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Health-Related Quality of Life and Future Care Planning Among Older Adults: Exploring the  
Role of Hope as a Moderator

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A dissertation  
presented to  
the faculty of the College of Public Health  
East Tennessee State University

In partial fulfillment  
of the requirements for the degree  
Doctor of Public Health  
with a concentration in Community and Behavioral Health

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by  
Jodi Southerland  
August 2012

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Dr. Deborah Slawson, Committee Chair  
Dr. Robert Pack, Committee Member  
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Key Words: older adults, proactive planning, preparation for future care needs,  
health-related quality of life, trait hope

## ABSTRACT

Health-Related Quality of Life and Future Care Planning Among Older Adults: Exploring the

Role of Hope as a Moderator

by

Jodi Southerland

Older adults have an increased risk for illness and disease, factors that can lead to functional impairment and intensify the need for reliance on supportive services. Planning for long-term care needs is a vital component of healthy aging and continued autonomy. Yet, many older adults fail to make plans in advance, perhaps due to differences in personal characteristics.

The moderating effects of trait hope on the relationship between health-related quality of life (HRQoL) and preparation for future care needs (PFCN) was studied in a sample of 65 older adult primary care patients ( $\leq 65$  years) in western New York. Participants completed a questionnaire on 5 dimensions of PFCN (awareness of risk, information gathering, decisions about care preferences, concrete planning, and active avoidance). In addition, data were collected on five HRQoL domains (physical function, physical role function, emotional role function, social function, and bodily pain) and trait hope. Moderated multiple regression was used to test the moderator hypothesis controlling for personal characteristics. Post-hoc probing was used to further examine significant interactions.

At the bivariate level, social functioning, physical functioning, and emotion-based role were inversely related to PFCN and positively related to hope. Multivariate moderation models covarying age, sex, race, education, illness burden, and functional impairment indicated that

hopefulness, particularly agentic thinking or goal identification, moderated the relationship between those three HRQoL dimensions and PFCN behaviors.

Among those with greater role limitations, lower hope was associated with more awareness of risk and information gathering and less concrete decision making, whereas among individuals with fewer role limitations and better social and physical functioning, higher levels of hopefulness were associated with increased decision making.

These results highlight the need for health professionals to gain a better understanding of their patients' intrapersonal characteristics when discussing issues related to future care planning.

## DEDICATION

I dedicate this dissertation to my grandparents who have taught me invaluable lessons and the importance of living a simple life.

## ACKNOWLEDGEMENTS

Much gratitude is due to my dissertation committee whose continued support, guidance, and perseverance made this research project a reality.

I am grateful to my committee chair and mentor Deborah Slawson for her encouraging words, wise counsel, and confidence in my abilities to successfully complete this dissertation project. Her tenacious optimism has helped shape me as a person and inspire me to use my skills and training to create a better world.

I would like to extend my thanks and appreciation to Jameson Hirsch who worked closely with me on this research project and gave generously of his time and expertise. His intimate knowledge of the topic, commitment to scholarly excellence, and patient correction of my writing were invaluable assets.

I would also like to thank Robert Pack for his insightful feedback and evaluation of my many research projects including this dissertation. His vast reserve of knowledge in the behavioral and social sciences has helped to guide my research interests.

I would like to thank my husband Tom for his constant support, friendship, and love and thanks to my parents, family members, and friends. I could not have made it through this journey without their support.

Finally, I would like to thank God for directing my path.

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## ACRONYMS AND ABBREVIATIONS

ADL	Activities of Daily Living
CIRS	Cumulative Illness Rating Scale
HRQoL	Health-Related Quality of Life
KPSS	Karnofsky Performance Status Scale
LTC	Long-Term Care
MMR	Moderated Multiple Regression
PFCN	Preparation for Future Care Needs
SF-36v1	Medical Outcomes Study Short Form-36, Version 1
THS	Trait Hope Scale



## CHAPTER 1

### INTRODUCTION

Older adults are frequently faced with the difficult challenge of dealing with multiple distressing situations such as frequent illness and loss of autonomy. Global health declines are often precipitated by an increased reliance on additional supports to assist with activities of daily living needs and to manage multimorbidities (e.g., the presence of co-occurring disease states, syndromes, or disabilities; Berlin Consortium [AMA], 2008). The manner in which older adults adjust to these changes may have both a short- and long-term impact on their psychosocial and clinical welfare. Coping processes play a crucial role in how the individual appraises and responds not only to adversities but also to predictable life events.

Preparation for future care needs (PFCN) is a theory-driven concept that can be used to better understand the steps involved in the risk-appraisal and planning process. PFCN theory states that future care planning is marked by a pattern of increased awareness of the risk of needing care in the future. As individuals grow more cognizant of this risk, they are more likely to acquire informational and social resources. These resources can then be used to empower individuals to make informed choices and more optimally manage changes when they occur in their environment (Pinquart & Sörensen, 2002a). This form of active planning has been shown to enhance clinical outcomes and promote continued autonomy in older adult populations (Pinquart & Sörensen, 2002a, 2002b).

