnosis, treatment and medication for multiple diseases must be accounted for. A team of researchers analyzed the true effects of overlapping diseases on health care costs (Lenhert, et al., 2011). Medical costs were broken down into physician use, hospital use and pharmaceuticals. Within the physician use category, it became clear that there is a direct correlation between amount of chronic conditions and amount

of physician visits. Primary and specialist physicians are required for those who have a number of diseases. In relation to hospital usage, the study showed positive correlations between multiple diseases and the amount of time spent hospitalized. The study even went as far as to show that each additional condition raised the number of hospitals stays. The effect of multiple chronic conditions on the use of pharmaceuticals also proved to be directly related. Specifically, there is a 30% rise in the percent of the population taking prescription medications when multiple chronic conditions are involved. The study also discussed out of pocket payments for those with multiple chronic conditions. The burden of out of pocket payment substantially rises for each additional chronic condition; within the population, out of pockets triple when multiple diseases are involved. Delirium is included in this category, with the cost of healthcare per day increasing by a multiplier of 2.5 for patients who are diagnosed with delirium.

Long Term Care for Elderly

Disease and illness are common culprits of jeopardizing an elderly's health, but in terms of safety, the biggest concern revolves around their daily care. As previously stated, falls are a huge risk factor for injury, as are completion of daily needs such as hygiene, cooking and cleaning. The Activities of Daily Living are basic activities performed daily which are necessary for someone to be considered independent. Although there is variation in what is included in this list, the five most agreed upon categories include: personal hygiene, dressing, eating, maintaining continence and mobility. In addition to this list, Instrumental Activities of Daily Living are required independent activities, but may not occur daily. Included in this list are: technology/communication capabilities, transportation, meal preparation, shopping, housework, managing medication intake and personal finances (Activities and Instrumental Activities of

Daily Living, 2018). The percent of these activities that a person can accomplish independently determines the level of care an elderly person requires. Although most of the activities are taken for granted in their ease and simplicity, as the aging process occurs, these activities become difficult, and eventually impossible. Without proper care, elderly persons may go without basic needs due to lack of independent ability. A loss of ability to cook easily become a loss of eating and nutrition, weakening the body. A lack of personal hygiene and continence results in infection and pressure sores, degrading of layers of the skin.

To ensure health and achievement of basic needs, most elderly people require daily care, and many do not receive it. According to the Institute on Aging, in 2010, one third of the elderly population not living in a care facility was living alone. The likelihood of living alone is doubled in women compared to men, with, specifically, a higher rate in non-Hispanic White women and Black women. These two ethnicities have 39% of elderly women living alone, while 21 percent of elderly Asian women and 23 percent of elderly Hispanic women live alone. While these numbers are high, 46 percent of women enrolled in Medicare were incapable of completing Activities of Daily Living.

In addition to the loss of basic functioning in the elderly, chronic conditions play a huge role in how independent a person can be. While traditionally acute illnesses were the height of medical exertion, chronic illness has now become the main concern. This is a result of evolving medicine addressing, but not wholly solving, many of the acute conditions, leaving only life-long conditions to contend with. In 2005, 91 percent of the elderly population had at least one chronic condition; this contrasts the 80 percent who had a chronic illness in 1984. Between 1997 and 2006, a 9 nine-year span, the prevalence of diabetes more than doubled; there was a 16 percent increase in the prevalence of obesity in the elderly from 1994 to 2010 (Lenhert, et al., 2011).

Because many elderly are incapable of independence, it is common for a family or friend to act as a caregiver. This is beneficial for the elderly but can induce extreme stress and strain on the caregiver. According to the Institute on Aging, sixty five percent of the elderly use family and friends solely to mediate their loss of functioning. The percentage of reliance on assistance increases by 30 with inclusion of paid assistance. The presence of a family caregiver drastically decreases the need for nursing home, but this can be taxing on family. In 2011, 43.5 million adults were providing care for a family member, with a large portion of them providing care for someone with dementia. The decision to provide care to a loved one is a life-altering decision, depending on the amount of care required and for how long. In a survey, it was reported that 55% of caregivers were required to care for the individual for a minimum of three years. This dedication to a family member can be draining physically, financially and emotionally. Women, especially, carry this burden with 75% of reported caregivers identifying as female. The Institute of Aging has identified the average care giver to be "a married woman, age 46, working outside the home for $35,000 annually" (Information on Senior Citizens Living in America, n.d.). This implies a lot about the responsibilities of the caregiver. As a wife, she is burdened with the responsibilities of her own family. As an employee, she is burdened with the responsibilities of a job. These roles pile up when also acting as a caregiver, creating strain for the family of the elderly.

