

ELDER ABUSE IN NURSING HOMES:
THE IMPACT OF DEMENTIA/SPECIAL CARE UNITS

BY

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Elder abuse is a topic that impacts everyone in America at some point in their life. Special care units also called dementia units are protected areas in a nursing home that are specially designed for dementia/Alzheimer patients. This thesis reviewed how a special care unit in a nursing home affect the number and severity of deficiencies reported to Medicare. The data was collected from Medicare's Nursing Home Compare system and the Illinois Public Health Department. This study reviewed 770 nursing homes in Illinois were reviewed, 141 had special care units during the time of data collection. The facilities had a range of total deficiencies from one to 74 with Level of Harm ratings ranging from one to four on a four-point scale. The results showed that residents in a nursing facility that has a special care unit are at a greater risk of a higher Level of Harm but no difference in the number of deficiencies. Possible causes of this greater risk are due to the intrinsic nature of the population in special care units, the need for policy and procedural changes in nursing facilities, and potential surveyor bias.

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Chapter 1: Introduction

Elder abuse is a topic that many in the business of long-term care do not like to discuss. With over 30% of nursing homes nationwide having been cited for elder abuse, it is a serious problem (“Abuse of residents,” 2001). Cases of elder abuse can ruin a facility as well as the lives of its victims. Whether it is elders abusing other elders, a staff member abusing an elder or even a family member of an elder, abuse is a serious issue. For the purpose of this paper we will be looking at dementia care units, also called special care units, in long-term care facilities. This study will be looking at facilities with and without special care units. The study compared the number and severity of elder abuse cases, using data from Medicare’s Nursing Home Compare for long-term care facilities in Illinois from March 2009 to October 2012. These steps will test the hypothesis, that there is no difference between facilities with and without special care units in cases of elder abuse.

Abuse can be broken down into five classifications: physical, psychological (emotional), sexual assault, material exploitation, and neglect (Laches & Pillemer, 2004). Physical abuse involves maliciously causing pain and/or injury to another individual, and often results in the appearance of physical marks. Psychological abuse can be one of the harder forms of abuse to report as emotional pain and injuries are often hard to identify. Sexual assault is one of the more controversial forms of abuse as often the victims will not wish to report sexual assault as they feel ashamed. Material exploitation involves the “misappropriation” of the elder’s money and/or property; this form of abuse is most often performed by families. The final classification is that of neglect this is the act of not providing for the needs of the dependent elder; an example of this would be if an elder develops bed sores as the caregiver is not turning the elder as often as is

needed. The Review of Literature will be going more in-depth with these classifications and how they impact elders, specifically elders in Nursing homes.

As our population ages our need for quality long-term care increases, already in 2011 the first waves of baby boomers have turned 65, and it is estimated that by 2040 the number of elderly needing long-term care will more than triple from 4 million to around 14 million (Walker, 2002). As the number of elders needing long-term care increases so does the pressure on caregivers. When a caregiver is stressed there is a greater chance of abuse occurring. In recent years we have been facing a bout of economic hardships, and with the economic hardships come an increase in the incidence of abuse and violence (Krug, Mercy, Dahlberg, & Zwi, 2002). This simple fact merely renews the need to be vigilant in protecting our elders from abuse. So as the risk of abuse becomes greater it is necessary to look at the current long-term care system and see how it is holding up.

1.1: Problem Statement

Elder abuse is a difficult and often misunderstood problem, especially in elders that are deemed to be unable to speak for themselves. One study found that “one in four elders is at risk of abuse and only a small portion of this is currently detected (Cooper, Selwood, & Livingston, 2008).” Over the next few years with increasing long-term care facility usage and greater demands on caregivers the issue of elder abuse grows even more vital. One study reported that elders who experience neglect or physical abuse have three times the mortality of those who have never been abused (Fulmer, Guadagno, Dyer, & Connolly, 2004). Another study found similar results in that elder abuse is connected with distress and increasing mortality (Cooper et al., 2008). With around 50% of all nursing home residents having some form of dementia it becomes even more necessary to be vigilant in protecting these people from any and all forms of

elder abuse (Walker, 2002). Now that being said there are residents in nursing homes that are able to speak-up for themselves if they are given the opportunity and resources to do so; this is covered in greater depth further on in this section. As with any problem there is more than one way to handle it, but in order to fix a problem there are a lot of smaller causes and solutions that need to be dealt with for the overall problem to be fixed. This fact holds true when talking about elder abuse.

The United States, as with nearly all other industrialized nations, is facing an aging population (See Appendix A: US Census Graph 1 & 2 for more details); the most significant increases coming with the “baby boomer” generation. As stated previously by the year 2040 it can be expected that the populations in long-term care facilities will more than triple. This massive increase in the long-term care facilities populations reaffirms the need to protect elders from abuse. There are a couple factors that need to be addressed over the coming years: One, as our population ages we will have fewer people of working age able to provide care for those that need it, thus resulting in the potential for deficiencies in care both professionally and at home. Two, as time goes on we require more of professional caregivers both in hours and tasks. This increase in demands results in overworked and stressed caregivers which increases the likelihood of abuse occurring.

As our population ages it results in more people needing care and fewer people available to provide that care. Current state law requires long-term care facilities to have a minimum of between two to three hours of individual care each day for residents depending on their level of need. These hours are set to increase to between 2.5 and 3.8 hours over the next two years, meaning nearly half of a Certified Nursing Assistant’s (hereby known as CNA) time must be spent on just one resident (Aronovitz, 2002). If the increasing long-term care population is taken

into account by 2040 at least 5 million new CNAs will need to have been trained and working in the long-term care system, this number does not include the new nurses needed to supervise the CNA's as well as handle medications. This increase in the demand for new caregivers comes at a time when a large portion of the US population is in fact those that need the care. This places many facilities in a difficult position if they are unable to meet the needed number of caregivers they must then either place added burden on their full time staff, choose to hire caregivers that would normally be passed over for various reasons, or bring in agency caregivers who cost more and are often unfamiliar with how each individual long-term care facility is run. Unfortunately if a facility is under financial pressure (Often times due to overtime pay or having to bring in expensive agency caregivers.) they are more likely to find ways to "cut corners" which often leads to one or more incidence of elder abuse. When facilities face financial constraints and caregivers face added stress a cycle of abuse begins. While generally caregiver refers to staff; it can refer to family members. This thesis will focus on elder abuse with-in long-term care facilities. That being said while an elder is in a long-term care facility there is still the opportunity for elders to be vulnerable to family abuse.

It can be unclear when a person is being abused, as abuse does not always leave visible scars. The top two forms of abuse allegations reported to the Illinois Department on Aging are exploitation and emotional abuse (Repp & Hughes, 2005). It is often left up to the victim of the abuse to make known what is going on. In 2005 the Illinois Criminal Justice Information Authority reported that even mandated abuse reporters only have to submit an abuse allegation if the senior involved is unable to report the allegation themselves (Repp & Hughes, 2005). There are two main reasons why the elder may not seek help: one, the person abused may not know who they can turn to in order to seek help and therefore no one is made aware of the

abuse and the second reason is that the elder may be unable to ask for help as they are unable to effectively communicate. With the first reason of the elder being unaware of where/who they can turn to, to seek help. It must be clearly communicated to the elder(s) that there is help from sources like the Ombudsman Program. Elders may go to Ombudsman when they have been abused or even if they merely suspect abuse (“Long-Term Care,” 2004). It is often a huge barrier to cross for people who have been or are being abused to step forward and seek help, therefore if when they do seek help they are then told that they have spoken to the wrong person there is even less chance of them attempting to report the abuse again. Without a clear chain of command, that not only the elder but staff are aware of there will be many cases of elder abuse are overlooked. Part of not overlooking cases of elder abuse comes from staff education. An educated staff will be aware of the signs as well as the steps needed to be taken in cases of elder abuse. With the staff being proactive towards elder abuse there is less pressure placed on the elders. The second reason mentioned is that of some elders being unable to ask for help this comes into play when an elder loses their ability to clearly communicate whether this is through dementia, or loss of speech, sight, and/or hearing. As mentioned before about 50% of nursing home residents have some form of dementia, with even a slight case of dementia the testimony of a resident can be called into question. This can result in an incidence of elder abuse going without justice. In the case of an elder losing their ability to communicate, they would be unable to report the elder abuse and/or details about it. Nationally 20% of substantiated abuse cases involved physical abuse and 13% of cases are caregiver neglect (Repp & Hughes, 2005; Cooper et al., 2008). In Illinois 70% of abuse victims between 60 and 85 years old are women, with perpetrators evenly split between both genders (Repp & Hughes, 2005; Phillips & Guo, 2011; Phillips, Spry, Sloane, & Hawes, 2000). Of elders abused in Illinois 46% of victims are over the

age of 81 years old (Repp & Hughes, 2005). If you tie in the findings of a 2010 study, that found the average age of nursing home residents is 84 years with a standard deviation of 7 years; the residents in nursing homes have a greater potential risk for abuse than most other elders (Wetzels, Zuidema, De Jonghe, Verhey, & Koopmans, 2010).

1.2: Definitions

1. Abuse – A single, or repeated action, or a lack of appropriate that causes harm or distress to a person.
2. Activities of Daily Living (ADLs) – Self-care actions such as bathing, using the toilette, dressing, eating, etc.
3. Certified Nursing Assistant (CNA) – Individuals who are trained and certified to assist with or perform ADLs for another person.
4. Dementia – a non-specific set of symptoms that result in the loss of mental and eventually physical capabilities.
5. Health Deficiencies – A classification of survey deficiency that specifically puts the health of a resident at risk. Health risks can be mental, physical, emotional, or spiritual.
6. Long – Term Care Facilities also called Nursing Homes – A business that offers elders a safe, friendly, homelike environment in which to either recover from an injury, illness or surgery or that provides care for them in their final times. Cares include but are not limited to ADLs, mental stimulation, emotional engagement, and spiritual stimulus.
7. Ombudsman – A state wide program set up to ensure elders at home or in a long-term care facility have an advocate for when they feel their rights are being violated or threatened.