Receipt of appropriate care is essential to healthy aging. In fact, some theorists have argued that PFCN is itself a fundamental component of healthy aging (Greenglass, Fiksenbaum, & Eaton, 2006; Kahana & Kahana, 2003; Pinquart & Sörensen, 2002b; Reinardy, 1992; Steele et al., 2003) and is likely to emerge as a public health priority over the next two decades as tens of

thousands of Baby Boomers reach full retirement age in the U.S. Although further research is needed to better understand the factors that promote PFCN in the older adult population, there is strong and consistent empirical evidence, thus far, that clearly demonstrates the importance of PFCN and its relationship to healthy aging.

### Statement of the Problem

The growth of the older adult population has raised serious concern because of the public health imperative to ensure healthy aging and optimal quality of life outcomes (U.S. Centers for Disease Control and Prevention and Health Promotion [CDC] & Merck Company Foundation [MCF], 2007; Institute of Medicine [IOM], 2008; Metlife Foundation, 2006). Typically, living longer results in a greater likelihood of living with multiple chronic conditions, many of which increase the risk of needing long-term medical care and a wider range of supportive services (Friedland & Summer, 2005; Gill, Allore, Holford, & Guo, 2004; Shirey & Summer, 2000). Supportive services include any assistance with daily living needs, self-care functions, or clinical care needs. These services, which can be provided in different settings, are designed to minimize or compensate for loss of emotional, physical, or mental functioning (Andersen & Newman, 1973; Kaye, Harrington, & LaPlante, 2010; Short, 2000).

Supportive services that are delivered for a period of months or years are classified as long-term care (LTC). LTC services can be delivered in the home, community, or institutional setting to assist those older adults who have functional limitations or are clinically vulnerable (Kaye et al., 2010). There is compelling evidence, however, that the LTC medical and social needs of community-dwelling older adults are not being met. It is estimated that 1 in 3 aging adults have unmet need for assistance with activities of daily living (ADLs) and instrumental ADLs, skills necessary for individuals to live autonomously (Desai, Lentzner, & Weeks, 2001;

Komisar, Feder, & Kasper, 2005). Declining competence in meeting personal needs and persistent unmet or undermet needs increase the risk for morbid clinical and psychosocial outcomes. These factors underscore the need for older adults to plan ahead for their future care (Choi & McDougall, 2009; Gaugler, Kane, Kane, & Newcomer, 2005; Kuzuya et al., 2008; Long, Liu, Black, O’Keeffe, & Molony, 2005; Sands et al., 2006; Shea et al., 2005).

Proponents of PFCN frameworks suggest that planning in advance of adverse events has global health-enhancing benefits (Aspinwall & Taylor, 1997); yet many older adults fail to make preparations for their future care needs proactively (National Council on Aging [NCA] & John Hancock Mutual Life Insurance Company [JHMLI], 1999; Sörensen & Pinquart, 2000a, 2000b, 2000c). In order to design effective interventions that increase awareness of the benefits of planning ahead, it is necessary to have a broad understanding of the factors that promote engagement in PFCN among older adults. Research on the benefits of proactive coping has been slow to emerge (Batts & Leary, 2010) and almost no research has explored the relationship between PFCN and health-related quality of life (HRQoL) or PFCN and trait disposition, both of which are promising areas of research.

HRQoL measures the impact of disease, illness, and disability on a person’s perceived physical and mental health and on the individual’s ability to perform routine activities. This measure is important for continued surveillance among clinically vulnerable populations such as older adults, a population known to have high rates of disease, morbidity, and disability (U.S. Department of Health & Human Services [DHHS], 2011). Although the relationship between HRQoL and PFCN has rarely been tested empirically, HRQoL could play an important role in this process. Results across the few studies that do exist, however, have been fairly consistent,

suggesting that HRQoL and PFCN are inversely related (Niimura et al., 2011; Sörensen & Pinquart, 2000a, 2000c; Strain & Blandford, 2002; Usami, 1995).

Research in positive psychology has demonstrated that certain trait dispositions, such as dispositional hope, are important for healthy aging (Benyamini, Idler, Leventhal, & Leventhal, 2000; Roberts, Walton, & Bogg, 2005; Sörensen, Duberstein, Chapman, Lyness, & Martin, 2008). Dispositional hope is a forward looking, self-regulating trait that has been linked to adaptive coping styles (Seligman, 1975; Snyder et al., 1991) and positive health outcomes in both young and older adults (Elliott, Witty, Herrick, & Hoffman, 1991; Stanton, Danoff-Burg, & Huggins, 2002). Despite these benefits, research has also found that hope, in very high levels, may actually confer risk. Unrealistic hope may cause individuals to inaccurately appraise environmental triggers, underestimate personal risk, and ignore distressful health information (Breznitz, 1983; Folkman, 2010). Despite its importance for understanding human motivation and behavior and despite the link between dispositional control beliefs and the processes that promote healthy aging (Wurm, Tesch-Römer, & Tomasik, 2007), the role of trait hope has remained relatively unexplored among behavioral and social scientists interested in proactive planning behaviors such as PFCN. Among the few studies examining the hope-PFCN relationship, findings have been inconsistent and contradictory (Greenglass & Fiksenbaum, 2009; Lopes & Cuhna, 2008). Further investigation is warranted to resolve these apparent inconsistencies.