An alternative option to comply with the increasing needs of an elderly person is the utilization of long-term living facilities. These types of residencies provide aid with daily needs such as hygiene, grooming, cooking and cleaning. They also retain a staff of medical professionals to oversee the health status of an elderly or disabled individual. There is a range of need-based options. Assisted living facilities allow for a resident to retain a high level of

independence, while mainly focusing on the needs of maintaining a residency rather than on health care. Nursing homes, in contrast, are good options for elderly people who require more help with daily care such as hygiene. The residents of nursing home often cannot shower, toilet or feed themselves (Assisted Living vs Nursing Home, 2018). There are also Memory Care options available for elderly persons who struggle with dementia (Nursing Home vs Memory Care, 2018). This form of residency focuses on aiding the resident in daily care while stimulating their brain in a way that is beneficial for them with regards to their progression in the disease. Other options include home health, where a trained professional comes directly to an elderly persons residency to provide care for the areas they cannot perform themselves. This is beneficial because it allows the elderly person to remain in their home, something many appreciate. Hospices are used at the very end of life. Hospice facilities provide palliative care, with the focus being on comfort rather than treatment (Hospice Care, n.d.).

These living facilities are beneficial and often necessary. In 2007, roughly 12 million people needed long term care in the United States alone. The need for a living facility usually comes from the loss of capability of an Activity of Daily Living or Cognitive impairment. The likelihood of an elderly person belonging to one of these two categories is 68%. In those above 85 years of age, the percentage dealing with a form of dementia was 32%, and this number is ever-increasing. The age range of those who require long term care is varied. In 1999, elderly persons aged 65-74 took up 13% of nursing home slots, while ages 75-84 took up 35%, and those over 85 were the other 52% (Selected Long Term Care Statistics, 2015).

Cost of Basic Health Care and Long-Term Care

It is clear that long term care is incredibly important for the elderly, but the cost of living facilities makes this a difficult reality. In 2015, it was determined that 20% of the elderly population pay over $25,000 in long-term care costs. This number is rising as the cost for nursing home rooms increased by 4% every year between 2002 and 2012. Within our economy, long term care accounts for 9.3% of all health care costs, which amounts to about 219.9 billion dollars. This is expected to increase to 346 billion dollars by 2040. Medicaid pays for a substantial amount of the elderly population's long-term care. Medicaid paid 16.4 billion dollars for living facilities in 2002, and every year this increases by 25%. While this is helpful for Medicaid recipients, only 7% of residents fall into this category. This means that 93% of the elderly population are required to find other sources of funding; many are incapable. 25% of people over 45 years of age would not be able to pay for long term care should it be required (Selected Long Term Care Statistics, 2015).

Medicare is most commonly used among the elderly, as it is a governmental program that provides financial aid for those above 65 years of age. It is useful in that it is given to any elderly person, regardless of their perceived income, but it does have its downfalls. Outpatient prescription drugs are only limitedly covered, which still leaves a large financial burden on the elderly person. A small section of this population is able to qualify for Medicaid, but the rest of the population is required to purchase supplemental insurance or go through their employer. This has been a continuing problem, with much research being done in the late 1990's and early 2000's. One study researched the breakdown of out of pocket spending at the time. It is commonly thought that living facilities are the biggest financial burden on elderly citizens, but it was found that only 20% of out of pocket expenses went to nursing home care, while 50% of out

of pocket expenses was due to prescription drugs. Without the needed prescription drugs, recovery from illness and injury is much less likely and adverse behavioral responses have been reported. According to the study, which tracks and compiles data from previous studies, it was found that both essential and nonessential drugs decreased in utilization due to Medicaid drug restrictions. Similarly, nursing home admissions increased, as well as mental health services (Gross, et al., 1999).

The aid provided by the Government to lower healthcare costs is useful, but it does not apply to everyone. The population subsection most at risk is the economic group directly above the cut off for Medicaid. This group is low income but does not receive subsidization. In the study by Gross and colleagues, it was shown that Medicare HMO enrollees spend an average of half their income on out-of-pocket healthcare costs. This is primarily related to the high cost of insurance premiums; this, compared with the low income of this population group, results in a higher spending/income ratio. Conversely, the health care spending of this population group dedicated to prescription drugs and dental care is relatively low. Similarly, the current out of pocket spending shows similar effects. There are high levels of out of pocket spending in the elderly on health, even though they are covered by Medicare. Chen and Colleagues researched the out of pocket spending of the elderly in 2014, and if it was affected by region. The findings were that, while the Medicare payments varied greatly by region, the out of pocket spending was consistent across all regions. On average, the elderly spent roughly 7% of their household income on out of pocket healthcare costs (Chen, et al., 2014). Unfortunately, the lack of appropriate aid for Medicare-only beneficiaries leads to a lack of care and treatment in these areas. The high costs of medical care, combined with lack of coverage, degrades the potential for positive health outcomes by indirectly denying certain health care. Elderly people who lack

utilization of health care and are burdened by the financial stressor are much more likely to decline in health.