8. Special Care Unit also called a Dementia Unit – A secure enclosed area that is specially designed to handle the challenges that come along with dementia patients. Examples of this are gardens that have only edible plants in them, no mirrors on the unit, activities designed to stimulate the mind and senses, etc.
9. Survey Deficiencies – A problem(s) or issue(s) found by state surveyors in which a dependent older adult is put at risk or has suffered harm.

Chapter 2: Review of Literature

The search for related research began with the search engine Ebsco with engine pulling up any article since 2000 which matched the key word search of elder abuse and long-term care facilities and special care units. The results were then filtered down to only studies that looked at U.S. data. As the articles were reviewed several more works became notable as their influence in the selected articles became clear. The initial search resulted in several research papers as well as a few testimonies before committees in the U.S. Senate and House of Representatives. The works selected have been grouped as follows: Strained System; Staff/Caregiver Abuse; Elder on Elder Abuse; and Elder Abuse and Dementia. While a couple articles were found that closely matched the topic of this thesis none were found to cover exactly the same material.

2.1: Strained System

The government has been reviewing the long-term care system for many years in one report to the Special Committee on Aging for the U.S. Senate they looked at how the upcoming influx of Baby Boomers will affect the Federal and State Budgets. They estimated that by 2050 the spending both private and public for long-term care will jump to \$379 billion. A dramatic change from the \$137 billion spent in 2000. Of the \$137 billion about 45% or \$62 billion is paid for by Medicaid. Medicaid, being a joint payment system between Federal and State, saw \$35.34 billion go into nursing home care alone. The next biggest payer is Out-of-pocket at 23%. Medicare covers around 14% or \$19 billion. The report also found that by 2020 one in six Americans will be 65 or older. And that by 2040 there will be 14 million adults 85 years of age or older. As the retired population swells there is less money going into the system to support the rising costs of long-term care. With the average cost of a year in a nursing home around \$50,000

state and the federal government have to be looking into ways to pay for the needed care (Walker, 2002). Without foresight by the government, nursing home facilities will not receive the funding needed to supply adequate care for the elderly resulting in the potential for more cases of negligence. A 2006 study found that higher rates of mistreatment are found in nursing homes with for-profit status (Jogerst et al., 2006). This is most likely due to the fact that for-profit nursing homes must pay shareholders as well as cover the day to day expenses of running a nursing home. As stated in “The world report on violence and health,” “economic conditions are both causes and effects of violence (Krug et al., 2002).”

The Human Ecological researchers in “Soothing the Strains in Nursing Homes” found that a financially strained facility often has the results of numerous abuse cases (Boscia, 2011). The Code of Federal Regulation is a series of guidelines that a nursing facility must meet in order to receive certification for Medicare and Medicaid. Within these guidelines there is section 483.13 which states, “residents have the right to be free from verbal, sexual, physical, and mental abuse, corporal punishment, and involuntary seclusion.” The Ombudsman program reported that 17% of all complaints fall under one of four categories: unanswered calls for assistance; accidents and improper handling; lack of respect for residents and poor staff attitudes; and the need for better food options (“Long-Term Care,” 2004). When regulations are violated (i.e. an abuse allegation has been corroborated) a nursing home is liable to be fined or potentially closed depending on the severity of the abuse case(s) (Code of Federal Regulations [CFR], 2008). In a worst case scenario nursing homes would have to either close down or refuse to take any resident who is unable to pay for their stay for several years. One potential solution looked at by the Special Committee on Aging was that of private insurance. There were also questions raised about who is responsible for paying for the care of elders, should it be the public or should it fall

to the individual to prepare for their own future, a future that for 25% of the population over the age of 65 will result in the need for at least one stay in a nursing home (Ulsperger & Knottnerus, 2012),

As previously mentioned the Code of Federal Regulations covers Medicare and Medicaid certification of nursing homes. One of the stipulations of being certified is that a nursing facility is prohibited from employing individuals who have been found guilty of abusing, neglecting, or mistreating residents previously (CFR, 2008). This stipulation forces facilities to self-regulate, they are responsible for checking the backgrounds of potential employees; nursing homes are responsible for reporting any abuse allegations in a timely manner. If a nursing home does not follow the requirement of reporting the employee and instead lets said employee go, the next nursing facility that hires the individual will be putting their residents at risk, all because one facility did not follow regulations so there is no history of abuse on the individuals record. There are groups in each state that attempt to monitor nursing homes, but it comes down to the integrity of the nursing homes administration to ensure that not only their residents are protected from abuse but the industry in general from poor employees. A 2011 report by the Office of Inspector General found that 92% of the 260 facilities (selected by a stratified random sampling) looked at employed at-least one person with at-least one conviction. 5 to 10% of all nursing home employees in the United States have been convicted of a crime. 13% of the convictions were for crimes against persons and a total of 36% were convictions involving drugs or alcohol (“Nursing facilities’,” 2011). These numbers are surprisingly high for an industry that is charged with the care of a highly vulnerable elderly population (The potential impact of past criminal history will be looked at more in the Staff/Caregiver Abuse section.). In-order to protect the vulnerable population that is nursing home residents; facilities must overcome financial difficulties, they

must follow the laws and regulations set down for them, and they must work to ensure that they are providing a safe, secure, and respectable atmosphere for their clients.

2.2: Staff/Caregiver Abuse

While a majority of the research focused on staff members engaging in elder abuse, it is important to note that a significant amount of abuse statistics come from family and friends; who are acting as caregivers. For the purpose of this project the focus was placed on nursing home staff and the role(s) they play in elder abuse. The National Research Council defines elder abuse not only as an actual assault but also as a “failure by a caregiver to satisfy the elder’s basic needs or to protect the elder from harm (Bonnie & Wallace, 2002).” This definition points out the need for caregivers to not only ensure they do no harm to a resident, but to be proactive in preventing others from abusing the resident. Fulmer et al. even went so far as to say that “the responsibility of identifying elder mistreatment often falls on the healthcare professional (2004).” In Professor Howes 2002 report to the U.S. Senate committee she reported that low staffing levels and inadequate staff training are two of the most preventable causes of elder abuse (Howes, 2002). In the 2002 study, “The effect of education on knowledge and management of elder abuse: a randomized controlled trial,” the results were similar to Professor Howe’s statement in that “organizational climate” and staff experiencing “excessive job demands with insufficient training are leading reasons caregivers abuse/neglect residents (Richardson, Kitchen & Livingston, 2002).” Without appropriate training staff may not realize if their actions are putting elders at risk of harm, which according to the Administration on Aging’s definition is tantamount to elder abuse. The Administration on Aging considers abuse to be “any knowing, intentional, or negligent act by a caregiver or any other person that causes harm or a serious risk of harm to a vulnerable adult (“What is Elder Abuse?,” 2010).”

With many of these definitions there are pieces of them that can be left up to interpretation. This places caregivers in a difficult position, none more so than in the case of restraints. According to the 2007 work “Handbook of Injury & Violence Prevention,” inappropriate restraint of an elder can fall under the category of physical abuse (Pillemer, Mueller-Johnson, Mock, Sutor, & Laches, 2007). Elders often have weak bones and fragile skin, if a resident is restrained in an inappropriate fashion they will have bruises, possibly skin tears, and in a worst case scenario broken bones. Dementia adds another level to this as a resident will not understand why they are restrained, so they will naturally struggle against physical restraints and this can result in serious injuries to the resident if they are improperly restrained (see the Elder Abuse and Dementia section for more on restraints). It falls to the caregivers to ensure that their actions in no way directly or indirectly harm a resident or place them at risk of harm.

In the 2005 publication “Nursing home abuse: risk prevention, profile, and checklist,” by the National Center on Elder Abuse one of the three risk factors for abuse in nursing homes was “facility factors (“Nursing Home,” 2005).” It goes on to explain that “facility factors” refer to a lack of staff training, insufficient staff screening, and high elder to caregiver ratios. In a 2007 review of research on elder abuse in nursing homes, it was noted that inadequate staffing levels and lack of supervision can result in elder neglect. Most significantly the researchers identified six characteristics that are common in caregivers involved in abuse cases: low job satisfaction, the view of residents as being child-like, suffering from burnout, inability to handle the stressful work environment, a history of domestic violence or mental illness and drug or alcohol abuse (Lindbloom, Brandt, Landon, Hough, & Meadows, 2007). As mentioned in the Strained System section an alarming number of nursing home employees have in fact been convicted of violence against others or for drug or alcohol related crimes. While it is only against regulations for a

facility to employ a person who has been convicted of resident abuse, convictions relating to drugs or alcohol and violence are red flags that residents may be at risk of being abused. It is vital that staff be watchful and understand that they are the frontline in protecting elders from abuse.