The current study is exploratory in nature given the dearth of empirical research in either of these areas and variability among the few available studies. Furthermore, to our knowledge, no study has examined the moderating effect of trait hope on the HRQoL-PFCN relationship in any population. To fill these gaps in the literature, we will examine the moderating effects of trait

hope on the relationship between HRQoL in predicting engagement in PFCN (Figure 1). The data are drawn from quantitative research with older adult primary care patients. I will assess the relationship between HRQoL and PFCN and then examine whether hope moderates this relationship. This study includes multiple HRQoL indicators to determine the relative influence of HRQoL on PFCN processes.

We believe that the existing data and research make it difficult to predict a priori the nature of the HRQoL-PFCN relationship and the moderating effects of trait hope on this relationship. Although the available research may provide a rationale for the possible relationship between these variables, we chose to propose two general research questions that are complementary in nature: What is the nature of the HRQoL-PFCN relationship? What, if any, are the moderating effects of trait hope on this relationship? Answering these more general questions should help to inform and advance the literature on planning for LTC needs and lead to the development of more sophisticated theoretical models investigating this area of research.

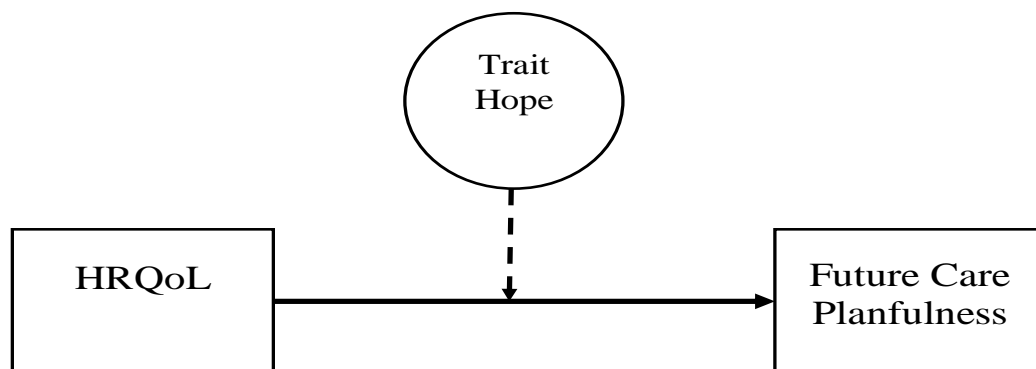


Figure 1. General Theoretical Model of Hope as Moderator Between HRQoL and PFCN

Note: Dashed lines represent moderating relationship

### Significance

A primary objective of *Healthy People, 2020* is to promote optimal health outcomes among older adults (DHHS, 2011). Life expectancies and rates of care-dependent older adults

are expected to increase over time (Shrestha, 2006). Meeting the LTC needs of community-dwelling older adults is integral beyond quality of life. Failure to meet these needs is likely to result in an even greater economic burden on the American public as more elderly citizens will require skilled nursing home care. Together, these factors point towards a need for older Americans to take a different approach to meeting their care needs.

Older adults will need to become literate in and adopt a PFCN framework in order to make informed decisions about the appropriateness and effectiveness of care options. More importantly, planning ahead for future care needs should reduce the prevalence of unmet or undermet needs in the aging population and contribute to increased years of healthy life (Population Reference Bureau [PRB], 2010). Given the clinical and public health importance of PFCN among aging adults, there is not only a need but also a responsibility for continued scholarly inquiry. This knowledge could be important for developing evidence-based preventive approaches that address health disparities and unmet needs in this population. Continued advocacy may also provide policy makers with both the fiscal and practical implications of persistent unmet or undermet needs among older adults including those being treated in primary care.

### Specific Aims

There are 4 specific research aims for this study:

#### Aim #1

To determine the strength and direction of relationship between HRQoL and PFCN processes.

#### Aim #2

To assess the strength and direction of the relationship between HRQoL and trait hope.

Aim #3

To examine the strength and direction of the relationship between trait hope and PFCN.

Aim #4

To determine if trait hope moderates the relationship between HRQoL and PFCN.

## CHAPTER 2

### LITERATURE REVIEW

#### Older Adults

Americans are living longer than ever before. During the 20<sup>th</sup> century, an era of scientific and public health advances, the older adult population (e.g.,  $\geq 65$  years) increased at a rate eight times faster than the general population (CDC & MCF, 2007; IOM, 2008). Individuals aged 85 years and older represent the fastest growing segment of the American populace (He, Sengupta, Velkoff, & DeBarros, 2005). Moreover, 2011 represented a landmark period in U.S. history with the first wave of the 80 million Baby Boomers reaching full retirement age (IOM, 2008). It should come as no surprise that the aging demographic, who currently comprise only 12% of the population, is projected to nearly double in size by 2030 (Metlife Foundation, 2006).

