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# Comparison of Advance Care Planning Interventions and Older Adults' Advance Directive Completion Rates

Tammy Biehler
*Walden University*

# Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Tammy Biehler

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Review Committee
Dr. Peggy Gallaher, Committee Chairperson, Psychology Faculty
Dr. Patti Barrows, Committee Member, Psychology Faculty
Dr. Elisha Galaif, University Reviewer, Psychology Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
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Abstract

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MA, University of Northern Colorado, 1995

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Dissertation Submitted in Partial Fulfillment

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Doctor of Philosophy

Health Psychology

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# Abstract

Despite the benefits of advance care planning (ACP), only one third of older adults in the United States have completed it. To address this gap, health care organizations are implementing ACP programs to engage older adults in the process. These programs can be delivered in various ways, including 1:1 conversations, classes, and web-based tools. The purpose of this quantitative study was to investigate which ACP option was associated with highest participation and advance directive (AD) completion rates in older adults. Social cognitive theory provided the framework to understand the impact the ACP environment and personal characteristics' have on the odds of participating and completing an AD. A nonequivalent group design was used to compare participation and AD completion rates between groups. Results of logistic regression indicated that a sample of 24,909 older adults who were offered one of the three ACP options exhibited higher AD completion rates than the 133,766 individuals who were not offered it. Those who were offered and participated in the 1:1 conversation exhibited the highest AD completion rate. Age was the only personal characteristic associated with higher participation and AD completion rates. Findings may be used for positive social change to inform health care organizations' strategies to address low AD rates among older adults.

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# Dedication

This is dedicated to my wonderful husband, Tim, and my amazing parents, Rita and Vicente. My husband has been a wellspring of support and encouragement through what sometimes felt like a never-ending journey. We faced many challenges along the way such as unexpected career changes, financial difficulties, and the loss of our beloved fathers. Through it all, he stood by me, and when I paused my studies, he encouraged me to resume and finish my degree. My parents taught me the importance of perseverance, dedication to education, and the need to share my gifts with others to help make a difference in the world. Even though neither of them attended college, they always encouraged all of their children to do so and sacrificed so much to give us countless opportunities to be successful. My mother always taught me I could do anything I set my mind to and to never give up. I wish my dad were here today to see me finish this lifelong dream. He came to this country as a non-English-speaking immigrant and taught me that hard work, perseverance, and education are critical to living the American dream.

# Acknowledgments

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# Chapter 1: Introduction to the Study

Advance care planning provides people an opportunity to prepare for medical decision-making and communicate their values, goals, and wishes for future health care in the event they are unable to speak for themselves. Studies indicated people who complete advance care planning report greater satisfaction with their care and are more likely to receive care that is in accordance with their wishes (Sudore et al., 2017a). Despite the known benefits of advance care planning, only one third of older adults, even those with advanced illness, have engaged in advance care planning (Benson & Aldrich, 2012). Advance care planning options that are scalable across large populations within the primary care setting that promote participation in and completion of an advance directive are needed to ensure patients receive care that is wanted (Chiarchiaro, Praewpannarai, Arnold, & White, 2015). Studies addressing the dissemination of these types of services supported the U.S. effort to improve the quality, service, and affordability of care that is provided to the growing older adult population, particularly at the end of life (Institute of Medicine, 2014).

Life can be unpredictable, most people do not know whether or when they will experience a sudden injury or illness that could leave them unable to communicate with their loved ones or health care team about the care they may or may not want. The thought of this happening can be unsettling not only for the person who is experiencing the injury or illness but also for their loved ones who are left wondering if they are selecting the type of care the person would want. An example of this is Alice, a healthy seventy-year-old woman, who lives alone in her home and loses her balance carrying her laundry up the steps from the basement. She falls down the steps, hits her head, and is seriously injured. Fortunately, Amy, her daughter, stops over that day for dinner and finds her mom unconscious because of the fall. She calls the ambulance. When they arrive, they begin to provide care and ask Amy if her mom has any advance directive documents they should be aware of before providing life-sustaining treatments. Amy is not aware of any advance directive documents and has not talked to her mom about what she might want if she sustained a serious injury. Alice is transferred to the hospital where she remains in the intensive care unit on life-sustaining treatments will little improvement for several weeks. Amy is left with the difficult task of wondering and guessing what type of care her mom would want, particularly if her mom’s condition does not improve. This example highlights why advance care planning is important and the role it can play in supporting people as they prepare for what can occur in life, particularly as they grow older. However, to fully understand this topic, it is helpful to clarify some basic concepts:

1. the standard definitions associated with the advance care planning process,
2. the significance of the topic,
3. groups that would benefit most from it,
4. theoretical and methodological strategies that have been used to evaluate advance care planning programs,
5. personal characteristics and environmental factors that can influence older adults’ advance directive completion rates,
6. noted gaps in the literature, and
7. recommendations for future research.

This series of topics is covered in the background section.

In the remainder of Chapter 1, I provide an overview of the problem addressed in the study, the purpose of the study, the research questions and hypotheses that were tested, and the methodology used to do this. I also describe the variables and operational definitions that were used in the evaluation and how these variables influenced the selection of the analytical methods that were used to test the hypotheses. In addition, the assumptions, scope and delimitations, limitations, study design considerations, and internal and external threats to validity are addressed in this Chapter. However, a more detailed discussion of these topics is presented in Chapter 2. Chapter 1 concludes with a discussion of the significance of this study from both the public health and larger social change perspective, as well as a summary of the points covered in the chapter.

## Background

Advance care planning is a process that supports adults at any age or state of health condition in having conversations about the future medical care they would want if they were unable to speak for themselves (Sudore et al., 2016). These types of conversations are most effective when done in the context of what matters most to the person, are based on their goals and values, and involve the person whom they would want to have speak for them if they were incapacitated (Tilden, Corless, Ferrell, Gibson, & Lentz, 2011). The goal of the process is to ensure the care the person receives is in accordance with their values, goals, and preferences during a serious, chronic, or end-of-life illness (Sudore et al., 2016). Maximum benefit is gained from the planning process when people are engaged in it early and when they are stable, rather than at the end of life or in a crisis. This proactive approach to planning also allows people the opportunity to make decisions about the care they would want as their health condition changes (Tilden et al., 2011). Additionally, conversations should be tailored to the person's health condition to make it meaningful and patient centered.

It is important to distinguish the process of advance care planning from the document, an advance directive. Although the goal of the process is to complete an advance directive that can be found in the medical record, the conversation between the patient, their health care agent, and their health care provider is equally important. A document that is completed outside of a comprehensive, shared decision-making process can result in uninformed decisions that do not align with the patient's values and goals (Harter, 2015). Advance directive completion rates are a common outcome measure seen in studies addressing the efficacy of an advance care planning intervention (Sabatino, 2010; Sudore et al., 2015). However, the counterbalance to this measure should be an intervention that emphasizes high-quality conversations in the context of a robust advance care planning process (Sabatino, 2010). The current study was based on this premise because I evaluated the impact of various advance care planning options on older adults' advance directive completion rates within the context of a robust advance care planning program.

Researchers have documented the benefits of advance care planning from a patient, health care agent, health care provider, and health care system perspective (Detering, Hancock, Reade, & Silvester, 2010; Detering & Silveira, 2017; Elpern, Covert, & Kleinpell, 2005; Hammes & Rooney, 1998; Silveira, Kim, & Langa, 2010; Sudore &

Fried, 2010; Teno, Gruneir, Schwartz, Nanda, & Wetle, 2007; Wright et al., 2008). Patients who have an advance directive in their medical record at the time and place of their end-of-life care are more likely to receive care that is in accordance with their wishes (Brinkman-Stoppelenburg, Rietjens, & van der Heide, 2014; Detering & Silveira, 2017). Advance care planning has also been found to reduce the amount of decisional burden and emotional suffering on family members who are left to make medical decisions for their loved ones (Brinkman-Stoppelenburg et al., 2014). Advance care planning can also reduce moral distress experienced by the provider (Elpern et al., 2005). Additional quality-of-care indicators such as a reduction in hospitalization at the end of life, the receipt of less intensive treatments, and increased palliative and hospice utilization are all associated with advance care planning (Detering & Silveira, 2017; Teno et al., 2007).

Advances in medicine and improvements in the management of chronic conditions, such as heart failure, diabetes, and cardiopulmonary obstruction, in the older adult population have resulted in people living longer but with more complex care needs (Prince-Paul & DiFranco, 2017). Even though advance care planning is beneficial for all adults 18 years of age and older, it is even more important for older adults who tend to have more chronic conditions that require timely and ongoing decisions about complex medical treatments as their conditions progress and their health declines (Detering et al., 2010). Approximately 70% of older adults will require someone to make medical decisions for them due to incapacity near the end of their (Bravo et al., 2016). It is projected that 60% of baby boomers will have one or more chronic conditions by 2030

(Bravo et al., 2016). This projection represents a critical public health issue when considering the number and proportion of older adults are increasing at a rapid rate in the United States. According to the Administration on Aging, Administration for Community Living, U.S. Department of Health and Human Services (2017), in 2014 people over the age of 65 represented 14.5% of the U.S. population but by 2030 they will represent 21.7% of the population.

Despite these findings, advance directive completion rates still tend to hover between 20% and 30% in the United States, according to the Centers for Disease Control and Prevention (Benson & Aldrich, 2012). These rates were substantiated by a later systematic review conducted by Yadav et al. in 2017. The review involved 150 advance care planning studies from 2011 to 2016 to determine the proportion of adults in the United States with a completed living will, power of attorney, or both. Yadav et al. found that approximately one in three adults in the United States has completed some advance directive for end-of-life care. This trend holds for the older adult population because most of them have not talked to their providers or loved ones about the type of care they would want at the end of their life if they are not able to speak for themselves (Sudore et al., 2017b). In the absence of a documented advance directive, the provider’s default is to provide life-sustaining interventions like cardiopulmonary resuscitation (CPR), tube feeding, ventilator support, and intravenous antibiotics and fluids (Institute of Medicine, 2014). Given these considerations, it is important to understand what types of advance care planning interventions are associated with higher rates of older adults participating in them and completing an advance directive that can be found in their medical record.

Biondo, Lee, Davison, and Simon (2016) conducted a systematic review to determine how health care systems evaluate their advance care planning initiatives to determine whether they are effective. Biondo et al. uncovered many gaps and redundancies in the strategies used to assess the efficacy of advance care planning programs. Some examples of recurring theoretical models used for evaluating older adults' participation in advance care planning and advance directive completion rates include health behavior change and health communication theories (Campbell, Edwards, Ward, & Weatherby, 2007; Edgar & Volkman, 2012; Ruben, 2016; Sudore et al., 2015).

A dated but relevant evaluation conducted by Campbell et al. in 2007 included social cognitive theory to describe the processes used in their advance care planning model to increase advance directive completion rates. This study sparked my interest in the triadic relationship between environmental, personal, and behavioral factors that influence older adults' advance directive completion rates (see Bandura, 1997). It was the first time I considered the advance care planning program, including how and where it is being delivered, as an environment that could influence an older adult's advance directive completion rate. Campbell et al.'s study also included numerous personal and cognitive characteristics such as gender, marital status, race, health condition, health literacy, attitudes about advance directives, and locus of control as factors that can influence the completion of an advance directive. The personal characteristics in the current study were limited to those that were available in the electronic medical record, including age, gender, ethnicity, and health condition. Social cognitive theory is described further in Chapter 2. However, it is mentioned here to emphasize the role the Campbell et al. study played in the formulation of the current study. Even though numerous studies had been conducted on the topic of advance care planning using health behavior change theories such as transtheoretical stages of change, few had been conducted using social cognitive theory.

I sought to close a gap in knowledge about the application of social cognitive theory in evaluating the impact of environmental and personal characteristics on older adults' advance care planning behavior. There was also a lack of studies that addressed more than one advance care planning option to determine which option results in higher rate of participation and the completion of an advance directive. This study addressed both gaps. The study was timely given the known benefits of advance care planning with the older adult population, the growing number of people over the age of 65, and the low advance directive completion rates in the older adult population.

## Problem Statement

Advance care planning is a process that supports people in making decisions about the medical care they would want to receive if they are unable to speak for themselves. Advance care planning can be delivered through a program offered by a health care professional, but the default tends to be people completing advance directives on their own or possibly with an attorney, or not completing them at all (Detering et al., 2010; Detering & Silveira, 2017). The purpose of the advance care planning process is to ensure the patient's wishes for future health care are elicited, known, and honored so the care they receive is in accordance with their wishes. Despite the known benefits of advance care planning, the rate of individuals who participate in planning and complete a directive that can be found in their record remains low. Although participating in advance care planning is a step in the right direction, it is important for people to follow through with the completion of a directive that can be found in their record; otherwise, the directive will not be available to the person's care team when it is needed. That is why it is important for health care organizations to understand which types of advance care planning options increase participation and the completion of an advance directive that can be found in the patient's medical record. If this information is known, then health care organizations can make informed decisions about how to target resources to support advance care planning options that result in increased participation in and completion of an advance directive that can be found in the medical record.

When people are given the opportunity to decide what type of care they want at the end of life, they tend to opt for less invasive treatments. This results in lower health care costs, improved quality of care that is alignment with the patient's wishes, and increased patient and family satisfaction (Gundersen Health System, 2014). However, the percentage of adults who complete an advance directive remains relatively low, at approximately one third of U.S. adults (Harrison, Adrion, Ritchie, Sudore, & Smith, 2016; Yadav et al., 2017). The advance directive completion rate is low despite evidence from studies that indicated older adults are open to having advance care planning discussions, are waiting for their health care team to initiate the conversation, and prefer them in the primary care setting (Malcomson & Bisbee, 2009).

A growing number of health care organizations are implementing advance care planning programs in their primary care clinical routines to help patients complete advance directives. Examples of this can be seen in several health care systems:

- Gundersen Health with the Respecting Choices model,
- San Francisco Veterans Administration Medical Center with the PREPARE model,
- Allina Health with the contracted Respecting Choices model,
- Dartmouth-Hitchcock with the Honoring Care Decisions program, and
- Kaiser Permanente with the Life Care Planning program (Allina Health, 2018; Gundersen Health System, 2014; Sudore et al., 2015; Sudore et al., 2017a).

Despite the large number of studies completed on the topic of advance care planning in the older adult population, there is a lack of studies addressing which type of advance care planning intervention results in the completion of a medical advance directive that is given to providers for inclusion in the medical record (Biondo et al., 2016; Detering et al., 2010; De Vleminck et al., 2013; Harrison et al., 2016; Kossman, 2014; Mack & Smith, 2012; Sessanna & Jezewski, 2008; Sudore et al., 2015; Sudore et al., 2017a; Sudore et al., 2017b). The Institute of Medicine (2014) reported that people near the end of life often receive unwanted, invasive, and burdensome treatments. The Institute of Medicine called for improvements in the way health care organizations deliver advance care planning so that patients’ wishes for end-of-life care are elicited, known, and honored. This call to action, coupled with the rapid growth in the number and proportion of people over the age of 65, has led organizations like the Center for Disease

Control and the Institute of Medicine to state the need for advance care planning in the older adult population is a public health concern (Benson & Aldrich). In 2014 older adults represented 14.5% of the U.S. population (Prince-Paul & DiFranco, 2017). By 2030 this percentage is projected to grow to 21.7% when the youngest of the baby boomers turn 65.

Although advances in medicine have increased life expectancy, people are living longer but with multiple chronic conditions. As these conditions progress, the likelihood of needing to make decisions about life-sustaining treatments and losing capacity to make these decisions increases. This trend is causing a strain on the current health care system and is expected to continue (Prince-Paul & DiFranco, 2017). Therefore, it is paramount that health care organizations implement advance care planning programs that exhibit high rates of participation and advance directive completion rates within the older adult population to ensure the care that is provided is only what the patient wants. This will improve patient and family member satisfaction, improve the quality of the care provided, and contribute to lower health care costs (Institute of Medicine, 2014).

The specific advance care planning program evaluated in this study was Respecting Choices, which was rebranded by Kaiser Permanente as the Life Care Planning program. In the program, patients are offered three options for learning about advance care planning: a one-on-one conversation, a group facilitated class, or a web-based tool. The Respecting Choices program has been investigated in several randomized control trials and has been found to increase rates of advance care planning documentation in the medical record (Hammes & Rooney, 1998; Hammes, Rooney, &

Gundrum, 2010; Hickman et al., 2010). What was not known about the program was which advance care planning option was associated with the highest rates of participation and advance care planning documentation in the medical record. In the current study, the program that was evaluated was implemented in a large HMO.

## Purpose of the Study

The purpose of this study was to investigate which advance care planning option within the Life Care Planning program was associated with highest participation and advance directive completion rates in older adults, and to investigate the association between personal characteristics, participation in the program, and completion of an advance directive. The Kaiser Permanente Colorado region contracted with Respecting Choices to use the Life Care Planning program as their form of advance care planning with all members over the age of 18. Although the region acknowledges directives completed outside the service, the Life Care Planning program is the only advance care planning model being used by the Kaiser Permanente Colorado region. The advance care planning options were a one-on-one conversation led by a facilitator, a group class led by a facilitator, and a web-based tool that could be completed without assistance.

I conducted a quantitative study using a nonequivalent group design to compare older adults’ advance directive completion rates when participating in one of the three advance care planning interventions in the primary care setting. Given that the Life Care Planning program was still being spread across a large geographical region, some patients may not have been offered the service. This occurrence was not due to the study design. Individuals who had not been offered a Life Care Planning intervention served as a comparison group to determine whether there was a difference in the rate of completed advance directives for those who were offered an advance care planning intervention and those who were not. Individuals who were not offered the Life Care Planning service were identified by the lack of documentation in the Life Care Planning Navigator within the electronic medical record. All employees who invited members to participate in the Life Care Planning service documented the invite in the organization's electronic medical record within the Life Care Planning Navigator, Planning Status Smartform.

## Research Questions and Hypotheses

RQ1: Is there a significant difference in the rate of completed advance directives for older adults who are offered and those who are not offered one of the three advance care planning options (group facilitated class, one-on-one facilitated conversation, and web-based tool)?

$H_0$: There is no significant difference in the rate of completed advance directives for older adults who are offered one of the three advance care planning options and those who are not offered one of the options.

$H_1$: There is a significant difference in the rate of completed advance directives for the older adults who are offered one of the three advance care planning options and those who are not offered one of the options.

RQ2: For those older adults who participated in the Life Care Planning program, which advance care planning option is associated with the highest rate of completed advance directives?

$H_{01}$: The advance care planning options exhibit no significant difference in the older adults’ advance directive completion rates.

$H_1$: The advance care planning options exhibit significant differences in the older adults’ advance directive completion rates.

$H_{02}$: The older adults who participate in the classroom-based advance care planning option exhibit no significant difference in the rate of completed advance directives.

$H_2$: The older adults who participate in the classroom-based advance care planning option exhibit the lowest rate of completed advance directives.

$H_{03}$: The older adults who participate in the one-on-one advance care planning option exhibit no significant differences in the rate of completed advance directives.

$H_3$: The older adults who participate in a one-on-one advance care planning option exhibit the highest rate of completed advance directives.

$H_{04}$: The older adults who participate in the web-based advance care planning option exhibit no significant difference in the rate of completed advance directives.

$H_4$: The older adults who participate in the web-based advance care planning option exhibit neither the highest nor the lowest rate of completed advance directives.

RQ3: Of the older adult patients who are offered one of the three advance care planning options, what personal characteristics (age, gender, ethnicity, and health status) are associated with them participating or not?

$H_0$: Of the older adults who participate in one of the three advance care planning options, personal characteristics do not predict a significant difference in their rate of participation in the Life Care Planning program.

$H_1$: Of the older adults who participate in one of the three advance care planning options, age and health condition predict a significant difference in their rate of participation.

RQ4: Of the older adult patients who are offered one of the three advance care planning options and participate, what personal characteristics are associated with them completing an advance directive?

$H_0$: Of the older adults who participate in one of the three advance care planning options, their personal characteristics do not significantly predict their advance directive completion rate.

$H_1$: Of the older adults who participate in one of the three advance care planning options, their personal characteristics significantly predict their advance directive completion.

## Theoretical Framework

Social cognitive theory provided the theoretical framework to describe the dynamic relationship between variables that can influence the process of advance care planning with older adults in the primary care setting (see Bandura, 1997). The theory posits there are environmental, personal, and behavioral elements that influence a person’s behavior change, and these elements can intermingle to influence the other (see Bandura, 1997). The interplay between these variables was originally described by

Bandura as a triadic relationship. Each type of variable in my study represented one of the three elements depicted in the social cognitive theory (see Bandura, 1997).

Prior studies suggested health care system practices can create environmental factors that either influence or inhibit the advance care planning process (De Vleminck et al., 2013; Mack & Smith, 2012). Advance care planning that is offered to older adults when they are healthy as a standard part of their primary care has been found to promote participation in the process (Gundersen Health System, 2014; Malcomson & Bisbee, 2009). In contrast, advance care planning that is offered only when a person is in crisis or at the end of life tends to inhibit participation rates (Prince-Paul & DiFranco, 2017). Advance care planning options that are available to older adults in the primary care setting can be environmental factors that influence the older adults' behavioral response to participate or not and to complete an advance directive (Briggs, 2004; Gundersen Health System, 2014). Personal factors such as age, gender, ethnicity, and health condition can influence older adults' willingness to participate in advance care planning if it is offered and their likelihood of completing an advance directive (Alano et al., 2010). Social cognitive theory was selected as the framework for this study because it involves a comparison of two groups' advance care planning behaviors when offered advance care planning via different venues while observing the role personal characteristics play in predicting the likelihood of participation and the completion of an advance directive.

RQ1 and RQ2 focused on the comparison of older adults who are offered advance care planning options and those who are not, to determine whether the environment created by the offering had an effect on their participation (RQ1) and advance directive completion rate (RQ2). RQ3 and RQ4 were similar but addressed advance care planning behaviors in older adults who were offered Life Care Planning and participated to understand the influence their personal characteristics had on predicting their participation in one the three advance care planning options and their advance directive completion rate. A more detailed explanation of social cognitive theory and its role in the study is provided in Chapter 2.

## Nature of the Study

A quantitative nonequivalent group design was used to compare advance directive completion rates between two groups: patients who were offered one of the three advance care planning options with the Life Care Planning program and patients who were not offered advance care planning through the Life Care Planning program. There were more patients in the comparison group than in the group who was offered the Life Care Planning program. The research questions progressed from a broad perspective to a narrower focus to compare participation rates across the three advance care planning options for older adults who participate. The focus continued to narrow to evaluate the association between older adults' personal characteristics and their participation rates across the three advance care planning options and their advance directive completion rates when participating in one of the three options.

The definition of advance care planning included participating in a class, one-on-one conversation, or web-based tool to learn what advance care planning is, how to select a health care agent, and how to complete an advance directive document. I used archival data obtained through retrospective medical record review. When individuals were invited to participate in the Life Care Planning program, this was documented in the member's electronic medical record in a Smartform that was stored in Clarity tables. The data were extracted from the Clarity tables via the Kaiser Permanente Virtual Data Warehouse using the SAS code. I had access to these data as a normal part of my role in managing the operations for the Life Care Planning program. I receive an Excel file containing this information every month.

RQ1 had one independent variable: the person offered the Life Care Planning program. Their participation in the program was noted as yes or no, so it was a categorical variable. The dependent variable was whether an advance directive was completed and was indicated with yes or no. This variable was also categorical. RQ2 had one independent variable with three levels. The levels were the advance care planning options within the Life Care Planning program. This variable was nominal. There was one dependent variable that was whether the advance directive was completed, and it was indicated with a yes or no making it a categorical variable. RQ3 had four predictor variables that represented personal characteristics. They included age, gender, ethnicity, and health status. Age was a continuous variable. Gender was a dichotomous categorical variable. Ethnicity was a nominal variable. Health status was an ordinal variable. There was one dependent variable, and that was whether the older adult participated in an advance care planning option within the Life Care Planning program. The dependent variable was categorical. RQ4 had four predictor variables: age, gender, ethnicity, and health status. There was one dependent variable, and it was whether an advance directive had been completed after participating in one of the three Life Care Planning options. Advance directive completion was a categorical variable.

## Operational Definitions

In this study, I used several terms to describe the variables of interest. All variables were retrieved from the electronic medical record. The archival data set represented a prospective cohort of older adults 65 years of age and older who were enrolled in a Kaiser Permanente Colorado health plan. A description of each variable and where it was retrieved from the medical record is provided in this section.

*Advance care planning option*: The advance care planning approach offered could be one of three options: a one-on-one conversation, a group class, or a web-based tool. In each of these options, the member is provided the following:

1. information about what advance care planning is,
2. what a health care agent is,
3. things to consider when selecting an agent,
4. instructions to complete a Medical Durable Power of Attorney (MDPOA), and
5. a discussion about the care they would want if they were to become unable to speak for themselves regarding their values, goals, and wishes.

The activity of offering one of the three advance care planning options was documented in the Life Care Planning Navigator, Planning Status Smartform with the term *invited.*

*Advance care planning participation*: A patient’s response to being offered an intervention could include *declined*, *in progress*, or *completed* and was documented in the Life Care Planning Navigator, Planning Status Smartform.

*Life Care Planning Step*: The Life Care Planning program takes a staged approach to advance care planning, so one of the three steps is offered based on the person's health condition and stage of readiness. The first stage of planning is First Steps and could be offered in a group facilitated class format, a one-on-one facilitated conversation, or a self-led web-based tool. The first stage is typically offered to healthy individuals or people with chronic conditions that are well managed. However, individuals who are more ill could opt to attend a First Steps class if they are not ready to commit to a one-on-one conversation that involves more condition-specific advanced planning. The second stage of planning is Next Steps, and this could be offered in a one-on-one setting. The second stage is offered to people who have multiple chronic conditions and are starting to experience more complications in the form of hospitalization or emergency department visits. The last stage of planning is Advance Steps, and this is offered in a one-on-one format. This step is offered to people who are typically in the last year of life.

*Advance directive completion*: Completed advance directive documents can be found in the Life Care Planning Navigator Summary section. All advance directive documents have unique identification numbers. The document types can include any of the following: a general advance directive, a Living Will, a CPR order or a do not resuscitate order, a Five Wishes document, a Life Care Planning Advance Directive, a Life Care Planning eAdvance Directive, a Statement of Treatment Preference document, and a Medical Orders for Scope of Treatment (MOST) document.

*Life Care Planning eAdvance Directive*: The Life Care Planning eAdvance Directive is the document that members complete when they participate in the First Steps web-based tool.

*Statement of Treatment Preferences (SOTP)*: The Statement of Treatment Preferences document is the advance directive people complete when they participated in the Next Steps conversation.

*Medical Orders for Scope of Treatment (MOST)*: The Medical Orders for Scope of Treatment document is the advance directive people complete when they participate in the Advanced Steps conversation.

*Personal characteristics*: There were four types of personal characteristics included in the study as moderator variables. They included age, gender, ethnicity, and health condition. Age, gender, and ethnicity were stored in the Demographics section. Age was included as a predictor variable because there could be extensive functional variability in the age bands that spanned 65 to 75, 75 to 85, and 85 plus.