Age Discrimination and Societal Perceptions

The general opinions and perceptions of society is what defines our treatment of the elderly. Hence, successfully transforming our world to be elderly friendly requires us starting with society. An elderly's place in society is fascinating. It is something that varies greatly between cultures. America is a particular culprit in treating our elderly with a lack of dignity and respect. Age discrimination in the elderly is very prevalent. The results of a 2018 study showed that social exclusion from ageism could be broken down into categories. Civic participation had the highest prevalence rate at 86%, but other high marking categories included social relations and decent housing. Additionally, the prevalence rate for ageism in general was 87.4% (Regenmortel, et al., 2018). There are several impacts on society's interactions with the elderly, including social isolation. According Kadoya (2013), social isolation is actually debilitating to one's health. There is evidence that social isolation in the elderly leads to increased risk of high blood pressure, dementia, stress, depression, suicide and mortality. These risks are determined in two parts: subjectively and objectively. There has to be clear evidence that a person is limited in its interaction with society (objective), and then a dissatisfaction with this fact must be reported (subjective). Simply qualifying under the objective definition, where there is evidence of discrimination but no emotional reaction to it occurs, leads to a diagnosis of "at risk" but may not present adverse health effects.

The effects of age discrimination can be severe. There are intense psychological results to holding negative opinions of older age. These effects include psychological distress, decreased

desired retirement age, stigmatizations, and many more. Age discrimination occurs in different manners across different age groups. The elderly usually experiences discrimination in the form of pity or being considered a burden. The clearest form of discrimination occurs in the health care system, rather than younger adults where it occurs mainly in the work place. This is primarily due to the high rates of retirement in the elderly.

Interestingly, there does not have to be actual objective evidence of age discrimination occurring for the consequences to be present. The perception of age discrimination is enough to result in emotional distress. Age discrimination has the highest prevalence for subjective perception compared to other forms of discrimination. Often, the feeling of judgement based on one's age is inaccurately assumed in place of valid reasoning. Perception of discrimination is equally as dangerous as actual discrimination. One of the biggest effects of perceived discrimination is the self-actualization of the negative stereotypes. Psychologically, it becomes easier for somebody to fall into the role of a stereotypical elderly person when it is assumed that the rest of the world sees them that way. This disables them from living to their full potential. There are different theories as to why perceived age discrimination leads to the self-fulfillment of negative stereotypes. The most accepted one revolves around projection. The negative attitude an elderly person holds about the aging process leads them to expect discrimination from others. This oversensitivity to negative opinions of their age causes many elderly people to assume actions are discriminatorily based, when they, in reality, may not be. A contrasting theory is that an elderly person's behavior is molded by their fear of discrimination, leading to more actual discrimination. Either way, perception of discrimination paired with negative age stereotypes leads to psychological distress. This makes the case that changing the way society views the elderly and creating a more positive-age attitude results in less discrimination and health effects.

In addition to age discrimination, elderly stereotyping in the workplace is one of the heaviest aspects of negative perception based upon age that exists. In any discrimination situation, employment has the largest burden to maintain equal. Moreover, because the lifespan of humans is increasing, the retirement age is also increasing. There are more elderly people in the work force than ever before, which puts them at risk for discrimination. In a study by Makienko and colleagues in 2016 chose to analyze the general perception of elderly in the work place and combine the most common thoughts amongst a group of participants. This study resulted in 5 main categories of character traits associated with the elderly; these categories were as follows: Good Family Man, Good Worker, Conservatism, Bad Character, Sophisticated Lifestyle. This shows a variety of positive and negative associations. Even within each category, there are both good and bad character traits. For example, under sophisticated lifestyle, traits considered include loneliness and illness. The general consensus of elderly, on the basis of most highly recorded responses, range from experienced, kind, and hard-working to boring, slow and conservative. The effects of these stereotypes are the interactions in which elderly receive in the workplace. It appears that they are considered trustworthy of difficult tasks, as they are laced with wisdom and experience. In contrast, working with other coworkers is stereotypically difficult as the elderly are perceived as strict, boring and slow. The traits that assume elderly workers are incapable of growth or education are conservative and traditional (Makienko, et al., 2016). The inclusion of the elderly into the labor market is important for a variety of reasons. It aids the economy to have more working age citizens, rather than retired citizens living off of social security. It is also good for the elderly to maintain working for benefits such as purpose, drive and social contact. There is evidence that the later in life someone exits the labor market

inversely correlates with mortality, meaning death occurs at an older age when they maintain a consistent employment (Yur'yev, et al., 2010).