#### Clinical and Psychosocial Outcomes

Older adults often have complex medical needs including geriatric syndromes. Geriatric syndromes are defined as the presence of numerous clinical conditions and risk factors that are overlapping and do not fit into a discrete disease category (Inouye, Studenski, Tinetti, & Kuchel, 2007). These syndromes are multifactorial and often associated with significant patient morbidity and premature mortality (DHHS, 2003a; IOM, 2008; Inouye et al., 2007). Furthermore, approximately 80% of older adults have at least one chronic condition and 50% of Medicare beneficiaries have three or more chronic conditions that are being treated concurrently (Boyd, & Fortin, 2010; CDC & MCF, 2007; CDC & National Association of Chronic Disease Directors [NACDD], 2008a; Fortin, Soubhi, Hudon, Bayliss, & van den Akker, 2007). A typical ambulatory older adult uses three medications and two in five older adults take more than five medications regularly (Barnett, 2010; Miller, 2003). Older Americans spend 33% more on



health-related care when compared to adults in general (Centers for Medicare and Medicaid Services, 2004; Kaiser Commission on Medicaid and the Uninsured, 2006; U.S. Social Security Administration [US SSA], 2008, 2009). They also account for nearly 75% of health-related costs and are dispensed over 33% of all prescription medications (Barnett, 2010; He et al., 2005; Voelker, 2008).

The prevalence and complexity of multimorbidities increases with advancing age and are more prevalent among socially disadvantaged older adults (AMA, 2008; CDC & NACCD, 2008b; IOM, 2008; Snowden, Steinman, & Frederick, 2008). As independent predictors of self-rated health and quality of life outcomes (Perruccio, Power, & Badley, 2005), these co-occurring chronic conditions (e.g., diabetes, cardiovascular disease, and renal insufficiency) contribute to higher rates of disability and severe disabilities among older adults (CDC & MFC, 2007; CDC & NACDD, 2008a; Chapman, Perry, & Strine, 2005; He et al., 2005; PRB, 2010; Snowden et al., 2008). Not surprisingly, then, older adults are five times more likely to report poor health when compared to the general population (CDC, 2005).

Prolonged mismanagement of multimorbidities and geriatric syndromes is known to contribute to increasing frailty, the “systematic deterioration in bodily and cognitive functioning in advanced ages” (PRB, p. 2). Frailty symptoms are more prevalent among women but frailty-related mortality rates are higher among men (Gu et al., 2009). More importantly, women, who out live their male counterparts by approximately 5 years, are more likely to be care-dependent with advancing age (Shrestha, 2006). Medical frailty is further exacerbated by increasing social isolation that is linked to health anxiety, psychological distress, and health-resource underuse (CDC & MCF, 2007; CDC & NACDD, 2009; CDC, 2005; NAC RHHS, 2009). Collectively,

these factors increase risk for deleterious clinical outcomes (Burns, Cain, & Husaini, 2001; CDC & NACDD, 2008a; Chapman et al., 2005).

### Reliance on Supportive Services

Living longer increases the risk of developing multimorbidities. As pathophysiological dysfunction increases, so does dependence on supportive services and the need for LTC (AMA, 2008; Friedland & Summer, 2005; Gill et al., 2004). LTC provided in the community enables older persons with functional impairments and disabilities to age more competently. Receipt of these services has been shown to promote fuller, more equitable engagement in community life among older adults. LTC has further been shown to prevent or delay the need for skilled nursing home care. (Kaye et al., 2010).

There is considerable evidence that the health of older adults has improved over the past decades (Fries, 2003). Despite these improvements, it is also well documented that the next generation of older adults are likely to have increasing levels of chronic disease and disability due primarily to increased rates of obesity and related conditions (Boyd & Fortin, 2010; He et al., 2005; PRB, 2010). Analysts predict that the need for LTC will persist and grow substantially over the next forty years (Friedland & Summer, 2005; DHHS, 2003b). In fact, it is estimated that two in five community-dwelling persons aged 70 years or older require some level of assistance to lead active, independent lives. Among the cohort of oldest old, the percentage grows to more than 50% (Shirley & Summer, 2000).

### Unmet and Undermet Needs

Older adults are likely to face a broad range of challenges that if unaddressed can threaten their autonomy and self-reliance (AMA, 2008). Geriatricians, social workers, and others in geriatric care agree that robust supports may be necessary to manage these changes and

compensate for potential loss. Yet, there is considerable evidence that the LTC needs of older persons are not being met. The prevalence of unmet need for assistance with one or more ADL vary widely across studies. Among studies employing self-reports, estimates of unmet need for assistance ranged from 20% (Desai et al., 2001) to approximately 60% among socially disadvantaged older persons (Komisar et al., 2005). In studies analyzing receipt of assistance, two in five older adults with ADL deficits reported having unmet needs including assistance with transferring, help to prepare meals, and transportation services (Muramatsu & Campbell, 2002; Shea et al., 2005). Even more alarming is that more than 50% of older persons who reported needing assistance with daily activities did not expect to receive help with future care needs (Shirley & Summer, 2000).

Disparities in the prevalence of unmet need among community-dwelling older adults are apparent. Older adults who are socially or geographically disadvantaged or who are clinically vulnerable are more likely to report having persistent unmet needs (Davin, Paraponaris, & Verger, 2009; Desai et al., 2001; Shirley & Summer, 2000). Declining competence in meeting personal need and persistent unmet or undermet need can lead to poor clinical outcomes (Allen & Mor, 2007; Choi & McDougall, 2009; Desai et al., 2001; Gaugler et al., 2005; Krause, 1990) such as increased all cause hospitalization, need for acute care, admission to skilled nursing facilities, and premature mortality (Kuzuya et al., 2008; LaPlante, Kaye, Kang, & Harrington, 2004; Long, Liu, Black, O’Keeffe, & Molony, 2005; Sands et al., 2006). Conversely, enrollment in programs that provide medical and supportive services promotes improvements in health, subjective well-being, and quality of life among these same populations (Sands et al., 2006). Reducing the proportion of aging persons with unmet needs plays an integral role in extending healthier life years (PRB, 2009).