*Health status*: Health status is generated from a Senior Segmentation algorithm developed by Kaiser Permanente that includes factors such as age, chronic conditions, hospitalization, and health care utilization data via medical claims (Zhou, Wong, & Li, 2014). The person’s health condition is rated on a scale from 1 to 4 and is called the Care Group. A person who is in Care Group 1 is healthy, a person in Care Group 2 is healthy with some chronic conditions that are well managed, a person in Care Group 3 has multiple chronic conditions and is starting to experience decline indicated by increasing health care utilization, and a person in Care Group 4 is likely to die in a year or less.

*Life Care Planning Facilitators*: Life Care Planning facilitators are trained to use Respecting Choices content to guide patients through a facilitated advance care planning discussion using a script that is specific to one of the three steps in the Life Care Planning program. The script promotes a shared decision-making process using value-neutral language that helps the facilitator stay on track to complete all elements of the class or conversation. The training entails completing a series of six online training modules, participating in a one- or two-day in-person course, and role-playing and a skills competency check with an instructor or faculty observing a conversation or class. The archival data set contained information about who facilitated the Life Care Planning activity, their location, and their role (i.e., physician, nurse, social worker).

## Assumptions

If an eAdvance Healthcare Directive was in the medical record, then an assumption was made that the person was invited to participate in the Life Care Planning program. The First Steps web-based tool does not have a mechanism to track participation at the member level. There were general data about the number of individuals who visited the site and how often specific pages were visited. However, data were not tied to the member’s medical record number. The only definitive way to determine whether a member had participated in the web-based activity was whether they had completed and downloaded the Life Care Planning eAdvance Healthcare Directive and returned it to the clinic so it could be scanned into the medical record. The eAdvance Directive had a unique identification number so it could be distinguished between the Life Care Planning Advance Healthcare Directive that was associated with the First Steps class and one-on-one conversation. Members were invited through an email or letter notifying them they had no advance directive on file and they were encouraged to participate in either a First Steps class or the web-based tool. They could also receive an invite in the form of a Patient Instruction that was embedded in their post-visit paperwork. The message in the Patient Instruction invited the member to participate in a First Steps class or the web-based tool. There was also the possibility the member had seen marketing material in the medical office building lobby or elevator areas that contained information about what Life Care Planning was and inviting them to attend a First Steps class or the web-based tool.

Another assumption was that members who did not have a documented Life Care Planning advance directive, invite, or decline were not offered the Life Care Planning intervention. These individuals were not offered the program due to the timing of the model being disseminated across a large geographical region over four years; it was not due to study design. This assumption was made because when someone is invited to participate in the program, the invite is documented in the Life Care Planning, Planning Status Smartform. If they decline the invitation and do not participate, this is also documented in the same area. Members who did not have a documented Life Care Planning invite but did have a non-Life Care Planning advance directive, such as a Living Will or Five Wishes document, completed the document outside the Life Care Planning program. This assumption was made because these documents were not used in any of the Life Care Planning options. However, they were accepted as the members medical directive if they chose to use one of these documents instead of the preferred Life Care Planning directives.

Individuals who documented a Life Care Planning invite had received training as either a Life Care Planning facilitator, instructor, advocate, or rooming staff. The rooming staff received limited training specific to the Planning Status documentation process, such as the invite or decline activity. Rooming staff could also directly book a member into a First Steps class, provide them a link to the web-based tool, or refer them to a one-on-one conversation depending on the member’s health status. Individuals who had not received documentation training in the Life Care Planning intervention would not document the member’s invite, decline, or participation in the Life Care Planning, Planning Status Smartform.

## Scope and Delimitations

The scope of this study was adults 65 years of age and older who were enrolled in a Kaiser Permanente Colorado HMO plan in the Colorado region between 2014 and 2018. The data set included individuals 18 years of age and older, but this study focused on individuals 65+ because they were at higher risk of losing decision-making capacity as they encountered complications associated with the progression of multiple chronic conditions. The specific time frame was limited to medical records from June 2014 through the end of December 2018.

An additional boundary of the study was the focus on members enrolled in a Kaiser Permanente HMO plan because the organization uses an integrated electronic medical record that made it easy to track whether a person was offered one of the advance care planning options, whether they participated, and whether they completed an advance directive. Not all health care organizations or HMO plans have an integrated electronic medical record, so it is difficult to track advance care planning activities. Another reason for focusing on members who were enrolled in a Kaiser Permanente Colorado health plan was because the organization offered advance care planning within their system at no charge to the member. This may not be the case in other HMO plans or health care systems. This practice created an environment that made it easier for members to complete the advance care planning process.

Even though the Life Care Planning program was available in the Kaiser Permanente California, Northwest, and Mid-Atlantic regions, the scope of this evaluation was limited to the Colorado region due to time and resource constraints. Additionally, I did not have access to the medical records from other regions, but I did have access to the records in the Colorado region as a normal function of my role as manager for the Senior Innovations and Life Care Planning program.

Kaiser Permanente members from regions outside of Colorado and nonmembers could participate in the Life Care Planning First Steps classes. However, these members were removed from the study sample because there was no way to track the completion of their advance directive if they returned to the Kaiser Permanente Colorado health care system. Additionally, these participants made up a very small portion of the sample, so they were viewed as outliers in the data set.

## Limitations

The limitations of the study were factors that were beyond my control and could have been confounders. One primary weakness of this study was the inability to track members participation in the Life Care Planning First Steps web-based tool, other than a completed LCP eAdvance Healthcare Directive. The inability to track participation in the web-based tool was noted in the assumptions section with a description of three different ways members could become aware of the web-based tool through invites that were not documented in the medical record. Optimally, the web-based participation would have been trackable so I could have linked the invite to the participation and the completed directive in the medical record, but that functionality was not available. However, there are plans to add this functionality to the Life Care Planning First Steps web-based tool by 2021.

An additional limitation of the study was that it was a convenience sample with a retrospective medical record review, not a randomized control trial. This limited the external validity of the study and the generalizability of the results. The convenience sample limited the findings from the study to an association between the variables; therefore, inferences could not be made about cause and effect. An additional limitation of the study could have been influence from my organization’s leadership to want to see higher participation and advance directive completion rates in the advance care planning options that are less labor intensive. For example, the facilitator-led class and web-based tool require less staff time to deliver and reach a larger number of people. To address this concern, I did not share my preliminary results with leadership until the statistical tests had been conducted to determine whether the findings were statistically significant. I was also mindful of this type of influence when completing my data analysis, writing up my findings, and writing the discussion sections.

## Significance

This research presented an opportunity to evaluate which type of advance care planning option within the Life Care Planning program was associated with highest participation rates and advance directive completion rates. I was also able to investigate the role personal characteristics played in this process. For example, if an advance care planning option was associated with low participation rates among older adults of a specific ethnicity, then the findings could be used to fuel a future qualitative study soliciting feedback from members of this group about things that could be modified to better engage them in the advance care planning option. Additionally, if participation rates were high in an option but resulted in low advance directive completion rates, then this information could be used to fuel a qualitative study soliciting feedback about what things could be done to increase engagement in the form of a completed advance directive. These examples highlight how findings from the study could be used to contribute to positive social change by contributing to the delivery of a comprehensive, systematic, proactive approach to advance care planning that supports high-quality, patient-centered care.

Additionally, the information gathered in this study may help health care organizations understand how to use a theory-based model, such as the social cognitive theory, to understand environmental, personal, and behavioral factors that can influence advance care planning behaviors in older adult populations in the primary care setting (see Biondo et al., 2016; Campbell et al., 2007; Edgar & Volkman, 2012; Ruben, 2016). This study was timely given the growth in the older adult population and the current rates of older adults who do not have a documented advance directive in their medical record (see Ortman, Velkoff, & Hogan, 2014). This disparate trend has become a growing public health concern that calls for strategies that normalize advance care planning in the primary care setting using approaches that engage older adults and result in increased rates of advance care planning documentation in the medical record (Prince-Paul & DiFranco, 2017; Tilden et al., 2011).

## Summary

In Chapter 1, I provided a brief introduction to the concept of advance care planning in the older adult population and the rationale for the study. In doing so, I presented the current gap in the literature, the problem I was trying to address, the research questions posed, the variables, and the methodology that was used to test the hypotheses. The chapter also included a brief description of the assumptions, scope, limitations, and delimitations of the study. Chapter 2 begins by restating the purpose of the study and includes the strategy that was used to conduct the literature review. Following that, the theoretical, historical, and conceptual framework are covered. I also review advance care planning models that have been implemented in the primary care setting and the theoretical models used to evaluate these interventions. The remainder of the chapter focuses on a study that was conducted using the social cognitive theory to evaluate an advance care planning intervention with the older adult population and how the study informed the current study (see Campbell et al., 2007).

# Chapter 2: Literature Review

Advance care planning is a process that supports people in making decisions about the medical care they would want to receive if they were unable to speak for themselves. The purpose of the advance care planning process is to ensure the patient's wishes for future health care are elicited, known, and honored so the care they receive is in accordance with their wishes. Advance care planning can be delivered through a program offered by a health care professional, but the default tends to be people completing advance directives on their own, with an attorney, or not at all (Detering et al., 2010; Detering & Silveira, 2017).

The process of advance care planning has been linked to improved quality of care outcomes and lower health care costs. When people are given a chance to think about the care they would want at the end of life, they tend to pick less invasive treatments (Gundersen Health System, 2014). Individuals who participate in advance care planning and have a completed advance directive are more likely to receive care that is in accordance with their wishes (Gundersen Health System, 2014). Patients and their loved ones also report better patient-provider interactions and reduced anxiety and stress associated with end-of-life care decisions. Advance care planning has been shown to be more critical for older adults who are more likely to have two or more chronic conditions and have greater potential to lose decision-making capacity as their conditions progress and they near the end of life (Marengoni et al., 2011). Based on findings from Bravo et al. (2016), approximately 70% of older adults will require someone to make medical decisions for them due to incapacity near the end of their life. Despite these findings, advance directive completion rates still hover between 20% and 30% in the United States (Benson & Aldrich, 2012). One might expect to see higher advance directive completion rates in the older adult population, and a positive correlation between increased completion rates and declining health status. However, this is not the case based on a study by Harrison et al. (2016) who investigated the strength and magnitude of the relationship between older adults' personal characteristics and their advance care planning behaviors. Harrison et al. found that older adults with higher disease burden and disability had lower rates of advance care planning behaviors.

Many studies have been completed on the topic of advance care planning in the older adult population. However, there has been a lack of studies comparing the types of advance care planning options that are associated with higher participation and advance directive completion rates (Biondo et al., 2016; Detering et al., 2010; De Vleminck et al., 2013; Harrison et al., 2016; Kossman, 2014; Mack & Smith, 2012; Sessanna & Jezewski, 2008; Sudore et al., 2015; Sudore et al., 2017a; Sudore et al., 2017b). The advance care planning program that was evaluated in the current study was the Respecting Choices program, rebranded as the Life Care Planning program within the Kaiser Permanente health care system. In the program, patients can be offered three different options for learning about advance care planning, including a one-on-one conversation, a group facilitated class, or web-based tool. The Respecting Choices program has been evaluated in several randomized control trials and has been found to increase rates of advance care planning documentation in the medical record (Hammes & Rooney, 1998; Hammes et al., 2010; Hickman et al., 2010). However, researchers have not examined which advance care planning option within the program is associated with the highest participation rate. Also, researchers have not addressed advance directive completion rates and the influence of personal characteristics on these rates.

This chapter contains information about the strategies used to conduct the literature review. I describe the major theoretical, historical, and conceptual frameworks that have been used to evaluate or discuss advance care planning and how these concepts related to the current study. A review of studies involving advance care planning models in the primary care setting with older adults is also provided to elicit key variables, concepts, and methods used to evaluate the efficacy the advance care planning interventions. Finally, I provide a rationale for the application of social cognitive theory to evaluate the advance care planning intervention in this study. The chapter concludes with a summary and overview of Chapter 3.

## Purpose of the Study

The purpose of this study was to investigate which advance care planning option within the Life Care Planning program resulted in the highest rates of participation and completed advance directives in older adults and to understand the personal characteristics that were associated with a person participating and completing an advance directive. The advance care planning options included a one-on-one conversation led by a facilitator, a group class led by a facilitator, and a web-based tool that could be completed without assistance. This study was conducted to examine the relationship between the following variables:

- the advance care planning environment or option,

- the older adults’ personal characteristics (age, gender, ethnicity, and health condition) as a predictor variable,
- the older adults’ advance care planning behavior (participation or not, participation in one of the three options), and
- the role these factors play in older adults’ advance directive completion rates.

## Preview of the Chapter

This literature review begins with an overview of the concepts that are key to the topic of advance care planning and the current trend in operational definitions. To understand strategies that have been used to increase advance directive completion rates, it was necessary to review the key policies that have been enacted to address the challenges associated with a lack of advance care planning at a time when medical advances create ethical dilemmas for health care systems. The review includes a review of the benefits and barriers to implementing the process of advance care planning with the older adult population in the primary care setting. Topics related to this discussion include which individuals tend to benefit most from advance care planning and what setting is best suited for the process (primary care, specialty care, acute care, or transition). This information is provided to establish why older adults from a primary care setting were selected as the target population for this study. This examination addresses factors that can promote or inhibit the planning process in the primary care setting. These factors are viewed through the lens of social cognitive theory and include three influential forces: personal characteristics, environmental factors, and behavioral factors. In the context of environmental factors, various types of advance care planning approaches are reviewed to understand the different ways the process can be delivered (e.g., one-on-one conversation, class setting, or web-based tool). The review concludes with an analysis and critique of prior research methods used to evaluate the efficacy of advance care planning approaches and the plan that was used to apply advance care planning concepts and research methods in the current study.

## Literature Search Strategy

Several search strategies were used to collect articles from scientific peer-reviewed journals. The search was conducted digitally via the Walden University library. The primary topic searched was health sciences, and the search engines were within the Health Sciences. The databases that yielded the best results were CINAHL Plus with Full Text, Medline with Full Text, ProQuest Health & Medical Collection, ProQuest Nursing & Allied Health Source, Psych INFO, and PubMed. The search was conducted in steps over an extended period and always started with the primary concept of advance care planning or advance directive. The exception to this was the search for studies that had included social cognitive theory as a theoretical framework to evaluate older adults' health behaviors. Filters were used to narrow the search to studies that took place in the U.S. between 2008 and 2018 with community-dwelling older adults. Studies that were included before 2008 were selected due to their historical relevance, theoretical relevance, or evaluations of the advance care planning model being studied. I eliminated studies that involved older adults with dementia or those living in institutional settings such as long-term care facilities or assisted living communities. Additional concepts or terms used in later searches included health behavior, completion rates, factors that influence, factors that predict, benefits, barriers, venues, approaches, setting, variables, quality outcome metrics, health behavior theory, health behavior change, health communication medium, health communication theory, implementation evaluation, legislation, policy, provider perceptions, provider barriers, institutional barriers. The search for theoretical models was limited to health behavior change theory. The specific combination of search terms included (a) advance care planning and older adults; (b) advance care planning, older adults, and barriers; (c) advance care planning, and older adults, and factors; (d) advance care planning, older adults, and completion rates; (e) advance care planning, benefits, and older adults; (f) advance care planning, implementation, and evaluation; (g) advance care planning, legislation, and policy; (h) advance care planning and theory; (i) advance care planning and theoretical framework; (j) advance care planning and social cognitive theory; (k) advance care planning and health behavior theory; (l) advance care planning, older adult, and theoretical framework; (m) advance care planning and health communication theory; (n) advance care planning definitions; (o) advance care planning and variables; (p) advance care planning and venue; (q) advance care planning and approach; (r) advance care planning, approach, and one-on-one; (s) advance care planning and web-based tool; (t) advance care planning, intervention, and class; (u) advance care planning, intervention, and internet; (v) advance care planning and institutional barriers; (w) advance care planning, provider, and perceptions; (x) advance care planning and barriers; (y) advance care planning, provider, and barriers; and (z) advance care planning, comparison, and interventions.

## Theoretical Framework

The field of health behavior change is guided by several theories that provide frameworks for understanding, explaining, and predicting people’s likelihood to take actions to maintain, attain, or regain their health and wellness (Glanz, Rimer, & Viswanath, 2015). These actions can include overt, observable behaviors, but also unobservable processes such as mental events, perceptions, motives, and beliefs. In addition to these individual factors, there are environmental, societal, and political factors that can influence people’s health behaviors. Health behaviors can include a range of things such as exercise, diet, alcohol consumption, tobacco use, medication adherence, sexual behaviors, etc. More recently, advance care planning has been defined as a health behavior because it involves both observable and unobservable behaviors that impact peoples’ willingness to take part in the advance care planning process. As described in the introduction, advance care planning is a process that is comprised of several behaviors. These behaviors include:

1. learning about what the role of a healthcare agent is and thinking about who the patient may select for this role,
2. discussing what type of care the patient may want in the event of a serious illness or unforeseen injury that leaves them unable to speak for themselves,
3. documenting these wishes in the form of an advance directive, and
4. sharing the directive with the patient’s healthcare team so it can be included in the medical record.

An early study by Fried, Bullock, Iannone, and O’Leary (2009) played an important role in the field of advance care planning by establishing the argument that it is a health behavior. Even though this study is dated, it was included as an early example of the health behavior change theory being used to understand the process of advance care planning. In 2009 Fried et al. conducted a qualitative study using grounded theory to collect older adults’ and their caregivers’ narrative descriptions of the advance care planning process. They analyzed the narratives to identify themes that aligned with the overlapping concepts from the various health behavior change models. Based on their evaluation, four primary themes emerged. The first was the participants described variation in their readiness to engage in advance care planning, and this equated well to the stages and processes of change described in several health behavior change models. The second theme was participants identified a range of benefits and barriers to the process, again, concepts that are found in behavior change models. The third theme was the participants used various processes to progress through the advance care planning steps based on their stage of readiness. The fourth theme was the participants indicated their perceptions and beliefs influenced their willingness to participate in the various steps in the advance care planning process. This evaluation provided early evidence that advance care planning can be conceptualized as a set of health behaviors and behavior change models can be used to understand factors that influence older adults’ advance care planning behaviors. Some examples of factors that can influence older adults advance care planning behaviors include, perceived susceptibility, stage of readiness to change, and perceived barriers and benefits to change.

A later study by Fried et al. (2018) establishes the ongoing application of health behavior change models to understand and evaluate the process of advance care planning. The researchers suggest health behavior change theories can be used as a framework to examine the efficacy of advance care planning interventions that are being implemented in primary care, specialty care, and community-based settings with older adults. In the study they compare three behavior change approaches and a control group, usual care, to determine which increases advance care planning engagement using The Sharing and Talking About My Preferences (STAMP) model. The model was designed to close the gap between labor intensive facilitated one-on-one conversations in the Respecting Choices model and a less labor-intensive option, the PREPARE website. The first of the three behavior change approaches included the use of computer-tailored intervention. In this approach the respondent answered questions about their advance care planning thoughts and behaviors, and then the computer generated an individualized report paired with brochures that match the respondents' stage of change. The second was motivational interviewing delivered telephonically. The third was motivational enhancement therapy also delivered via telephone. The outcome measures were like the outcome measures in the current study. Their study included primary outcomes such as the completion of four advance care planning behaviors, including: the identification of a healthcare agent or decision maker, communicating their healthcare goals or wishes, completing an advance directive, and sharing the directive with their health care provider so it can be found in their medical record.

## Transtheoretical Model: Stages of Change

The transtheoretical model (Prochaska, Velicer, DiClemente, & Fava,1988) has been the most used health behavior change theory to understand the process of advance care planning using the five stages of change framework. It is a temporal model that is particularly useful for understanding how a person's stage of change can impact their advance care planning behavior over time (Fried et al., 2018). The model includes the following stages of change: (1) precontemplation; (2) contemplation; (3) preparation; (4) action; and (5) maintenance (Fried et al., 2018; Glanz et al., 2015; Prochaska et al., 1988). In the context of advance care planning, precontemplation is the stage where the older adult does not have the intention to complete an advance directive (Fried et al., 2018; Glanz et al., 2015; Prochaska et al., 1988). In the contemplation stage the older adult is thinking about completing an advance directive in the future (Fried et al., 2018; Glanz et al., 2015; Prochaska et al., 1988). In the preparation stage, the older adult is committing to completing an advance directive (Fried et al., 2018; Glanz et al., 2015; Prochaska et al., 1988). The action stage may involve the older adult discussing their health care wishes and choice of healthcare agent with their provider. Another subsequent action could be bringing the health care agent to a follow-up appointment with their provider to discuss and document their health care wishes and confirm the health care agent is willing and able to honor the older adult's wishes (Fried et al., 2018; Glanz et al., 2015; Prochaska et al., 1988). The maintenance phase may involve the older adult revisiting their health care wishes with their provider and agent in the context of changes in their health (Fried et al., 2018; Glanz et al., 2015; Prochaska et al., 1988). The transtheoretical model addresses the process of change and includes strategies to increase a patient’s readiness to participate in advance care planning (Fried et al., 2018; Prochaska et al., 1988). The model can be used to determine what stage of change the older adult is in and then identify the most appropriate intervention or step in the advance care planning process that can effectively engage the older adult (Fried et al., 2018; Prochaska et al., 1988). The current study did not use the transtheoretical model as a theoretical framework as many other researchers did, because it did not focus on the unobservable mental processes involved with the stages of change. Rather, it focused on the overt advance care planning behaviors obtained from retrospective chart review.

## Health Belief Model

One of the predominant health psychology theories is the health belief model, developed by Hochbaum in the 1950s (Glanz et al., 2015). This theory grew out of the U.S. Public Health Services work to understand why some people did not take part in health screening, detection, and vaccination programs like the tuberculosis vaccination program (Glanz et al., 2015). It is rooted in the early learning theories, the stimulus-response theory, and the cognitive theory (Glanz et al., 2015). The premise of this theory is that people will exhibit health behaviors based on their perceptions of susceptibility, the benefit of the intervention, barriers to the intervention, and cues encouraging them to act (Glanz et al., 2015). All these factors can combine in a variety of ways to create a predictable outcome (Glanz et al., 2015; Schwarzer & Luszczynska, 2008).

Based on this model, if an older adult believes any of the following thoughts listed below, then they are not likely to take part in the program (Glanz et al., 2015):

- they do not need to document their healthcare wishes because they are not sick enough,
- they do not want to acknowledge their mortality,
- they believe their loved ones will know what type of care they want if they are not able to speak for themselves, and
- they think advance care planning is an ineffective way to capture their wishes or believe their wishes are not likely to be honored.

Furthermore, if the older adult encounters barriers to participating in the program such as a copay, a provider who is not skilled at having advance care planning discussions, or a program that is not sensitive to older adults cultural, ethnic, or religious preferences then they are less likely to participate in the program (Glanz et al., 2015). The concept of self-efficacy is a critical consideration when working with older adults because they may be struggling with a wide range of challenges from multiple chronic conditions, complicated medication regimes, limited funds, limited transportation, and limited physical resources due to decreased energy and mobility (Glanz et al., 2015). All these factors can negatively impact an older adults’ belief that they can complete all the steps in the advance care planning process. This is not to say that all older adults experience one or even all these challenges, but there are certainly some that do and enough so that they should be considered when evaluating the efficacy of an advance care planning intervention.

The health belief model can provide a framework for developing an advance care planning intervention and evaluating how well it reduces the physical, social, psychological, cultural, ethnic, religious, and economic barriers that can prevent an older adult from participating in the intervention. Using this model would likely involve a survey to evaluate the older adults self-reported self-efficacy and the influence it has on their advance care planning behaviors. Given that the current study only involved retrospective chart review data, it was not conducive to assessing the participants' self-reported self-efficacy which made the health belief model a less viable theoretical framework.

## Social Cognitive Theory

In the current study, the social cognitive theory by Bandura (1986) provided a theoretical framework to describe the dynamic relationship between triadic variables that can influence the process of advance care planning with older adults in the primary care setting. The theory states there are environmental, personal, and behavioral elements that influence a person's behavior change, and all these elements can intermingle to influence the other (Bandura, 1986). Each type of variable in the current study represented one of the triadic elements in the social cognitive theory (Bandura, 1986). The independent variable represented the environmental element, the predictor variables represented the personal elements, and the dependent variables represented the behavioral elements.

Environmental factors in the health care system can either promote or inhibit the process of advance care planning (De Vleminck et al., 2013; Mack & Smith, 2012). An environment that supports advance care planning as a health promotion activity that is done with all older adults, even when they are healthy, can influence how older adults perceive and respond to advance care planning services (Malcomson & Bisbee, 2009). A health care environment that includes health care professionals that view advance care planning as a process that is revisited each year or as the patient's condition, beliefs, or circumstances change, can help to dispel the myth that advance care planning is done once and only at the end of a person's life (Gundersen Health System, 2014). As Campbell et al. (2007) indicate, personal factors such as age, gender, ethnicity, level of education, and health status can have an impact on older adult's advance care planning behaviors. Personal factors can also involve beliefs, thoughts, perceptions, or mental states. However, in the current study, the focus was only on the personal characteristics that were available in the existing data set. The advance care planning options that are available to older adults in the primary care setting also comprise a component of the environmental factors that can influence the older adult's behavioral response or advance care planning behaviors. For example, advance care planning that is offered in a one-on-one conversation format, when the person is diagnosed with a serious condition, is admitted to a healthcare facility, or is nearing the end of their life creates a different environment for older adults to experience advance care planning.

In contrast, advance care planning options that are offered to people when they are healthy, are tailored to their health condition, and are offered repeatedly over time create an environment that is markedly different than the way many older adults experience it only in the context of an acute illness or urgent, life-threatening event. A large body of literature is available on the influence of environmental factors on advance directive completion rates. The environment can be the location or setting where the person participates in the advance care planning process. Some examples of these environmental see older adults in a hospital setting, older adults living in a long term care setting, community dwelling older adults, older adults in a senior center, or older adults in a primary care setting (Koss, 2018; Lum, Sudore, & Bekelman, 2015; Malcomson & Bisbee, 2009; Silveira, Wiitala, & Piette, 2014; Spoelhof & Elliott, 2012; Sudore et al., 2014; Stefanacci & Haimowitz, 2014). However, few studies have looked at the advance care planning option as an environmental determinant of advance directive completion rates (Campbell et al., 2007).

A study conducted by Campbell et al. in 2007 served as a guide for using the social cognitive theory as a theoretical framework to evaluate older adults' advance directive completion rates. The purpose of the study was to use a theory based model to help nurses predict and promote the completion of advance directives among community dwelling older adults from a senior center by leveraging knowledge about factors that influence these rates. The study involved a convenience sample of participants who were recruited from six senior centers in central Tennessee, resulting in 206 participants. The sample was skewed with mostly white women with an average of 12 years of education, representing limited diversity. The participants were asked to complete a questionnaire with five sections, including demographics, advance directives attitudes, advance directive perceptions, health literacy, self-efficacy, and internal locus of control. Campbell et al. found two factors were significantly related to higher advance directive completion rates. These included receiving information about advance directives and positive attitudes about the benefits of advance directives. Higher rates of health literacy were associated with lower rates of advance directive completion rates, and this was in stark contrast to prior study findings on this topic (Tripken, Elrod, & Bills, 2018; Williams, Priest, & Anderson, 2016). Limitations of the study were primarily related to the small sample size that lacked diversity. The researchers recommended additional studies be conducted using the social cognitive theory as a framework but with a larger, more diverse sample size. In the current study I built on the Campbell et al. study by using the suggested theoretical framework and a larger sample size. However, the current study differed from Campbell et al. study because it did not assess the participant's attitudes, perceptions, health literacy, self-efficacy, or locus on control: all unobservable personal factors in the triad of determinants. Given that this was a data only study, it focused on personal characteristics that were included in the electronic medical record and observable behaviors that were documented in the electronic medical record.