As CNA's provide about 90% of all care in nursing homes, it can be easy to overlook the roles of other staff (nurses, social workers, housekeeping, maintenance, activities, dietary, etc.) plays in keeping residents safe and free of abuse/negligence (Boscia, 2011). Social workers play vital roles as caregivers as well as educators of resident rights and abuse. In a 2011 study by Mercedes Bern-Klug and Bushra Sabri, through a cross-sectional mailed survey, found that 70% of social services departments were "usually or always" involved in abuse training (Bern-Klug & Sabri, 2011). As mentioned previously, training is vital to keeping staff vigilant in protecting residents from abuse. The roles of housekeeping and maintenance are vital to protecting the residents from "serious risk of injury." Maintenance keeps the building, grounds, and machinery working, if a Hoyer lift is not kept in working order there is a potential that it could break while a resident is suspended in mid-air. This position is embarrassing and an affront to the resident's dignity. Depending on the circumstance an incident such as this can result in a case of abuse being brought against the facility. With housekeeping if they are not quick to cleanup spills or they do not properly block off wet floors and a resident slips this would result in a case of negligence, which is interpreted as a form of abuse. Activities works to keep residents mentally active and emotionally engaged, for a nursing home to be fully supporting a resident's health and wellbeing an engaging social atmosphere is needed. The study of "Determinants of Quality of Life in Nursing Home Residents with Dementia" found that residents who are agitated or depressed and not mentally stimulated often have a poor quality of life (Wetzels et al., 2010). By

having a socially engaging atmosphere with activities geared towards an individual's capabilities residents can be kept calm and happy, which greatly eases the strains on caregivers. Dietary works to ensure that meals are safe and well balanced for residents, ensuring their nutritional needs are being met, or at-least the resident is properly educated about what they should be eating. It is important to recognize that residents have the right to refuse any service, medicine, food, etc. Staff then needs to educate the resident about their options. All these staff members and many more not mentioned are vital to keeping residents protected from abuse. As the population ages they become more and more vulnerable and dependent on others; without trained and trusted caregivers we will face a high probability of suffering from at least one form of abuse.

When residents become vulnerable they often times become resentful towards their caregivers. Physical and verbal aggressions are common ways for residents to lash out towards staff. In a 2002 study "Preventing Assaults by Nursing Homes Residents," survey results came back with 51% of staff reporting they had been injured at least once in their lifetime by a resident assaulting them (Gates, Fitzwater, Telintelo, Succop, & Sommers, 2002). When residents are abusive towards staff it creates a very stressful environment, not only for the staff but for other residents as well.

2.3: Elder on Elder Abuse

One of the most under addressed topics was that of elders being abusive towards each other. In one study that is based on the social-ecological model, using a qualitative event reconstruction model found there are 13 major forms of aggression between elders. The following are the 13 forms of elder to elder aggression: invasion of personal space, invasion of room privacy, clearing a way through congestion, inappropriate caregiving, roommate

arguments, belligerent roommate, angry attempts at social control, arguments, disproportionate response to normal interactions, teasing, accusations, and inappropriate sexual behavior (Pillemer et al., 2011). This study along with two others identified the need to treat each resident's case as unique, the studies called for "person-centered" care (Flesmer, 2009; Korsen, 2010). Sinoda-Tagawa et al. (2004) found similar results in that residents, who wander, are verbally abusive or socially inappropriate are more likely to be physically injured by another resident. The most common type of elder on elder abuse was screaming and yelling (Rosen et al., 2008). Lachs, Bachman, Williams, and O'Leary (2007) found that 90% of the time when police are called to a nursing home it is for residents abusing each other.

While elder on elder abuse can be called many things, acting out, aggression, etc., it is vital to realize that it all feeds a cycle of abuse. If a resident hits another resident, then the injured resident yells at the caregiver, and the caregiver is then upset and is less than kind to the abusive resident, it all goes on in a system of hate. One action feeds another, it is vital to stop the abuse before it has a lasting impact on the entire system. Even if an abusive resident is transferred out of a nursing home, they still require care, and so they must go to a different facility. Thus a new cycle of abuse is started, all while the old one has left lingering traces, and that will impact the first facility for years to come.

2.4: Elder Abuse and Dementia

According to Freiman and Brown in 1996, 12% of U.S. nursing homes had special care units, which cater to Alzheimer/dementia patients (as cited in Phillips et al., 2000). That number has increased over time; a recent law in Illinois has required nursing homes to report if they have a special care unit. Looking at the results of the 2008 study by Goldberg and Botero, which concluded that around 36% of deaths in nursing homes is caused by the Alzheimer disease,

making the Alzheimer disease the single most common cause of death in nursing homes; it is clear to see the need for special care units. It has been found that dementia is associated with higher rates of physical abuse (Dyer et al., 2000; Burgess, Dowdell, & Prentky, 2000). By having specialized care provided by staff trained to handle dementia patients the probability of abuse to elders can be greatly reduced.

With the Alzheimer disease, it attacks the brain and depending on the stage of the disease may still leave the body strong. As the mind breaks down there are less inhibitions and “filters” that would normally keep a person from lashing out in a physically or verbally damaging manner. Restraints are a controversial topic in and of themselves, but a sad truth is that in rare instances they are needed in order to protect not only the restrained individual but other residents and even staff. One study by Sloane et al. found that special care units are associated with a lower likelihood of physical restraints (as cited in Phillips et al., 2000). While Phillips et al. found there is no difference in the likelihood of physical restraints being used on residents whether or not they are in special care units. It was noted that physical restraints can lead to severe injury and potentially death. Aside from physical restraints there are medicinal restraints also called psychotropic drugs. Several studies found that medical restraints led to lower quality of life and health problems for dementia patients (Westzels et al., 2010; Phillips et al., 2000).

One 2004 study that looked at resident-to-resident violence found that in 42% of the cases wandering residents were injured by another resident. The researchers found that 30% of the injured residents are “socially inappropriate or disruptive” and 32% resist care (Shinoda-Tayawa et al., 2004). These are all traits commonly associated with elders suffering from dementia. It was also indicated that residents who have moderate dementia are most likely to be injured by others. By having residents with dementia on special care units they can be more

closely monitored, so they are not wandering into other residents' "personal space," there by greatly reducing the risk of abuse to the resident. The undercurrent that runs through all of these articles has been that when factoring in dementia you make an elder abuse case that much more complicated.

2.5: Summary

In summary the Review of Literature looked at data covering elder abuse, dementia, and special care units. The data was broken down into: Strained System, Staff/Caregiver Abuse, Elder on Elder Abuse, and Elder Abuse and Dementia. The first section, Strained System, covered how a Nursing Home needs to be financially sound in order to reduce strain on staff, thereby reducing the risk of elder abuse. The Staff/Caregiver Abuse section found that there is a need to have educated staffs, who are able to handle the stress of their position. The third section, Elder on Elder Abuse, noted that when elders abuse other elders it only feeds the cycle of abuse. The final section, Elder abuse and Dementia, covered the difficulties associated with dementia and how special care units can come into play.

Chapter 3: Methodology:

The following are the steps taken to complete this study. Including the criteria for the Review of Literature, how the data was obtained and how the data was analyzed. For the specifics on how the analysis went refer to the Results section.

3.1: Review of Literature Research

Articles were found using the search engines Ebsco and Google Scholar. The key words elder abuse, nursing homes, and USA was entered into the search engines. The resulting articles were then filtered to only include works since 2000. The articles were then reviewed and based on content and citations additional articles were selected relating to dementia and special care units. Once a satisfactory number of studies/research relating to elder abuse in nursing homes in the USA, were compiled; Key pieces of information were selected from the results/conclusions of each. The key information was then reviewed with the tone of the studies in mind.

3.2: Data

The data on elder abuse cases was collected from nursing home compare. Nursing Home Compare is a data base run by Medicare/Medicaid where data on all Medicare/Medicaid certified Nursing Home in the US can be found. The data used for this study was the survey deficiencies (see “Chapter 1.2 Definitions” for the definition of Survey Deficiencies) found by State surveyors. A facility is reviewed at least once every 15 months, however if a complaint is registered with Medicare and the state another review will be issued outside of the set schedule. The data ranged from March 2009 to October 2012, in order to give an encompassing sample. The data was then filtered down to include only those abuse cases that occurred in Illinois and that resulted in Health type of deficiencies (see “Chapter 1.2 Definitions” for an explanation of Health Deficiencies). Deficiencies in Fire Safety were not deemed vital to reviewing how special

care units impact cases of survey deficiencies; Fire Safety deficiencies were not included in the data. A total of 770 Nursing Homes met the criteria. The data was then broken down into two types of facilities, those with or those without special/dementia care units. A list of facilities with special care units was obtained from the Illinois Department of Public Health (Several facilities on the list from the IDPH were not included in the Nursing Home compare data; this may be due to a lack of Medicaid/Medicare certification for these facilities or the facilities in question never received survey citations for abuse. The facilities on the list that had no data points in Nursing Home Compare were not included in this study). 141 facilities had a special care unit during this study; 629 nursing homes did not have a special care unit.

The compiled data was then broken down into categories and the overall count so that the mean, standard deviation, variance, an independent t-statistic, and confidence interval could then be obtained using Excel. P-values were calculated using the data analysis application on Microsoft Excel 2010 to determine the statistical significance of the data (see “1. Level of Harm” for a step-by-step procedure). Listed below are the categories used for the results breakdown, including descriptions of each and how they were broken down:

1. Level of Harm: This category looks at the potential for abuse and the actual cases of abuse and their scope (e.g. one or two residents verse the entire facility). When a survey deficiency is found/reported it is given a Level of harm rating that is used by Medicare to determine what if any actions must be taken against the facility. The Level of Harm data was analyzed in several steps. First the data was separated on Excel into the four levels; this data was then broken down into facilities with and without special care units. Then a chart of the total number of deficiencies in each level by type was compiled (see Appendix B: Table B3). Third using excels data analysis a “t-Test: Two-Sample

Assuming Unequal Variances” was run. Then a set of “Descriptive Statistics” was generated for each type using the Excel data analysis application. When the comparison proved significant a bar graph visualization of the means and standard deviations of the types of facilities was generated. Then steps were taken to determine under which deficiency categories a significant difference was found (see “2. Deficiency Category” for more details on this). Below is a breakdown of the Levels of Harm.