If current estimates of need and unmet or undermet need for assistance with personal activities of daily living are any indicator of future need for LTC services, then the prevalence of these needs is likely to increase exponentially in the coming years (Boyd & Fortin, 2010; Desai et al., 2001; Tennstedt, McKinlay, & Kasten, 1994). Research also suggests that the need for formal supportive services for older adults is expected to increase not merely because of the continued growth of this population but also due to the increase in the proportion of socially and geographically disadvantaged older adults and single-headed households. Furthermore, female labor force participation continues to grow which contributes to the lack of available informal caregivers, a role traditionally fulfilled by women (Friedland & Summer 2005; Lyons & Zarit, 1999; Wilmoth & Longino, 2006). Not surprisingly, more and more aging Americans with poor health will need to seek assistance with everyday living from formal mechanisms of support as traditional familial support networks weaken.

#### Preparation for Future Care Needs – A Theoretical Framework

The theoretical framework that informs this proposed study on PFCN bridges four important fields of research. *Successful aging literature*, which has adopted a positive psychology of aging, addresses the processes that promote healthy longevity. Drawing on this field, newer developments in *coping theory research* offer important insights about the different cognitive-behavioral processes that aging persons use to appraise and adjust to health or other threats that, if unaddressed, can undermine the healthy aging process. *Problem-solving literature* adds additional clarity to the discussion on threat appraisal and response. Against this background, *behavior change literature* is also particularly relevant for examining the variability in stress response and engagement in health-seeking behaviors.

#### Successful Aging Literature

The relationship between late-life and loss of autonomy is complex. On the one hand, various theoretical models have suggested that late-life is a time of biophysiological decline. Older adults are said to experience changes beyond their control and in multiple domains (e.g., biological, physiological, cognitive, and physical states) (Goldsmith, 2009). In contrast to the biophysiological models of aging, other theorists have proposed a model of successful aging. Rather than identify criteria for successful aging, this genre attempts to understand the mechanisms that promote successful aging (Ouwehand, de Ridder, & Bensing, 2007).

Successful aging, a concept that is used interchangeably with other terms such as “healthy aging” or “positive aging” (Peel, Bartlett, & McClure, 2004, p. 115), is described as a “multidimensional concept, encompassing the avoidance of disease and disability, the maintenance of high physical and cognitive function, and sustained engagement in social and productive activities” (Peel et al., 2007, 163). Proponents of this model have argued that older adults possess attributes and resources that can slow down or even reverse the aging process. Central to this argument is the view that aging persons can continue to thrive by maintaining a resilient outlook and making necessary adjustments (Niimura et al., 2011; Peto & Doll, 1997; Rowe & Kahn, 1997).

Selective Optimization with Compensation Model. The Selective Optimization with Compensation model is a useful framework for describing the processes of successful aging. Proponents of this model describe successful aging in terms of two interrelated constructs, *optimization* and *compensation*. Optimization describes the ability of an individual to use resources and supports to aid in successful adaptation to changes. Compensation encompasses the process of adjusting to social, financial, or health-related losses (Niimura et al., 2011). The proactive planning construct has been advanced in this area of research. The literature on

selective optimization with compensation has reported that actively planning in advance is important for resource optimization and adjustment to potential goal threats (Ouwehand et al., 2004).

### Coping Theory Research

Beginning in the 1970s, there was a proliferation of coping research aimed at understanding the variability in people's responses to distressing situations (Folkman & Moskowitz, 2004). Folkman and Moskowitz (2004) have argued that the emergence of coping literature was integral because it helped to further explain stress-response variability and provided an additional conduit for cognitive-behavioral interventions. Contemporary research on coping is rooted in the work of Richard Lazarus (Folkman & Lazarus, 1980). Cognitive appraisal, the central construct in Lazarus's Transactional Model of Stress and Coping, is the process of interpreting and responding to environmental threats. Lazarus constructed a sophisticated rationale for understanding the variability in people's emotional response to a threat as well as how they cope with the event once it has been appraised. Over time coping literature has grown to include concepts formerly associated with motivation and action theory research, such as reflection, self-actualization, and self-determination. Field experts have also added additional concepts (e.g., goals, purpose, and meaning) to the list of important concepts in coping research (Schwarzer & Luszczynska, 2008).

Coping is described as a complex, multidimensional phenomenon that is influenced by various domains including environment, demands, and resources. Personality and psychological characteristics also play an integral role in both appraisal and response. Coping competency has been linked to numerous beneficial outcomes; however, the scientific community acknowledges that further research is needed to better understand the impact of coping on psychological,

physiological, and behavioral outcomes (Folkman & Moskowitz, 2004). Despite these gaps in knowledge, new research continues to evolve and help move the field forward. One such development is research on future-oriented coping schemas. This branch includes proactive, anticipatory, and preventive coping. Conceptually, these models seek to understand how individuals reduce or manage the threat of adverse outcomes in advance and prepare for upcoming challenges that are potentially self-promoting (Folkman & Moskowitz, 2004). Although proactive and anticipatory coping provide rationale for the PFCN framework, proactive coping is discussed in greater detail because of the dearth of research on anticipatory coping.