Elderly Suicide

Suicide is a major, and growing, concern in our world. It is now considered a leading cause of death. This rise in prevalence, from 1999 to 2016, according to the Center for Disease Control, can be seen in almost every state in America to some degree; Nevada is the only state which has seen a decrease in suicide, and the decrease was simply by 1%. Landlocked, mid-western states such as Wyoming, Kansas and South Dakota have seen the highest increase in suicide rates, with up to 38-58% increases (Center for Disease Control, 2018). Figure 4 illustrates this trend and specifically lays out the degree of increasing prevalence of suicide in each individual state.

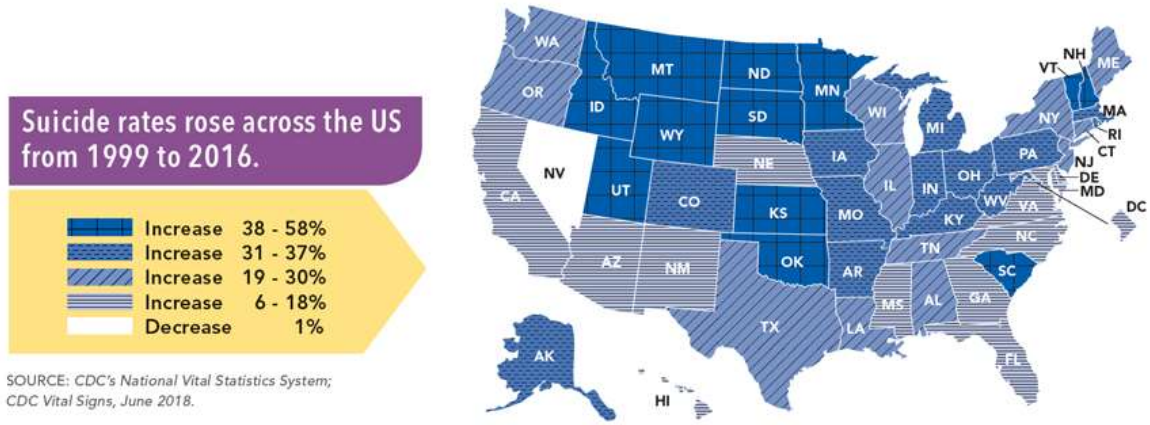

Figure 4: Variation in Suicide Rates by State from 1999-2016 (Center for Disease Control, 2018).

Within the population, it is the elderly that are of surprising concern. The need to understand elderly suicide is large, because it is only through this that we can identify patterns

and alter suicidal trajectories. The entire elderly population is much too large to discuss suicide risks as a whole; it becomes necessary to break up the demographic into smaller categories to fully research and understand patterns. The region of the world where elderly suicide research is conducted impacts the rate reported. Canada varies from most other reported countries in that, while most countries see suicide rise in direct relation to age, Canada peaks at a younger age. Further, broken down by gender, women, both black and white, have suicide peaks during midlife. This contrasts men who, both black and white, witness two different peaks. The first peak occurs at a young age, around early twenties, and a second once they reach the elderly state (Conwell, et al., 2011). See Figure 5.