- a. Level one – There is a potential for harm to a resident. Examples of this include: meals not provided at regular times, failing to post results of most current survey of the nursing home, at-least 80sq-feet of room space for residents, ensure staff meets state minimum standards for continuing education, etc.
- b. Level two – These deficiencies have a more serious chance of abuse to a wider range of people than Level one, but they still do not result in actual physical harm to a resident. Examples include: not allowing a resident input into their own care planning, the resident was never told of the resources available to them in cases of abuse, care plans do not meet all of the resident’s needs, environmental hazards exist in the facility (e.g. someone didn’t put up a wet floor sign around a spill, etc.)
- c. Level three – Actual harm has occurred to a resident. Examples of this are: residents developing pressure soars, not enough supervision provided to prevent avoidable accidents, a serious medication error has occurred, food is not provided in a way that meets resident’s need, etc.
- d. Level four – There is “immediate jeopardy of harm” to the entire facility. These are rare and never to be taken lightly. Examples are: facilities not protecting

residents from abuse and/or not reporting abuse allegations, facilities not taking steps to avoid massive infectious outbreaks, etc.

2. Deficiency Category: This looks at under which category the abuse/potential for abuse occurred. This section is important in identifying the potentially weak sections in a facilities infrastructure so that corrections and improvements can be accurately made. The category's data was calculated by looking at the average Level of Harm of deficiencies under each category. For example under the administration category the data was divided into facilities with and without special care units. The data was then analyzed using Microsoft Excel 2010 data analysis application. The generated data titled "Descriptive Statistics" provided the mean, standard error, median, mode, standard deviation, sample variance, kurtosis, skewness, range, minimum, maximum, sum, count and 95% confidence level of the Levels of Harm of the deficiencies under the administration category. To determine the P-value the data analysis application was used to run a "t-Test: Two-Sample Assuming Unequal Variances" on the Levels of Harm of the administration categories deficiencies; which provided the means, variances, total observations, hypothesized mean difference, degrees of freedom(df), t statistics(t stat), P-value one-tail, t critical one-tail, P-value two-tail, and P-value two-tail. If a category had a significant P-value two-tail then a bar graph visualization of the means and standard deviations of facilities with and without special care units was created (The steps listed above were also run on the overall data before it was broken down into categories). Below are descriptions of each category.

- a. Administration – This section looks at the “paper work” of the facility. Examples are: Documenting nurse staffing/data daily, ensuring continuing education units are met, ensure regular care plan meetings are occurring, etc.
- b. Environmental – This section looks the environment provided for the residents. Examples include: sufficient room space, disposal of garbage, equipment working properly, maintenance and housekeeping staff, etc.
- c. Mistreatment – This section looks at are residents being mistreated. Examples are: use of physical restraints, staff hired who have a past of elder mistreatment, no policy forbidding the abuse of residents, etc.
- d. Nutrition and Diet – Under this section the facilities are reviewed on meeting dietary needs. Examples of deficiencies include: not providing meals at regular times, not serving breakfast within 14 hours of dinner, food not being prepared safely and kept at correct temperatures, dietary needs not being met, etc.
- e. Pharmacy Services – This section looks at medications: medication errors must be kept to below 5%, steps should be in place to avoid serious medication errors, drugs must be labeled correctly, medication should be stored in a safe and comprehensive manner, residents are not being over medicated and/or kept on unnecessary prescriptions, etc.
- f. Quality Care – Quality Care looks at all the things needed to have a good quality of life for residents. Examples are: residents aren’t getting bed sores, immunizations are provided to residents, residents are not unduly given catheters, care is provided by qualified individuals, etc.

- g. Resident Assessments – Looks at, are the residents' health and qualities of life being monitored. Examples include: residents being allowed to participate in their care planning, doctors visiting regularly, care plans are complete and cover all the resident's needs, residents are screened before admission into the facility, etc.
- h. Resident Rights – Under state law residents have a specific set of rights, this section ensures those rights are being met. Examples are: explain to Medicaid eligible residents what Medicaid covers, ensure residents personal money is kept secure, allow residents access to private telephones, let each resident know their rights, etc.

Chapter 4: Results

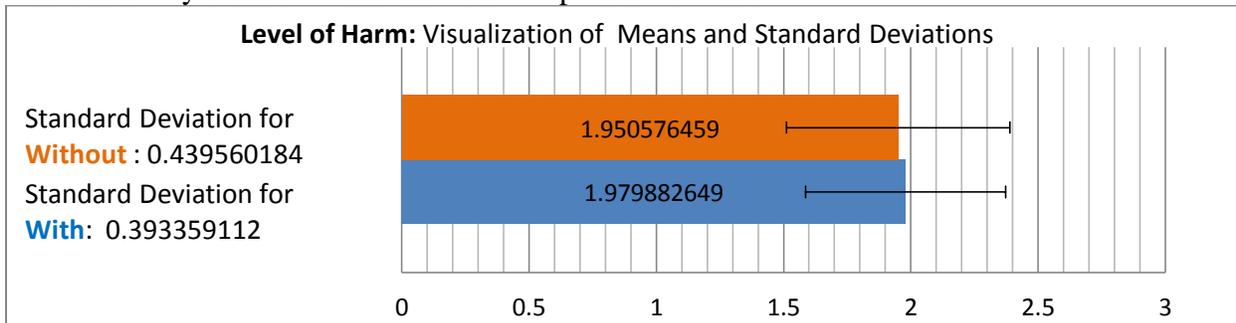
This section will present the finding of this study starting with the overall data, then going into the breakdown of the data into facilities with and without special care units. Next the data was broken-down by the Level of Harm; finally the data looked at the Level of Harm by deficiency category.

As stated in the Introduction the hypothesis being tested is: there is no difference between facilities with and without special care units in cases of elder abuse. The null hypothesis being used is that: When comparing facilities with special care units to facilities without, there will be no difference in the survey deficiencies. Following is a discussion of the data and how the null hypothesis holds up. A total of 770 facilities were surveyed, 141 of these have or had a special care unit during the time the survey data was collected. There were a total of 13575 deficiencies, 2386 of which were in facilities with special care units. When looking at the average number of deficiencies for nursing homes the data showed that all nursing homes in the sample had an average of 17.630 deficiencies per facility with a standard deviation of 10.650. The number of deficiencies ranged from one per facility to at most 74 with the mode being 12 (see Appendix B: Results Table B1 for the Descriptive Statistics of the overall data). The results were then broken down into facilities with and without special care units and the data resulted in a P score that is not statistically significant (see Appendix B: Results Table B2b for the t-test results of the number of deficiencies by type of facility). The P-value for a two tailed t-test where unequal variance was assumed resulted in a 0.342; therefore the averages of 16.922 with and 17.789 without are not statistically significant. Results also showed some interesting trends in that with special care units showed a range of 47 while without had a range of 73, but facilities with a special care unit had a mode of 16 while without special care units had a mode of 11. Both types,

with and without, had a median of 16 deficiencies (see Appendix B: Results Table B2a for the Descriptive Statistics of the number of deficiencies by type of facility).

Deficiencies by Level of Harm results showed that, it is statistically significant that there is a difference in the average Level of Harm when comparing facilities with and without special care units. The t-test resulted in a P-value of 0.001, an average of 1.980 with and 1.951 without (see Appendix B: Results Table B3a and B3b for the overview of the Level of Harm Data and the t-test results). Based on the results the null hypothesis is rejected (see Appendix B: Results Table B3c for the Descriptive Statistics of the Levels of Harm results).

Figure 4.1: Visualization of resulting mean and standard deviation of Level of Harm of deficiencies by facilities with and without special care units.

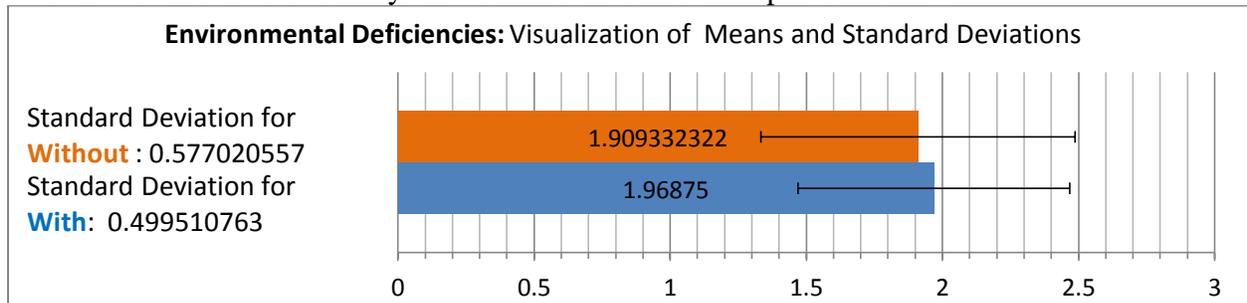


For “Deficiencies by Categories” the results varied between sections. Administration Deficiencies resulted in data that is not statistically significant. The P-value for the two tailed t-test was 0.947 which is higher than 0.05, therefore the average Level of Harm by Administration Deficiencies of 1.649 with and 1.653 without are not statistically significant (see Appendix B: Results Tables B4a and B4b for the Descriptive Statistics and the t-Test results for Administration Deficiencies).