Proactive Coping. Proactive coping theory has emerged as a promising area of research in the field of positive psychology (Sohl & Moyer, 2009). Traditionally, coping theory overemphasized the reactive nature of coping, that is, managing or compensating for harm or loss after it has occurred. At the same time, the role of future time orientations was relatively unexplored (Folkman & Moskowitz, 2004; Schwarzer & Luszczynska, 2008). In contrast to traditional approaches to coping, proactive coping is a risk management model that is proactive rather than avoidant or reactive. Constructs associated with proactive planning include resource accumulation, forecasting, optimization, self-regulation, challenge, and self-promotion (Schwarzer & Luszczynska, 2008).

Different theoretical frameworks have been used to describe these processes. Aspinwall and Taylor (1997) described *proactive coping* as the behavioral and cognitive processes and strategies that individuals engage in prior to the occurrence of a potential stressor to minimize negative outcomes or prevent it altogether. Schwarzer and Taubert (2002) conceptualized the same term as the process of creating future goals and taking steps to achieve them but used the term *preventive coping* to describe the process of averting potential stressors (Greenglass et al.,

2006). Still other authors viewed the process of goal-setting and overcoming problems early in their development as *corrective adaptation* (Kahana & Kahana, 1996), whereas these processes would still be considered proactive coping in the Aspinwall-Taylor framework. For the purposes of this study, Aspinwall and Taylor's description of the construct is preferred.

The Aspinwall-Taylor model describes proactive coping as a multi-stage process that includes: (a) resource accumulation, (b) self-awareness, (c) threat appraisal, (d) preliminary coping strategies, and (e) feedback. Resource-management is a central and unifying theme in this model (Greenglass et al., 2006). Individuals acquire resources in various contexts. When confronted with a potential stressor, individuals employ these resources to respond to the problem (Greenglass et al., 2006). Feedback plays a key function in the final stage. This technique is used to re-appraise the current context which, in turn, promotes a greater awareness of the environment and improved management of coping resources (Aspinwall & Taylor, 1997).

Greenglass et al. (2006) described proactive coping as a process that occurs simultaneously across four dimensions: attitudinal, cognitive, emotional, and behavioral. People accumulate resources, actively appraise personal values, maximize opportunities, and develop goals to circumvent future challenges or promote self-growth (Aspinwall & Taylor, 1997; Schwarzer & Luszczynska, 2008). For proactive coping to occur an individual must also possess high levels of self-awareness and reflection. Self-awareness is necessary because it provokes awareness of future risk. Reflection, as a process of human thought, is used to envision goals, develop action plans, make adjustments, and envision success (Greenglass et al., 2006).

Developing informed and realistic responses to different scenarios that may occur in the future reduces the risk of reactive planning, a factor commonly associated with poorly targeted care plans (Aspinwall & Taylor, 1997; Maloney, Finn, Bloom, & Andresen, 1996). In



comparison to reactive coping, proactive coping strategies have several advantages. Proactive coping is an active process that is problem-focused and goal-driven. Reactive coping is avoidant and impulsive. Planning in advance provides additional clarity and guidance about potential resolutions to problems, contributing to greater perceived controllability of a stressor if and when it arises (Aspinwall & Taylor, 1997). Perceived control indirectly influences clinical and psychosocial outcomes and leads to overall improvements in quality of life (Kahana, Kahana, & Zhang, 2005; Prenda & Lachman, 2001; Sörensen, Duberstein, Chapman, Lyness, & Martin, 2008; Sörensen & Zarit, 1996; Steele et al., 2003). Active coping also permits individuals to more efficiently control their emotional response as well as the resources that are expended. In either case, accumulation of coping resources is likely to increase feelings of preparedness, yield a broader set of response options, and maximize the utility of available resources (Aspinwall & Taylor, 1997).

Theoretical Distinctions. Anticipatory coping and proactive coping are concepts that have often been used interchangeably. Anticipatory coping was described by Schwarzer and Knoll (2003) as the coping efforts taken to address a potential threat that is likely to occur in the future. Frith, Harcourt, and Fussell (2007) characterized this coping schema as the process of anticipation and preparation for an unavoidable threat. Unlike anticipatory coping, theorists have argued that proactive coping is not simply coping started in advance or coping to avert adversity, it differs from anticipatory coping in both theory and application. As such, there are several distinguishing features in a proactive coping schema.

To the extent that proactive coping is aimed at confronting a potential challenge that may occur in the future (Aspinwall & Taylor, 1997), this model posits that the individual actively pursues goals directed at that challenge. The model is not merely future-oriented as is the case

with anticipatory coping but is distinctly proactive (Schwarzer & Luszczynska, 2008). Proactive coping, by definition, encompasses several key coping strategies including skills development, resource accumulation, and long-term planning. Proactive individuals seek to reduce risk and promote personal growth. Anticipatory coping is conceptually different. Challenges are interpreted as imminent threats or potential loss. Emphasis is placed on risk management rather than goal or resource management (Folkman & Moskowitz, 2004; Schwarzer & Knoll, 2003; Schwarzer & Luszczynska, 2008). Both types of individuals take steps in advance to manage an event. Yet, some theorists have argued that proactive coping with its distinct focus on future-casting provides a broader safety net against worry and distress (Schwarzer & Luszczynska, 2008).