## Historical Framework

It is necessary to understand key legislation that was designed to increase advance care planning to understand the historical forces that have shaped the current field of advance care planning. In 1991 the Patient Self Determination Act (PDSA) was implemented to address three key things. The first was to prompt health care organizations to offer standardized advance care planning education and inform patients of their right to participate in medical decision making about their care, including refusing treatment. The PDSA was intended to inform the patient about the health care provider's policy to honor their wishes documented in a medical advance directive. The second was to encourage more people to complete advance care planning so an advance directive would be in place to guide the provider's care if the patient became incapacitated. The third was to help reduce end-of-life health care costs by reducing costly invasive treatments that may be unnecessary and unwanted by the patient. The Cruzan vs. Director Supreme Court case played a crucial role in the impetus for the act. It was not the cause for it, but it was a case that highlighted the current struggles that were occurring between patients, their families, providers, and health care organization (Cruzan v. Director, 1990). The Supreme Court's decision awarded Nancy Cruzan's family the right to speak on her behalf due to her incapacity in a persistent vegetative state and to refuse what they believed was invasive, futile, and unwanted care in the form of artificial nutrition and hydration.

While the intent of the Act was good, many argue it has failed to fully do what was intended (Duke, Yarbough, &Pang, 2009). The States were left to develop their legislation about the different types of directives and forms that would be recognized, and the limits associated with the various types of health care agents or decision making surrogates. Additionally, little education was provided to health care facilities such as skilled nursing and long term care facilities regarding the requirements for implementation. In fact, the misconception still prevails that these types of facilities can require patients to complete an advance directive upon admission or require the patient to have an advance directive while living in the facility. Rather, the facilities are required to offer and inform patients about their right to complete advance care planning, take part in their medical decision making, and if they choose to refuse care. Another problem associated with the legislation is there have been inconsistencies in the way providers interpret and honor patient's directives. These issues can result in possible litigious situations between patients, their families, providers, and health care organizations. Another issue that has hindered the success of this act is that advance care planning information is often only given to people when they are admitted to a health care institution such as a hospital, skilled nursing, or long term care setting. The timing of this is not optimal because people are often in distress and not in a good place to have a thoughtful discussion about what they would want or not want in terms of care. This issue has been tied to recommendations to offer advance care planning in the primary care setting as a component of standard, proactive care, rather than an acute setting and at a time when patients are in distress. Duke et al. (2009) even suggest advance care planning should be viewed as a vital sign in primary care. All these issues and oversights during the formulation and implementation of the legislation have resulted in lower than expected advance directive completion rates and little impact on the growing costs of care at end of life (Duke et al., 2009). This is not simply an issue of reducing health care costs; it is an issue of trying to avoid futile care when it may not be what the patient wants. Gundersen Health System (2014) found when people are given the opportunity to make informed decisions about the type of care they want at the end-of-life, they tend to select less invasive treatment options or care settings.

Despite the pitfalls associated with the PDSA, it has helped to increase awareness about advance care planning and a patient’s right to be involved in making their own health care decisions. Given this improvement and the documented benefits associated with advance care planning, advance care planning and advance directive completion rates have remained surprisingly low over the past twenty years since the Act was implemented (Duke et al., 2009).

Another important policy landmark related to advance care planning occurred in 2016 when the Centers for Medicare and Medicaid Services (CMS) began to cover these types of conversations under Medicare Part B (Federal Register, 2015). The coverage was a result of overwhelming recommendations from stakeholders comprised of health care organizations, medical ethicists, and bipartisan members of Congress. The benefit covers advance care planning activities with a doctor or non-physician practitioner. The benefit is not considered a free preventative service under Medicare Part B so beneficiaries will need to pay a 20% cost share (after their Part B deductible). However, if the service is delivered as a component of the Annual Wellness Visit, then the beneficiary will not have a cost-sharing liability. This policy is a step in the right direction, but there is still a large gap to close between policy and practice. One step towards closing this gap is a better understanding which advance care planning options offered in the primary care setting result in higher rates of advance directives that can be found in the older adult's medical record.

## Key Concepts in the Advance Care Planning Conceptual Framework

### Differentiation Between the Process, the Conversation, and the Document

It is important to distinguish the process of advance care planning from the document, an advance directive. The document can be useless if it is completed without a conversation and the patient's full informed consent. This type of consent is gained from a discussion between the patient and the health care provider or advance care planning facilitator to help them explore their treatment options and discuss the risks and benefits in the context of the patient’s values and life situations (Detering & Silveira, 2017). Too often, documents are completed as an administrative process in a checklist manner. Not only does this undermine people’s faith in the advance care planning process, it also increases the risk that the patient may receive interventions or care in a setting that is not their choice. When the advance care planning process is done appropriately, it can help people think about their preferences, goals, and wishes for future healthcare in the context of their values and prior experiences. When it is communicated to the person’s health care agent and health care team via an advance directive, it increases the likelihood the care they receive will be in accordance with their wishes (Gundersen Health System, 2014). This becomes critically important if the person is not able to speak for themselves. A review of the advance care planning literature reflects a shift in the outcome measures associated with this process from a completed advance directive or completion rate to identifying a health care agent, having an informed discussion that is associated with the completed directive, and documentation of the conversation and directive in the medical record (Sudore et al., 2017b). These types of outcome measures reflect a more comprehensive view of advance care planning and the multiple steps involved in completing the process.

While advance care planning is appropriate for all adults, it is even more important for those who have a serious illness or have multiple chronic conditions. For those who are healthy or have a mild to moderate condition, it should be considered a normal part of a healthy lifestyle to identify a health care agent and complete a basic advance directive. After all, anyone can experience an accident or unexpected illness that leaves them unable to speak for themselves. The nature, timing, and frequency of the conversation will vary based on the person’s condition particularly for those who may be more ill or nearing the end of their life (Detering & Silveira, 2017). The type of advance directive document the person will complete will vary based on their health condition. For example, people who are near the end of their life are more likely to complete something called a Physicians Orders for Life-Sustaining Treatment (POLST) form or Medical Orders for Scope of Treatment (MOST) form, depending on their state.

## Health Care Agent

An important component of effective advance care planning is that it involves the patient’s health care agent because this enables the agent to hear what the patient’s wishes are and verbalize if they think they will be able to act on the patient’s behalf and honor their wishes (Detering et al., 2010). If for some reason the conversation occurs, but the advance directive is not completed or available to the health care team, then the health care agent has heard and knows the person’s preferences, making it easier to speak on the patient’s behalf if they are unable to speak for themselves. Unfortunately, it is common for patients to designate a health care agent in an advance directive without discussing it with the agent (Detering et al., 2010). Too often loved ones are not aware they are a designated health care decision maker and do not know what the patient’s wishes are before the patient is unable to speak for themselves (Detering et al., 2010). This puts the designated decision maker in a difficult position, trying to determine what type of care the patient wants. This can lead to extreme stress, anxiety, and even conflict between loved ones. When advance care planning has taken place, patient's loved ones report lower levels of stress, anxiety, and depression after the patient dies because they are more at peace knowing the patient's wishes were honored (Detering et al., 2010).

There are many terms used to describe the person designated to make decisions on the patient's behalf if they cannot speak for themselves. The terms health care agent, decision maker, and medical durable power of attorney are all used to describe this role. Whatever term is used, it is important for the person in that role to understand they need to make decisions, not that they would prefer but what the patient would prefer. They should also be able to function well under stressful or emotional situations, be available if they are needed, and be an adult 18 years of age older. Many people assume they do not need to make this designation because it will automatically be their spouse. However, some states such as Colorado are not a *next of kinstate*: meaning if the person has not designated a health care agent and is unable to speak for themselves the health care team needs to follow a *health care by proxy* process to select a person. Given that advance care planning is a process, it rests on the tenet that it should be completed over time as the person's condition or life situation changes. It is not uncommon for people to assume once they complete their directive; it does not need to be revisited (Sudore et al., 2017b).

## Benefits of Advance Care Planning

An early study by Detering et al. (2010) shows the downstream benefits of advance care planning on older adults facing end of life care decisions. Even though this study involved 309 older adults from an inpatient setting, rather than an outpatient setting, it correlates advance care planning with improving patient and family satisfaction, reducing stress, anxiety, and depression, increasing patients expressing their health care wishes and appointing a health care agent, and receiving care that is in accordance with the patient’s expressed wishes (Detering et al., 2010). The researchers used a randomized controlled trial format with the control group receiving usual care and the intervention group receiving facilitated advance care planning. Detering et al. outlined important components of the advance care planning process including the concept of a facilitated conversation, the identification of a health care agent, and the outcome of the patient receiving care that is in accordance with their wishes. These concepts were critical to my study’s operational definition of the advance care planning process. The Detering et al. study also highlights the benefits of a one-on-one advance care planning format using a trained facilitator: this was one of the advance care planning options in my study. One of Detering et al. outcome metrics was the basis for one of my dependent variables: the completion of an advance directive that could be found in the patient’s medical record. This dated but relevant study is supported by current studies that indicate advance care planning is associated with improving  patient satisfaction, receiving wanted medical care near the end of life, improving caregiver adjustment and bereavement, and reducing decisional conflict among family members and decision makers facing end of life decisions for their loved ones (Chiarchiaro, Praewpannarai, Arnold, & White, 2015).

## People Who Benefit Most from Advance Care Planning

Advances in medicine and improvements in the management of chronic conditions in the older adult population have resulted in people living longer but with more complex care needs (Prince-Paul & DiFranco, 2017). Approximately 80% of older adults in the U.S. have at least one chronic condition (Vasilopoulos et al., 2014). According to the Federal Interagency on Aging-Related Statistics (2016), the rate of individuals with chronic diseases such as heart disease, chronic respiratory disease, and diabetes will increase as the baby boomers continue to age into the 65+ segment of the population. The CDC states seven out of ten leading causes of death in people over the age of 65 is due to a chronic disease, not a sudden illness or injury. Given these facts, it is important for older adults to consider what type of care they would want at the end of their life in the context of chronic illness.

In 2020, 6.7% of people in the U.S. are over the age of 85, and this age group is projected to make up approximately 19 % of the U.S. population by 2050 (Federal Interagency on Aging-Related Statistics, 2016). The majority of older adults have not talked to their providers or loved ones about the type of care they would want at the end of their life if they are not able to speak for themselves (Yadav et al., 2017). In the absence of a documented advance directive, a provider’s default is to provide life sustaining interventions like CPR, tube feeding, ventilator support, and IV antibiotics and fluids (Institute of Medicine, 2014). Given these considerations, it is important for older adults to take part in advance care planning with their loved ones and trusted health care provider so their health care wishes can be elicited, known, and honored in the context of their current health condition and anticipated health care needs.

## Factors That Influence Older Adults' Advance Care Planning Behaviors

Older adults' advance care planning health behaviors can be influenced by many factors, including their age, gender, health condition, educational level, socioeconomic status, race, ethnicity, and religious beliefs. Even though this study only focused on personal characteristics that were contained in the archived data set, they were characteristics that have been noted by prior researchers that can impact advance care planning rates. These personal characteristics include age, gender, ethnicity, and health condition. In prior studies, several researchers such as Black, Reynolds, and Osman (2008) have found women exhibit higher rates of advance care planning. Advanced age has been associated with higher advance care planning rates (Greenberg, Weiner, & Greenberg, 2009; Reynolds, Hanson, Henderson, & Steinhauser, 2008). One should not assume age is directly connected to health status, for example, Harrison et al. (2016) found there appears to be an inverse relationship between older adult's health status and advance care planning behaviors. Given the current study did not include educational level, socioeconomic status, and religious beliefs, it is important to note they were considered in the limitations of the study. Therefore, a brief review of findings associated with these factors is provided below.

Researchers such as Tripken et al. (2018) found lower socioeconomic status and education levels are both factors that play a role in predicting older adult's lack of information about advance care planning and lower advance directive completion rates. This finding is not surprising given the multitude of other studies that have linked socioeconomic status, income, and education to the disparity in determinants of health outcomes and health behaviors (Williams et al., 2016).

There is a difference between people’s knowledge about advance care planning and their beliefs. Tripken et al. (2018) found that while socioeconomic status predicted older adults’ knowledge about advance care planning and advance directive completion rates, their beliefs about advance care planning did not. Some older adults may be sensitive to the topic of advance care planning because of the politically charged topic of *death panels* in the media (Harter, 2015). According to Harter, this idea comes from the belief that politicians, health care organizations, and providers that promote advance care planning do so because they want to limit the amount of health care resources and dollars that are spent on older adults. This idea is not only flawed but false, given what is known about the benefits of advance care planning. However, some of these beliefs could be grounded in people’s experiences with health care providers who try to influence people’s decisions to select care based on their own biases. In prior studies by Tripken et al. and Williams et al. (2016), the researchers found socioeconomic characteristics such as income and education level influence advance care planning rates. Specifically, individuals with higher levels of education and higher income are more likely to have an advance directive in place or have taken part in a discussion that results in them identifying a health care agent. However, increased education does not necessarily equate to increased accurate knowledge about medical conditions, treatment options, and the pros and cons of various treatments.

Cultural and ethnic beliefs can also play a role in older adults' willingness to participate in advance care planning or engage in end of life care discussions. Culture influences the meaning people associate with illness, medical interventions, suffering, and dying: therefore, it influences peoples' health behaviors around advance care planning. (Saccomano & Abbatiello, 2014). Cultural and ethnicity also influence people's decision-making styles and the way they prefer to receive and process information about end of life care.

Individual's cultural and spiritual beliefs can also play a powerful role in decision making around end of life care decisions (Ohr, Jeong, & Saul, 2017). For example, Kelley, Wenger, and Sarkisian (2010) found that older Latinos preferred to involve their family members in advance care planning discussions. Johnson, Kuchibhatla, and Tulsky (2008) conducted a study involving African American and white Americans to determine if race plays a role in advance care planning behaviors and the use of hospice services. The results of their study indicate African Americans were less likely than white Americans to discuss death and end of life care and tended to opt for more aggressive care options than less invasive comfort focused care. These findings were consistent with a study involving 60,917 community dwelling retired nurses in the U.S. between the ages of 66 to 93 (Kang, Bynum, Zhang, Grodstein, & Stevenson, 2019). Even though a large portion (84%) of them reported having advance care planning documentation, there was still a notable gap between the African American and white participants' advance care planning rates – with the former being much lower.

Someone with strong spiritual or religious beliefs may want to discuss their options for end of life care with their spiritual leader to ensure their decisions are in alignment with the teachings of their religion (Gundersen Health System, 2014). Regardless of these findings, it is important to keep in mind there are not only variations in advance care planning behaviors across cultural and ethnic groups but also within them (Ohr, Jeong, & Saul, 2017).

## Providers' Beliefs About Advance Care Planning

The provider can play an important role in influencing their older adult patients to take part in advance care planning. They help set the tone for it if they make time to build it into their standard care and address it as a proactive discussion during an annual wellness visit. However, a study conducted by Fulmer et al. (2018) surveying physicians' views, attitudes, and perceptions about their role in goals of care and end of life conversations as a facilitator, revealed ways in which providers can be barriers in the process. The researchers found 99% of the physicians believe it is important for their patients to take part in advance care planning. However, only 29% report having any training to support these conversations. They support the recent Medicare fee-for-service reimbursement for providers conducting advance care planning conversations. However, they noted a lack of time in short appointment slots as the greatest barrier to having these discussions. Two additional barriers were fear of being unprepared to have the conversation and fear the conversation may cause the patient to lose hope.

A systematic review conducted by De Vleminck et al. (2013) investigating general practitioners perceived barriers and facilitators to addressing advance care planning revealed similar results as those found by Fulmer et al. (2018). Their review involved studies from 1990 to 2011 and was found using the electronic databases, PubMed, CINAHL, EMBASE, and PsycINFO. A selection process was used to screen and grade the studies using quality indicators, resulting in eight qualitative studies and seven cross-sectional studies. The findings from the studies were grouped into three categories, including patient characteristics, health care institution characteristics, and provider characteristics. The dominant themes were providers believed they lacked the training and skills to effectively engage in advance care planning conversations, they think it may take away patients hope, and they are waiting for the patient to initiate the conversation. They also believed some financial reimbursement should be in place to encourage providers to build these conversations into their practice.

As noted by Fulmer et al. (2018), De Vleminck et al. (2013), and Mack and Smith (2012) many physicians say they avoid end of life care discussions because of the following beliefs:

- it makes people depressed,
- it takes away patients' hope,
- palliative care and hospice reduce the patient's survival rate,
- it is difficult to make a prognosis and project future healthcare needs, and
- it is not culturally appropriate.

Mack and Smith acknowledge the latter two reasons do have some truth to them based on findings in the literature. However, the prior three reasons have been established as myths.

## Organizational Barriers to Advance Care Planning

If health care organizations wants to increase the number of older adults who engage in advance care planning, then it is necessary to consider both personal factors and environmental factors such as organizational or institutional barriers to the process (De Vleminck et al., 2013; Fulmer et al., 2018). As noted above, one institutional barrier is most physicians have not received specific training to have advance care planning conversations, so they do not feel comfortable approaching the topic with their patients (De Vleminck et al., 2013; Fulmer et al., 2018). Some organizational barriers that contribute to this issue are short appointment times, which can be as short as 20 minutes. Brief appointment times makes it difficult for providers to engage in a meaningful advance care planning discussion with their patient.

Additionally, a busy practice usually does not include support staff workflows that encourage scheduling visits that include the health care agent in the visit with the patient. Many health care organizations take a reactive approach to advance care planning that occurs when a patient, frequently an older adult, is hospitalized or admitted to a skilled nursing facility (Detering et al., 2010). Unfortunately, these conversations are often hurried and do not include an exploration of the patient’s values, beliefs, and fears about their health care wishes (Detering et al., 2010). This approach tends to focus on the completion of an advance directive document, rather than a robust advance care planning conversation that is revisited as the patient’s condition progresses (Detering et al., 2010).

## Where and When to Address Advance Care Planning

Malcomson, and Bisbee (2009) studied healthy older adults’ perspectives on advance care planning using a qualitative approach. Even though this study used a small sample of 20 individuals, the researchers found the older adults would like their primary care providers to initiate advance care planning discussions with them when they are healthy (Malcomson & Bisbee, 2009). The participants indicated they did not want to have advance care planning discussions under stressful or urgent circumstances, such as in the hospital with a hospitalist that was not familiar with them.

## Decision Aids to Support the Advance Care Planning Process

Decision aids can be a useful tool to promote discussions about and documentation of treatment wishes in the advance care planning process (Jain et al., 2015). They can be used to help people weigh the risks and benefits of treatment or screening options (Stacey et al., 2011). The advance care planning process in my study involved decision aids in all three of the advance care planning options, so the review by Stacey et al. helped establish a basis for incorporating decision aids in the advance care planning process.

In the literature, there are many studies on this topic. A literature review conducted by Stacey et al. (2011) provides a robust synopsis of the studies that have been conducted on this topic from 2006 to 2014. Their review resulted in 86 studies involving 20,2029 patients, using a randomized controlled trial approach, investigating interventions that involve decision aids that support people in making treatment decisions by weighing the risks and benefits of their treatment options. The studies they selected had to result in an active treatment or screening decision. The researchers found decision aids increased patient involvement in the decision-making process and increased their knowledge about and expectations of their treatment options.

An additional systematic review of the current use and research on decision aids was conducted by Butler, Ratner, McCreedy, Shippee, and Kane (2014) and published in a brief for the Agency for Healthcare Research and Quality Effective Health Care Program. The findings in the review were consistent with Stacey et al. (2011) review, indicating decision aids can be a useful component in the advance care planning process. The brief by Butler et al. outlined several areas that warrant further research on this topic: in particular, leveraging technology and web-based tools to disseminate decision aids and the use of decision aids by trained advance care planning facilitators. Again, the literature reviews discussed above are relevant to my study because the three advance care planning options all included decision aids, two of the options involved the use of decision aids by trained advance care planning facilitators, and one option, the web-based tool, involved the use of decision aids participants could read on their own.

## Advance Directives in the Electronic Medical Record

Documentation of a completed advance directive is a critical component of the advance care planning process. If the document is not available in the record, then the provider will not be able to access it and use it to guide care based on the patient's preferences. A dated but relevant study conducted by Yang, Walling, Min, Wenger, and Ganz (2010) investigated this important aspect of the advance care planning process. In the study, Yang et al. completed structured interviews with older adults living in the community and completed chart reviews of the older adult participants' medical records. They also interviewed older adults' identified health care agents. The researchers accessed participants from two pools, one from the Assessing Care of Vulnerable Elders (ACOVE) study conducted in 1998 to 1999 and the other from the ACOVE-2 study conducted in 2002 to 2003. Yang et al. asked the participants if they had completed an advance directive and if so, was it documented in their medical record. In the ACOVE sample, 15 to 20% of the participants had their advance directive documented in their record. In the ACOVE-2 sample, 47% of the participants had their advance directive documented in their medical record. This study is significant because it includes the important health behavior of getting the directive to the provider and into the medical record, as a dependent variable. This was one of the dependent variables in my study.

A study conducted by Sudore et al. (2017a) on the PREPARE website builds on Yang et al. (2010) study by focusing on the same outcome measure: an advance directive that can be found in the older adult's medical record. While Yung et al. provided a prevalence rate for this outcome measure, Sudore et al. evaluated the impact an advance care planning intervention had on the presence of an advance directive in the patient's medical record. This was consistent with one of the outcome measures in my study, that looked at the impact the advance care planning option had on participation and advance directive completion rates.

## Review of Advance Care Planning Models in the Primary Care Setting

Some of the prominent advance care planning models that have been developed, implemented, and evaluated in the primary care setting with older adults include the

Respecting Choices model (Gundersen Health System, 2014), the Start Talking Early and Plan (STEP) program (Gutheil & Heyman, 2005), the PREPARE program (Sudore et al., 2014; Sudore et al., 2015; Sudore et al., 2016), and the Readiness to Engage in Advance Care Planning (REAP) program (Foti & Hanrahan-Boshes, 2009). As mentioned earlier in the introduction, the advance care planning intervention evaluated in this study was a rebranded version of the Respecting Choices model.

## Respecting Choices Model

The advance care planning program evaluated in this study was the Life Care Planning program: it is a comprehensive, systematic approach to advance care planning developed in 1991 by Gundersen Health System (2014) in La Crosse County Wisconsin. Kaiser Permanente contracted with Gundersen Health System to purchase the right to use their advance care planning model called Respecting Choices and rebranded it Life Care Planning. The program had been implemented across all of Kaiser Permanente's regions except one at the time of this study. The term *implementation* should not be confused with *developed* because the model was developed in 1991 but implemented in the Kaiser Permanente Colorado region in 2010. At the time of this study it was still being spread across a large geographical region, so some patients had not been offered the service at the time of the evaluation because it had not yet been implemented in the primary care clinic.

The Respecting Choices model contains six primary elements that comprise this systematic approach. The first is that it takes a staged approach to planning that is customized to the patient's health condition and is revisited as the person's condition or life situation changes. The second is that it emphasizes the importance of the conversation – not just completing the directive. The third is that it emphasizes the role the health care agent plays in the process by suggesting they be present in the conversation. The fourth is the use of standardized member education materials and directives to support the discussion and shared decision-making process. The fifth is the need to consistently document and retrieve the advance care planning information in the person's medical record. The sixth is that it employs a train the trainer model, where certified faculty train facilitators to have one-on-one conversations or classes with patients and their health care agents. The facilitators can go on to be certified as instructors to train additional facilitators, thereby disseminating the model in a way that is more feasible in health care systems. It is important to note most facilitators tend to be nurses, social workers, or chaplains on the health care team – not physicians. This is intentional and ties back to some of the institutional and provider barriers related to having these types of conversations in a busy primary care setting within a 20-minute visit.

The Respecting Choices model has been extensively studied in several randomized control trials (Hammes & Rooney, 1998; Hammes et al., 2010; Hickman et al., 2010). One study was a multi-state study investigating the effectiveness of the Physicians Orders for Life-Sustaining Treatment (POSLT) program with traditional care in long term care facilities in Oregon, West Virginia, and parts of Wisconsin (Hickman et al., 2010). Hickman et al. (2010) found the POLST was more effective at converting patients' treatment preferences into actionable medical orders than standard practice and it limited unwanted life-sustaining treatments. Two additional studies were the La Cross Advance Directive Studies, LADS 1, and II (Hammes & Rooney, 1998; Hammes et al., 2010). The two studies were conducted by Hammes and Rooney (1998) and Hammes et al. (2010) over ten years and demonstrated the effectiveness of a systematic and sustainable approach to advance care planning. In these studies, the researchers found higher rates of patients with a written advance directive in their medical record at the time of the patients' death and where they died (Hammes & Rooney, 1998; Hammes et al., 2010). This indicated the patient's directive was available to providers, were used to inform end-of-life care decisions, and increased concordance of end of life care (Hammes & Rooney, 1998; Hammes et al., 2010).

An additional study conducted by Westley and Briggs (2004) used the transtheoretical model as a framework to help nurses understand how they could help patients progress through the stages of change as they delivered one-on-one facilitated conversations from the Respecting Choices model.

What is not known about the program is which type of advance care planning approach contained in the model: a one-on-one conversation, group facilitated class, or web-based tool is associated with higher rates of advance care planning behaviors such as participation and the completion of an advance directive.

## Start Talking Early and Plan (STEP) Program

In 2005 Gutheil & Heyman conducted a study to evaluate the efficacy of The Start Talking Early and Plan program. The purpose of the study was to determine if the intervention increased communication and understanding between older adults and their healthcare agent to support effective end of life planning and decision making. This shift from focusing on increasing advance directive completion rates, to instead increasing communication, is what makes this study unique and worth noting. The researchers used a randomized control trial design to assign half the participants to the intervention, the STEP program, and the other half to the control group. The study participants were community dwelling older adults and their potential or confirmed designated health care agents who represented dyads in the study. The participants were recruited from six senior centers in the Bronx, NY, area and included 27 dyads in the intervention and 22 in the control group. The intervention was an educational advance care planning group class that was conducted over a series of three sessions, and it included support materials. The first session was facilitated by a social worker and involved a large group presentation and small group discussion. The second session was facilitated by an interdisciplinary team that included a social worker, physician, chaplain, and attorney presenting educational information. The third session was led by the social worker only and again involved small group discussions.