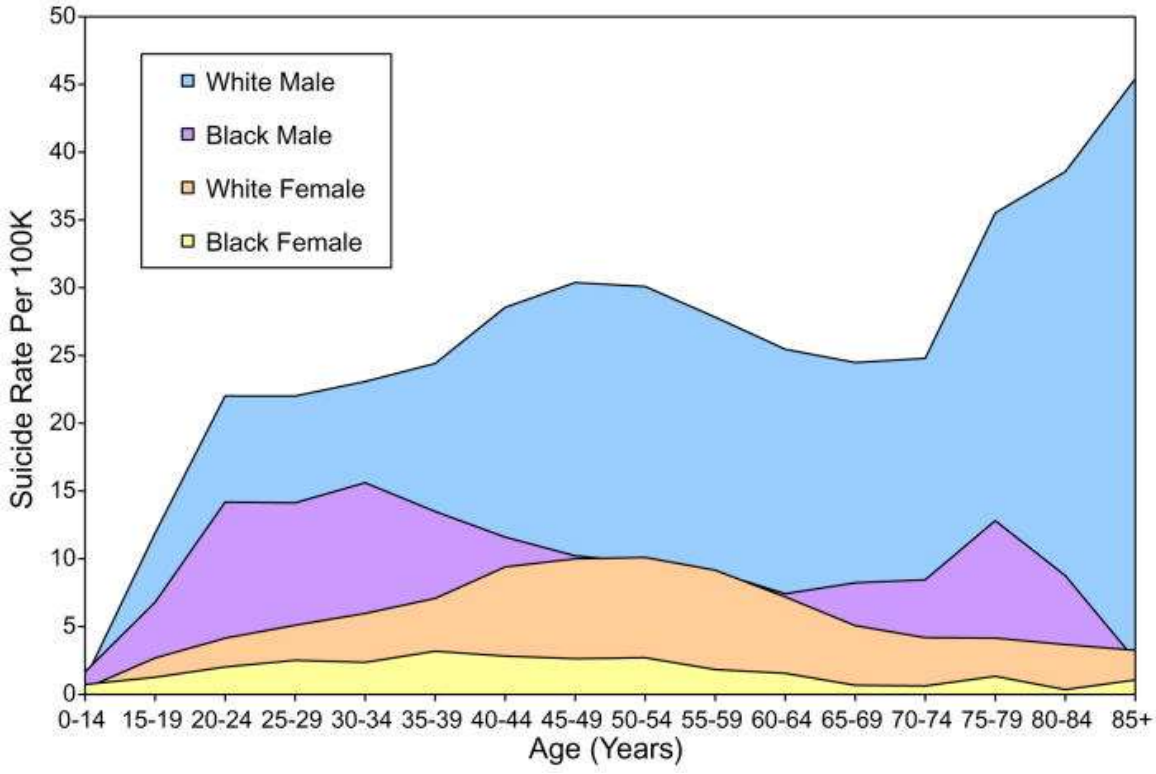

Figure 5: Suicide Rates by Age for Different Demographics (Conwell, et al., 2011).

Suicide rates in the elderly within America has seen a subtle decrease in recent years. This is, of course, cause for celebration, but is not considered to be sustainable. The baby boomer generation, as defined above, has been historically plagued with a high rate of suicide; the cause of this trend is unknown, but could be related to living during the Great Depression. As the generation crosses into the elderly population, the rate of elderly suicides will correlatedly increase.

The causes and risk factors of elderly suicide are difficult to pinpoint because they are so broad and varied. Conwell notes that it is usually a result multi-faceted circumstance that leads to such a drastic taking of one's own life. It is necessary to recognize risk factors that lead to elderly suicide so that it can be possible to decrease its occurrence. The most efficient method of gathering information regarding cause following a suicide is called a Psychological Autopsy. Psychological Autopsies retrospectively analyze the different circumstantial situations of those deceased by suicide to better understand cause and risk factor association. The different categories analyzed include background, environmental circumstance and characteristics. Through this study, it has become known that the most prominent risk factors of elderly suicide are psychiatric illness, social connectedness, and physical illness and ability.

Psychiatric illness is the prevailing risk factor behind elderly suicide, with its presence in 71%-97% of all elderly suicides. The result of a psychiatric disorder varies based on the specific type of mental illness. Schizophrenia and delusion disorder appear to have less of an effect on causing suicide than disorders such as depression. Affective disorders are the more common associated mental illness in those who die from suicide. Dementia is also proving to be associated as a risk factor for suicide, but the degree to which still requires further research.

Substance abuse resulted in an insignificant effect on suicide in the elderly, due to the remarkably diverse results.

Secondary to psychiatric illnesses, the physical health of an elderly person greatly impacts their chances of suicide. The functional capabilities are inversely correlated with suicide rate, according to Conwell and Colleagues. The elderly population is victim of a variety of diseases. In a study, compared to a control, it was found that any disease increased the rate of suicide; these illnesses included HIV/AIDS, Huntington's Disease, Multiple Sclerosis, Heart or Lung Disease, epilepsy, and many more. Each of these conditions raised the risk of suicide by 1.5-4 times the likelihood. Malignancies raised the risk of suicide by 2 times. This is not a substantial amount per say, but when viewed in correlation with the number of elderly individuals who have these conditions, the cumulative risk is great. Furthermore, the risk of suicide increases directly with the number of diseases one has. It is not simply the number of diseases that impacts the suicide rate though, it is the perception of good health that lowers risk of suicide. The ability of an elderly person to live independently and perform most IADLS and ADLS, as defined previously, acts as a protective factor against suicide. Additionally, and potentially most importantly in this category, pain is a huge contributing factor to risk of suicide. There is a direct relationship between pain and chance of suicide; the risk of suicide increases linearly with the pain level of an individual.

The social environment of an elderly person is the final primary factor found through psychological autopsies that can impact risk of suicide. This factor is double-faceted, in that it can be both positive and negative. The stress associated with social life events can increase an elderly person's chance of suicide. There are numerous types of stressful life events, ranging from employment change, to loss of relationships, to change in health status, to financial

struggles. The added stress positively correlates to suicide risk. Contrastingly, social connectedness is a protective factor. The integration of an elderly person, both into society and into a core group, is a preventative measure to elderly suicide. Mortality in general is decreased by 50% when strong social relationships are established; this makes social connectiveness as closely associated with mortality as obesity and smoking. Most elderly suicide victims were those who lived alone, did not have a confidante, were not active members of communities, and did not partake in hobbies.