Criticisms of Proactive Coping. The applicability of proactive coping to aging adults has not been free of criticism. Published reports have found that older adults possess a present time orientation that is focused on daily task management rather than achievement or personal growth (Dittmann-Kohli, 1990; Timmer, Bode, & Dittmann-Kohli, 2003). In contrast to younger samples, older adults are likely to perceive their life goals and aspirations as having already been fulfilled and are less likely to operate from a future-time perspective (Dittmann-Kohli, 1990; Timmer, Steverink, Stevens, & Dittmann-Kohli, 2003). With its emphasis on resource accumulation, the model's applicability to older samples is further scrutinized because advancing age is often associated with decline in health and social and financial resources (Freund & Baltes, 2002). A related concern is the possibility of unintended, negative outcomes due to overinvestment of resources if a circumstance is appraised incorrectly (Ouwehand, 2005; Ouwehand et al., 2004, 2009).

Despite these criticisms, proactive coping has been shown to enhance future-orientations in aging populations. Bode, de Ridder, Kuijer, and Bensing (2007) and Churchill and Davis (2010) demonstrated that aging adults could acquire new skills and adopt proactive coping competencies such as future-casting and goal setting in late-life. Research by Ouwehand et al. (2008) provides further support for these findings. Older adults were shown to possess specific traits and skills typically associated with proactive coping such as the ability to plan ahead and implement strategies to avoid stressful life changes (e.g., deficits in health status, social support, and finances).

In contrast to other published reports, studies have also found that older adults conducted their life with purpose and meaning beyond the present (Bode & deRidder, 2007; Holahan & Chapman, 2002). Resource optimization and self-promotion have been shown to remain important themes throughout later-life (Timmer, Steverink, & Dittmann-Kohli, 2002). Prenda and Latchman (2001) reported that older adults benefitted most from planning for the future when compared to younger populations. Age-related loss, if not managed or resolved, can undermine the aging process (Fiksenbaum, Greenglass, & Eaton, 2006). Developing strategies in advance to address potential stressors commonly associated with aging helps to conserve resources that are essential to successful aging (Fiksenbaum et al., 2006; Schwarzer & Luszczynska, 2008).

State of the Science. The criticisms described above may partially explain why proactive coping remains a relatively unexplored area particularly in gerontological studies. Another explanation is that gerontological research has been slow to adopt a positive psychology of aging (Ranzijn, 2002). The published reports that have examined proactive coping among aging adults offer promise. Several published reports have found that health status and proactive behaviors

had a positive correlation (Greenglass et al., 2006; Holden, McBride, & Peronzek, 1997; Kahana & Kahana, 2003; Kahana, Kahana, & Zhang, 2005; Ouwehand et al., 2004, 2009; Prenda & Lachman, 2001; Reinardy, 1992; Reinardy & Kane, 1999; Steele et al., 2003). The relationship between proactive coping and mental health is less straightforward. Ouwehand et al. (2005, 2004) reported that psychological function and proactive coping were inversely related, whereas Greenglass et al. (2006) found that proactive individuals reported lower rates of depression.

Other findings have reported that context-specific features had a greater impact on shaping proactive behaviors than individual characteristics. Ouwehand et al. (2006) found that type of stressor and appraisal response (e.g., perceived threat and control) were associated with employment of proactive behaviors among a sample of middle-aged and older adults. Only one personal characteristic (e.g., forward-thinking worldview) emerged as a significant predictor of proactive coping. In this same study self-efficacy and goal-oriented behaviors were not associated with being proactive. Bode et al. (2007) demonstrated that coping-focused skills training increased the adoption and application of proactive coping strategies among older adults despite differences in personal factors.

Souglaris and Ranzijn (2011) reported that proactive orientations were associated with existential meaning, psychological well-being, and life satisfaction in a sample of community-dwelling Australian older adults after controlling for age and health status. Prenda and Lachman (2001), Simon (2002), and Cheng and Greenglass (2006) also reported that a forward-thinking worldview was a major predictor of life satisfaction among both healthy and unhealthy samples of older adults. Still other published reports among older adult samples have found that proactive individuals experienced fewer daily hassles, less health anxiety, and lower functional disability (Fiksenbaum et al., 2006; Greenglass et al., 2006). In addition, research examining socially

disadvantaged older persons and proactive behaviors found that socioeconomic status and proactive coping were positively correlated and mediated by physical health status (Ouweland et al., 2009). Longitudinal findings also indicated that preventive health-directed behaviors were positively correlated with higher quality of life in the oldest old (Kahana et al., 2002). Proactive orientations were further found to influence individual motivation and speed of recovery among older adult rehabilitative in-patients (Greenglass, Marques, deRidder, & Behl 2005).

### Problem Solving Literature

Problem-solving research has developed numerous models of planning to address everyday problems. Similar to coping theory, these models illustrate how situational and personal factors influence the manner in which individuals anticipate problems, appraise situations, and adapt to changes in their context. As with future-oriented coping theory, the aim is to minimize negative outcomes through self-regulation and goal-directed behaviors (Friedman & Scholnick, 1997). Berg, Meegan, and Deviney (1998) employed a socio-contextual approach in their treatment of the subject. Appraisal and coping were described as dynamic processes that can take many forms including individual or collective effort. Their research posited that individuals possess personal competencies but may also borrow from people in their social environment to expand resources and generate additional planning options (Berg et al., 1998).