The purpose of the program was to educate older adults and their potential health care agents about the advance care planning process, the role of the health care agent, how to select one, and the benefits of discussing their wishes in the context of hypothetical scenarios. The researchers used the theory of reasoned action because of the premise that a group intervention could create a reference group that encourages discussions about end of life healthcare wishes. The primary outcome measures assessed included, (a) dyad communication, (b) attitudes toward end of life planning, (c) comfort with discussing advance care planning, (d) knowledge about the health care agent's roles and responsibilities, and (e) knowledge about the health care proxy form. Gutheil and Heyman (2005) found the STEP intervention resulted in higher communication scores and greater knowledge about the health care agent's roles and responsibilities. There was no significant difference in attitudes and comfort level with end of life discussions. This evaluation was relevant to my study because it involved the evaluation of a group facilitated advance care planning format with older adults, similar to one of the advance care planning options in the current study.

## PREPARE Website: An Online Advance Care Planning Tool

PREPARE (http://www.prepareforyourcare.org/) is an easy to use, culturally appropriate advance care planning website that was developed by Sudore et al. (2014). The material was written at a 5th grade reading level and designed to be completed alone without facilitation, supervision, or within a clinical setting. This format is similar to the web-based tool that was one of the advance care planning options in the current study. The website provides the following education:

1. how to select a surrogate decision maker,
2. clarify ones' values in the context of a serious illness, injury, or end of life decisions,
3. determines whether the participant wants to allow their surrogate to have leeway within their decision making framework or follow their wishes implicitly,

4. discusses the importance of informing their health care team and family about their wishes, and
5. provides an opportunity to ask clinicians questions about their condition or treatment options to make informed medical decisions.

The website also includes videos modeling desired advance care planning behaviors.

The premise of the tool was to conceptually shift from a focus on simply completing an advance directive to a process with several discrete steps. The steps prepare the patient for the skills they will need to make in the moment decisions about their health care in the context of their values and goals, as well as the skills to communicate those wishes to their health care agent and health care team. This shift in focus from the completion of an advance directive to the focus on several discrete behaviors aligns with the advance care planning health behaviors outlined in the current study. The discrete advance care planning behaviors of interest in the PREPARE study include participating in or viewing the web-based tool, identifying a health care agent or surrogate decision maker, identifying one’s values and communicating those values and preferences with their health care agent and health care team in the form of a conversation, and finally completing an advance directive.

PREPARE was a fully developed website, so the purpose of Sudore et al. (2014) evaluation was to use a theoretical behavior change model to pilot test and assess the efficacy of the site to engage older adults in the advance care planning process. Participants for the study were a group of diverse older adults who were recruited from local senior centers in the San Francisco area. This convenience sample consisted of 43 participants, all of whom remained for the duration of the study. The pilot test involved a pre-assessment before using PREPARE and post-assessment one week after using it. Participants were asked to view the PREPARE program at their local senior center. Study personnel helped the participants log onto the website and provided them with some information about how to navigate the computer to progress through the program. The primary outcome of interest was engagement in advance care planning and was measured with the Advance Care Planning (ACP) Engagement Survey (Sudore et al., 2013).

The survey assessed process measures that have been identified using the social cognitive theory framework to be factors that influence people's advance care planning behaviors. The survey assessed factors such as the participant's knowledge, self-efficacy, contemplation, and readiness to change. The survey also assessed actions such as, (a) did they choose a health care agent, (b) did they decide what is most important to them in their life and their medical care, (c) did they opt to give their health care agent flexibility in making decisions for them, and (d) did they ask their health care team clarifying questions to ensure they were making an informed decision. The secondary outcome measures assessed changes in the participant's behavior change trajectory for advance care planning behaviors. This was done using ACP Engagement Survey that assessed the participant's stage of change for those action behaviors identified in the survey (Sudore et al., 2013). This outcome measure was added because the researchers did not expect to see a significant change in the action measures because the PREPARE intervention was not paired with an upcoming physician visit and there was such a short period between the pre- and post-assessment: leaving participants little time to complete an action. However, they did expect to see the participants' progress through the stages of change. Satisfaction with the website was also assessed using a short survey of ten questions with Likert scale responses.

Participant characteristics, including socioeconomic and demographic information, were collected and described with percentages, means, and standard deviation. Sudore et al. (2013) found the participants significantly increased their engagement in the advance care planning process one week after watching the PREPARE website. The participants said the site was easy to use, was appealing to a range of older adults from ethnically diverse backgrounds and was easy to use to use even for those who reported lower health literacy and computer competency rates. However, the participant's action measures did not significantly improve. These findings were consistent with the researchers' hypothesis that while the intervention helped to move the participants along their stage of change path, it was not enough to result in an overt behavior in the short study period. One of the greatest limitations of this study is the short pre- and post-assessment timeframe. One week may not have given the participants enough time to process the information from the website and to have a meaningful conversation with their designated decision maker and health care provider. Another limitation was that it was conducted outside of the primary care setting with no verbal reinforcement from the participants' health care team about the importance of following through with the overt advance care planning behaviors. In spite of this study's limitations, it provides a strong argument for shifting from a focus on advance directive completion rates to the multistep processes that reflects the range of advance care planning behaviors that build up to the final process of completing a directive so that it can be included in the patient's medical record. It also creates an argument for increasing the evaluation window to give the participants more time to complete the advance care planning behaviors that may ultimately lead up to the completing the advance directive and giving it to the health care team so it can be included in the medical record. The current evaluation included a data set that provided a longitudinal view of the participants advance care planning behaviors over a four year period, providing more time for the participants to complete their advance directive after participating in one of the three advance care planning options.

An additional study conducted by Sudore et al. (2014) highlights the use of an advance care planning web-based program to help older adults make decisions about their health care agent and wishes for future health care. The researchers used a behavior change theoretical framework to investigate the outcomes of a multistep advance care planning program called PREPARE (Sudore et al., 2014). They assessed the participant's behavior change using a process measure survey and an action measure survey. The data collected from the survey was used to assess the participant's stage of behavior change using the transtheoretical model (Sudore et al., 2014). Sudore et al. found the website helped the older adult participants progress through the stages of behavior change. This study is relevant to my investigation because it depicts the use of the transtheoretical model to gauge older adults advance care planning behavior change when using a web-based advance care planning option.

A later study by Sudore et al. (2015) investigated the efficacy of the PREPARE program with older Veterans with serious and chronic conditions. In this study, Sudore et al. used a randomized control trial format. In this latter study, the researchers continued to assess behavior change using the transtheoretical framework, but they added the outcome variables: the identification of a health care agent and the completion of an advance directive.

In a later study Sudore et al. (2016) investigated the efficacy of the PREPARE program with English-speaking older adults and Spanish-speaking older adults to determine if there was a difference in the rate of advance care planning behaviors in these two groups. This study was significant because it tested the efficacy of the model with a diverse older adult population in a safety net setting who are traditionally under-served. The primary outcome metric and secondary outcome metrics were consistent with some of the variables in my study: participation in the advance care planning option and the completion of an advance directive. The variable Sudore et al. did not include that I included, was the documentation of the advance directive needed to be found in the older adult’s medical record.

Sudore et al. (2017a) conducted a study on the PREPARE website: they compared two advance care planning options to determine which one resulted in an increase in advance care planning behaviors, including advance directive completion rates. This study aligns with the current evaluation because it was one of the few studies that compared two advance care planning options to determine which one resulted in higher advance directive completion rates as well as other important advance care planning behaviors. The researchers used a randomized controlled trial format to assign participants to the intervention group, the PREPARE website paired with an easy to read advance directive, and the control group, an advance directive alone. The primary outcome of interest in the study was advance directive completion rates. Secondary outcome measures were action measures and included the following, (a) identifying a healthcare agent, (b) discussing and outlining their values and goals, (c) determining if they want to grant the healthcare agent leeway in their decision making, (d) communicating their wishes with their surrogate and health care team, and (e) completing an advance directive. The participants advance care planning engagement was assessed using a survey of behavior change measures at week one, three months, and six months. The primary outcome measure, advance care planning documentation, was assessed at nine months, giving the participants additional time to complete the process. Several of these outcome measures were consistent with those in my study. However, they were measured in ways that can be captured in discrete data documented in the medical record rather than through data collected in questionnaires from the participants. Again, this is due to that fact that the current study was a data only study.

Participants who have an upcoming primary care visit at the San Francisco Veterans Administration Medical Center could be recruited for the study if they met the additional following inclusion criteria:

1. 60 years of age and older,
2. had two or more chronic conditions as documented in their medical record,
3. had two or more primary care or hospital visits at the San Francisco Veterans Administration Medical Center within the past year, and
4. did not have dementia.

The population in the study was similar to the current study population because the participants were older adult patients who were being seen in the primary care setting. The study population was selected because they were more likely to be making medical decisions in the future.

Sudore et al. (2017a) found the PREPARE website paired with an easy to read advance directive were more effective than the advance directive alone at increasing advance directive completion rates. The intervention resulted in statistically significant higher advance care planning documentation at 35% compared to the control group at 25%. Participants in the intervention also reported higher rates of advance care planning engagement. Findings from this study were promising because they indicate the PREPARE website paired with an easy to read advance directive was efficacious at increasing advance care planning rates when completed by older adults on their own, outside of the busy primary care setting.

Advance care planning services that are offered in a web-based format have proven to be appealing to older adults if they have access to a computer and the internet (see Sudore et al., 2014; Sudore et al., 2015; Sudore et al., 2016; Sudore et al., 2016; Sudore et al., 2017a; Sudore et al., 2017b). This type of format can reach a large number of people, does not require the person to come into a medical office setting, and can be completed at a time when it is convenient for the person and their health care agent. James, Boyle, Yu, and Bennett (2013) conducted a study to investigate older adults use of the internet to make financial and medical decisions. The researchers found that 70% of the older adults had access to the internet and 55% used it several times a week. The older adults who reported having access to and using the internet every week tended to be healthier. Findings from this study are relevant to my study because they indicate there is a segment of the older adult population that use the internet to make medical decisions and may be open to using it to complete an advance care planning web-based tool. These findings are relevant because one of the advance care planning options offered through the Life Care Planning intervention was a web-based tool.

## Start Early and Plan (STEP) Program: A Group Facilitated Class

A study by Gutheil and Heyman (2005) investigated an intervention to help older adults living in the community to have a conversation with their potential health care agent to express their wishes for future health care if they could not speak for themselves. The researchers used a post-test control group design with the intervention group participating in the Start Early and Plan (STEP) program. The intervention group participated in three facilitated group classes with their potential health care agent. Gutheil and Heyman found the older adults and their health care agents who participated in the group facilitated classes of the STEP program had higher communication scores. This study supports the idea that group facilitated advance care planning discussions are associated with older adults completing the important health behavior of identifying a health care agent and communicating their wishes for future health care to their agent. This study was relevant to my evaluation because one of the advance care planning options was a group facilitated class that encouraged the participation of both the older adult and their health care agent.

## Theoretical Models Used to Evaluate Advance Care Planning Interventions

The Health Belief Model has been used by researchers to investigate factors that are associated with the completion of an advance directive (Hamel, Guse, Hawranik, & Bond, 2002). The theory of reasoned action was used by Tremethick, Johnson, and Carter (2011) to understand factors that influence older adults' completion of an advance directive and the role health education can play in that process. The transtheoretical model has been used by several researchers to understand and predict older adults advance care planning behavior based on their stage of change (Havens, 2000; Fried et al., 2009; Fried et al., 2018; Westley & Briggs, 2004).

## Application of Social Cognitive Theory to Evaluate Advance Care Planning Interventions with Older Adults

A limited number of studies have used the social cognitive theory to investigate the interplay between elements that influence older adults advance care planning behaviors. Campbell et al. (2007) highlight this gap in their study by providing an overview of the health behavior models that have been used to study advance care planning. They used the social cognitive theory to understand the triadic relationship that exists between environmental, personal, and cognitive factors that influence older adults' decisions about advance directives. Two limitation of Campbell et al. study was the small sample size, and the method used to select participants: it could have resulted in biased results. The researchers stated there is a need for more studies using the social cognitive theory to explore the interplay between the triadic factors that can influence older adults advance care planning behaviors. They also called for more studies using the same framework but with larger, more diverse groups of older adults. The current study addressed these recommendations by using the social cognitive theory to evaluate the impact various advance care planning options had on older adults' advance care planning behaviors, such as participation and advance directive completion rates. Furthermore, the study involved a large sample size.

## Summary

Advance care planning rates among older adults has remained low over the past thirty years, despite the quality, service, and cost benefits associated with it. Legislative and public policies enacted to promote advance directive completion rates have also had little success improving advance care planning rates among older adults (see Harrison et al., 2016; Malcomson & Bisbee, 2009; Marengoni et al., 2011; Yadav et al., 2017). The current review of the literature examined research on a variety of advance care planning interventions offered to older adults in the primary care setting and highlighted the lack of studies comparing different types of advance care planning options (Biondo et al., 2016; De Vleminck et al., 2013; Detering et al., 2010; Harrison et al., 2016; Kossman, 2014; Mack & Smith, 2012; Sudore et al., 2015; Sudore et al., 2017a; Sudore et al., 2017b). Prior reviews conducted by Sessanna and Jezewski (2008) and Kossman (2014) have documented the need for additional studies that compare different advance care planning options to determine the impact they have on older adults' advance directive completion rates. The present study extended knowledge in the discipline of health psychology by using the social cognitive theory, to understand which type of advance care planning option resulted in the greatest advance care planning behaviors.

Furthermore, it did so in the standard practice of an HMO primary care setting with a large sample. Studies in this setting and of this size are difficult to find in the literature. The advance care planning concepts, interventions, and theoretical approaches reviewed in this chapter informed my study population, location, variables, and decision to use the social cognitive theory. The subsequent chapter will describe the research design of the current study including the research questions, hypotheses, definition of the population, sample size, pre-existing data set parameters, quantitative variables, and statistical analyses used to test the hypotheses.

# Chapter 3: Research Method

The purpose of this study was to investigate which advance care planning option within the Life Care Planning program resulted in the highest rates of participation and completed advance directives in older adults enrolled in an HMO plan and to understand the role personal characteristics (age, gender, ethnicity, and health status) played in older adults' participation and advance directives completion rates. The advance care planning program evaluated in the study was Respecting Choices, which Kaiser Permanente rebranded as the Life Care Planning program. In the program, patients are offered three options for learning about advance care planning: a one-on-one conversation, a group facilitated class, or a web-based tool. The Respecting Choices program has been investigated in several randomized control trials and has been found to increase rates of advance care planning documentation in the medical record (Hammes & Rooney, 1998; Hammes et al., 2010; Hickman et al., 2010). What was not known about the program was which type of advance care planning intervention contained in the model was associated with the highest rates of participation and advance care planning documentation in the medical record. Findings from the current study may be used to understand the relationship between the advance care planning options, older adults' participation in one of the options, older adults' personal characteristics, and the roles these factors play in older adults' participation and completion rates for advance directives.

This chapter includes a review of the rationale used to select a research design that aligned with the purpose of the study, research questions, and hypotheses. Details about the quantitative research methods that were used in the study include an overview of the population of interest, a description of the archival data source, variables, and the statistical analyses used to test the hypotheses.

## Research Design and Rationale

I conducted a quantitative study using a nonequivalent group design to compare the differences between two groups: patients who were offered one of the three advance care planning options through the Life Care Planning program and patients who were not offered advance care planning through the Life Care Planning program. I looked at the association between the advance care planning environment and the influence it had on the advance care planning behaviors in the form of participation and advance directive completion rates. A group comparison was also conducted for older adults who were offered and participated in one of the three advance care planning options to compare participation and advance directive completion rates among the three options. The group comparison went a step further to understand the association between the older adults' personal characteristics and their participation rate in one of the three advance care planning options as well as their advance directive completion rate. The study included several research questions that started with a broad focus comparing those who were offered the Life Care Planning program and those who were not, and then moved to a narrower focus to compare those who were offered and participated and those who were offered and did not participate. The study also addressed those who were offered and participated in one of the three advance care planning options.

Given that the Life Care Planning program was still being implemented across a large geographical region, some patients may not have been offered the service because it was not available. This occurrence was not due to the study design. Individuals who were not offered the Life Care Planning program served as a comparison group to determine whether there was a difference in the rate of completed advance directives for those who were offered the Life Care Planning program and those who were not. The program was implemented in June 2014, and the archival data were capped on December 31, 2018. This time limitation was necessary due to the time frame of my study. Most studies conducted on this topic have included smaller sample sizes. Campbell et al. (2007) indicated a need for studies involving large groups of older adults. The use of archival data with a nonequivalent group design rather than a randomized control trial was more feasible for a large sample.

There were several limitations associated with a nonequivalent group design when compared to an experimental design. One weakness was the nonequivalent design lacked random assignment, so conclusions from the study were limited to associations between variables, not causality. Another limitation was variables were less controlled in this design, so preexisting conditions or unknown confounding variables could have influenced the results, which could have lowered the internal validity of the study. However, this design could have increased external validity because variables were not tightly controlled and represented a more realistic condition in the primary care setting. Although a nonequivalent design is less desirable than an experimental design, it is not uncommon for it to be used in the medical or social science fields where it may not be logistically or ethically feasible to conduct a randomized controlled trial (Harris et al., 2006).

## Participants

### Theoretical Population

The theoretical population of interest in this study was adults 65 years of age and older who were enrolled in an HMO health care plan in the United States and were receiving health care in the primary care or specialty care setting. HMOs are in a good position to deliver advance care planning programs to their members because they are managing and coordinating their patients care across various settings, such as primary care, specialty care, and acute care. Even though advance care planning is beneficial for people 18 years of age and older, it is more important for older adults who tend to have more chronic conditions that require timely and ongoing decisions about complex medical treatments as their conditions progress and their health declines (Detering et al., 2010). In a systematic literature review, Marengoni et al. (2011) found the prevalence of multimorbidity in older people ranges from 55% to 98%. The implications of multimorbidity are functional decline, poor quality of life, disability, higher health care costs, and greater likelihood of becoming incapacitated (Marengoni et al., 2011). Based on this review, older adults are more likely than younger people to have two or more chronic conditions and have greater potential to lose decision-making capacity as their conditions progress and they near the end of life (Marengoni et al., 2011). Based on findings from a study by Bravo et al. (2016), approximately 70% of older adults will require someone to make medical decisions for them due to incapacity near the end of their life. Despite these findings, advance directive completion rates still hover between 20% and 30% in the United States, according to the Centers for Disease Control and

Prevention (Benson & Aldrich, 2012). One might expect to see higher advance directive completion rates in the older adult population and a positive correlation between increased rates and declining health status. However, this is not the case based on a study conducted by Harrison et al. (2016) who investigated the strength and magnitude of the relationship between older adults' personal characteristics and their advance care planning behaviors. Harrison et al. found that older adults with a higher disease burden and disability had lower rates of advance care planning behaviors.

## Participant Sample

The data source was Kaiser Permanente of Colorado (KPCO), an integrated nonprofit health care organization that serves more than 600,000 members in the Colorado Front Range region. The population examined in this study was the entire 65 and older population (158,675) enrolled in the HMO. Members in the data set were enrolled in one of three types of health plans: Medicare, dual Medicare and Medicaid, or a commercial plan. The participant sample was derived from electronic medical records that contained retrospective data from June 2014 to December 2018. Within this population, there was a subset of participants that included individuals 65 years of age and older who were enrolled in a health plan administered by Kaiser Permanente Colorado, who were offered an advance care planning intervention: this group contained 24,909 individuals. There were 11,322 individuals within this subset that went on to participate in the Life Care Planning intervention. The data set included information about gender, age, ethnicity, and health status. The data set provided information about when the person was offered an advance care planning service (date), who (provider or advance care planning facilitator) offered the service, and what type of service was offered (one-on-one class, web-based tool, or class). It also indicated if the person participated in the service, if their health care agent took part in the service with the older adult, if the member identified a healthcare agent, and if an advance directive was completed and documented in the person's medical record. There were no exclusion criteria for members who were 65 and older. It is important to note; we did not exclude people who had cognitive decline. There were standard operational practices in place to accommodate individuals who lacked decisional capacity. If the person was incapacitated and had an MDPOA or guardian on file, then that decision maker took part in the Life Care Planning conversation with the trained facilitator. If the older adult lacked decisional capacity and did not have an MDPOA or guardian in place, then a proxy by statute process was followed to identify a decision maker or health care agent. The process required the provider to bring together all individuals who had an interest in the patients care and determine who could best represent the patient's interests. The designation was considered temporary until the patient either regained decisional capacity or the proxy went on to pursue a permanent guardianship. If the person had capacity that waxed and waned, then the facilitator worked with the patient at a time when their decision making was sound enough to select their MDPOA or health care agent. It is also important to note only a licensed clinician could determine permanent decision making capacity, and this was documented in the Life Care Planning Navigator in the electronic medical record.

## Statistical Power and Sample Size

Several factors were considered when selecting the statistical power and sample size for the study, including the risk of type I (false negative) and type II (false positive) errors and the effect size noted from prior studies. Cohen (1988) suggested using an alpha level of .05 for behavioral research to minimize the risk of type I errors. If the .0 alpha level is selected, then there is only a 5% chance of rejecting the null hypothesis when it was true in the population or obtaining a false positive (see Banerjee, Chitnis, Jadhav, Bhawalkar, & Chaudhury, 2009). To minimize type II error and increase the chance of obtaining the same results if the study was conducted again, the power was set at .90 (see Cohen, 1988; Lakens, 2013). The power is the probability you will be able to detect the specified effect. A standard power range is .80 to .90. A higher power requires a higher sample size.

My sample size was large, so I selected .90. The effect size *d* was determined for each research question based on the effect size from prior studies. This method was used instead of Cohen’s (1988) rules of thumb for psychological studies, which is .20, .40, and .80 for small, medium, and large effect sizes. A one-tailed hypothesis was used for all four research questions because they specified the direction of the association between the predictor variables and outcome variables (Banerjee et al., 2009). One-tailed hypotheses permit the use of a smaller sample size compared to two-tailed hypotheses (Banerjee et al., 2009). However, the larger the sample size, the greater the ability to generalize the findings to the theoretical population and reduce the risk of type I and type II errors (Banerjee et al., 2009).

A power analysis was conducted using the G*Power statistical power analyses software to calculate the minimum sample size needed for the study (Faul, Erdfelder, Lang, & Buchner, 2007; Faul, Erdfelder, Buchner, & Lang, 2009). One of the primary outcomes of interest was the advance directive completion rate, as indicated by an advance directive that was documented in the electronic medical record. Research questions one and two involved the advance directive completion rate as the dependent variable. This outcome had been studied in prior studies that indicated the average effect size was 50% (Pearlman, Stark, Cain, & Cole, 2005; Ramsaroop, Reid, & Adelman, 2007; Sudore et al., 2007; Sudore et al., 2015).

Research question one had one categorical independent variable and one categorical dependent variable. A chi-square test was used to report the rate of individuals that did and did not complete an advance directive for the two independent groups using a 2x2 contingency table. The study involved an archival dataset so the total sample size was known: it was 158,675. The proportion of individuals offered the intervention was .16, and the proportion that was not offered the intervention was .84. The *P*-value or alpha level was .05, the average effect size was 50% based on prior studies noted above, and the power was .90 due to the large archival sample size. The power analysis protocol indicated the post hoc computation achieved the required power, with the output power at 1.0.

Research question two had one independent variable with three nominal levels and one categorical dependent variable. A chi-square test was used to report the rate of participants that did and did not complete an advance directive. The analysis was reported using a 3x2 contingency table. A post hoc power analysis was conducted using a z-test with a proportion of .38 for $p_1$ and .62 for $p_2$. Based on an alpha level of .05, the post hoc computation indicated power was met at a level of 1.0.

Research questions three and four required a different effect size because they involved the effect personal characteristics had on older adults' participation and advance directive completion rates. The personal characteristics were viewed as predictor variables. Based on a study by Gamertsfelder, Seaman, Tate, Buddadhamaruk, and Happ (2016) age plays a role in predicting older adults having a completed advance directive in the medical record at the time of admission to the hospital. They found this effect ranged from .33 with people in the young group (65-74), to .54 in the oldest-old group (85+). Although gender did not have a statistically significant effect on the presence of an advance directive, ethnicity did. An effect size of .55 was associated with racial minority status. Based on the range of effect size data associated with personal characteristics, .55 was selected for the effect size for research questions three and four.

Research question three had four predictor variables, including age that was continuous, gender that was categorical, ethnicity that was nominal, and Care Group that was ordinal. The dependent variable was categorical. Logistic regression was used to understand how changes in the predictor variables were associated with changes in the probability of the older adult participating or not in the advance care planning intervention. Based on a sample size of 24,909, an alpha level of .05, four predictor variables, and an effect size of .55 from prior studies, the post hoc computation indicated power was met at a level of 1.0.

Research question four had four predictor variables including age that was continuous, gender that was categorical, ethnicity that was nominal, and Care Group that was ordinal. The dependent variable was categorical. Logistic regression was used to model the relationship between the predictor variables and the rate of the individuals who did or did not complete an advance directive. Based on a sample size of 11,322, an alpha level of .05, an effect size of .55 from prior studies, and four control variables, the post hoc computation indicated power was met at a level of 1.0.

The population in this study was older adults 65 years of age, and older enrolled in a Kaiser Permanente Colorado HMO plan. The population size was 158,675. Within that population, there were unique 24,909 individuals who were offered the Life Care Planning intervention. The challenge with a population this large was not Type I and Type II errors; it was interpreting the size and importance of any differences detected. In other words, minuscule effects could appear statistically significant but may not be clinically or operationally significant: interpreting the latter's significance was the challenge.

## Archival Data Source

The source of data for this study was electronic medical records and represented a prospective cohort of older adults 65 years of age and older who were enrolled in a Kaiser Permanente Colorado health plan. All variables were retrieved from the electronic medical record. The data set was used in the standard operations of the Life Care Planning program to track the members invited to participate in the program, the identified health care agents or MDPOA, the completed advance directives, the person who invited the member to participate in the advance care planning activity, the declined or completed the activities, and the demographic characteristics of those invited to participate. The report was generated monthly and contained data since the inception of the program in June 2014. I had access to the monthly data in my role as manager for the Kaiser Permanente Senior Innovations and Life Care Planning programs. Therefore, I did not need to gain permission to access the data, but I did need to gain permission from the Kaiser Permanente Colorado IRB and Walden University IRB (IRB approval # 11-14-19-0030227) to analyze and report the data for my dissertation project. The monthly report was generated by the Health Information Transformation Technology group of the Kaiser Permanente Program Office.

## Operational Definitions of Variables

The advance care planning program that was evaluated in this study was the Life Care Planning program, which is a comprehensive, systematic approach to advance care planning developed by Gundersen Health System (2014) in La Crosse County Wisconsin in 1991. Kaiser Permanente contracted with Gundersen Health System to purchase the right to use their advance care planning model called Respecting Choices and rebranded it as Life Care Planning. The program had been implemented across all of Kaiser Permanente’s regions except one at the time of this study. The term *implementation* should not be confused with *developed* because the model was developed in 1991 but implemented in the Kaiser Permanente Colorado region in 2014.