Environmental Deficiencies resulted in an average of 1.969 with and 1.909 without (See chart below.). The P-value of a two tailed t-test that assumed unequal variance is 0.017. The results show that there is a significant difference between facilities with and without special care units. Based on the average and standard deviations it appears that facilities with special care

units are more likely to have a higher Level of Harm when it comes to Environmental Deficiencies (see Appendix B: Results Tables B5a and B5b for the Descriptive Statistics and the t-Test results for Environmental Deficiencies).

Figure 4.2: The visualization of the mean and standard deviation of the Level of Harm of Environmental Deficiencies by facilities with and without special care units.

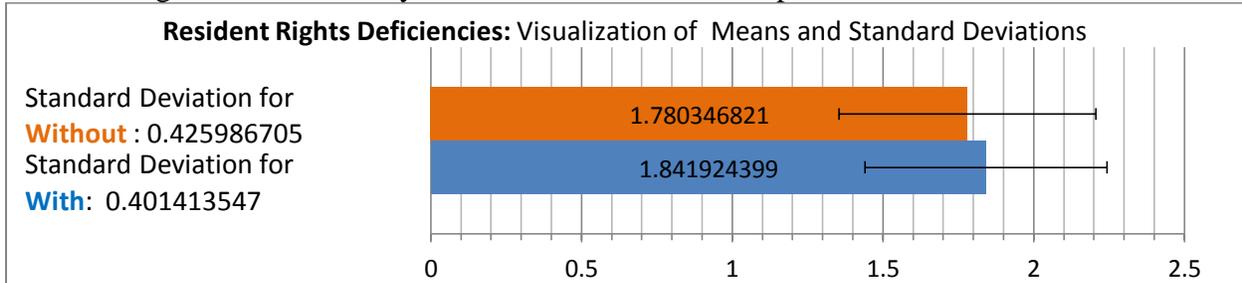


The P-value for Mistreatment Deficiencies showed that the data is not statistically significant, with a P-value of 0.772 for a two tailed t-test where unequal variance was assumed (see Appendix B: Results Tables B6a and B6b for the Descriptive Statistics and the t-Test results for Mistreatment Deficiencies). Nutrition and Dietary Deficiencies resulted in a P-value of 0.068 for a two tailed t test, therefore the averages of 1.960 with and 1.921 are not considered statistically significant (see Appendix B: Results Tables B7a and B7b for the Descriptive Statistics and the t-Test results for Nutrition and Dietary Deficiencies). Pharmacy Service Deficiencies resulted in data that is not statistically significant. The two tailed t-test that assumed unequal variance resulted in a P-value of 0.355 (see Appendix B: Results Tables B8a and B8b for the Descriptive Statistics and the t-Test results for Pharmacy Services Deficiencies). Quality Care Deficiencies with a P-value of 0.458 was found to not be statistically significant. Quality Care Deficiencies did have the most deficiencies of all the categories, facilities with special care units having a total of 708 deficiencies and facilities without special care units having 3171 deficiencies (see Appendix B: Results Tables B9a and B9b for the Descriptive Statistics and the t-Test results for Quality Care Deficiencies). Resident Assessment Deficiencies was also found

to be statistically insignificant, with a resulting P-value of 0.407 (see Appendix B: Results Tables B10a and B10b for the Descriptive Statistics and the t-Test results for Resident Assessment Deficiencies).

The final category looked at was that of Resident Rights Deficiencies. The results showed that there is a statistically significant difference; the P-value scored 0.021. Based on the averages and the standard deviation (shown below) we see that when it comes to Resident Rights Deficiencies facilities with special care units are more likely to have a higher Level of Harm when cited with deficiencies than nursing homes without special care units (see Appendix B: Results Tables B11a and B11b for the Descriptive Statistics and the t-Test results for Residents Rights Deficiencies).

Figure 4.3: The visualization of the mean and standard deviation of the Level of Harm of Resident Rights Deficiencies by facilities with and without special care units.



Chapter 5: Discussion

While no conclusion could be reached when it comes to the number of survey deficiencies, a few conclusions were made when it came to the Level of Harm. First when comparing the overall Level of Harm the t-test results showed that there is a statistically significant difference between facilities with and without special care units. Based off of the means and standard deviations it can be reasonably assumed that facilities with special care units are more likely to have a deficiency with a higher Level of Harm than a facility without a special care unit, facilities with special care units averaging 1.980 versus facilities without special care units averaging 1.951 (Tables B3a, B3b and B3c and Figure 4.1). When a closer look was taken it was found that this statement held true in two categories specifically: Environmental Deficiencies (Tables B5a and B5b and Figure 4.2) and Resident Rights Deficiencies (Tables B11a and B11b and Figure 4.3).

As stated in the Results facilities with special care units had a mean of 1.969 while facilities without special care units had a mean of 1.909. As summarized in the Methodology section Environmental Deficiencies are: plans to investigate, control and keep infection from spreading; providing maintenance and housekeeping; ensuring the nursing home is free of accident hazards, risks and provides supervision; and providing a clean, safe and homelike environment. Part of the problem with these is that they are not all numerically measurable, meaning these types of deficiencies are up to the interpretation of the surveyor. And if an Environmental Deficiency were to be found on a special care unit, a surveyor may look at the situation more harshly due to the population at risk. It is important to point out that the survey data collected is open to the personal bias of the surveyor as well as human error when inputting the data; while this will not explain away the difference between facilities with and without

special care units it does add light to the situation. Other possible explanations are that it is difficult for housekeeping and maintenance to keep special care units in as good of condition, what with a facility then having added spaces to maintain, more security and monitoring systems to keep in working order and a more challenging population to work with. There are systems in special care units that do not get as much use as they do in a regular nursing home setting such as call lights, so it often takes added time to discover that there is a problem with the system. This shortcoming can be fixed through policy and procedural changes. For example it could be an added duty to night shift CNAs to do a “walk through” of the special care unit and check handrails, lights, call-lights, etc. In-order to ensure that the special care units are free of hazards (i.e. spills on the floor) it may be prudent to have a housekeeping staff member on duty who is solely responsible for maintaining a clean homelike environment for the special care unit residents. There is added benefit in having an extra person around for when residents become combative. As for things such as infection control on a special care unit steps can be taken by getting into the habit of having residents wash their hands before they begin a meal. It is a simple step that may get overlooked in the hustle and bustle associated with getting residents to the dining room and situated with their food. The differences in Environmental Deficiencies, while not totally unexpected, are disappointing, however with simple steps residents can be made safer.

When looking at the results of the review of the Resident Rights Deficiencies it was concluded that elders in a facility with a special care unit are at a risk for a higher Level of Harm of deficiency, specifically 1.842 for facilities with special care units and 1.780 for facilities without special care units. In analyzing this result it is important to understand what a Resident Rights Deficiency entails: residents must be allowed to participate in the development and revisions of their care plans; they have to have the right to receive visitors; care plans must

encompass all of the residents needs with a timetables and in a measureable way; Residents must be able to see the results of the nursing homes most recent survey; residents must be made aware of their rights, the rules, the services provided, and the costs of those services; the resident's and families complaints and suggestions must be listened to and acted on; residents must be cared for in a dignified and respectful manner; etc. While these are only a few of the different types of Resident Rights Deficiencies, it is clear that some of the same bias and problems looked at in the Environmental Deficiencies section must also be looked at in this section. Once again the potential for bias from the state surveyor must be acknowledged as well as the potential for data entry error. With a facility housing a special care unit there is a larger than normal dementia population in that facility. With a larger dementia population there are difficulties in performing even basic ADLs (activities of daily living). Where with most residents a relationship can be created that makes situations like baths, changing depends, and dealing with personal accidents less embarrassing for the residents and easier to handle for the staff; with dementia patients who are unable to remember staff, all they will see and understand is a stranger is trying to help me with an action that is very personal. It may be difficult for staff to remember that they are dealing with a grown adult even when the adult's actions can be construed as childish. The need for properly educated staff, which is prepared for possible outburst and is aware of how to properly and respectfully care for the special needs of residents, is vital. By ensuring staff members are meeting the State and Medicare required continuing education units and that they are handling the stress of their position properly, resident risk of abuse can be greatly decreased. Another topic to address is that of visitors, with special care units it can be difficult for visitors to gain access and to leave. Unfortunately not a great deal can be done to make special care units accessibility as they are meant to help keep residents with dementia in a safe protected

environment. If the special care units were easy to leave then there would be a greater risk to the residents with dementia as they often cannot say who they are or where they belong. While it may from the outside look wrong to keep residents in an enclosed specialized environment, it is done with the resident's safety and happiness in mind. When talking about resident care plans it is important to realize that even if a resident is not able to communicate specifics or is less than cordial to others, they must be present at their own care plan meeting so they have the potential for input. Little steps of ensuring educated staff, keeping residents safe, and working to accommodate the residents' moods and needs to the best of facilities ability will help to protect not only residents but staff from abuse and negligence.

This thesis will help facilities look at potentials for improvements in their own policies and procedures. The findings can be applied to nursing homes around Illinois as a whole. From the need for increased staffing in years to come, the need to have properly trained and educated staff and the need to ensure staff are not over worked and stressed, all these steps and more work to protect residents from abuse. When dealing with healthcare as a whole many people tend to focus on the bottom dollar, and while you need the funds and a solid fiscal plan to successfully run a healthcare business. When you are looking at nursing homes, you need to realize, that you are dealing with many peoples' homes. Many of us will spend the last years of our lives in such a nursing facility, and a safe and friendly environment, which is free of abuse, should be the goal. As more studies are completed and changes are made to the system that goal comes closer to reality. It is my hope that future studies will look more closely at the topics of elder on elder abuse and how special care units impact elders' quality of life. A closer look should be taken at comparing for-profit versus non-profit organizations to determine if State and Medicare

regulations should be changed in order to better protect residents. It is the responsibility of everyone to protect those who are unable to protect themselves.