End of Life Care

Understanding the concerns of the elderly population is only half of the battle. The issue then becomes how we can adjust our society to be more elderly friendly. The needs of this demographic need to be fully met in order to allow for healthier, happier growth for this population. The largest aspect of the physical needs elderly people have comes down to end of life care. This is a growing area of medicine. Due to the increasing age that humans are living too, we are faced with the challenge of creating an acceptable quality of life while burdened with an array of failing bodily mechanisms and chronic conditions. End-of-life care balances a goal for life longevity with comfort measures and protection of dignity. Because dignity and comfort are as, if not more, important than cures and treatments, the satisfaction of care becomes vital. In a self-reported survey-based study, the satisfaction of end of life care was, overall, positive. Most patients had interacted with their practitioner and specialist within the last 3 months. Although, there appeared to be a trend of education indirectly correlating to satisfaction, meaning that the more education a patient had, the less satisfied they were with their care. The efficacy of handling acute issues, communication between different providers, hospitalization, insensitive

physicians, side effects and lack of ability to receive second opinions were the main concerns with satisfaction of end of life care. Among all of the end of life care issues discussed during the survey, 26% were reported as occurring often, while the rest were ranked as occurring sometimes. There was also a direct relationship between proximity to death and dissatisfaction of care. The transfer from hospital care to end of life care resulted in a strong array of adjustment issues, specifically revolving around the communication and team work of medical professionals (Elsbeth, et al., 2007).

An important subsection of end of life care is palliative treatment. Palliative treatment focuses on improving quality of life and providing comfort to a dying patient. Palliative treatment should be incorporated early into a diagnosis, even in conjunction with other, more aggressive, treatments. The use of this type of care is shown to aid in increasing quality of life and satisfaction of care, as well as decreasing depression, according to Zimmerman's research. Even with all of these benefits, palliative care is highly underused. The stigmatization of this treatment as a last resort inhibits its full utilization. Based on a survey, taken by Zimmerman and Colleagues, asking about preconceived ideas of palliative care, general themes discussed included hopelessness, death, dependency and incapacitated. Almost every discussion of palliative care revolved around impending death. A surprising number of people did not even know what palliative care referred to, showing a lack of understanding of available and beneficial medical options. Fear and anxiety were common themes for terminal patients when palliative care was suggested. Most participants in the study felt they were not eligible candidates for palliative care. Following initial interactions with palliative care, patients' fear and anxiety was replaced with comfort and coping mechanisms. Palliative care was proven to be an effective form of health care. The underutilization of it inhibits effective medical treatment for

terminal patients, and because of this, these patients experience increased pain and symptoms. It has been suggested that rebranding of the palliative care system to include more than just end of life treatment would increase usage. The emotional heaviness associated with its treatment is a deterrent for most patients and renaming it “supportive care” and incorporating it into a treatment package would greatly impact the anxiety surrounding it (Zimmerman, et al., 2017). The following tables establish the contrast between perceptions of palliative care before and after receiving treatment, proving the necessity for rebranding and increased education on the subject.

Figure 6: Initial Reactions to beginning Palliative Care (Adapted from Zimmerman, et al., 2017).