Six primary components comprise the Respecting Choices and rebranded Life Care Planning advance care planning program. The first component is that it takes a staged approach to planning that is customized to the patient’s health condition and is revisited as the person’s condition or life situation changes. The staged approach is segmented into three steps: *First Steps*, *Next Steps*, and *Advanced Steps*. First Steps is for healthy individuals who are 18 years of age and older. The Next Steps is for adults who have chronic conditions that are starting to experience health setbacks that prevent them from rebounding back to their baseline. Advanced Steps is for people who you would not be surprised if they died in a year or less. The second component of the Life Care Planning program is that it emphasizes the importance of the conversation – not just completing the directive. The web-based tool can involve a conversation between the patient and their health care agent, but it does not involve a live facilitator like the one-on-one conversation and class formats. Instead, there are videos with statements and questions for the patient to consider and discuss with their health care agent and loved ones. The third component of the Respecting Choices model is that it emphasizes the importance of including the health care agent in the advance care planning conversation. Including the health care agent in the conversation allows them to hear the patient’s wishes for future health care and determine if they can honor those wishes if the patient cannot speak for themselves. The fourth component of the model is the use of standardized member education materials and directives to support the discussion and shared decision making process. All the advance care planning options use the same standardized educational materials and only vary based on the patient’s condition and stage of the conversation. The member education materials and directives that are used with each step in the Life Care Planning program are outlined in Table 1.

Table 1

*Life Care Planning Branded Member Materials and Advance Directive Documents by Step*

| | Life Care Planning step | | |
|---|---|---|---|
| Document type | First Steps | Next Steps | Advance Steps |
| LCP branded member education materials | LCP overview,<br>Planning guide,<br>Planning in advance for future health care choices,<br>Information card for health care decision makers,<br>CPR: my choice | LCP overview,<br>CPR: my choice,<br>Help with breathing: What I should know,<br>Artificial nutrition | LCP Advance Steps overview,<br>CPR: My choice,<br>Help with breathing: What I should know,<br>Artificial nutrition |
| Advance directive document types | LCP advance health care directive,<br>CPR directive,<br>Colorado medical durable power of attorney (MDPOA) | Statement of treatment preferences (SOTP),<br>CPR directive,<br>Colorado medical durable power of attorney (MDPOA) | Medical orders for scope of treatment (MOST),<br>CPR directive,<br>Colorado medical durable power of attorney (MDPOA) |

The fifth component of the model is the need to consistently document and retrieve the advance care planning information in the person's medical record. The sixth and final component of the model is that it does not rely on the provider to initiate the conversation. It uses a *train the trainer model* with health educators, social workers, nurses (LPN and RN), physician's assistants, doctors, and palliative or hospice chaplains that can be trained to facilitate advance care planning conversations or classes. There are also support staff such as medical assistants or front desk staff that can be trained as Life Care Planning advocates who can introduce and invite the member to one of the Life Care Planning options. The dataset indicated who on the healthcare team invited or completed the Life Care Planning activity by capturing their unique login information in the electronic medical record. A list of trained facilitators and advocates was updated monthly by the Life Care Planning Faculty and checked against those documenting the Life Care Planning activity. This quality control measure was in place to not only ensure those documenting had been trained to do so but also to identify those who were not documenting appropriately. When this was identified, the Life Care Planning Faculty provided the person additional documentation training.

As mentioned above, there were three advance care planning approaches offered through the Life Care Planning program. The options included a one-on-one conversation, a group class, and a web-based tool. The definition of taking part in an approach included a patient participating in a group facilitated advance care planning class, a one-on-one conversation, or completing a web-based tool. All these approaches provided education about what advance care planning is, why it is important, how to identify someone who could speak for you if you were incapacitated, what type of care you would want in the event of a serious illness or injury, and how to complete a medical directive that outlines your wishes for future health care. The latter did not always occur when someone took part in an approach, for example; a person could attend a group facilitated class and do all the activities outlined above but not complete a medical directive: that was why it was a separate health behavior. People often selected someone to speak for them if they could not speak for themselves to make medical decisions: this part of the process was simply identifying a health care agent. It is worth noting, the term health care agent can be used interchangeably with the term medical decision maker but tends to be called a health care agent in the Kaiser Permanente Colorado system. All activities related to the Life Care Planning intervention options were documented in the Life Care Planning Navigator, Planning Status Smartform, The Patient’s response to being offered an intervention could include, *declined*, *in progress*, or *completed* and was also documented in the Life Care Planning Navigator, Planning Status Smartform.

Completed advance directive documents were located in the Life Care Planning Navigator *Summary* section. All the advance directive documents had unique identification numbers. The document types could include any of the following: (a) a Life Care Planning Advance Health Care Directive, (b) a Living Will, (c) a CPR order or a Do Not Resuscitate (DNR) order, (d) a Five Wishes document, (e) a SOTP document, (f) and a MOST document. The member’s health condition typically dictated the type of advance directive document completed; for example, healthy individuals were more likely to complete an MDPOA or general advance directive form. People with multiple chronic conditions experiencing more complications were more likely to complete a SOTP document specific to their condition. People who are very ill or near the end of life were more likely to complete a MOST document. Table 1 outlines the types of advance directives that were associated with each Life Care Planning step and the patient's health status.

Health condition was generated from a Senior Segmentation algorithm developed by Kaiser Permanente that includes factors such as age, chronic conditions, hospitalization, and healthcare utilization data via medical claims (Zhou, Wong, & Li, 2014). The person's health condition was rated on a scale from one to four and was called the *Care Group*. A person who was in Care Group one was healthy, two was healthy with some chronic conditions that were well managed, three had multiple chronic conditions and were starting to experience decline indicated by increasing healthcare utilization, and four was a person who you would not be surprised if they died in a year or less. The person's Care Group designation could be found in the electronic medical record in HealthTRAC. When the health care team visited HealthTRAC, they could see the Care Group assigned to the patient and hover over the number to reveal text that recommended which Life Care Planning option was most appropriate and how to refer the member to the service.

Age, gender, and ethnicity were stored in the *demographics* section of the electronic medical record. Age was included as a predictor variable because there could be extensive functional variability in the age bands that span between 65 to 75, 75 to 85, and 85 plus. Gender was recorded as a nominal variable with *male*, *female*, *nonbinary*, *other*, *unknown*, and *x*. However, given that the only gender selected by participants in the dataset was male and female, it was viewed as a dichotomous variable for this evaluation. Ethnicity was a nominal variable with the following options: White, Black, Hispanic, Asian, Native American/Hawaiian, other, and missing.

## Data Analysis Plan

### Software Used to Analyze the Data

All statistical analyses were conducted using the Scientific Analysis Software (SAS) version 9.1 (SAS Institute Inc., 2003).

### Data Cleaning

A preliminary analysis of the data was conducted to identify missing or erroneous data as well as outliers in the dataset. For example, in the gender category most of the participants selected male or female, and there were only three individuals who selected *transgender* and two who selected *other*. The individuals with transgender and other designations were removed from the dataset. Individuals who attended a Life Care Planning First Steps class that were nonmembers but had a medical record number were removed from the dataset. This occurred because the First Steps classes were open to the public and nonmembers who attend were assigned a specific type of nonmember medical record number. These included members visiting from another Kaiser Permanente region that were not members of the Colorado region. If Life Care Planning documentation occurred in the *in progress*, c*ompleted*, or *notes* section of the navigator by someone who was not trained either as a Life Care Planning advocate or facilitator, then their documentation was removed from the dataset. This was done to ensure the advance care planning conversation was not conducted by a person who was not using the Life Care Planning model. A list of individuals trained as Life Care Planning facilitators and advocates was maintained by the Life Care Planning Faculty and updated monthly. This list was used to cross check the person who documented the Life Care Planning activity.

## Research Questions and Hypotheses

RQ1: Is there a significant difference in the rate of completed advance directives for older adults who are offered and those who are not offered one of the three advance care planning options (group facilitated class, one-on-one facilitated conversation, and web-based tool)?

$H_0$: There is no significant difference in the rate of completed advance directives for older adults who are offered one of the three advance care planning options and those who are not offered one of the options.

$H_1$: There is a significant difference in the rate of completed advance directives for the older adults who are offered one of the three advance care planning options and those who are not offered one of the options.

RQ2: For those older adults who participated in the Life Care Planning program, which advance care planning option is associated with the highest rate of completed advance directives?

$H_{01}$: The advance care planning options exhibit no significant difference in the older adults’ advance directive completion rates.

$H_1$: The advance care planning options exhibit significant differences in the older adults’ advance directive completion rates.

$H_{02}$: The older adults who participate in the classroom-based advance care planning option exhibit no significant difference in the rate of completed advance directives.

$H_2$: The older adults who participate in the classroom-based advance care planning option exhibit the lowest rate of completed advance directives.

$H_{03}$: The older adults who participate in the one-on-one advance care planning option exhibit no significant differences in the rate of completed advance directives.

$H_3$: The older adults who participate in a one-on-one advance care planning option exhibit the highest rate of completed advance directives.

$H_{04}$: The older adults who participate in the web-based advance care planning option exhibit no significant difference in the rate of completed advance directives.

$H_4$: The older adults who participate in the web-based advance care planning option exhibit neither the highest nor the lowest rate of completed advance directives.

RQ3: Of the older adult patients who are offered one of the three advance care planning options, what personal characteristics (age, gender, ethnicity, and health status) are associated with them participating or not?

$H_0$: Of the older adults who participate in one of the three advance care planning options, personal characteristics do not predict a significant difference in their rate of participation in the Life Care Planning program.

$H_1$: Of the older adults who participate in one of the three advance care planning options, age and health condition predict a significant difference in their rate of participation.

RQ4: Of the older adult patients who are offered one of the three advance care planning options and participate, what personal characteristics are associated with them completing an advance directive?

$H_0$: Of the older adults who participate in one of the three advance care planning options, their personal characteristics do not significantly predict their advance directive completion rate.

$H_1$: Of the older adults who participate in one of the three advance care planning options, their personal characteristics significantly predict their advance directive completion.

## How Results Were Interpreted

RQ1 had one independent variable, where they offered the advance care planning intervention through the Life Care Planning program or not. This variable was categorical with a yes or no option. There was one dependent variable, was an advance directive completed – yes or no. This was also a dichotomous categorical variable. Because the research question was comparing the means of two independent groups with a categorical independent variable and categorical dependent variable, a chi-square test was used to report the rate of individuals that did and did not complete an advance directive for the two independent groups. The data was displayed using a 2x2 contingency table.

RQ2 had one independent variable with three levels and one dependent variable. The independent variable was the advance care planning intervention, and the three levels included the group facilitated class, the one-on-one facilitated conversation, and the web-based tool. Participation in the option was recorded as a yes or no for each, therefore the variable was categorical dichotomous. The dependent variable was also a categorical variable because it was recorded as yes or no. A chi-square test was used to report the rate of individuals that did and did not complete an advance directive in each of the Life Care Planning options. A 3x2 contingency table was used to display the data.

RQ3 had four predictor variables that represented personal characteristics (age, gender, ethnicity, and health status). Age was a continuous variable. Gender was a categorical dichotomous variable. Health status was noted using Care Groups one through four and was ordinal because it ranged from healthy to unhealthy. Ethnicity was a nominal variable with seven options. There was one categorical dependent variable. Logistic regression was used to predict the probability of the older adult participating or not in one of the three interventions based on age, gender, ethnicity, and health status.

RQ4 had four predictor variables that were personal characteristics (age, gender, ethnicity, and health status). The dependent variable was whether the person completed an advance directive after participating in one of the three advance care planning options. The dependent variable was noted as yes or no, making it categorical. Logistic regression was used to predict the probability of the older adults completing an advance directive based on their personal characteristics (age, gender, ethnicity, and health status).

## Threats to Validity

### External

Threats to external validity affect ones’ ability to generalize findings from the sample population in the study to the target population of interest (Creswell, 2014). The threat to external validity in this study came from the differences that could occur between Kaiser Permanente and other large HMOs. Any unique operational characteristics within the Kaiser Permanente HMO model that were different from other HMOs – this difference could make it difficult to generalize population attributes, behaviors, or finding to other HMOs. Kaiser Permanente is not just an HMO or health plan. It is comprised of two separate but connected groups: the Kaiser Foundation Health Plan or the insurance side, and the Permanente Medical Group or the physician side. The doctors are employees of the Permanente Medical Group, and they only see Kaiser Health Plan patients. This is very different from doctors who are in a provider group or an independent provider who contracts with an insurance company and therefore, must get permission from the insurance company in the form of authorization before they can provide care. Additionally, they are not paid more or less for providing more or fewer interventions, which can financially motivate physicians to provide more services to receive higher reimbursements. Instead, their decisions are driven by quality outcomes, patient satisfaction, and affordability, creating more of a balance in the clinical decision making process.

Kaiser Permanente also has an integrated electronic medical record that makes it easy for the healthcare team to share information across settings. This plays an important role in providing one standardized place to find members' advance care planning documents so they can easily be retrieved by the care team. In other words, someone can have an HMO that does not have an integrated electronic medical record, so the burden is on the patient to make sure they provide a current copy of their advance directive to everyone they see for their health care. This can be very cumbersome if a change needs to be made because it would need to be redistributed to all providers in the various care settings. Again, this is not the case in the Kaiser Permanente Colorado system where someone can give their advance directive to their Life Care Planning facilitator after having a conversation in the primary care setting and have it scanned into their medical record. That document and all the supporting advance care planning documentation is available to that member’s primary care provider, specialists, hospitalist, pharmacist, and psychologist regardless of where they are seen in the system. An additional nuance of the Kaiser Permanente Colorado setting compared to other HMOs is that the advance care planning service is internal to their system, it does not cost the member anything to participate, and it is easy to refer patients to the service using EMR tools such as patient instructions. Tools such as the advance care planning registry also make it easy for the care team to identify if there is an advance care planning gap and HealthTrac makes it easy to know which Life Care Planning option to offer to the member based on their health condition.

### Internal

Threats to internal validity make it difficult to determine the extent to which the differences detected are due to the intervention or confounding or extraneous variables (Creswell, 2014). Two things that can be done to mitigate this are random sampling and controlling for confounding variables by using control matching methods. The primary internal threat to validity in this study was confounding variables such as socioeconomic status, income, and educational level. Other common confounding variables were age, gender, health condition, and ethnicity, which were accounted for as variables in the study.

### Statistical Conclusion Validity

One of the primary strengths of this study was the large sample size because it helped to mitigate external and internal threats to validity. Conversely, the greatest threat to statistical conclusion validity was a result of the large sample size and the ability to detect even minuscule differences but to discern which differences were operationally and clinically significant.

## Ethical Procedures

Several ethical considerations needed to be addressed to ensure the study design upheld the ethical principles of justice, beneficence, and respect for people (Walden University, 2014). Justice speaks to the need to fairly distribute the benefits and burdens of research (Walden University, 2014). Beneficence speaks to the need to maximize the possible benefits and reduce the possible risks associated with a study (Walden University, 2014). The third principle, respect for others, requires researchers to acknowledge participants' autonomy and the need to protect individuals who may have diminished autonomy (Walden University, 2014). A person with diminished autonomy could include anyone who cannot make decisions for themselves or protect their rights or interests (Walden University, 2014). The basic ethical principles were not viewed as static guidelines addressed once in the study during the IRB process (Creswell, 2014). Instead, they were used as general guidelines and incorporated into all aspects of the research process, from beginning to end (Creswell, 2014). For example, the ethical principles were considered when developing the research problem, purpose statement, data collection method, and study design and later when conducting the analysis and interpretation.

Any study that involves humans involves some level of risk, even if it is minimal (University of Washington, 2016). It was necessary to consider the risks and benefits of the study and make every effort to minimize risk to the participants and Kaiser Permanente as an organization (see Creswell, 2014). Minimal risk means, the likelihood and amount of anticipated risk of physical or psychological harm to a participant in a study, are no greater than those risks normally encountered in the participant's daily life (medical, psychological, educational, etc.) (University of Washington, 2016). Minimal risk occurs when the researcher has considered the possible risks and has taken action to reduce them to a point where the benefits of the study outweigh the risks of the study (University of Washington, 2016). Given that this study did not involve the sampling of participants but instead the use of archival data from standard health care delivery practices with members that are not considered at risk, it met the KPCO IRB criteria or definition of minimal risk. As such, it was eligible for an expedited IRB review process (University of Washington, 2016). Kaiser Permanente Colorado's IRB was the primary IRB and Walden University was the secondary IRB.

## Considerations to Minimize Risk with Participant Sample

Even though the study posed minimal risk, there were still several ethical considerations that needed to be addressed to ensure the study design met the ethical principles of justice, beneficence, and respect for people (see Walden University, 2014).

The considerations included the location of the study, the nature of the data source, the population, the study design, and my role in the study.

The study took place at my place of employment, but I did not solicit participants to take part in the study (Walden University, 2015). This removed the risk of me being able to unduly influence participants to take part in the study. Instead, the study involved archival data that was generated as a result of standard operating practice in a health care organization. The archival data was not modified to include any additional data to benefit or satisfy my doctoral study requirements (Walden University, 2015). The archival data was deidentified by removing the patient's health record number, name, and address, so it was anonymous. Only the aggregate data was shared with my dissertation chair, committee member, and university research reviewer. The data was stored on a secure server that required password access: it was not stored on a laptop.

The participant sample included older adults who were 65 years of age and older. Even though the advance care planning services were offered to anyone who was 18 years of age and older in the health care setting where the study occurred, the study focused on individuals who were 65 years of age and older. The criteria was based on evidence in the literature indicating the benefits of advance care planning with the older adult population, given their increased likelihood to have multiple chronic conditions that could result in health decline and the need for increased health care services (Detering et al., 2010; Hammes & Rooney, 1998; Harris et al., 2006; Wright et al., 2008). No effort was made to limit or exclude participants based on their gender or ethnicity. It is important to note, older adults who lacked decisional capacity were not excluded from the dataset. This occurred because there were operational and clinical processes in place to work with members who lacked decisional capacity by working with their documented MDPOA to take part in advance care planning activities. If the member did not have a documented MDPOA or guardian, then the healthcare team followed the proxy by statute process to identify a temporary decision maker to take part in the advance care planning activity.

Given that the data source was a convenience sample that was archival and was not manipulated to create an intervention and control group, a quantitative non-equivalent group design was used to compare rates of participation and advance directive completion rates based on various variables. An additional consideration to use this type of study design was based on whether it was ethical to withhold the intervention from the participant sample (see Harris et al., 2006). There was clear evidence in the literature that indicated advance care planning could benefit the participant sample and therefore withholding it could have inflicted harm, making a quasi-experimental method a more ethical and viable study design (see Harris et al., 2006).

## Summary

This study was designed to investigate which advance care planning option within the Life Care Planning program resulted in the highest rates of participation and completed advance directives in older adults enrolled in an HMO plan. Additionally, the study was designed to understand the personal characteristics that were associated with the highest rates of participation and the completion of an advance directive when taking part in one of the three advance care planning options. The social cognitive theory provided a framework for evaluating the relationship between the advance care planning options, the older adults' personal characteristics, participation, and advance directive completion rates. A quantitative, non-equivalent group-design was used to compare the differences between two groups, the older adults who were offered one of the three advance care planning options, and those that were not. As well as, of those who were offered and participated, which advance care planning option was associated with the highest participation and advance directive completion rates and the association between these rates and the older adults' personal characteristics. A variety of statistical methods were used to interpret the results of the study to test the hypotheses for each of the four research questions. RQ1 involved a chi-square test to report the rate of advance directives completed in the two independent groups: those who were and were not offered the Life Care Planning intervention. In RQ2 a chi-square test was used to report the rate of individuals who did and did not complete an advance directive in each of the three advance care planning options. RQ3 involved the use of linear regression to understand changes in the probability of the older adult participating or not in the Life Care Planning intervention based on personal characteristics. Finally, in RQ4 logistic regression was used to understand changes in the probability of the older adult completing an advance directive based on personal characteristics. In the remainder of Chapter 3 I provided an overview of the study population, archival data, operational definitions, data storage, and cleaning methods, ethical considerations, and efforts to mitigate internal and external threats to validity.

Chapter 4 I will begin by revisiting the purpose of the study and the research questions. It will move into a description of the process used to access and organize the archival data. Descriptive statistics will be used to describe the demographic characteristics of the sample and describe any statistical differences that were noted between the older adult members who were offered the Life Care Planning program and those who were not. The results of the study will be reviewed by describing the statistical analyses used to test the hypotheses and report the findings.

# Chapter 4: Results

Even though a large number of studies have been conducted on the topic of advance care planning in the older adult population, there was a lack of studies comparing advance care planning options to determine which result in the highest participation and advance directive completion rates (Biondo et al.; Harrison et al., 2016; Kossman, 2014; Sudore et al., 2015; Sudore et al., 2017a; Sudore et al., 2017b). The purpose of this study was to investigate which advance care planning option within the Life Care Planning program was associated with the highest participation and advance directive completion rates in older adults and to understand the association between personal characteristics, participation in the program, and advance directive completion rates.

There were four research questions that were answered in this study. The first question addressed a comparison of the advance directive completion rates of individuals who were offered the Life Care Planning intervention and those who were not. The second question was similar, but it went a step further to compare advance directive completion rations for those who were offered the Life Care Planning intervention and went on to participate or not participate. The third and fourth research questions addressed the role personal or demographic characteristics in increasing or decreasing the odds of participation and advance directive completion rates. The research questions and hypotheses are presented in the results section of Chapter 4.

This chapter provides a report of the results for each research question and associated hypotheses. The chapter includes the time frame in which the data were collected, where they were obtained, and a description of the participants who were offered the intervention and those that were not offered the intervention. I also provide a brief summary of the sample's demographic characteristics and how those related to the larger population because nonprobability sampling was used. In the results section, I describe each of the statistical analyses used to answer each research question and associated hypotheses, followed by a table that displays the findings for each Life Care Planning option. The chapter concludes with a summary of the answers to each of the research questions and a prelude to how the results were interpreted in Chapter 5.

## Data Collection

The data in the study were obtained from retrospective chart review from June 2014 to December 31, 2018. The data were used in the standard operation of the Kaiser Permanente Colorado Life Care Planning program, recorded in the electronic medical record, and stored in Clarity tables in KPCO's Virtual Data Warehouse. The Life Care Planning program was implemented in the Colorado region in June 2014 and was implemented across a large geographic area in the Front Range region. As a result of the time involved with disseminating the program, some members were offered the program, and some were not because it was not yet available in their clinic. Those who were not offered the program during the time frame of the evaluation represented a comparison group. However, the comparison group was not a control group. Even though the Life Care Planning service was offered to all Kaiser Permanente members 18 years of age and older, this study focused on individuals 65 years of age and older. Non-Kaiser Permanente members could participate in the First Steps class, but they were removed from the data set because it was not possible to track whether they completed an advance directive. Therefore, all members in the data set were Kaiser Permanente Colorado members.

The sample size contained Kaiser Permanente Colorado members enrolled in one of the three types of health plans: Medicare, dual Medicare and Medicaid, and commercial. The sample size was 158,675. There were two subsets within this sample: those who were offered Life Care Planning (24,909) and those who were not offered Life Care Planning (133,766). Of those offered the Life Care Planning service, there was a subset of those who participated in one of the three steps (11,322). A visual representation of the sample and subsets is presented in Figure 1.

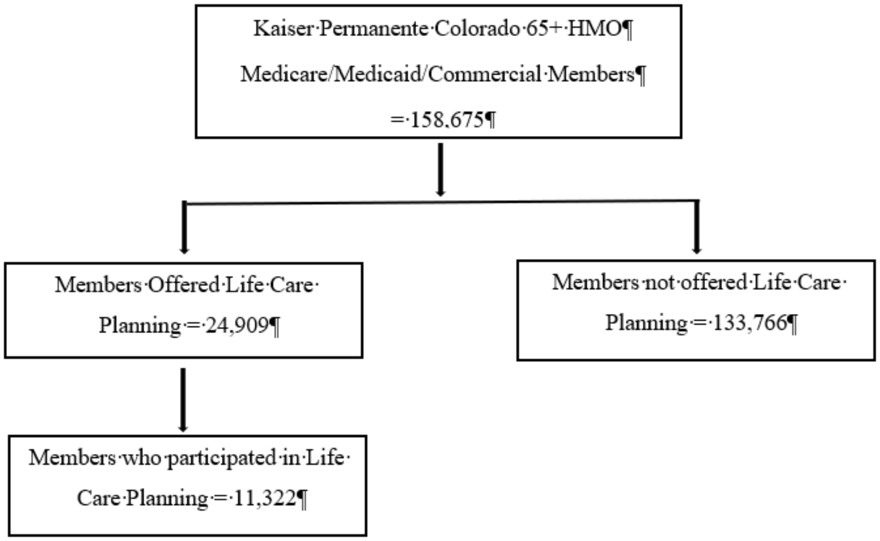

*Figure 1*. Flow diagram of study sample.

## Demographic Characteristics of the Study Population

The demographic characteristics were analyzed by Life Care Planning Step because the characteristics were likely to vary in terms of health condition and age, so it would not have been fair to combine them and describe them as a homogeneous group. For example, individuals who were offered the First Steps 1:1 conversation instead of the First Steps class may have had personal characteristics that made it difficult for them to participate in a class format. This could have been an older adult who was relatively healthy but had a hearing deficit and mild cognitive decline that made it difficult to hear and fully participate in the class discussion. As a result of the demographic nuances that are expected to be seen across the First Steps Class, First Steps 1:1 conversation, web-based tool, and Next and Advanced Steps 1:1 conversations, four tables were used to describe the demographic characteristics of each group.

## Representativeness of Sample to the Population of Interest

There were 5,573 individuals who were invited to participate in a First Steps 1:1 conversation and 100,321 individuals who met the First Steps criteria but were not invited to participate. A comparison of the demographic characteristics of the those who were invited and those were not invited to participate in the First Steps 1:1 conversation is displayed in Table 2. Based on 2015 demographic data from the Colorado Department of Public Health and Environment (CDPHE) (2018), the gender and ethnicity rates in the study sample were within the ranges provided in the CDPHE Healthy Aging in Colorado Infographic. For example, the rate of females was slightly higher than the rate of males on average, and the rate difference tended to increase as the age bands increased. This trend was consistent with the female and male rates in each of the demographic Tables 2 through 5. The race/ethnicity rates from the CDPHE were consistent with the rates in the study sample. For example, White was the largest category within the 85% range, and Hispanic was next within the 16 to 18% range. However, the rate of Hispanic individuals in the study sample was lower than the overall Colorado rate for individuals 65 and older. The rate of individuals in the Black category in the study was 2 to 3%: this was consistent with the data provided by the CDPHE. The rate individuals in the Native American Indian and Hawaiian category in the study was also consistent with the CDPHE data .5 to 1%. The rate of individuals in the Asian category in the study was like the CDPHE data at 2%.