5.1 Limitations

This study faced two key limitations: lack of previous studies meeting requirements and the use of data collected/compiled on Nursing Home Compare by a third party. The lack of previous studies made the comparison of the data to other studies difficult. As previously stated in the Review of Literature no study was found that exactly matched the subject matter of this study. When the data was then filtered down to include only works in the United States published since 2000 it greatly limited the available studies. These filters were placed on the study searches in-order to ensure only up-to-date and applicable studies were found. The Long-Term Care system here in the US may be vastly different than it is in other countries so it would be impossible to make accurate comparisons of Nursing Homes between the countries. The data used in this study was acquired from the Nursing Homes Compare site, which has a disclaimer stating the data is entered by people and is subject to human error. The disclaimer goes on to explain that every step is taken to ensure the data is up to date and accurate.

5.2 Future Studies

In the future it would be beneficial for studies to not only compare facilities with and without special care units, but to look at how for profit and nonprofit organizations compare in survey deficiencies. Some studies reviewed hinted at notable differences between the two; however for this study the focus was on finding out how the variable of special care units impacted cases of survey deficiencies. Another part of elder abuse that is sorely lacking in studies is that of elder on elder abuse. Unfortunately the Nursing Home Compare data did not provide any clear insight into how special care units impact cases of elder on elder abuse.

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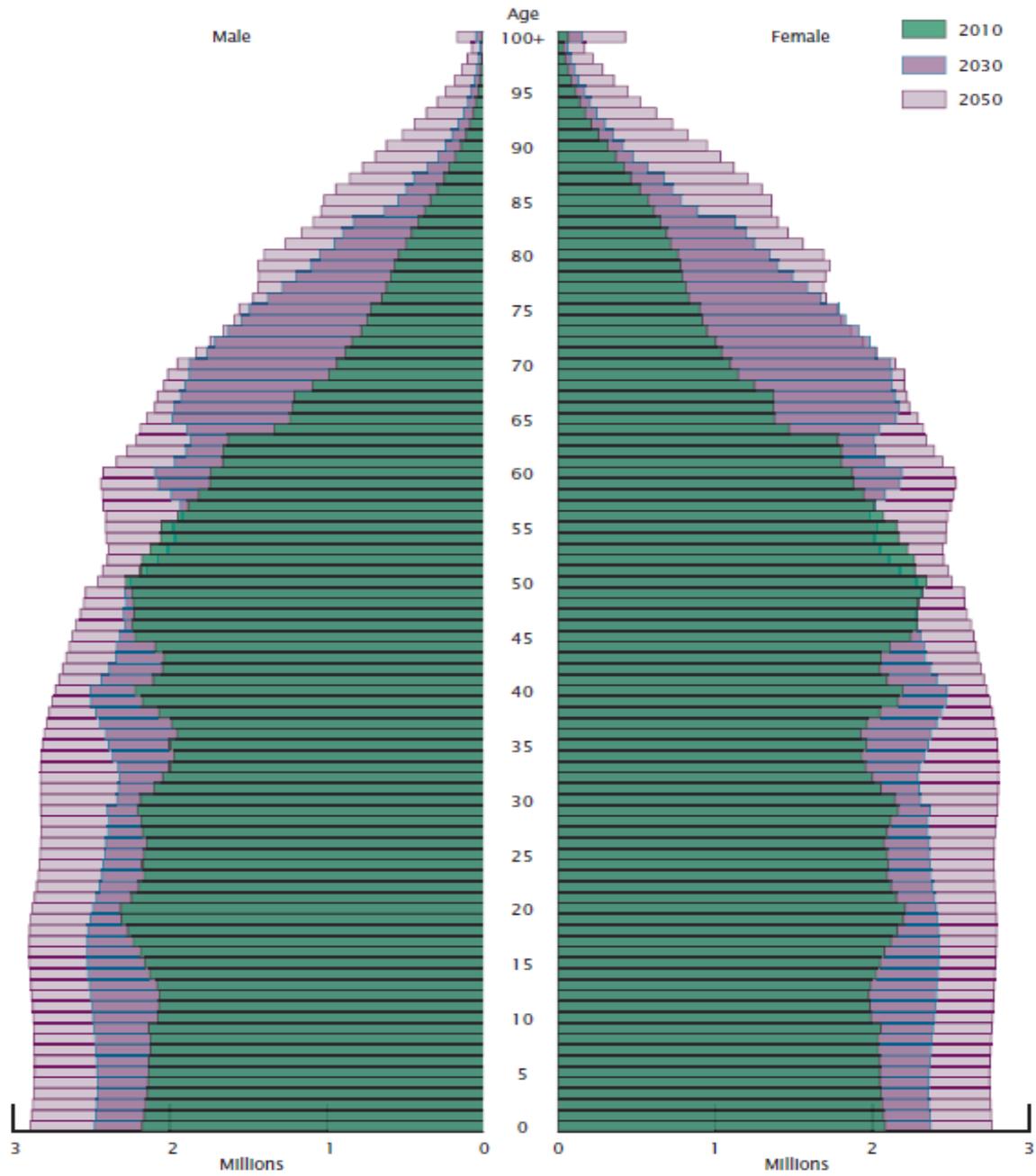
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Appendix A: U.S. Census Graphs

Following are Figures A1 and A2. Figure A1 shows how the population's age range is supposed to look from 2010 to 2050. Figure A1 was referred to in the Chapter 1.1 Problem Statement. Figure A2 shows the expected dependency ratios for the US from 2010 to 2050. Dependency ratios are referring to the number of people who will be reliant on the money generated by the portion of the population that is of working age.

Figure A1: Age distribution of the US population for 2010, 2030, and 2050.

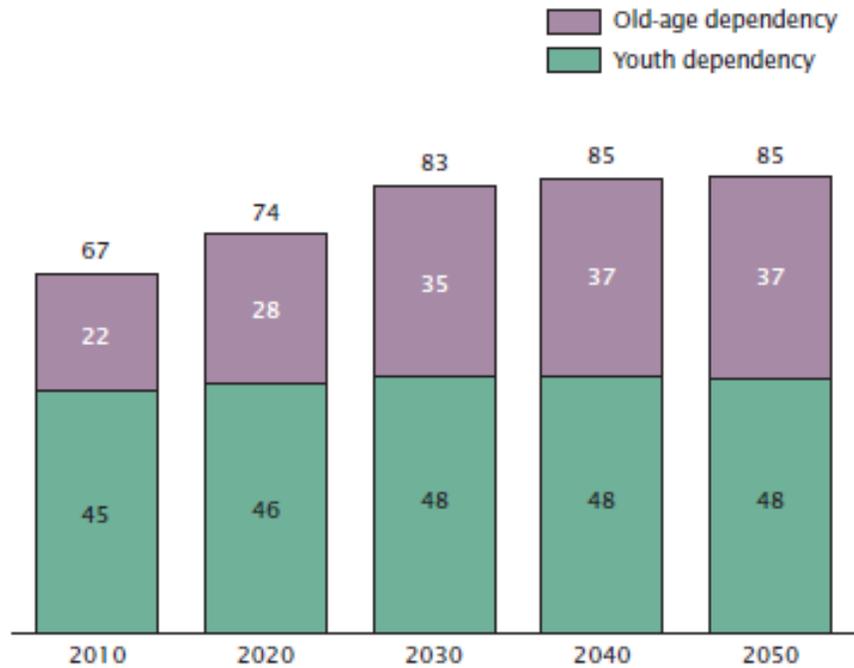
Age and Sex Structure of the Population for the United States: 2010, 2030, and 2050



Source: U.S. Census Bureau, 2008.

Figure A2: Dependency ratios for 2010 through 2050.

Dependency Ratios for the United States: 2010 to 2050



Note: Total dependency = ((Population under age 20 + Population aged 65 years and over) / (Population aged 20 to 64 years)) * 100.

Old-age dependency = (Population aged 65 years and over / Population aged 20 to 64 years) * 100.

Youth dependency = (Population under age 20 / Population aged 20 to 64 years) * 100.

Source: U.S. Census Bureau, 2008.

Appendix B: Results

Following are Tables B1 through B11b and Figures B1 through B3. The tables and figures are grouped according to data content. The data is grouped by page unless otherwise stated. There are no figures for data sets where the data was found to be statistically insignificant, so there are discrepancies in the numbering of tables and figures. For example Tables B3a, b, and c match up with Figure B1.

Table B1: Data for all nursing facilities in the study.

<i>Descriptive Statistics</i>	
Deficiency Breakdown by Nursing Home	
Mean	17.62987013
Standard Error	0.383807303
Median	16
Mode	12
Standard Deviation	10.65022042
Sample Variance	113.427195
Kurtosis	1.2605055
Skewness	0.936254742
Range	73
Minimum	1
Maximum	74
Sum	13575
Count	770
Confidence Level(95.0%)	0.753434323

18.182% of Nursing Homes sampled had Special Care Units during the time of data collection.

Table B2a: Descriptive statistics results by facilities with and without special care units by number of deficiencies.