Theme	Control group	Intervention group
Shock and fear	I don't know, because it's a bit of a surprise to hear that related to you, so it's sort of a jolt, a wake-up. (P041c) It would be like you're sitting here and someone says, "Your house burned down!" Like, what does that mean? (P004c) I said, "No, no, I'll fight it. I'm not going to go for this palliative care." It scared me, it did scare me. (P052c)	To us at least, it was a bit of a shock. ... we had a preconceived idea of what it was, which was clearly wrong. (P013i) I was very surprised when ... I thought, "Oh my God! I'm sicker than I thought." (P031i) The word is extremely frightening because it's like we can't do anything for you. We're putting you in palliative care. (P025i)
Resistance to palliative care*	If palliative care is ... "We've got to get into some palliative care," I'm going to say, "Whoa." I hope I never hear that. I like to think of it like a candle. You burn ... life should be like a candle, burn bright, flicker once or twice and go out. That's what I want to be, a candle. (P069c) That's one of my, I don't know if it's a fault or whatever, but my husband used to say I'm an ostrich; I put my head in the sand. I don't deal with it, I'm fine. You don't want to deal with it unless you really have to. (P065c) I'd have to be ... if I were an awful lot worse where I thought I was going to be a burden to my family or something like that, then I might bring it up. ... Other than that, I would do almost anything before I did that. (P060c) I think because we haven't, we don't look there, we don't go there, we don't dwell on the negative part of that. I guess, to me, in a way it's a bit of a negative. (C070c) You'd never get him into palliative care first of all [laughter], but I think it would have to be ... I don't know. He would be a difficult case. ... like something would have to completely debilitate him before he would even consider the option of palliative care. (C030c)	It's like we don't like it. It's like that's about dying, death. I'm not doing that, thank you. I think yeah, that would be my initial response to it. (P066i)*† Well, I knew that palliative care was out there someplace, but obviously it was something that I was trying to avoid. [Oncologist] was good enough to be able to say that, "Maybe you should think about palliative care in a little different way, and this would be useful." So, it was actually the doctor who put the positive spin on it rather than the negative consciousness that I had of it. (P015i)*†‡ They mentioned palliative care and I went, "No!" You know? You know, "I'm not ready for that." And then, she went further to explain that it was — the approach wasn't meant to be, to put them in the end of life care, it was just same as me ... study, early intervention. (P025i)*†‡ Right away I thought, "This is great, this isn't what I thought it was at all." It was good. ... They explained it right away. Maybe if I had gone away thinking that, "Oh, I have to meet up palliative care," then maybe I would have had time to think about it and maybe I would have been more nervous about it. But, because they did it right away, there was no waiting, big waiting and time for you to think up things. (P010i)*‡
"Not relevant for me"*	Never really thought of it, to tell you the truth, because in my head I'm optimistic. (P020c) I don't expect to be in that predicament for a long time coming yet. It's very foreign to me. I don't think about it much. (P065c) No, we never discussed it, but I have no doubt that we may one day, we will one day. But, as long as it's far, far away. (P017c) I think that it's that I haven't really been that sick in the sense of being debilitated and you know what? I don't even know the stages of cancer. I think I know I'm at the top where it's not operable and all of that but it's not at the stage where like I'm going to leave soon. We don't know and I think maybe because of that, nobody has ever really brought it up nor have I or maybe partly, because I don't want to. I don't know. I haven't thought about it till now. (P037c)	I went, "Well, okay. I'll help the research," but thinking to myself, "I don't qualify. It's not for me." (P043i)*† Well that was my initial reaction to it, I thought, "palliative care?" Because I always think of it as someone in their last, you know, in the last few weeks of life. ... But when they started to explain that perhaps it was useful, I, as you know, like to talk so the idea of having someone to sort of unburden to, I thought that was a good idea. So I was very willing to participate. (P031i)*†‡ So, that's how I was introduced to palliative care. ... It was presented to me primarily as a method, a sourcing of pain control and the pain I had been experiencing in my ribs was significant enough that while I could live with it, it was fatiguing. (P024i)*‡

*For these themes, intervention group quotations include both †examples of initial reactions and ‡examples of how these reactions were mitigated by explanations from their treating oncologist or from members of the research team who introduced the trial.

Figure 7: Follow-up Reactions to Receiving Palliative Care (Adapted from Zimmerman, et al., 2017).