Table 2

*Demographics of Sample of Members Who Met First Steps Class Criteria*

| Personal characteristics | Invited to First Steps class conversation (*N*=12,540) | Not invited to First Steps class conversation (*N*=100321) |
|---|---|---|
| Age | | |
| Median | 73 | 71 |
| Min-max | 69-79 | 68.1-76.4 |
| Gender (*N*) | % (*N*) | % (*N*) |
| Female | 56.8 (7127) | 54.2% (54339) |
| Male | 43.2 (5413) | 45.8% (45982) |
| Race (*N*) | % (*N*) | % (*N*) |
| White | 84.4 (10587) | 69.8 (70028) |
| Hispanic | 5.4 (673) | 9.9 (9907) |
| Black | 2.9 (366) | 2.8 (2836) |
| Asian | 1.6 (198) | 2.4 (2395) |
| Native American/Hawaiian | 0.6 (78) | 0.7 (739) |
| Other | 4.9 (612) | 2.4 (2406) |
| Missing | 0.2 (26) | 11.9 (12010) |
| Health status/care group (*N*) | % (*N)* | % (*N*) |
| 1 | 3.0 (370) | *N/A |
| 2 | 64.1 (8039) | *N/A |
| 3 | 26.0 (3261) | *N/A |
| 4 | 6.7 (843) | *N/A |

*Note*. *Care Group information for members not invited to participate is not included because it must be anchored to a point in time, not just the window time (June 2014 and December 31, 2019).

Table 3

*Demographics of Sample of Members Who Met First Steps 1:1 Conversation Criteria*

| Personal characteristics | Invited to First Steps 1:1 conversation (*N*=5573) | Not invited to First Steps 1:1 conversation (*N*=100321) |
|---|---|---|
| Age | | |
| Median | 75 | 71 |
| Min-max | 70-82 | 68-76 |
| Gender (*N*) | % (*N*) | % (*N*) |
| Female | 57.3 (3192) | 54.2 (54339) |
| Male | 42.7 (2381) | 45.8 (45982) |
| Race (*N*) | % (*N*) | % (*N*) |
| White | 80.2 (4471) | 69.8 (70028) |
| Hispanic | 6.5 (362) | 9.9 (9907) |
| Black | 5.2 (288) | 2.8 (2836) |
| Asian | 1.9 (105) | 2.4 (2395) |
| Native American/Hawaiian | .7 (41) | .7 (739) |
| Other | 4.6 (258) | 2.4 (2406) |
| Missing | .9 (48) | 11.9 (12010) |
| Health status/Care group (*N*) | % (*N*) | % (*N*) |
| 1 | 3.1 (173) | *N/A |
| 2 | 50.5 (2817) | *N/A |
| 3 | 25.3 (1412) | *N/A |
| 4 | 20.5 (1143) | *N/A |

*Note*. *Care Group information for members not invited to participate is not included because it must be anchored to a point in time, not just the window time (June 2014 and December 31, 2019). Twenty-eight individuals missing a Care Group designation

Table 4

*Demographics of Sample of Members Who Met Next Steps 1:1 Conversation Criteria*

| Personal characteristics | Invited to Next Steps 1:1 conversation (*N*=1071) | Not invited to Next Steps 1:1 conversation (*N*=16495) |
|---|---|---|
| Age | | |
| Median | 76 | 80 |
| Min-max | 72-82 | 73.5-87.1 |
| Gender (*N*) | % (*N*) | % (*N*) |
| Female | 50.6 (542) | 53.9 (8890) |
| Male | 49.4 (529) | 46.1 (7605) |
| Race (*N*) | % (*N*) | % (*N*) |
| White | 77.7 (832) | 76.9 (12679) |
| Hispanic | 7.1 (76) | 8.9 (1481) |
| Black | 5.9 (63) | 3.3 (547) |
| Asian | 1.0 (11) | 0.9 (154) |
| Native American/Hawaiiain | 1.1 (12) | 0.9 (157) |
| Other | 6.1 (65) | 1.8 (296) |
| Missing | 1.1 (12) | 7.2 (1181) |
| Care group (*N*) | % (*N*) | % (*N*) |
| 1 | 0.1 (1) | * N/A |
| 2 | 13.6 (146) | * N/A |
| 3 | 42.4 (454) | * N/A |
| 4 | 43.9 (470) | * N/A |

*Note*. *Care Group information for members not invited to participate is not included because it must be anchored to a point in time, not just the window time (June 2014 and December 31, 2019).

Table 5

*Demographics of Members Who Met Advanced Steps 1:1 Conversation Criteria*

| Personal characteristics | Invited to Advanced Steps 1:1 conversation (*N*=5725) | Not invited to Advanced Steps 1:1 conversation (*N*=16950) |
|---|---|---|
| Age | | |
| Median | 82 | 82 |
| Min-max | 75-88 | 74-89 |
| Gender (*N*) | % (*N*) | % (*N*) |
| Female | 57.4 (3286) | 55.8 (9451) |
| Male | 42.6 (2439) | 44.2 (7499) |
| Race (*N*) | % (*N*) | % (*N*) |
| White | 80.1 (4584) | 77.0 (13055) |
| Hispanic | 6.4 (369) | 8.8 (1497) |
| Black | 4.3 (249) | 3.1 (520) |
| Asian | 1.3 (77) | 1.4 (229) |
| Native American/Hawaiian | 0.7 (40) | 0.8 (144) |
| Other | 4.5 (256) | 1.7 (281) |
| … Missing | 2.6 (150) | 7.2 (1224) |
| Care group (*N*) | % (*N*) | % (*N*) |
| 1 | 0.2 (14) | *N/A |
| 2 | 10.6 (604) | *N/A |
| 3 | 20.7 (1184) | *N/A |
| 4 | 68.4 (3916) | *N/A |

*Note*. *Care Group information for members not invited to participate is not included because it must be anchored to a point in time, not just the window time (June 2014 and December 31, 2019). Six individuals were missing a Care Group designation and one had a Care Group five, so they were removed from the analysis.

## Results of the Intervention

Members were invited to participate in the Life Care Planning service and offered either, First Steps, Next Steps, or Advanced Steps based on their health condition. While all the steps were offered in a one-on-one conversation format, First Steps also included a facilitator led class and a web-based tool that people could complete on their own. When individuals were invited to participate in the service this was documented in the electronic medical record. If the person participated or declined the service, then this was also documented. When someone attended the First Steps class this was noted as *completed*. If someone participated in a one-on-one conversation this was recorded as either *in-progress* or *completed*. Because the service was based on a staged approach to advance care planning people could participate in multiples steps as their health condition changed. For example, someone who was healthy could participate in the First Steps class, experience a health decline, and go on to participate in Next Steps. As a result of this progression, the member's last advance care planning activity was noted as the activity to tie to the completion of an advance directive, or not.

The Life Care Planning activities – invited, declined, class attended, 1:1 conversation in-progress, and 1:1 conversation completed were all documented in the electronic medical record in an area called the Life Care Planning Navigator. Within this navigator, there were Smartforms that captured discrete data, which was stored in Clarity tables, and was extracted using SAS coding. The various advance directive documents were also stored in the navigator but in the scanned directives tab using unique identifier codes. The demographic characteristics were documented in the demographics section of the patient’s electronic medical record.

There were multiple ways people could be invited to participate in the Life Care Planning First Steps options – the group facilitated class, web-based tool, and one-on-one conversation. These methods included an in-person or telephone invite and the other was from a bulk email or letter generated based on a care gap alert. All these methods were recorded and included in the data analysis.

There were three issues identified in the preliminary data analysis. One was associated with the low number of First Steps web-based eAdvance directives completed and found in the electronic medical record. Even though I reported the number of individuals invited to participate in the First Steps web-based tool, I could not report the number who did and did not participate. I could only report the number of individuals who completed an eAdvance directive for those invited and those not invited. Unfortunately, the web-based tool did not feed into the electronic medical record so I could not track participation at the member level. I could only track the completion of the eAdvance directive. As a result of this issue, the RQ2 results had to be modified to reflect the comparison of advance directive rates for individuals who participated in the First Steps class, one-on-one conversation, Next Steps one-on-one conversation, and Advance Steps one-on-one conversation.

The second issue encountered with the web-based tool was individuals who met Next Steps and Advanced Steps criteria also showed up with eAdvance Directives in their medical record. This was unexpected given the web-based tool is targeted to members who meet the First Steps criteria. Some of these individuals had been invited to Next or Advanced Steps 1:1 conversation and some participated and some did not but still went on to complete the web-based tool and eAdvance directive. While this was unexpected, it was not necessarily a negative outcome. During the conversation activity the Next Steps or Advanced Steps facilitator could have mentioned there is a web-based tool that people can complete on their own. This was confirmed by several Next and Advanced Steps facilitators who said they would share it with the health care agent who expressed interest in also completing their advance directive. Some of the patients with more advanced illness that completed a Next Steps or Advanced Steps conversation decided to complete their own eAdvance directive using the web-based tool.

The third issue encountered in the preliminary data analysis was the presence of Advanced Steps appropriate members who were invited to participate in and complete the First Steps one-on-one conversation activity. This prompted a chart review to determine why someone with advanced end of life illness, who you would not be surprised if they died within a year or less, were offered and participated in a First Steps 1:1 conversation. Based on chart review and conversations with the First Steps Faculty, there was a short period of time when the faculty was training facilitators to document the identification of a healthcare agent or Medical Durable Power of Attorney as a First Steps activity, and the later completion of an Advance Steps Medical Orders for Scope of Treatment as a second activity associated with an Advanced Steps 1:1 conversation. This was an error in practice that was corrected within a three to six-month period during the continued implementation of the program.

## Statistical Assumptions for Each Research Question

### Research Question 1

There were four research questions that were posed in this evaluation. RQ1 was used to determine if the rate of advance directives was different for those older adults who were offered one of the three Life Care Planning options compared to those who were not offered the options. Individuals were offered First, Next, or Advanced Steps based on their health condition, so the care groups helped to determine what step the member was likely to be offered. However, someone who has multiple chronic conditions with complications or near the end of life could choose to attend a First Steps class or the web-based tool instead of or in addition to what they were offered (i.e. Next Steps 1:1 or Advanced Steps 1:1 conversations).

RQ1: Is there a significant difference in the rate of completed advance directives for older adults who are offered and those who are not offered one of the three advance care planning options (group facilitated class, one-on-one facilitated conversation, and web-based tool)?

$H_0$: There is no significant difference in the rate of completed advance directives for older adults who are offered one of the three advance care planning options and those who are not offered one of the options.

$H_1$: There is a significant difference in the rate of completed advance directives for the older adults who are offered one of the three advance care planning options and those who are not offered one of the options.

There were two independent groups that were compared, those that were offered and those that were not offered one of the three advance care planning options. There was one independent variable: was the older adult offered the Life Care Planning intervention or not. This variable was categorical and dichotomous with a yes or no option. There was one dependent variable, was an advance directive completed or not. The dependent variable was categorical and dichotomous with a yes or no option. A Chi-square test of independence was performed to examine the relationship between being offered one of the Life Care Planning options and the completion of an advance directive that could be found in their electronic medical record. The statistics for each option are provided below.

The relationship between being offered the First Steps one-on-one conversation and the completion of an advance directive was significant, *X*2 (1, *N* = 5573) = 5965.1182, *p* <.001. Individuals who were offered the First Steps conversation had a 30.90% (*n* = 1724) advance directive completion rate compared to those who were not offered it at 4.90% (*n* = 5011) - so a 26% greater advance directive completion rate. The relationship between being offered the First Steps class and the completion of an advance directive was significant, *X*2 (1, *N* = 112,861) = 155.6332, *p* <.001. Individuals who were offered the First Steps class had a 7.64% (*n* = 958) advance directive completion rate compared to those who were not offered it at 4.90% (*n* = 5011). The members that were offered the First Steps 1:1 Web-based tool exhibited a 0.48% (*n* = 60) rate of completed advance directives compared to those who were not offered it at 4.99% (*n* = 5011). The results indicate the relationship between the web-based tool and the completion of an advance directive was not significant. In fact, those who were not offered the tool completed an advance directive 4.51% more than those who were offered it and this relationship was significant. The relationship between not being offered the First Steps web-based tool and the completion of an advance directive was significant, *X*2 (1, *N* = 112,861) = 529.8644, *p* <.001.

The members that were offered the Next Steps 1:1 conversation exhibited a 54.3% (*n* = 582) rate of completed advance directives compared to those who were not offered it at 29.9% (*n* = 4946). The relationship between being offered the Next Steps 1:1 conversation and the completion of an advance directive was significant, *X*2 (1, *N* = 17,566) = 276.6534, *p* <.001. The older adults who were offered the Next Steps 1:1 conversation exhibited a 24.4% higher rate of completed advance directives than those who were not offered it.

The members that were offered the Advanced Steps 1:1 conversation exhibited a 67.2% (*n* = 3848) rate of completed advance directives compared to those who were not offered it at 36.7% (*n* = 6048). The relationship between the being offered the Advanced Steps 1:1 conversation and the completion of an advance directive was significant, *X*2 (1, *N* = 22,675) = 1730.0328, *p* <.001. The older adults who were offered the Advanced Steps 1:1 conversation exhibited a 30.5% higher rate of completed advance directives than those who were not offered it.

Based on the results from the statistical tests above, I rejected the null hypothesis because there was a statistically significant difference in the rate of completed advance directives for the older adults who were offered the Life Care Planning First Steps class and First, Next, and Advanced Steps 1:1 conversation. The Chi-square statistics for each Life Care Planning option are provided in Table 6.

Table 6

*Comparison of Advance Directive Completion Rates for Members Offered the Life Care Planning Options and Those Not Offered It*

| Advance directive completion rate | Invited | Not invited | P value | Chi-square value | Degrees of freedom |
|---|---|---|---|---|---|
| | % (N) | % (N) | P | $X^2$ | |
| First Steps class | (N=12540) | (N=100321) | | | |
| Completed | 7.6 (958) | 4.90 (5011) | **<0.001** | 155.6332 | 1 |
| Not completed | 92.36 (11582) | 95.00 (95310) | | | |
| Web-Based tool | (N=12540) | (N=100321) | | | |
| Completed | 0.48 (60) | 4.99 (5011) | | | |
| Not completed | 99.52 (12480) | 95.00 (95310) | **<0.001** | 529.8644 | 1 |
| First Steps 1:1 | (N=5573) | (N=100321) | | | |
| Completed | 30.90 (1724) | 4.90 (5011) | **<0.001** | 5965.1182 | 1 |
| Not completed | 69.00 (3849) | 95.01 (95310) | | | |
| Next Steps 1:1 | (N=1071) | (N=16495) | | | |
| Completed | 54.30 (582) | 29.90 (4946) | **<0.001** | 276.6534 | 1 |
| Not completed | 45.66 (489)) | 40.03 (11549) | | | |
| Advance Steps 1:1 | (N=5725) | (N=16950) | | | |
| Completed | 67.20 (3848) | 36.70 (6048) | **<0.001** | 1730.0328 | 1 |
| Not completed | 32.79 (1877) | 64.32 (10902) | | | |

## Research Question 2

RQ2: For those older adults who participated in the Life Care Planning program, which advance care planning option is associated with the highest rate of completed advance directives?

$H_{01}$: The advance care planning options exhibit no significant difference in the older adults' advance directive completion rates.

$H_1$: The advance care planning options exhibit significant differences in the older adults' advance directive completion rates.

$H_{02}$: The older adults who participate in the classroom-based advance care planning option exhibit no significant difference in the rate of completed advance directives.

$H_2$: The older adults who participate in the classroom-based advance care planning option exhibit the lowest rate of completed advance directives.

$H_{03}$: The older adults who participate in the one-on-one advance care planning option exhibit no significant differences in the rate of completed advance directives.

$H_3$: The older adults who participate in a one-on-one advance care planning option exhibit the highest rate of completed advance directives.

$H_{04}$: The older adults who participate in the web-based advance care planning option exhibit no significant difference in the rate of completed advance directives.

$H_4$: The older adults who participate in the web-based advance care planning option exhibit neither the highest nor the lowest rate of completed advance directives.

The independent variable was the Life Care Planning intervention, and the three levels include the class, web-based tool, and one-on-one conversation. The dependent variable was categorical because it was recorded as yes or no to indicate if an advance directive was completed or not. A chi-square test was used to report the number and rate of individuals that did and did not complete an advance directive in each of the Life Care Planning steps. The chi-square statistics for each option are provided below.

The members who were offered and participated in the First Steps class exhibited a 31.4% (*n* = 543) rate of completed advance directives compared to those who were offered but did not participate at 3.8% (*n* = 415). In other words, First Steps Class participators had a 27.6% higher advance directive completion rate than the nonparticipators. The relationship between participation in the First Steps Class and the completion of an advance directive was significant, *X*2 (1, *N* = 12,540) = 1605.39, *p* <.001.

The members who were offered and participated in the First Steps 1:1 conversation exhibited a 41.3% (*n* = 3924) rate of completed advance directives compared to those who were offered but did not participate at 6.3% (*n* = 1631). In other words, First Steps 1:1 conversation participants had a 35% higher advance directive completion rate than nonparticipators. The relationship between the participation in the First Steps 1:1 conversation and the completion of an advance directive was significant, *X*2 (1, *N* = 5573) = 654.16, *p* <.001.

The members who were offered and participated in the Next Steps conversation exhibited a 69.5% (*n* = 366) rate of completed advance directives compared to those who were not offered but did not participate at 39.7% (*n* = 216). The Next Steps participators had a 29.8% higher advance directive completion rate than nonparticipators. The relationship between the participation in the Next Steps 1:1 and the completion of an advance directive was significant, *X*2 (1, *N* = 1071) = 95.45, *p* <.001.

The members who were offered and participated in the Advanced Steps conversation exhibited a 70% (*n* = 3589) rate of completed advance directives compared to those who were not offered but did not participate at 43.1% (*n* = 259). The Advanced Steps participators had a 26.9% higher advance directive completion rate than the nonparticipators. The relationship between the participation in the Advanced Steps 1:1 and the completion of an advance directive was significant, *X*2 (1, *N* = 5725) = 177.26, *p* <.001.

Based on these results in Table 7, the Advance Steps one-on-one conversation exhibited the highest advance directive completion rate, the First Steps Class exhibited the lowest rate, and the First Steps and Next Steps one-on-one conversations exhibited neither the lowest nor the highest advance directive completion rates. Based on the option, the class format exhibited the lowest rate, and the one-on-one conversation exhibited the highest rate which was in line with the hypotheses for RQ2. Again, $H_{04}$ and $H_4$ could not be tested, accepted, or rejected due to the inability to track participation in the First Steps web-based tool.

The invited or not invited data was available for the First Steps web-based tool but the participation data was not because the data lived outside the electronic medical record. The only evidence of participation was the dependent variable, the presence of a completed eAdvance directive. Based on this barrier, the First Steps web-based data was not included in Table 7. The ranking for the highest, lowest, and neither highest or lowest advance directive completion rates were presented for the First Steps Class, First Steps conversation, the Next Steps conversation, and the Advanced Steps conversation.

There were four null hypotheses associated with RQ2. Based on the data presented in Table 7, the null hypotheses for $H_{01}$, $H_{02}$ and $H_{03}$ were rejected. Unfortunately, the null hypothesis for $H_{04}$ could not be accepted or rejected due to the inability to analyze data for individuals who were offered and participated in the web-based tool.

Table 7

*Advance Directive Completion Rates for Members Who Participated in a Life Care Planning Step*

| Advance directive completion rate | Participators | Nonparticipators | P value | Chi-square value | Degrees of freedom |
|---|---|---|---|---|---|
| First Steps class | % (*N*) | % (N) | *P* | $X^2$ | |
| AD completed | 31.4 (543) | 3.8 (415) | **<0.001** | 1605.39 | 1 |
| First Steps 1:1 | (*N*=3924) | (*N*=1631) | | | |
| AD completed | 41.3 (1621) | 6.3 (103) | **<0.001** | 654.16 | 1 |
| Next Steps 1:1 | (*N*=527) | (*N*=544) | | | |
| AD completed | 69.5(366) | 39.7% (216) | **<0.001** | 95.45 | 1 |
| Advanced Steps 1:1 | (*N*=5124) | (*N*=601) | **<0.001** | 177.26 | 1 |
| AD completed | 70.0 (3589) | 43.1(259) | | | |

*Note*. *First Steps Web-Based option was not included in the table due to inability to track participation outside of the completion of an eAdvance Directive.

## Research Question 3

RQ3: Of the older adult patients who are offered one of the three advance care planning options, what personal characteristics (age, gender, ethnicity, and health status) are associated with them participating or not?

$H_0$: Of the older adults who participate in one of the three advance care planning options, personal characteristics do not predict a significant difference in their rate of participation in the Life Care Planning program.

$H_1$: Of the older adults who participate in one of the three advance care planning options, age and health condition predict a significant difference in their rate of participation.

There were four predictor variables that represented personal characteristics (age, gender, ethnicity, and health status). Age was a continuous variable. Gender was a categorical dichotomous variable. Health status was an ordinal variable indicated by a Care Group number, one to four. Ethnicity was a nominal variable with seven options. There was one dependent variable: did the older adult participate or not. Logistic regression was used to predict the probability of the older adult participating or not in one of the three options based on gender, ethnicity, and health status.

Logistic regression was used to predict the odds of the older adult participating or not in one of the three Life Care Planning options based on age, gender, ethnicity, and health status. The data for personal characteristics is presented in Tables 8-11. It is broken down by First Steps Class, First Steps one-on-one conversation, Next Steps one-on-one conversation, and Advanced Steps one-on-one conversation. Originally this data was going to be presented in terms of the format only, i.e. class, one-on-one conversation, and web-based tool. However, after reviewing the data it was clear this would not be fair given the role health status played on the members' likelihood to be invited to participate in either First, Next, or Advanced Steps. Due to the inability to track participation in the First Steps web-based tool, outside of a completed eAdvance Directive, this option was not included in Tables 8-15. Overall, across all steps, age was the greatest predictor of participating in one of the three Life Care Planning options when it was offered.

There was one null hypothesis associated with research question three. Based on the data presented in Tables 8 through 11, I rejected the null hypothesis because of the older adults who participated in one of the three advance care planning options, age was a statistically significant predictor of higher participation in the Life Care Planning program. Health status, represented by Care Group, was as well for the First Steps class, First Steps conversation, and Advanced Steps conversation but not for the Next Steps conversation. As a reminder, there were four Care Groups one through four. Individuals in Care Group 1 were healthy, Care Group 2 healthy with well managed chronic conditions, Care Group 3 had multiple chronic conditions and were experiencing complications that prevented them from returning to their baseline, and Care Group 4 were individuals who you would not be surprised if they died within one year or less.

Of the individuals who were offered the First Steps Class, those in the 71 to 75 age range were 1.4 times more likely to participate than those in the 65-70 age range. The odds of participating increased to 1.5 times more likely to participate in the 76 to 85 age range. Those in the 86-108 were 1.2 times more likely to participate than those in the 65-

70 age range – slightly lower than the 71-75 and 76-85 range but still statistically significant. The First Steps class results are displayed in Table 8. The First Steps class was the only option that was associated with higher odds of participation based on gender, with females being 1.3 times more likely to participate then men.

Of those who were offered the First Steps conversation, the odds of participation increased with each incremental increase in age band. The 65-70 age band was used as a reference point and based on this, individuals in the 71-75 age band were twice as likely to participate compared to those in the 65-70 age band (1.973, 95% CI: 1.689, 2.305). Older adults in the 76-85 age band were 2.5 times more likely to participate than those in the 65-70 age band (2.502, 95% CI: 2.162, 2.896). Individuals in the 86-108 age band were 4 times more likely to participate than those in the 65-70 age band (3.921, 95% CI: 3.152, 4.878). Again, health condition as indicated by Care Group, played a statistically significant role in higher odds of First Steps conversation participation, particularly for those in Care Group 4 who were 3.7 times more likely to participate that those in the reference group, Care Group 2 (3.683, 95% CI: 3.051, 4.445). These results are displayed in Table 9.

Next Steps was the exception because age, gender, ethnicity, and Care Group did not predict statistically significant higher or lower odds of participation as indicated in Table 10. Finally, of those who were offered an Advanced Steps 1:1 conversation health status was the only personal characteristic that was associated with a higher rate of participation. Individuals in Care Group 3 with multiple comorbidities were 1.4 times more likely to participate than those in Care Group 4 who were healthier (1.378, 95% CI:

1.058, 1.796). The older adults who were in Care Group 4 with advanced illness, near end of life, were 1.4 times more likely to participate than the healthy older adults with well managed conditions in Care Group 2 (1.44, 95% CI: 1.101, 1.884). Again, ethnicity did not play an important role in increasing or decreasing the odds of participation in an Advanced Steps conversation, However, there was one exception with individuals in the Native American / Hawaiian category - their odds of participation were lower. Members in this ethnic category were .4 times less likely than Whites to participate in the Advanced Steps conversation - OR (.392, 95% CI: .185, .827). The results associated with individuals who were invited to participate in an Advanced Steps 1:1 conversation are displayed in Table 11.

Table 8

*Participation and Nonparticipation Proportions Based on Personal Characteristics for Members Offered First Steps Class*

| Personal characteristics | Participant (*n*=1729) | Nonparticipant (*n*=10811) | Ref. | Odds ratio | OR 95% CL |
|---|---|---|---|---|---|
| Age mean (SD) | 75.1 (6.7) | 74.2 (6.9) | | 1.019 | 1.012, 1026 |
| | % (*N*) | % (*N*) | | | |
| 65-70 | 28.1 (485) | 36.0 (3894) | 65-70 | | |
| 71-75 | 29.7 (513) | 26.7 (2891) | | **1.424** | **1.247, 1.627** |
| 76-85 | 34.4 (594) | 29.4 (3178) | | **1.5** | **1.319, 1.707** |
| 86-108 | 7.9 (137) | 7.8 (848) | | **1.297** | **1.058, 1.590** |
| Gender | | | | | |
| Female | 61.7 (1067) | 65.1 (6060) | Male | **1.26[** | **1.139, 1.402** |
| Male | 38.3 (662) | 43.9 (4751) | | | |
| Ethnicity | | | | | |
| Asian | 1.45 (25) | 1.6 (173) | White | 0.88 | 0.579, 1.343 |
| Black | 1.9 (34) | 3.1 (332) | | 0.623 | 0.436, 0.891 |
| Hispanic | 5.4 (94) | 5.4 (579) | | 0.988 | 0.789, 1.237 |
| Nat. Amer. /Hawaiin | 0.3 (5) | 0.7 (73) | | 0.417 | 0.168, 1.033 |
| White | 86.4 (1494) | 84.1 (9093) | | | |
| Other | 3.9 (67) | 5.0 (545) | | 0.748 | 0.577, 0.970 |
| Missing | 0.6 (10) | 0.2 (16) | | **3.084** | **1.723, 8.398** |
| *Care group | | | | | |
| 1 | 7.2 (124) | 2.3 (246) | | **3.06** | **2.444, 3.831** |
| 2 | 65.8 (1137) | 63.8 (6902) | 2 | | |
| 3 | 20.6 (357) | 26.8 (2904) | | **0.746** | **0.658, 0.847** |
| 4 | 5.8 (101) | 6.7 (742) | | 0.826 | 0.665, 1.027 |

*Note*. *27 individuals had missing CG and one erroneously reported as CG5, not included in the CG description or logistics regression analysis.

*Care Group 1 = healthy, Care Group 2 = healthy with well managed conditions, Care Group 3 = multiple chronic conditions with complications, and Care Group 4 = end of life within 1 year or less.