<i>Descriptive Statistics</i>			
Deficiency Breakdown By Nursing Home <u>With</u> Special Care Units		Deficiency Breakdown by Nursing Home <u>Without</u> Special Care Units	
Mean	16.92198582	Mean	17.78855326
Standard Error	0.798939959	Standard Error	0.434396462
Median	16	Median	16
Mode	16	Mode	11
Standard Deviation	9.486886379	Standard Deviation	10.89460785
Sample Variance	90.00101317	Sample Variance	118.6924802
Kurtosis	0.617693178	Kurtosis	1.284721173
Skewness	0.805885777	Skewness	0.943619073
Range	47	Range	73
Minimum	1	Minimum	1
Maximum	48	Maximum	74
Sum	2386	Sum	11189
Count	141	Count	629
Confidence Level(95.0%)	1.579547218	Confidence Level(95.0%)	0.853045468

Table B2b: t-Test results to determine significance of comparison of the number of deficiencies by facilities with and without special care units.

t-Test: Two-Sample Assuming Unequal Variances		
Deficiency Breakdown by Nursing Home		
	<u>With</u>	<u>Without</u>
Mean	16.92198582	17.78855326
Variance	90.00101317	118.6924802
Observations	141	629
Hypothesized Mean Difference	0	
df	231	
t Stat	-0.952901939	
P(T<=t) one-tail	0.170817891	
t Critical one-tail	1.651476725	
P(T<=t) two-tail	0.341635783	
t Critical two-tail	1.970286659	

Table B3a: Data totals for facilities with and without special care units by the Level of Harm of deficiencies.

Level of Harm 1 total for facilities <u>With</u> Special Care Units	199
Level of Harm 1 total for facilities <u>Without</u> Special Care Units	1258
Level 1 Grand total	1457
Level of Harm 2 total for facilities <u>With</u> Special Care Units	2046
Level of Harm 2 total for facilities <u>Without</u> Special Care Units	9339
Level 2 Grand total	11385
Level of Harm 3 total for facilities <u>With</u> Special Care Units	131
Level of Harm 3 total for facilities <u>Without</u> Special Care Units	479
Level 3 Grand total	610
Level of Harm 4 total for facilities <u>With</u> Special Care Units	10
Level of Harm 4 total for facilities <u>Without</u> Special Care Units	113
Level 4 Grand total	123

Table B3b: t-Test comparing the Level of Harm results for facilities with and without special care units.

t-Test: Two-Sample Assuming Unequal Variances		
Deficiency Breakdown by Level of Harm		
	<u>With</u>	<u>Without</u>
Mean	1.979883	1.950576459
Variance	0.154731	0.193213155
Observations	2386	11189
Hypothesized Mean Difference	0	
df	3767	
t Stat	3.234004	
P(T<=t) one-tail	0.000616	
t Critical one-tail	1.645258	
P(T<=t) two-tail	0.001231	
t Critical two-tail	1.960594	

(Level of Harm results continued on next page)

(Level of Harm results continued)

Table B3c: Descriptive statistics results of the Levels of Harm by facilities with and without special care units.

<i>Descriptive Statistics</i>			
<i>With Special Care Unit</i>		<i>Without Special Care Unit</i>	
Mean	1.979882649	Mean	1.950576459
Standard Error	0.008052931	Standard Error	0.004155494
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.393359112	Standard Deviation	0.439560184
Sample Variance	0.154731391	Sample Variance	0.193213155
Kurtosis	5.631800485	Kurtosis	5.627029488
Skewness	0.236425043	Skewness	0.4703751
Range	3	Range	3
Minimum	1	Minimum	1
Maximum	4	Maximum	4
Sum	4724	Sum	21825
Count	2386	Count	11189
Confidence Level(95.0%)	0.015791469	Confidence Level(95.0%)	0.008145501

Figure B1: Visualization of resulting mean and standard deviation of Level of Harm of deficiencies by facilities with and without special care units.

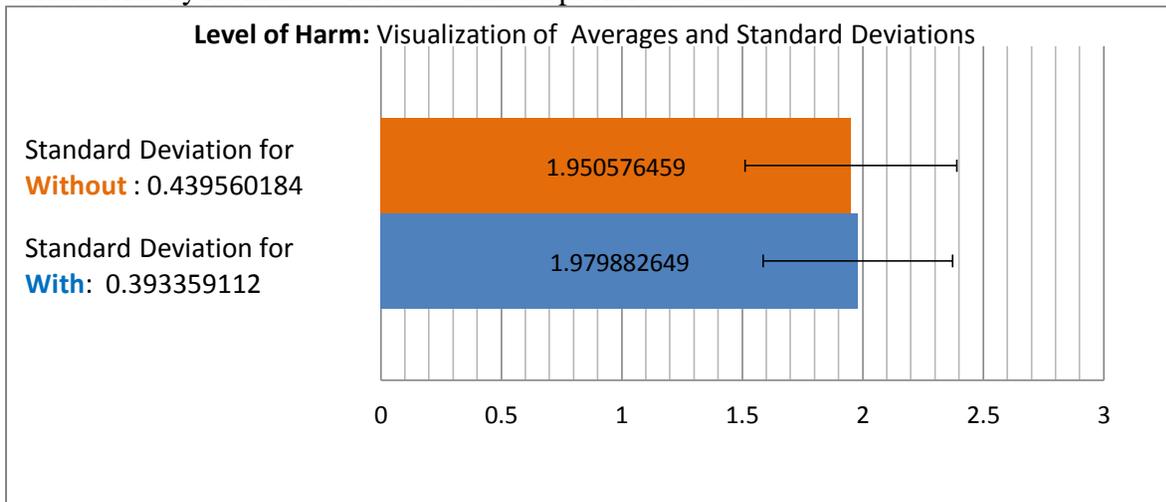


Table B4a: Resulting descriptive statistics for the Level of Harm of Administration Deficiencies by facilities with and without special care units.

<i>Descriptive Statistics</i>			
Administration Deficiencies: <u>With</u> Special Care Units By Level of Harm		Administration Deficiencies: <u>Without</u> Special Care Units By Level of Harm	
Mean	1.64893617	Mean	1.652928416
Standard Error	0.053918617	Standard Error	0.026459879
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.522760391	Standard Deviation	0.56811769
Sample Variance	0.273278426	Sample Variance	0.32275771
Kurtosis	-0.989606938	Kurtosis	2.298822908
Skewness	-0.166584766	Skewness	0.665157375
Range	2	Range	3
Minimum	1	Minimum	1
Maximum	3	Maximum	4
Sum	155	Sum	762
Count	94	Count	461
Confidence Level(95.0%)	0.107071688	Confidence Level(95.0%)	0.05199722

Table B4b: t-Test results to determine the significance of the Level of Harm of Administration Deficiencies.

t-Test: Two-Sample Assuming Unequal Variances		
Administration Deficiencies By Level of Harm		
	<u>With</u>	<u>Without</u>
Mean	1.64893617	1.652928416
Variance	0.273278426	0.32275771
Observations	94	461
Hypothesized Mean Difference	0	
df	142	
t Stat	-0.066469687	
P(T<=t) one-tail	0.473548692	
t Critical one-tail	1.655655173	
P(T<=t) two-tail	0.947097384	
t Critical two-tail	1.976810994	

Table B5a: Resulting descriptive statistics for the Level of Harm of Environmental Deficiencies by facilities with and without special care units.

<i>Descriptive Statistics</i>			
Environmental Deficiencies: <u>With</u> Special Care Units By Level of Harm		Environmental Deficiencies: <u>Without</u> Special Care Units By Level of Harm	
Mean	1.96875	Mean	1.909332322
Standard Error	0.022075455	Standard Error	0.011238765
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.499510524	Standard Deviation	0.577020557
Sample Variance	0.249510763	Sample Variance	0.332952723
Kurtosis	1.41910358	Kurtosis	2.025652305
Skewness	0.031033841	Skewness	0.513194471
Range	3	Range	3
Minimum	1	Minimum	1
Maximum	4	Maximum	4
Sum	1008	Sum	5033
Count	512	Count	2636
Confidence Level(95.0%)	0.043369819	Confidence Level(95.0%)	0.022037697

Table B5b: t-Test results to determine the significance of the Level of Harm of Environmental Deficiencies.

t-Test: Two-Sample Assuming Unequal Variances		
Environmental Deficiencies By Level of Harm		
	<u>With</u>	<u>Without</u>
Mean	1.96875	1.909332322
Variance	0.249510763	0.332952723
Observations	512	2636
Hypothesized Mean Difference	0	
df	800	
t Stat	2.398614333	
P(T<=t) one-tail	0.008342629	
t Critical one-tail	1.646760559	
P(T<=t) two-tail	0.016685258	
t Critical two-tail	1.962933739	

Figure B2: The visualization of the mean and standard deviation of the Level of Harm of Environmental Deficiencies by facilities with and without special care units.

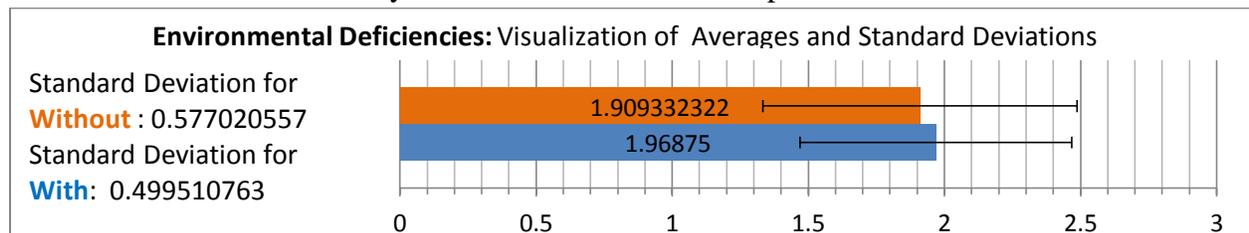


Table B6a: Resulting descriptive statistics for the Level of Harm of Mistreatment Deficiencies by facilities with and without special care units.