Theme	Intervention group
More comfortable attitude toward palliative care	I certainly don't now see it as I'm in the final box or the chamber. He's [palliative care physician] given me some hope, which is wonderful. I mean, I'm not hopeful or have any (or maybe way deep, deep down inside) wishes that things would be different, but I think he's given me some alternatives. (P045i) I think the more you know about something, the less scary or the less worrying. You're more comfortable. I think the more contact that we have with people like [palliative care team], it's just, it's more normal. ... Our "normal" now includes coming to the hospital; he goes and gets his CT scans, he goes to oncology, he also goes and sees [palliative care physician] and palliative care. That's the norm. It's just a part of what happens when you go to [the hospital]. (C046i) Yeah, I think it has given me confidence that hey, these guys really care. ... Yeah, things are going to be okay. Yeah. I don't know what more I can say. Yeah, it's given me confidence. (P023i) Well, my first reaction, as I say, to the word is, "Oh my God." But when I realized that I really wasn't going to die in 2 or 3 weeks and so this was something that was very, very helpful. So I, I could see the benefit to it and so then I sort of changed my attitude to palliative care. (P031i)
Broadened definition of palliative care	I think the same thing as everyone else, "Oh, palliative care, I must be at the end." But, I've come to learn that's not the case — it's an ongoing care and I'm very grateful to have it when I am feeling well and feeling strong and able to do things. (P010i) Yeah, that, in fact, it's not just end-of-life it's the whole symptom management, potentially through the whole ... through all phases it is available, and I didn't know that. (P001i) I see that it now comes on in an earlier stage of my treatment. ... Earlier stage, rather than palliative care as in when they're no longer treating you. So this is palliative care while they're still treating you. (P008i) Because that's right; it's about the quality of living. And what you can do to help with that quality of living. ... And if anyone mentioned it, if anyone said, "It's just about dying," I would know now to say, "No. Palliative care is not dying. It's living. It's living the best you can with what ... the issues you're dealing with, sort of." Yeah. So I learned. (C003i)
Team useful but name problematic	It's just one of those ... it's like anybody who has been raised with certain values or beliefs. Palliative care, in my mind, has always been final stages. Now I know intellectually, rationally, palliative care is not final stages, but emotionally I still carry that term as, perhaps a slightly fearful term. (P024i) [My impression has changed] of what the team does, yes, but not what palliative care is. What the team does, yes, and that's why they should change the name. [laughter] (P043i)
Avoiding the term "palliative care"	I don't think I even refer to it as palliative care. That palliative word, not liking it, still not liking it, still haven't adjusted to it. I just say I'm seeing [palliative care physician]. I see so many doctors there. They're like, "Okay, that's nice. Are you okay, relatively speaking?" It's like yeah. I don't even refer ... I don't use that palliative word — the P word. (P066i) Well, I think just in my own head, just to make me feel more comfortable, I referred to her as my "medication specialist" as opposed to my "palliative care doctor" versus my "oncologist," right? ... [To others] I say that I'm seeing my "medication specialist." Sometimes if they ask a little more, then I will say that she is actually in the palliative care department but they branch out a little bit and they deal with people like me. ... Why? Because if I told people I was seeing a palliative care doctor, they would think I was going to die in a few weeks or months. (P040i) I mean, I would feel much more comfortable saying I'm going to the pain-control clinic. I say, "Oh, well, that's cool." You got pain, you get treatment for the pain. ... I'm trying to kid myself into saying, "You're not really in palliative care. You're just doing pain control, which is cool." That's kind of a deception that when the day is done I say you're in palliative care, that's exactly what palliative care means. (P024i) I don't tell people I'm seeing somebody in palliative care. I just, I say, "Oh one of the doctors at [hospital] told me this or that" or "Oh, one of your team doctors?" "Yeah, yeah, one of the team doctors." I don't ... I don't talk about it. ... They may just get so scared they walk away and so it's best not to say anything. (P022i) I've never mentioned to any of my friends that I'm in palliative care. I think they'd go into shock. Or to the family. I think, to the best of my knowledge, they all have the same understanding that I had. (P013i)
The care I received is not palliative care	I don't think I've had palliative care yet, because I'm not on my last legs, not by any stretch of the imagination. (P007i) Palliative care [is] not, to me, sort of what we've had, because we've really, we're so into the early part of it. (C061i) Somehow, it still doesn't really change my feeling about palliative care because I think she [palliative care physician] gave me wonderful care. Somehow I can't equate what I experienced with her as palliative. (P040i)

Note: CT = computed tomography.

Future Considerations

Many things became clear through the research done for this paper. Primarily, it was evident that we are at a changing time of History. The population demographics are morphing, especially in terms of the elderly. People are living longer, increasing the percentage of the population that qualifies as elderly. We are seeing a more balanced and diverse ratio of people within the elderly population, in terms of race and gender. There are clear health effects because of this change, and the impacts effect the longevity and quality of life of the elderly. The increased prevalence of chronic conditions, paired with failing bodies requiring daily assistance, results in a need for high levels of health care. This health care has to be mediated by availability and manageable costs in order to be effective.

There are certainly some changes that could be enacted in order to aid in the life of the growing elderly population. In 2013, Kadoya researched and discussed two different policy implications that result from this reality. Firstly, the government could become involved in the living arrangements of the elderly, taking particular note of the elderly that live alone and enlisting supportive care and social interaction for these individuals so they are not isolated. Promoting children to live with their elderly children is another method to increase safety for the elderly; this could be achieved through tax cuts. Secondly, the transportation options for the elderly need to be addressed. Public transportation is a clear alternative to the dangers of elderly personally driving their own cars. Increased of community buses would be an effective method of raising elderly transport. A step beyond this is the issuing of 'elderly community taxi passes' which allow the elderly population to utilize the taxi system for a much reduced rate (Kadoya, 2013). Other changes that would benefit our elderly include better education on palliative care. A fuller understanding of this type of treatment, paired with rebranding of the idea of comfort care,

would increase utilization of this care which leads to better health and quality of life. Educating and desensitizing our physicians to palliative care would be an initial step that would have spiraling effects. If more physicians did not consider palliative care to be a failure or the end of life, more referrals would occur.

These government policy implications would increase health and quality of life of the elderly, but there is further research that needs to be done to fully incorporate our world into an elderly friendly society. Aspects of elderly healthcare that should still be researched include the specific chronic conditions that elderly are battling, and how their treatment options and prognoses vary from that of a younger person. Do physicians present different treatment options to the same disease based on age? If so, is the prognosis different? Further, it would be worth researching the societal and media-instigated stereotypes of the elderly and how that integrates into their health care and quality of life. It is proven that discrimination and self-perception are large determinants of health, so how are these impacted by the stigmas and pop culture that surround us? This problem will only keep increasing as the elderly population group grows. Our culture needs to continue researching the cause and effect of elderly discrimination, both in society and in health care, and then adjust to accommodate this population.

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