Table 9

*Participation and Nonparticipation Proportions Based on Personal Characteristics for Members Offered First Steps 1:1 Conversation*

| Personal characteristics | Participant (*n*=3942) | Nonparticipant (*n*=1631) | Ref. | Odds ratio | OR 95% CL |
|---|---|---|---|---|---|
| Age Mean (SD) | 77.2 (7.5) | 73.9 (7.0) | | **1.066** | **1.057, 1.075** |
| | % (*N*) | % (*N*) | | | |
| 65-70 | 21.0(829) | 39.75(647) | 65-70 | | |
| 71-75 | 25.3(996) | 24.2 (394) | | **1.973** | **1.689, 2.305** |
| 76-85 | 37.9 (1494) | 28.6 (466) | | **2.502** | **2.162, 2.896** |
| 86-108 | 15.8 (623) | 7.6 (124) | | **3.921** | **3.152, 4.878** |
| Gender | | | | | |
| Female | 56.7 (2234) | 58.7 (958) | Male | 0.919 | 0.817, 1.033 |
| Male | 43.3 (1708) | 41.3 (673) | | | |
| Ethnicity | | | | | |
| Asian | 1.7 (66) | 2.4 (39) | White | 0.668 | 0.448, 0.998 |
| Black | 4.7 (184) | 6.4 (104) | | 0.699 | 0.545, 0.896 |
| Hispanic | 5.9 (234) | 7.8 (128) | | 0.722 | 0.577, 0.904 |
| Nat. Amer. /Hawaiiain | 0.8 (30) | 0.7 (11) | | 1.077 | 0.538, 2.156 |
| White | 81.3 (3205) | 77.6 (1266) | | | |
| Other | 4.7 (184) | 4.5 (74) | | 0.982 | 0.744, 1.296 |
| Missing | 0.9 (39) | 0.05 (9) | | 1.709 | 0.826, 3.536 |
| *Care group | | | | | |
| 1 | 0.7 (129) | 2.7 (44) | | **1.631** | **1.149, 2.136** |
| 2 | 45.8 (1810) | 61.7 (1007) | 2 | | |
| 3 | 25.2 (982) | 26.4 (430) | | **1.271** | **1.108, 1.457** |
| 4 | 25.2 (993) | 9.2 (150) | | **3.683** | **3.051, 4.445** |

*Note*. *27 individuals had missing CG and one erroneously reported as CG5, not included in the CG description or logistics regression analysis.

*Care Group 1 = healthy, Care Group 2 = healthy with well managed conditions, Care Group 3 = multiple chronic conditions with complications, and Care Group 4 = end of life within 1 year or less.

Table 10

*Participation and Nonparticipation Proportions Based on Personal Characteristics for Members Offered Next Steps 1:1 Conversation*

| Personal characteristics | Participant (*n*=527) | Nonparticipant (*n*=544) | Ref. | Odds ratio | OR 95% CL |
|---|---|---|---|---|---|
| Age mean (SD) | 76.8 (6.6) | 77.2 (6.9) | | 0.992 | 0.975, 1.010 |
| | % (*N*) | % (*N*) | | | |
| 65-70 | 18.0 (95) | 19.3 (105) | 65-70 | | |
| 71-75 | 28.5 (150) | 22.9 (125) | | 1.326 | 0.921, 1.911 |
| 76-85 | 41.8 (220) | 45.2 (246) | | 0.988 | 0.709, 1.377 |
| 86-108 | 11.8 (62) | 12.5 (68) | | 1.008 | 0.648, 1.568 |
| Gender | | | | | |
| Female | 52.9 (279) | 48.4 (263) | Male | 1.202 | 0.946, 1.528 |
| Male | 47.1 (248) | 51.6 (281) | | | |
| Ethnicity | | | | | |
| Asian | 0.8 (4) | 1.3 (7) | White | 0.566 | 0.164, 1.948 |
| Black | 4.9 (26) | 6.8 (37) | | 0.696 | 0.414, 1.170 |
| Hispanic | 7.0 (37) | 7.2 (39) | | 0.94 | 0.587, 1.503 |
| Nat. Amer. /Hawaiiain | 1.1 (6) | 1.1 (6) | | 0.99 | 0.317, 3.096 |
| White | 79.3 (418) | 76.1 (414) | | | |
| Other | 5.3 (28) | 6.8 (37) | | 0.75 | 0.450, 1.247 |
| Missing | 1.5 (8) | 0.7 (4) | | 1.981 | 0.592, 6.628 |
| *Care group | | | | | |
| 1 | 0 | 0.02 (1) | | N/A | N/A |
| 2 | 13.7 (72) | 13.6 (74) | 2 | | |
| 3 | 41.4 (218) | 43.4 (236) | | 0.949 | 0.654, 1.379 |
| 4 | 44.9 (237) | 42.8 (233) | | 1.045 | 0.721, 1.516 |

*Note*. *Care Group 1 = healthy, Care Group 2 = healthy with well managed conditions, Care Group 3 = multiple chronic conditions with complications, and Care Group 4 = end of life within 1 year or less.

Table 11

*Participation and Nonparticipation Proportions Based on Personal Characteristics for Members Offered Advanced Steps 1:1 Conversation*

| Personal characteristics | Participant (*n*=5124) | Nonparticipant (*n*=601) | Ref. | Odds ratio | OR 95% CL |
|---|---|---|---|---|---|
| Age mean (SD) | 81563 (8.3) | 81.0 (8.5) | | **1.103** | **1.003, 1.023** |
| | % (*N*) | % (*N*) | | | |
| 65-70 | 10.9 (563) | 14.5 (87) | 65-70 | | |
| 71-75 | 13.7 (701) | 14.9 (90) | | | |
| 76-85 | 38.9 (1997) | 37.3 (224) | | | |
| 86-108 | 36.4 (1863) | 33.2 (200) | | | |
| Gender | | | | | |
| Female | 57.65 (2952) | 55.6 (334) | Male | 1.086 | 0.916, 1.288 |
| Male | 42.2 (2172) | 44.4 (267) | | | |
| Ethnicity | | | | | |
| Asian | 1.3 (68) | 1.5 (9) | White | 0.859 | 0.426, 1.733 |
| Black | 4.1 (210) | 6.5 (39) | | 0.612 | 0.429. 1.733 |
| Hispanic | 6.5 (335) | 5.7 (34) | | 1.12 | 0.777, 1.615 |
| Nat. Amer. /Hawaiin | 0.6 (31) | 1.5 (9) | | **0.392** | **0.185, 0.827** |
| White | 80.3 (4116) | 77.9 (468) | | | |
| Other | 4.4 (226) | 4.9 (30) | | 0.857 | 0.578, 1.269 |
| Missing | 2.7 (138) | 2.0 (12) | | 1.308 | 0.719, 2.377 |
| *Care group | | | | | |
| 1 | 0.3 (13) | 0.2 (1) | | N/A | N/A |
| 2 | 10.2 (523) | 13.5 (81) | 2 | | |
| 3 | 20.0 (1025) | 26.5 (159) | | **1.378** | **1.058, 1.796** |
| 4 | 69.4 (3558) | 59.6 (358) | | **1.44** | **1.101, 1.884** |

*Note*. *Six with missing Care Groupings and one with a 5 designation, not included in analysis *Care Group 1 = healthy, Care Group 2 = healthy with well managed conditions, Care Group 3 = multiple chronic conditions with complications, and Care Group 4 = end of life within 1 year or less.

## Research Question 4

RQ4: Of the older adult patients who are offered one of the three advance care planning options and participate, what personal characteristics are associated with them completing an advance directive?

$H_0$: Of the older adults who participate in one of the three advance care planning options, their personal characteristics do not significantly predict their advance directive completion rate.

$H_1$: Of the older adults who participate in one of the three advance care planning options, their personal characteristics significantly predict their advance directive completion.

Research question 4 addressed members who were invited and participate in one of the three advance care planning options. There were four predictor variables that were personal characteristics (age, gender, ethnicity, and health status). The dependent variable was the completion of an advance directive or not after participating in one of the three advance care planning options.

Logistic regression was used to predict the odds of the older adult completing an advance directive based on their personal characteristics. The data for personal characteristics is presented in Tables 12-15. Like the data presented in Tables 8-11 for RQ3, the data is displayed by First Steps class, First Steps one-on-one conversation Next Steps one-on-one conversation, and Advanced Steps one-on-one conversation. Again, the original plan was to present the data in terms of the format only, i.e. one-on-one conversation, class, and web-based tool. However, after reviewing the data it was clear this would not be fair given the role health status played on the members' likelihood to be invited to participate in either First, Next, or Advanced Steps. The statistics for each option are reported below.

In Table 12, gender and ethnicity were not statistically significant in predicting advance directive completion for those who were invited and participated in the First Steps class. Care Group 4 was the only health status that was statistically significant in predicting advance directive completion. Individuals in this Care Group were 1.5 times more likely to complete an advance directive than individuals in Care Group 1(1.575, 95% CI: 1.038, 2.390). Again, age was the primary characteristic that was statistically significant in predicting advance directive completion. The older adults in the 76-85 age band were 1.6 times more likely to complete an advance directive than those in the 65-70 age band (1.583, 95% CI: 1.219, 2.056). Individuals in 86-108 age band were 1.7 times more likely to complete an advance directive compared to those in the 65-70 age band (1.723, 95% CI: 1.157, 2.566) likely to complete an advance directive following participation in the class.

In Table 13, again the First Steps one-on-one conversation, gender and ethnicity did not predict advance directive completion for those who were offered and participated. Only the Care Group 4 health status was associated with a higher advance directive completion rate. Individuals in Care Group 4 that were invited and participated in the First Steps one-on-one conversation were 2.1 times more likely to complete an advance directive compared to healthier individuals in the reference group, Care Group 2 (2.078, 95% CI: 1.178, 2.342). Age was the primary predictor of advance directive completion across the four age bands, 65-70, 71-75, 76-85, and 86-108. All the odds ratios in each age band were statistically significant in predicting advance directive completion in the First Steps one-on-one conversation. Likelihood of advance directive completion increased progressively as you moved up from the reference group, 65-70 (1.03, 95% CI: 1.021, 1.039). When compared to the older adults in the 65-70 age band, individuals in the 71-75 age band were 1.3 times more likely to complete an advance directive (1.285, 95% CI: 1.059, 1.559), individuals in the 76-85 age range were 1.7 times more likely to complete an advance directive (1.66, 95% CI: 1.391, 1.983), and individuals in the 86-108 age band were 1.9 times more likely to complete an advance directive (1.854, 95% CI: 1.497, 2.296).

In Table 14, the older adults' who were invited and participated in Next Steps exhibited statistical significance in predicting advance directive completion in only one category: individuals whose ethnicity was Black. They were 31% less likely to complete an advance directive compared to their white counterparts who also participated in a Next Steps conversation (.309, 95% CI: .138, .692). Surprisingly, age, gender, and health status were not statistically significant in predicting advance directive completion for individuals who were invited and participated in the Next Steps conversation.

In Table 15, the older adults who were invited and participated in an Advanced Steps conversation, personal characteristics played a minimal role in influencing advance directive completion rates. Older adults in the 86-108 age band were 78% less likely to complete an advance directive compared to individuals in the 65-70 age band (.776, 95% CI: .630, .956). All other personal characteristics, gender, ethnicity, and health status were not statistically significant in predicting advance directive completion rates. The odds ratios associated with these personal characteristics are displayed in Table 12.

Table 12

*Of Those Who Participated: Advance Directive Completion Proportions Based on Personal Characteristics for Members Offered First Steps Class*

| Personal characteristics | AD completers (*n*=543) | AD noncompleters (*n*=1186) | Ref. | Odds ratio | OR 95% CL |
|---|---|---|---|---|---|
| Age mean (SD) | 76.2 (7.0) | 74.6 (6.4) | | **1.035** | **1.020, 1.501** |
| | % (*N*) | % (*N*) | | | |
| 65-70 | 23.9 (130) | 29.9 (355) | 65-70 | | |
| 71-75 | 26.2 (142) | 31.3 (371) | | 1.045 | 0.791, 1.381 |
| 76-85 | 40.2 (218) | 31.7 (376) | | **1.583** | **1.219, 2.056** |
| 86-108 | 9.8 (53) | 7.15 (84) | | **1.723** | **1.157, 2.566** |
| Gender | | | | | |
| Female | 61.1 (332) | 61.9 (735) | Male | 0.965 | 0.784, 1.189 |
| Male | 38.9 (211) | 38.0 (451) | | | |
| Ethnicity | | | | | |
| Asian | 0.9 (5) | 1.7 (20) | White | 0.538 | 0.201, 1.442 |
| Black | 0.9 (5) | 2.4 (29) | | 0.371 | 0.143, 0.964 |
| Hispanic | 6.4 (35) | 4.9 (59) | | 1.277 | 0.829, 1.967 |
| Nat. Amer. /Hawaiiain | 0.0 (0) | 0.4 (5) | | N/A | N/A |
| White | 87.3 (474) | 86.0 (1020) | | | |
| Other | 0.4 (22) | 3.8 (45) | | 1.052 | 0.625, 1.772 |
| Missing | 0.4 (2) | 0.7 (8) | | 0.538 | 0.114. 2.543 |
| *Care group | | | | 1.128 | 0.971, 1.311 |
| 1 | 7.4 (40) | 7.1 (84) | | 1.098 | 0.738, 1.633 |
| 2 | 63.4 (344) | 66.9 (793) | 2 | | |
| 3 | 21.2 (115) | 20.4 (242) | | 1.095 | 0.848, 1.414 |
| 4 | 7.6 (41) | 5.1 (60) | | **1.575** | **1.038, 2.390** |

*Note*. * Ten individuals are missing a Care Group designation so not included in the analysis

*Care Group 1 = healthy, Care Group 2 = healthy with well managed conditions, Care Group 3 = multiple chronic conditions with complications, and Care Group 4 = end of life within 1 year or less.

Table 13

*Of Those Who Participated: Advance Directive Completion Proportions Based on Personal Characteristics for Members Offered First Steps 1:1 Conversation*

| Personal characteristics | AD completers (*n*=1621) | AD noncompleters (*n*=2321) | Ref. | Odds ratio | OR 95% CL |
|---|---|---|---|---|---|
| Age mean (SD) | 78.2 (7.5) | 76.6 (7.5) | | **1.03** | **1.021, 1.039** |
| | % (*N*) | % (*N*) | | | |
| 65-70 | 16.8 (272) | 24.0 (557) | 65-70 | | |
| 71-75 | 23.7 (384) | 26.4 (612) | | **1.285** | **1.059, 1.559** |
| 76-85 | 41.3 (669) | 35.6 (825) | | **1.661** | **1.391, 1.983** |
| 86-108 | 18.3 (296) | 14.1 (327) | | **1.854** | **1.497, 2.296** |
| Gender | | | | | |
| Female | 57.6 (934) | 56.0 (1300) | Male | 1.068 | 0.939, 1.214 |
| Male | 42.4 (687) | 43.4 (1021) | | | |
| Ethnicity | | | | | |
| Asian | 1.5 (24) | 1.8 (42) | White | 0.835 | 0.503, 1.384 |
| Black | 4.9 (80) | 4.5 (104) | | 1.123 | 0.832, 1.515 |
| Hispanic | 6.6 (107) | 5.5 (127) | | 1.23 | 0.942, 1.606 |
| Nat. Amer. /Hawaiin | 0.7 (11) | 0.8 (19) | | 0.845 | 0.401, 1.782 |
| White | 80.4 (1303) | 81.9 (1902) | | | |
| Other | 4.9 (79) | 4.5 (105) | | 1.098 | 0.813, 1.483 |
| Missing | 1.1 (17) | 0.9 (22) | | 1.128 | 0.597, 2.132 |
| *Care group | | | | **1.359** | **1.263, 1.462** |
| 1 | 3.3 (53) | 3.27 (76) | | 1.266 | 0.880, 1.821 |
| 2 | 39.7 (643) | 50.3 (1167) | 2 | | |
| 3 | 23.8 (385) | 25.7 (597) | | 1.170 | 0.997, 1.821 |
| 4 | 32.7 (530) | 19.9 (463) | | **2.078** | **1.178, 2.432** |

*Note*. *27 missing a Care Group status and one has a value of five, not included in the analysis

*Care Group 1 = healthy, Care Group 2 = healthy with well managed conditions, Care Group 3 = multiple chronic conditions with complications, and Care Group 4 = end of life within 1 year or less.

Table 14

*Of Those Who Participated: Advance Directive Completion Proportions Based on Personal Characteristics for Members Offered Next Steps 1:1 Conversation*

| Personal characteristics | AD completers (*n*=366) | AD noncompleters (*n*=161) | Ref. | Odds raio | OR 95% CL |
|---|---|---|---|---|---|
| Age mean (SD) | 76.9 (6.5) | 76.6 (6.9) | | 1.007 | 0.979, 1.036 |
| | % (N) | % (N) | | | |
| 65-70 | 17.2 (63) | 19.9 (32) | 65-70 | | |
| 71-75 | 30.1 (110) | 24.8 (40) | | 1.397 | 0.799, 2.442 |
| 76-85 | 40.2 (147) | 45.3 (73) | | 1.023 | 0.614, 1.703 |
| 86-108 | 12.6 (46) | 9.9 (16) | | 1.460 | 0.718, 2.971 |
| Gender | | | | | |
| Female | 51.9 (190) | 55.3 (89) | Male | 0.873 | 0.602, 1.267 |
| Male | 48.1 (176( | 44.7 (72) | | | |
| Ethnicity | | | | | |
| Asian | 1.1 (4) | 0.0 (0) | White | N/A | N/A |
| Black | 3.0 (11) | 9.3 (15) | | **0.309** | **0.138, 0.692** |
| Hispanic | 8.2 (30) | 4.4 (7) | | 1.8081 | 0.773, 4.225 |
| Nat. Amer. /Hawaii. | 1.4 (5) | 0.6 (1) | | 2.109 | 0.244,18.236 |
| White | 80.3 (294) | 77.0 (124) | | | |
| Other | 4.4 (16) | 7.4 (12) | | 0.562 | 0.258, 1.224 |
| Missing | 1.6 (6) | 1.25 (2) | | 1.265 | 0.252 |
| *Care group | | | | 1.103 | 0.848, 1.436 |
| 1 | 0.0 (0) | 0.0 (0) | | N/A | N/A |
| 2 | 14.2 (52) | 12.4 (20) | 2 | | |
| 3 | 38.8 (142) | 47.2 (76) | | 0.719 | 0.400, 1.291 |
| 4 | 46.9 (172) | 40.4 (65) | | 1.018 | 0.565, 1.835 |

*Note*. *Care Group 1 = healthy, Care Group 2 = healthy with well managed conditions, Care Group 3 = multiple chronic conditions with complications, and Care Group 4 = end of life within 1 year or less.

Table 15

*Of Those Who Participated: Advance Directive Completion Proportions Based on Personal Characteristics for Members Offered Advanced Steps 1:1 Conversation*

| Personal characteristics | AD completers (*n*=3589) | AD noncompleters (*n*=1535) | Ref. | Odds ratio | OR 95% CL |
|---|---|---|---|---|---|
| Age mean (SD) | 81.6 (8.2) | 82.6 (8.6) | | **0.985** | **0.978, 0.992** |
| | % (*N*) | % (*N*) | | | |
| 65-70 | 11.3 (407) | 10.2 (156) | 65-70 | | |
| 71-75 | 14.3 (512) | 2.3 (189) | | 1.038 | 0.810, 1.332 |
| 76-85 | 39.6 (1423) | 37.4 (574) | | 0.950 | 0.771, 1.170 |
| 86-108 | 34.8 (1247) | 40.1 (616) | | **0.776** | **0.630, 0.956** |
| Gender | | | | | |
| Female | 57.0 (2047) | 58.9 (905) | Male | 0,924 | 0.819, 1.043 |
| Male | 42.9 (1542) | 41.0 (630) | | | |
| Ethnicity | | | | | |
| Asian | 1.2 (42) | 1.7 (26) | White | 0.673 | 0.411, 1.103 |
| Black | 4.0 (145) | 4.3 (65) | | 0.930 | 0.689, 1.255 |
| Hispanic | 6.5 (234) | 6.7 (101) | | 0.966 | 0.758, 1.231 |
| Nat. Amer. /Hawaiiain | 0.7 (26) | 0.35 (5) | | 2.168 | 0.830, 5.658 |
| White | 80.9 (2905) | 78.9 (1211) | | | |
| Other | 4.3 (154) | 4.7 (72) | | 0.892 | 0.669, 1.189 |
| Missing | 2.3 (83) | 3.6 (55) | | 0.629 | 0.455, 0.890 |
| *Care group | | | | 0.983 | 0.900, 1.073 |
| 1 | 0.2 (8) | 0.3 (5) | | N/A | N/A |
| 2 | 10.6 (381) | 9.3 (142) | 2 | | |
| 3 | 19.5 (700) | 21.2 (325) | | 0.803 | 0.636, 1.014 |
| 4 | 69.5 (2495) | 69.35 (1063) | | 0.875 | 0.712, 1.075 |

*Note*. * Four missing a Care Group designation and one with a five, removed from the analysis.

*Care Group 1 = healthy, Care Group 2 = healthy with well managed conditions, Care Group 3 = multiple chronic conditions with complications, and Care Group 4 = end of life within 1 year or less.

## Summary

The results presented for each of the four research questions indicated the Life Care Planning intervention increased the odds of completing an advance directive when it was offered to an individual, even if they did not go onto participate. This was true for all the members who were offered the intervention and went onto participate in the First Steps class, or the First, Next, or Advance Steps one-on-one conversations. The odds of the older adults completing an advance directive were significantly higher than those who did not participate. However, this was not true for the First Steps web-based tool as mentioned earlier in Chapter 3: we were unable to track participation in the web-based tool outside of the completion of an eAdvance directive. The personal characteristics of age and health status (Care Group) were associated with the highest odds of participating in the Life Care Planning intervention. Overall, gender and ethnicity did not significantly increase or decrease the odds of participation or the completion of an advance directive.

While Chapter 4 focused on the results for each of the research questions and associated hypotheses, Chapter 5 will transition into a discussion about how the results were interpreted and analyzed in the context of the theoretical framework. It will also outline the limitations of the study, describe recommendations for application of the findings to improve positive social change in the healthcare field, and recommend the need for further research based on the study limitations.

# Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative study was to investigate which advance care planning option within the Life Care Planning program was associated with the highest participation and advance directive completion rates in older adults and to understand the association between personal characteristics, participation in the program, and the completion of an advance directive. A nonequivalent group design was used to compare older adults' advance directive completion rate when participating in one of the three advance care planning interventions in the primary care setting. The advance care planning options included a one-on-one conversation led by a facilitator, a group class led by a facilitator, and a web-based tool that could be completed without assistance. Despite the large number of studies completed on the topic of advance care planning in the older adult population, there was a lack of studies addressing which type of advance care planning intervention results in the completion of a medical advance directive that is given to providers for inclusion in the medical record (Biondo et al., 2016; Detering et al., 2010; De Vleminck et al., 2013; Harrison et al., 2016; Kossman, 2014; Mack & Smith, 2012; Sessanna & Jezewski, 2008; Sudore et al., 2015; Sudore et al., 2017a; Sudore et al., 2017b). The study was conducted to fill this gap by comparing a large sample of older adults' participation rates when offered and advance directive completion rates when participating in the group facilitated class, the web-based tool, and the one-on-one conversation options within the Life Care Planning program. An issue was encountered with the web-based option. I was able to track whether a member was offered the web-based tool and whether they completed an eAdvance directive. However, I was not able to track the step in between these two activities, the participation in the web-based tool.

The advance care planning program evaluated in the study was based on the Respecting Choices advance care planning model. It was rebranded by Kaiser Permanente as the Life Care Planning program. The Respecting Choices program has been investigated in several randomized control trials and has been found to increase rates of advance care planning documentation in the medical record (Hammes & Rooney, 1998; Hammes, Rooney, & Gundrum, 2010; Hickman et al., 2010). However, what was not known about the program was which type of advance care planning option within the program was associated with the highest rate of participation and advance care planning documentation in the medical record.

The study included four research questions starting with a broad comparison of advance directive completion rates for two groups: older adults who were offered the Life Care Planning intervention and those who were not offered the intervention. I conducted the comparison across all Life Care Planning options: the First Steps class, the First Steps one-on-one conversation, the First Steps web-based tool, the Next Steps one-on-one conversation, and the Advanced Steps one-on-one conversation. The older adults who were offered all these options except the web-based tool exhibited higher advance directive completion rates than those who were not offered the intervention.

The second research question focused on the older adults who were offered the intervention and participated, to determine which step was associated with highest advance directive completion rates. However, the First Steps web-based tool had to be removed from the analysis of RQ2 because I was not able to track members who had participated or not in the web-based tool. I could only track their completion on an eAdvance directive. The older adults who participated in the Advanced Steps one-on-one conversations exhibited the highest advance directive completion rate. The individuals who participated in the First Steps class exhibited the lowest advance directive completion rate. The older adults who participated in the First Steps and Next Steps one-on-one conversations exhibited neither the highest nor the lowest advance directive completion rate.

Research Question 3 addressed the role personal characteristics played in increasing or decreasing the odds of participation in the Life Care Planning options. The personal characteristics included age, gender, ethnicity, and health status. Health status was indicated by Care Groups and ranged from 1 to 4. Care group 1 contained people who were healthy. Care Group 2 were healthy with well-managed chronic conditions. Care Group 3 contained people who had multiple chronic conditions who were experiencing complications that prevented them from returning to their baseline. Care Group 4 were likely to die within a year or less. Across all Life Care Planning Steps (First, Next, and Advanced), age was the strongest predictor of participation. Health status, represented by Care Group, was also a predictor of participation in the First Steps class, First Steps one-on-one conversation, and Advanced Steps one-on-one conversation. The exception was the Next Steps one-on-one conversation, where health status did not predict participation. The First Steps web-based tool could not be included in the findings because I could not track participation outside of the completion of the eAdvance

Directive. Therefore, I did not know whether personal characteristics played a role in increasing or decreasing the odds of participation. The First Steps class was the only option that was associated with higher odds of participation based on gender with females being 1.3 times more likely to participate than men (1.264, 95% CI: 1.139, 1.402). Ethnicity was not statistically significant in predicting participation in Life Care Planning options. However, there was one exception with Native American/Hawaiian individuals who were 40% less likely to participate in the Advanced Steps conversation. Age and health status were the strongest predictors of participation in the Advanced Steps conversation. However, age, gender, ethnicity, and Care Group did not predict statistically significant higher or lower odds of participation in the Next Steps conversation.

Research Question 4 addressed the role personal characteristics played in predicting advance directive completion rates for older adults who were offered Life Care Planning and went on to participate in one of the options. For those who were offered and participated in the First Steps conversation and First Steps class, gender and ethnicity did not predict advance directive completions rates, but Care Group did, with individuals in Care Group 4 exhibiting higher odds of completing an advance directive. Age was the strongest predictor of advance directive completion for those who participated in the First Steps conversation. As the older adults’ age increased, their odds of completing an advance directive increased. Of the individuals who participated in the Next Steps conversation, age, gender, ethnicity, and health status did not predict advance directive completion. One exception was the ethnicity category in which individuals who identified as Black were less likely to complete an advance directive than their White counterparts who served as the reference group. Of the individuals who participated in the Advanced Steps conversation, gender, ethnicity, and health status were not predictors of advance directive completion. However, the 86-108 age band was associated with lower odds of completing an advance directive.