<i>Descriptive Statistics</i>			
Mistreatment Deficiencies: <u>With</u> Special Care Units By Level of Harm		Mistreatment Deficiencies: <u>Without</u> Special Care Units By Level of Harm	
Mean	2.021857923	Mean	2.033653846
Standard Error	0.03547406	Standard Error	0.020018104
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.479884191	Standard Deviation	0.57741039
Sample Variance	0.230288837	Sample Variance	0.333402758
Kurtosis	7.566444381	Kurtosis	5.247874442
Skewness	1.570861807	Skewness	1.616603804
Range	3	Range	3
Minimum	1	Minimum	1
Maximum	4	Maximum	4
Sum	370	Sum	1692
Count	183	Count	832
Confidence Level(95.0%)	0.069993303	Confidence Level(95.0%)	0.03929199

Table B6b: t-Test results to determine the significance of the Level of Harm of Mistreatment Deficiencies.

t-Test: Two-Sample Assuming Unequal Variances		
Mistreatment Deficiencies By Level of Harm		
	<i>With</i>	<i>Without</i>
Mean	2.021857923	2.033653846
Variance	0.230288837	0.333402758
Observations	183	832
Hypothesized Mean Difference	0	
df	309	
t Stat	-0.289595135	
P(T<=t) one-tail	0.386160104	
t Critical one-tail	1.649799826	
P(T<=t) two-tail	0.772320207	
t Critical two-tail	1.967670885	

Table B7a: Resulting descriptive statistics for the Level of Harm of Nutrition and Dietary Deficiencies by facilities with and without special care units.

<i>Descriptive Statistics</i>			
Nutrition and Dietary Deficiencies: <u>With</u> Special Care Units By Level of Harm		Nutrition and Dietary Deficiencies: <u>Without</u> Special Care Units By Level of Harm	
Mean	1.960474308	Mean	1.920801527
Standard Error	0.019241508	Standard Error	0.009940627
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.306054922	Standard Deviation	0.321806219
Sample Variance	0.093669615	Sample Variance	0.103559242
Kurtosis	19.44601688	Kurtosis	11.53888396
Skewness	0.671751652	Skewness	-0.76718379
Range	3	Range	3
Minimum	1	Minimum	1
Maximum	4	Maximum	4
Sum	496	Sum	2013
Count	253	Count	1048
Confidence Level(95.0%)	0.037894656	Confidence Level(95.0%)	0.01950582

Table B7b: t-Test results to determine the significance of the Level of Harm of Nutrition and Dietary Deficiencies.

t-Test: Two-Sample Assuming Unequal Variances		
Nutrition and Dietary Deficiencies By Level of Harm		
	<u>With</u>	<u>Without</u>
Mean	1.960474308	1.920801527
Variance	0.093669615	0.103559242
Observations	253	1048
Hypothesized Mean Difference	0	
df	398	
t Stat	1.831817872	
P(T<=t) one-tail	0.033862869	
t Critical one-tail	1.648691174	
P(T<=t) two-tail	0.067725738	
t Critical two-tail	1.965942324	

Table B8a: Resulting descriptive statistics for the Level of Harm of Pharmacy Services Deficiencies by facilities with and without special care units.

<i>Descriptive Statistics</i>			
Pharmacy Services Deficiencies: <u>With</u> Special Care Units By Level of Harm		Pharmacy Services Deficiencies: <u>Without</u> Special Care Units By Level of Harm	
Mean	2.015789474	Mean	1.99689441
Standard Error	0.018992026	Standard Error	0.007395937
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.261787017	Standard Deviation	0.229869716
Sample Variance	0.068532442	Sample Variance	0.052840086
Kurtosis	25.38524757	Kurtosis	25.04312505
Skewness	2.49936271	Skewness	0.810048806
Range	3	Range	3
Minimum	1	Minimum	1
Maximum	4	Maximum	4
Sum	383	Sum	1929
Count	190	Count	966
Confidence Level(95.0%)	0.037463578	Confidence Level(95.0%)	0.014513974

Table B8b: t-Test results to determine the significance of the Level of Harm of Pharmacy Services Deficiencies.

t-Test: Two-Sample Assuming Unequal Variances		
Pharmacy Services Deficiencies By Level of Harm		
	<i>With</i>	<i>Without</i>
Mean	2.015789474	1.99689441
Variance	0.068532442	0.052840086
Observations	190	966
Hypothesized Mean Difference	0	
df	250	
t Stat	0.927078931	
P(T<=t) one-tail	0.177389844	
t Critical one-tail	1.65097149	
P(T<=t) two-tail	0.354779688	
t Critical two-tail	1.969498393	

Table B9a: Resulting descriptive statistics for the Level of Harm of Quality Care Deficiencies by facilities with and without special care units.

<i>Descriptive Statistics</i>			
Quality Care Deficiencies: <u>With</u> Special Care Units By Level of Harm		Quality Care Deficiencies: <u>Without</u> Special Care Units By Level of Harm	
Mean	2.077683616	Mean	2.068432671
Standard Error	0.011194438	Standard Error	0.005464388
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.297864633	Standard Deviation	0.307708592
Sample Variance	0.08872334	Sample Variance	0.094684577
Kurtosis	8.293827929	Kurtosis	10.69441039
Skewness	2.471590059	Skewness	2.452462584
Range	3	Range	3
Minimum	1	Minimum	1
Maximum	4	Maximum	4
Sum	1471	Sum	6559
Count	708	Count	3171
Confidence Level(95.0%)	0.021978321	Confidence Level(95.0%)	0.010714094

Table B9b: t-Test results to determine the significance of the Level of Harm of Quality Care Deficiencies.

t-Test: Two-Sample Assuming Unequal Variances		
Quality Care Deficiencies By Level of Harm		
	<i>With</i>	<i>Without</i>
Mean	2.077683616	2.068432671
Variance	0.08872334	0.094684577
Observations	708	3171
Hypothesized Mean Difference	0	
df	1071	
t Stat	0.74263469	
P(T<=t) one-tail	0.228932864	
t Critical one-tail	1.64627762	
P(T<=t) two-tail	0.457865728	
t Critical two-tail	1.962181453	

Table B10a: Resulting descriptive statistics for the Level of Harm of Resident Assessment Deficiencies by facilities with and without special care units.

<i>Descriptive Statistics</i>			
Resident Assessment Deficiencies: <u>With</u> Special Care Units By Level of Harm		Resident Assessment Deficiencies: <u>Without</u> Special Care Units By Level of Harm	
Mean	1.967741935	Mean	1.954439252
Standard Error	0.014237659	Standard Error	0.007320676
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.177257419	Standard Deviation	0.214184516
Sample Variance	0.031420193	Sample Variance	0.045875007
Kurtosis	26.93278294	Kurtosis	16.23755025
Skewness	-5.346531738	Skewness	-4.0038781
Range	1	Range	2
Minimum	1	Minimum	1
Maximum	2	Maximum	3
Sum	305	Sum	1673
Count	155	Count	856
Confidence Level(95.0%)	0.028126324	Confidence Level(95.0%)	0.014368602

Table B10b: t-Test results to determine the significance of the Level of Harm of Resident Assessment Deficiencies.

t-Test: Two-Sample Assuming Unequal Variances		
Resident Assessment Deficiencies By Level of Harm		
	<i>With</i>	<i>Without</i>
Mean	1.967741935	1.954439252
Variance	0.031420193	0.045875007
Observations	155	856
Hypothesized Mean Difference	0	
df	243	
t Stat	0.830925749	
P(T<=t) one-tail	0.203415629	
t Critical one-tail	1.651148402	
P(T<=t) two-tail	0.406831257	
t Critical two-tail	1.969774395	

Table B11a: Resulting descriptive statistics for the Level of Harm of Residents Rights Deficiencies by facilities with and without special care units.

<i>Descriptive Statistics</i>			
Resident Rights Deficiencies: <u>With</u> Special Care Units By Level of Harm		Resident Rights Deficiencies: <u>Without</u> Special Care Units By Level of Harm	
Mean	1.841924399	Mean	1.780346821
Standard Error	0.023531279	Standard Error	0.012241199
Median	2	Median	2
Mode	2	Mode	2
Standard Deviation	0.401413547	Standard Deviation	0.425986705
Sample Variance	0.161132836	Sample Variance	0.181464673
Kurtosis	1.370569299	Kurtosis	0.361751421
Skewness	-1.218057526	Skewness	-1.09741385
Range	2	Range	3
Minimum	1	Minimum	1
Maximum	3	Maximum	4
Sum	536	Sum	2156
Count	291	Count	1211
Confidence Level(95.0%)	0.046313743	Confidence Level(95.0%)	0.024016333

Table B11b: t-Test results to determine the significance of the Level of Harm of Resident Rights Deficiencies.

t-Test: Two-Sample Assuming Unequal Variances		
Resident Rights Deficiencies By Level of Harm		
	<i>With</i>	<i>Without</i>
Mean	1.841924399	1.780346821
Variance	0.161132836	0.181464673
Observations	291	1211
Hypothesized Mean Difference	0	
df	460	
t Stat	2.321504595	
P(T<=t) one-tail	0.010347823	
t Critical one-tail	1.64817289	
P(T<=t) two-tail	0.020695646	
t Critical two-tail	1.965134461	

Figure B3: The visualization of the mean and standard deviation of the Level of Harm of Resident Rights Deficiencies by facilities with and without special care units.