## Interpretation of the Findings

The activity of being invited to participate in the Life Care Planning class and one-on-one conversation options was associated with higher advance directive completion rates; the exception was the web-based option. Based on feedback from the Life Care Planning faculty, this finding fit with their experience when inviting members to participate in an activity (B. Darden & P. Schreiner, personal communication, September 27, 2019). For example, when faculty invited members to participate, the member would sometimes tell them they had already completed an advance directive but had not given it to their provider. The Life Care Planning facilitator would ask the member to drop off or mail a copy of their advance directive to their medical office building so it could be included in their medical record. Some members preferred to complete their advance directive with their attorney, so the Life Care Planning invite acted as a prompt for members to act. If the member indicated that was the path they were going to take, then the Life Care Planning facilitator would ask the member to send their advance directive back to Kaiser Permanente in a postage paid envelope so it could be scanned into their medical record.

The Life Care Planning Faculty's anecdotal experience was similar to findings from a study in 2013 evaluating strategies to improve advance directive completion rates in the primary care setting using advanced practices nurses (APNs) (Donahue, 2013). The APNs in the study said individuals who declined the conversation would sometimes state they had a directive at home or preferred to complete it outside the office after discussing it with their family. The APNs followed up with these individuals to determine if they went on to complete their advance directive. However, the patients were often hard to reach. Based on the findings in the study by Donahue, the act of being invited to participate in advance care planning resulted in 40% of those individuals completing a directive even when they did not participate in the intervention.

For the individuals who were offered and participated in one of the three Life Care Planning options, the Advanced Steps on-one conversation was significantly associated with the highest rate of completed advance directives. The First Steps class exhibited the lowest advance directive completion rate and the First Steps and Next Steps one-on-one conversations exhibited neither the highest nor the lowest advance directive completion rate. The web-based tool was removed from the analysis because I was not able to track participation. However, given the high rate of individuals who were invited and the low number of completed eAdvance directives this option appeared to be associated with an extremely low advance directive completion rate.

Higher advance directive completion rates were significantly associated with the one-on-one conversation and this was consistent with a dated but relevant study conducted by Bravo, Dubois, and Wagneur (2008): they found interactive one-on-one conversations resulted in a higher advance directive completion rates than a didactic format that did not allow for questions and answers. The study mentioned earlier by Donahue (2013) was also consistent with the current study - the advance care planning one-on-one conversation resulted in high advance directive completion rates. Donahue (2013) believed higher advance directive completion rates occurred in the conversation format because the participants were able to ask questions, receive answers that were tailored to their conditions, and participate in a patient centric conversation. This type of interactive activity was consistent with what occurred in the Life Care Planning one-on-one conversation format, much more so than in the class format. For example, in the class format participants could ask questions but the facilitator was limited in terms of how much they could provide detailed, customized responses to the participants based on their health condition or specific circumstances. Jezewski, Meeker, Sessanna, and Finnell (2007) conducted a study and found group classes that were less didactic and more interactive allowing conversation between the participants resulted in higher advance directive completion rates than individualized conversations. The take away from the Jezewski et al. study is a facilitator led class may be a good option for reaching a larger number of participants, as long as it is formatted in a way that uses a combination of didactic, group interactive discussions, and allows for a robust question and answer session. The facilitators who led the First Steps classes in the current study tended to follow a more didactic approach when delivering information. The one-on-one conversation may have resulted in a higher rate of engagement and sense of commitment in the process. Given the anonymous nature of the web-based tool, individuals may have felt a lower sense of commitment and may have used the tool to *check out* the process with little intention to complete an advance directive.

The results from RQ3 and RQ4 indicated personal characteristics played a minimal role in predicting higher or lower participation and advance directive completion rates. For example, gender and ethnicity did not appear to have a strong influence on members' participation and advance directive completion rates. However, upon further consideration the findings could also indicate the Life Care Planning service was possibly being delivered in a way that appealed broadly to individuals of various genders and ethnicities. Based on feedback from the Life Care Planning Faculty this fits with their experience and feedback from members that said the model was very member-centric and incorporated opportunities for personalization based on gender, ethnicity, and spirituality (B. Darden & P. Schreiner, personal communication, September 27, 2019). The individuals who developed the Respecting Choices model and in particular, the advance care planning conversation tool, indicated this same sentiment and shared there was extensive research done on the development of the scripting used in the conversation and class format to ensure it was patient centered and unbiased (Briggs, 2004; Briggs & Hammes, 2008).

The Life Care Planning Next Steps one-on-one conversation exhibited the lowest predictability of participation and advance directive completion based on the personal characteristics of gender, ethnicity, age, and health status. Given that individuals were invited to participate in Next Steps when they started to experience health complications that prevented them from returning to their baseline, other factors such as a recent hospitalization or emergency department visits may have been a better predictor of participation and advance directive completion rates.. For example, someone who had multiple chronic conditions such as COPD, high blood pressure, diabetes, and arthritis and was hospitalized for COPD exacerbation and did not return back to their health status prior to the hospitalization, would have been a candidate for a Next Steps conversation. Therefore, a recent hospital or emergency department visit may have been a better predictor than age or health status. Additionally, individuals who experience a hospitalization visit are notified of their right to complete an advance directive upon admission or are asked to provide copies of their advance directives. This type of activity may make them more aware of the need to complete an advance directive if they had not already completed one. Questions such as, “what type of care would you want if you were unable to speak for yourself” becomes more of a relevant consideration after being hospitalized. Also, when people are in a hospital or emergency department setting, they may experience or become more familiar with treatments that they know they do or do not want in the future. However, this supposition was not supported by a dated study from Wissow et al. (2004) that evaluated factors that impacted older adults completing an advance directive in a primary care setting. Their results indicated recent hospitalization and emergency room visits were not related to completing a new advance directive. It is worth noting, some of their results were consistent with finding from the current study in terms of personal characteristics that did not impact the odds of an older adult completing an advance directive - these include gender, ethnicity, and number of chronic conditions. They did find that higher income was associated with greater odds of completing an advance directive. Supporting the idea that socioeconomic status should be a personal characteristic that is included in future studies. This finding also points out the need to pay attention to advance care planning offerings that are appealing to individuals from low, middle, and high-income brackets. In a recent study, Barkley et al. (2019) found that age, comorbidities, and hospitalizations did not significantly influence the odds of finding an advance directive or documented medical durable power of attorney in the electronic medical record. A study by Butler et al. (2015) may provide added insight into the relationship of a recent hospitalization and the completion of an advance directive that can be found in the patient's medical record. Their study focused a more targeted population, individuals with heart failure who were recently hospitalized, to understand what factors were associated with higher rates of advance directives in the patients' medical record. The researchers found a hospitalization visit of 5 or more days and/or an inpatient palliative care consult were associated with higher advance directive rates. Based on the literature some things to consider for future research is the length, reason for the hospital visit, number of hospital visits in the last six months, and/or the presence of a recent inpatient palliative consult to prime the patients receptivity to an advance care planning conversation and the importance of completing an advance directive. The element that may be missing from these studies, is the lack of a health care provider or advance care planning facilitator contacting the member post-hospital or emergency department discharge to talk about their experience and document their healthcare wishes.

## Interpretation of Findings in Context of Theoretical Framework

### Contributions to the Literature

The current study provided a practical example of using a theory-based model, such as the social cognitive theory, to understand factors that can influence older adults' advance care planning behaviors in the primary care setting, the relationship between the advance care planning environment, and personal characteristics that can potentially effect older adults' participation and advance directive completion rates. In the context of this study the environmental factors were the advance care planning options contained in the Life Care Planning program. The personal characteristics included were limited to what was available in the existing dataset; age, gender, ethnicity, and health status. The health behaviors included the outcome measures: advance care planning participation and the completion of an advance directive. The theory provided a framework for understanding the relationship between these triadic variables to determine if the environmental and personal characteristics increased or decreased the odds of participating or completing an advance directive. Despite the vast number of studies that have been conducted on the topic of advance care planning using health behavior change theories, it is difficult to find studies using the social cognitive theory. This gap in the literature was the impetus for the selection of the theoretical framework in this evaluation. The findings from this study can contribute to the interest in using this model to evaluate factors that can influence older adults advance care planning behaviors.

## Personal Characteristics

In the current study the personal characteristics, gender and ethnicity did not have a significant impact on older adults’ participation and advance directive completion rates across the three advance care planning options. The findings related to gender and ethnicity were consistent with a study conducted by Wissow et al. (2004). Both the Wisslow et al. study and the current study involved an evaluation of an advance care planning intervention to determine if it increased advance directive completion rates with older adults in a primary care setting. The primary difference between the studies was that Wisslow et al. only evaluated one type of advance care planning option – a physician trained to lead the advance care planning discussion.

Another earlier study conducted by Black and Reynolds (2008) found contrasting results regarding the association between gender and advance directive completion rates. In their study, they found women tend to exhibit higher rates of advance care planning. A possible explanation for earlier studies that found ethnicity being associated with higher or lower advance directive completion rates, could be that with more health care systems proactively addressing the topic with diverse populations, the disparities between ethnic groups are lessening (Koss & Baker, 2016). This statement is supported by findings from a study conducted by Koss and Baker that evaluated the difference in African American and White older adults’ advance directive completion rates between 2001 and 2012. The data in the Koss and Baker study was obtained from the Health and Retirement Study. Between 2001 and 2009 the older African American population exhibited lower advance directive completion rates than their White counterparts. However, between 2010 and

2012 the gap between the two ethnic groups began to narrow: the increase in odds for African Americans having a completed advance directive where greater than the increase in odds for Whites.

Another personal characteristic that was evaluated within the social cognitive theoretical framework was age. In the current study, I found a direct relationship between an increase in age and an increase in advance directive completion rates. This also appeared to be true for health condition in the First Steps class, First Steps one-on-one conversation and Advanced Steps one-on-one conversation. This did not hold true for the First Steps web-based tool or Next Steps one-on-one conversation. The latter findings were consistent with a prior study by Harrison et al. (2016) where the researchers found an inverse relationship between age and older adult's advance care planning behaviors. In the context of the theoretical model there appeared to be variation in the influence age had on participation and advance directive completion rates depending on the advance care planning option or environment.

Given the limited number of personal characteristics that were included in the current studies' archival data set, it is important to consider other characteristics that may be beneficial to evaluate in future studies. For example, researchers both within and outside the U.S. have found marital status, education, income, and spirituality can influence older adults advance care planning behaviors (Ohr, Jeong, Saul, 2017; Tripken, Elrod, & Bills, 2018; William, Priest, & Anderson, 2016). Ohr, Jeong, & Saul found that individuals' cultural and religious beliefs play an important role in older adults selecting life prolonging treatments or less invasive comfort focused care. Another study comparing older adults from a high income senior living community to older adults from a low income senior living community, found significant differences in knowledge about advance care planning, participation, and advance directive completion rates (Tripken, Elrod, & Bills, 2016). They also found differences in the locations where they had completed their advance care planning with the individuals from the high income community being more likely to complete their advance care planning with an attorney than the older adults from the low income community. Another important finding from this study was that while there were differences in knowledge about advance care planning and advance care planning behaviors, there were no significant differences between the groups regarding their beliefs about the benefits of advance care planning. This could suggest that socioeconomic barriers could contribute to the lower advance directive completion rates in the older adults from lower socioeconomic statuses. Findings from the study suggest a person's socioeconomic status whether that is race, income, or education can have a profound impact on their health outcomes and advance care planning behaviors. Given the findings from these studies, it would be beneficial to further explore these personal characteristics using the social cognitive theory to better understand the how they increase or decrease older adults' odds of participation in advance care planning options that are offered in a primary care setting.

## Advance Care Planning Option as an Environmental Factor

An important finding from this study was that the older adults who were offered the Life Care Planning class or one-on-one conversation options exhibited higher advance directive completion rates compared to those who were not offered it, regardless of whether they went on to participate or not. This speaks to the importance of a primary care environment where older adults are asked to participate in advance care planning and complete an advance directive in a usual care setting when they are not in crisis (Alano et al., 2010). It may also be related to prior studies that have found older adults are waiting for their health care team to ask them about advance care planning so when it does happen in a proactive way in usual care setting, it creates an opportunity for the older adult to think about the topic and discuss it with their family and trusted advisors (Wissow et al., 2004). Surveys asking older adults about how they would like to be engaged in the process have found most prefer to discuss the topic with their primary care provider or health care team when they are healthy. They also say, they are waiting for their provider to initiate the conversation. In a study by conducted by Gordon and Shade (1999) older adults in a managed care setting were two to three times more likely to have an advance directive in their medical record when their provider initiated the advance care planning conversation. This dated study was supported by a later study by Alano et al. who evaluated factors that influenced older adults' advance directive completion rates. The researchers found the probability of completing an advance directive was significantly influenced by the older adult being asked by their provider to complete an advance directive. They also found individuals who did not have an advance directive were more likely to say no one on their health care team talked to them about the importance of advance care planning.

There are many ways to engage people in advance care planning such as a web-based tool, a group facilitated class, or a one-on-one conversation. Each option is offered in a different environment that can potentially influence the odds of an older adult participating and going on to complete a directive. An important finding from the current study was the low advance directive completion rates associated with the First Steps web-based tool. The results were surprising given the increasing number of older adults who use web-based tools to manage their health care (Medlock et al., 2013). However, some findings indicate despite the growing number of older adults using the internet to seek out health information, this does not necessarily equate with the older adult acting on the information (Medlock et al., 2013). This may be what was observed with the web-based tool in the current study.

Finally, the low advance directive completion rates associated with the web-based tool in the current study, were not consistent with findings from multiple studies conducted on the PREPARE web-based tool (Sudore & Fried, 2010; Sudore et al., 2013, Sudore et al., 2014). It is important to note, the web-based tool in the Life Care Planning program was not an initial component of the well-researched Respecting Choices model. Although the content mirrored the content from the First Steps class and conversation format, it was delivered in a different format - on-line without live interaction from a facilitator. It may be beneficial to consider incorporating the PREPARE web-based tool into the First Steps delivering options. It has been extensively studied with ethnically diverse older adults and has been found to increase advance care planning behaviors such as participation, selection of a health care agent, identification of health care wishes, communication of these wishes to their health care agent and health care provider, completion of an advance directive, progression through the transtheoretical stages of change, and satisfaction with the website (Sudore et al., 2014; Sudore et al., 2016).

## Limitations of the Study

The sample in the current study was limited to retrospective medical records from the Kaiser Permanente Colorado region. Although it is not uncommon to use this type of sampling method in studies conducted in the health care system, it does represent sample bias which limits the ability to generalize the result to the entire population, older adults living in the U.S. (Vassar & Holzmann, 2013). An additional limitation of the study was that it was conducted within an HMO organization where the insurance group and the medical group function together within one system. A closed system such as this makes it easier for a member to participate in an advance care planning activity and ensure their advance directives are transferred to their electronic medical after participating. An example of how this occurs in the Kaiser Permanente Colorado system is that all Medicare members or adults over the age of 65 are offered the Medicare Total Health Assessment (MTHA) each year in conjunction with their Annual Wellness Visit. One of the questions in the MTHA questionnaire is, do you have a current advance directive. If the person does not, then they are asked to participate in the Life Care Planning service. They receive this offer both in writing in their Personalized Prevention Plan which is discussed with them by their provider at the time of their Annual Wellness Visit. Depending on the members health status, they will either receive a follow-up letter or phone call if they do not register themselves to participate in a class or conversation. If the member participates, then the facilitator will assist them in getting the advance directive signed and loaded into their medical record. If someone is not ready to complete their directive, then they will also provide them with a postage paid envelope, so they do not need to make an extra trip to their medical office building. This type of closed system and process help to eliminate barriers to the advance care planning process. Older adults who receive coverage and care in a different health care environment other than an HMO, may exhibit different advance care planning participation and advance directive completion rates because of the increased barriers or lack of prompting to participate in the process. Older adults who receive their care outside of an HMO are likely to receive less coordination of care between their primary care provider and other healthcare providers and services (Di-Capua et al., 2017). The onus is on the patient to ensure they are communicating the care they want to receive, or not, across care settings and with their various providers. If a patient completes an advance directive with their primary care doctor or a specialty care doctor, then they will need to take the responsibility of sharing that document with both providers. Even if the patient’s provider is using an electronic medical record they are usually not connected unless they are in a closed system like an HMO. Additionally, older adults who receive care in an HMO setting are likely benefitting from electronic medical record prompts that help to alert the provider that a care gap exists and the prompt provides information about what to offer the member within the closed system to close the care gap. In the context of this study, the care gap is the lack of an advance directive in the patient’s medical record.

One of the greatest limitations of the study was the inability to track members’ web-based participation, other than the completion of an eAdvance directive. The invite was trackable but due to the web-based tool living on a system outside the electronic medical record, it did not track participation by the members' medical record number. The Google Analytics data about the number of visits to the web-based tool and clicks on various pages on the site, was not tied back to the members medical record number.

An additional limitation of the study could have been the inability to include socioeconomic status, education level, and self-identified religious affiliation. These types of personal characteristics were not included in the archival data set from the Kaiser Permanente Colorado region between June 2014 through December 2018. However, in prior studies, these personal characteristics have been found to influence older adults advance care planning behaviors (Gundersen For example, in a study conducted by Tripken et al. (2018) the researchers found although socioeconomic status predicted older adults' knowledge about advance care planning and advance directive completion rates, their beliefs about advance care planning did not. Additionally, Tripken et al. (2018) and Williams et al. (2016), found socioeconomic characteristics such as income and education level influence advance care planning rates. Higher levels of education and higher income were associated with higher advance care planning participation and advance directive completion rates. Individual's spiritual beliefs can influence peoples' decision making around end of life care decisions (Ohr, Jeong, & Saul, 2017). Someone with strong spiritual or religious beliefs may consult their spiritual leader to ensure their wishes are in alignment with the teachings of their religion (Gundersen Health System, 2014).Based on the findings from these studies, it would be beneficial to include the personal characteristics: socioeconomic status, education level, and self-identified religious affiliation in future studies to further evaluate their impact on older adults advance care planning participation and advance directive completion rates.

One final limitation that could have occurred in the study is researcher bias. Given the nature of this study being quantitative and involving archival data, the data collection process was not influenced by researcher bias. During the data analysis and interpretation stage, the results were reviewed with several independent peers to ensure the findings were not skewed towards or away from one of the three advance care planning options. However, knowledge about the operational challenges associated with the web-based tool could have influenced my thoughts about the benefits and barriers associated with the tool. This was addressed in a proactive way in the recommendations section with suggestions about ways to possibly improve the efficacy of the web-based offering in future studies.

## Recommendations

Based on the findings described in the results section, HMOs should consider the use of the one-on-one conversation and facilitated class advance care planning options because they were associated with the highest participation and advance directive completion rates. Even though the one-on-one conversation format requires more resource, it is more likely to result in the desired outcome - higher participation and advance directive completion rates. The group facilitated class option is a less costly option but is less likely to produce participation and advance directive completion rates as high as the one-on-one conversation. It would not be prudent for a health care organization to consider using the web-based option alone to save money because it is the least likely option to result in the completion of an advance directive that can be found in the older adults' medical record. Additional steps could be taken to mitigate this issue such as building the web-based tool into the electronic medical record and enabling the participant to upload their completed directive into a mailbox for the facilitator to review for accuracy and validity. This would eliminate the need to print the document and drop it off or mail it to their provider's office. Any additional steps that need to be taken to get the document into the medical record are additional barriers that can discourage people from completing the process.

Further research could be done to investigate the efficacy of a live facilitator led webinar where members can ask questions real time and have group discussions. This type of activity may increase their engagement and commitment to completing the process. Again, this option should include the ability to load the completed advance directive in mailbox for a facilitator's review.

An additional evaluation could involve a facilitator led class in a two part series where the first class is an one-hour informational session and the second class is a two hour workshop where the person is given more time to complete their directive and have it reviewed by a facilitator. The goal of this format would be to increase the advance directive completion rate, so it is more in line with the one-on-one conversation advance directive completion rates.

It would be beneficial to understand if early engagement in the Life Care Planning First Steps class or conversation increases the likelihood of participation in the Next and Advanced Steps conversations as the person's health condition changes over time.

Understanding this may underscore the importance of starting the conversation early with the expectation that it is normal to revisit it as the person's health condition and/or life situation changes. This type of evaluation would require a longitudinal format over an extended period of time to allow for individuals' health conditions to change over time. It would be beneficial to conduct the study using a mixed methods format to collect both qualitative and quantitative data. The qualitative data could be collected from the participants and include questions that explore their experiences with the advance care planning process over a period of time as their health condition changes. The quantitative data could include discrete data about the rate of participation in the various Life Care Planning steps that are staged based on the participants' health condition. It could also include advance directive completion rates as well as the number of times a new advance directive type is completed, or an existing directive is revised.

An additional study could be conducted using a quantitative longitudinal retrospective medical record review format to compare concordance of care rates for individuals who did and did not participate in the Life Care Planning program prior to their death. To do this a non-equivalent group design could be used to compare concordance of care rates between these two groups. In an effort to mitigate selection bias a random selection process could be used to identify medical records for review. The review process could be conducted to determine if participants had participated in advance care planning, completed an advance directive that was located in their medical record, and if they received care that was in accordance with their directive from the initiation of the directive to their time of death.

Findings from this study can be used to help inform health care organizations decisions to implement and structure advance care planning options that are associated with higher participation and advance directive completion rates. This is important given the growing older adult population who are more likely to experience complications from multiple chronic conditions, placing them in a position where they may need someone to speak for them regarding their health care wishes (Vasilopoulos et al., 2014). In the end, the goal of this work is to ensure we are engaging older adults in member-centric, informed conversations, that will allow them to document their health care wishes, so health care providers can honor their wishes.

## Implications

### Positive Social Change

The Institute of Medicine (2014) put out a call to action to health care organizations in their report, *Dying in America: Improving Quality and Honoring Individual Preferences Near End of Life*. The report revealed a disturbing trend: people near the end of life often receive unwanted, invasive, and burdensome treatments. In the report the Institute of Medicine called for improvements in the way health care organizations deliver advance care planning to patients to ensure wishes for end of life care are elicited, known, and honored. This call to action, coupled with the rapid growth in the number and proportion of people over the age of 65 has led organizations like the Institute of Medicine to state the need for advance care planning in the older adult population is a public health concern. The implementation of advance care planning systems can be a costly undertaking for health care organizations, so it is important for them to understand how to evaluate whether the system is achieving its intended effect. The current study did that and can serve as an example for other health care organizations who want to know if the resources they are investing are resulting in high advance care planning participation and advance directive completion rates.

## Implications for Practice Recommendations

In addition to the research recommendations provided in the prior section, this section contains several condensed practice recommendations for health care organizations that are implementing or expanding their advance care planning efforts with the older adult population.

1. Consider using the social cognitive theory in future studies to evaluate the efficacy of advance care planning interventions with older adults in the primary care setting. Particularly mixed methods studies allow for the evaluation of qualitative aspects of older adults self-reported experiences with the intervention and quantitative outcomes such as participation and advance directive completion rates.
2. Implement a range of advance care planning options that may appeal to people of various age groups and health status, such as the options found in the Respecting Choices and Life Care Planning model.
3. Consider using one-on-one conversation formats for individuals with advanced age and/or serious or complicated health conditions that require more customized conversations.

4. Evaluate the efficacy of low-touch options such as web-based tools to ensure they truly result in the intended outcome, for example the completion of an advance directive that can be found in the medical record, not just the number of visits to the website.
5. When promoting the use of a web-based advance care planning tool, offer access to a computer in the primary care setting to try to reduce socioeconomic barriers such as lack of access to a computer or the internet that can contribute to healthcare disparity.
6. Consider using the PREPARE website as an evidence-based tool rather than the Life Care Planning First Steps web-based tool.
7. Consider a two-part class format where the initial one-hour class is focused on education, group learning, and questions followed by a one and half to two-hour workshop where people are given more time to complete their directive and ask personalized questions.

## Conclusions

At the conclusion of this study the world and the U.S. were grappling with the full effect of the COVID-19 pandemic. The individuals who were at highest risk for contracting the virus were older adults and people with compromised immunity. Within a short period of time the hospitals were struggling to keep up with the number of people being admitted and needing ventilator support. The Life Care Planning team was called upon by the inpatient palliative care team at one of our KPCO contracted hospitals to help address the high number of individuals that were unable to speak for themselves and needed decisions to be made about life sustaining treatment (M.J. Strobel, personal communication, March 29,2020). In this unfortunate situation the provider needs two work with all interested parties to identify a health care proxy. This can be time consuming and stressful for both the family and friends of the patient but also the health care team. The Life Care Planning team worked quickly to try to get ahead of this growing trend by targeting outreach to individuals that were at high risk for contracting the virus to ensure they had a MDPOA and other important advance directives in place. If individuals did not have these advance directives in place, then they were triaged to trained Life Care Planning staff to have an advance care planning discussion tailored to their health condition.

One might ask why this story is relevant to the current study. The pandemic raised the importance of engaging older adults in advance care planning discussions that result in the identification of a health care agent and the completion of an advance directive that can be found in the medical record. While the circumstances of the pandemic are not the norm, it brought to light the need to address advance care planning in a proactive way to avoid the issue that was raised by the inpatient palliative care team and this unforeseeable crisis. In a Hospice News interview on April 2020, Dr. Ryan Van Wert, cofounder and CEO of a national advance care planning network, shared his views on the importance of health care organization having advance care planning options in place that result in an actionable advance directives that can be found in the patient’s medical record. In a direct quote from him, he states, “the COVID-19 crisis has made advance care planning even more acute. A lot of the focus right now is appropriately on things like increasing intensive care unit (ICU) capacity, increasing overall hospital capacity, increasing ability of diagnostic testing, all these are absolutely important. But we also have to recognize and look at the demographics of where COVID-19 impacts people the most. And unfortunately, it hits people who are more elderly the hardest, and it is these people who have existing conditions, serious illness and otherwise. It is important that health care organizations have the systems and processes in place to make sure they are actively having advance care dialogues. These dialogues need to be captured in a valid, actionable format [advance care directive] accessible to providers so patient wishes can be honored" (Vossel, 2020).

Even outside the context of the COVID pandemic, it is important for health care organizations to take a proactive approach to advance care planning with the older adult population to ensure their health care wishes are known and documented in their medical record so their health care team can honor their wishes in the event the older adult is not able to speak for themselves. Given the resources involved with implementing these types of programs and the growing older adult population who would benefit from these services, it necessary for health care organizations to select advance care planning options that result in high participation and advance directive completion rates. The one-on-one conversation and class options offered in the Life Care Planning program resulted in impressive participation and advance directive completion rates when comparing those who were offered it to those who were not offered it. Given the lack luster results of the web-based tool, organizations would be better served using an evidence-based web-based advance care planning tool such as the PREPARE model developed by Sudore et al.

(2017a). This evaluation serves as an example of the way in which health behavior change models such as the social cognitive theory (see Bandura, 1986; Campbell et al., 2007) can be used to address important health behaviors such as advance care planning.

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