### Behavior Change Research

Several models of individual behavior change have been employed to explain the variability in the prevalence of PFCN engagement among aging persons. Andersen and Newman (Andersen, 1995; Andersen & Newman, 1973) developed the behavioral model of health services use as a rationale to explain the influence of environmental, social, and personal characteristics on health-seeking behaviors and health service use. Sørensen et al. (2008) adapted

the Andersen-Newman framework to the PFCN model. Generally, this model posits that older adult preferences for and use of LTC services vary greatly and depend largely on three areas of influence – need, enabling, and predisposing characteristics (Andersen, 1995; Andersen & Newman, 1973; Calsyn & Winter, 2001; de Boer, Wijker, & De Haes, 1997; Kadushin, 2004; Kemper, Weaver, Farley-Short, Shea, & Kang, 2008).

Need refers to clinically-evaluated and self-rated health status including perception of need and beliefs about the benefits of health services. Need characteristics have been the most consistent predictor of health service use in older adults (Chappell & Blanford, 1987; Coulton & Frost, 1982). Enabling characteristics are those personal factors that act as either barriers to or facilitators of service use, once need has been determined. Personal and community resources are two examples. Predisposing factors are broadly defined as those individual determinants that affect awareness of need and service use. Gender, race and ethnicity, social support, and psychological dysfunction are examples of predisposing characteristics that have been associated with rates of use (Bradley et al., 2002; Chappell & Blanford, 1987). Predisposing factors influence beliefs about actual or perceived need as well as attitudes towards health-seeking behaviors.

The Andersen-Newman model initially received criticism because it did not fully explore the interrelationship between these characteristics and health perceptions and also omitted important antecedents to behavior change (Bradley et al., 2002). Psychological factors and personality traits have been added to subsequent iterations of the model (Bradley et al., 2002; Sörensen, 1998; Sörensen et al., 2008; Sörensen & Pinqart, 2001). The Health Belief Model (Becker, 1974; Rosenstock, 1966) has also been used to examine variability in health services

use. This risk-benefit model illustrates how contextual factors as elaborated in the Andersen-Newman framework are related to health service use (Rosenstock, 1974).

Building on these models of behavior change, Theories of Reasoned Action (Ajzen & Fishbein, 1980; Bandura & Locke, 2003; Sörensen & Piquart, 2000a) and the Stages of Change Model (Prochaska et al., 1994; Prochaska, Redding, & Evers, 2008) add an additional complexity to behavior change theory. Theories of Reasoned Action describe the process leading up to one's intention to engage in a behavior, an essential criterion for behavior to occur. Theories of Reasoned Action place special emphasis on the psychosocial and cognitive domains of behavior. These theories describe behavior as a complex set of cognitive, behavioral, and self-reflective functions. In addition to the concepts already listed, important criteria that influence behavior include the interrelationship between the person and his or her social network, cognitive-behavioral motivation, and actual or perceived competency to engage in a behavior (Montano & Kasprzyk, 2002).

The Stages of Change Model has been used to describe individuals' readiness to engage in advance care planning (Pearlman, Cole, Patrick, Starks, & Cain, 1995; Prochaska et al., 1994; Prochaska et al., 2008). Similarly, it may also be worthwhile to apply this health behavior model to a PFCN framework. This model, as the organizing construct for the Transtheoretical Model, has been applied to research on numerous health behaviors (Fried et al., 2010; Prochaska et al., 2008). Conceptually, the model is the temporal component of the Transtheoretical Model and describes behavior change as a process that occurs in time and over different stages (Fried et al., 2010; Prochaska et al., 2008).

The model describes behavior change as a process consisting of five discrete stages: (a) precontemplation – no intention to change behaviors; (b) contemplation – contemplating

behavior change in the near future; (c) preparation – planning to change behavior soon; (d) action – recent behavior change; and (e) maintenance – ongoing behavior change. Table 1 illustrates how each PFCN process could correspond to a stage of change in the Transtheoretical Model (Fried, Bullock, Iannone, & O’Leary, 2009). Is it important to note that order of progression through the stages is not implied and processes may be skipped or moved through in a different order. The assumption is, however, that most people will progress through each stage, moving from least to most concrete activity (Sörensen & Pinquart, 2000a; Sörensen & Pinquart, 2000b). Fried et al. (2009) recommended using a more complex application of the Stages of Change Model by staging individuals based on their readiness to participate in different stages. In the stage-matched model individuals are matched to the corresponding PFCN process and readiness for change is measured specific to that discrete step.

A limited number of empirical studies have tested the behavior change model in advance care planning research. Pearlman, Starks, Cain, and Cole, (2005) found that stages of change interventions increased rates of completion of advance care directives. Qualitative research indicated that older adults had variable readiness to participate in advance care planning activities, were at different stages of readiness for different activities, progressed through the stages differently, employed a variety of strategies to engage in advance care planning, and had variable barriers and facilitators to engagement (Fried et al., 2009). Similarly, applying a stages of change model to PFCN may lead to overall improvements in understanding why, when, and how persons engage in preparation for future care needs. Researchers can also use this framework to measure different stages of readiness for different PFCN processes and examine mechanisms to progress people through stages.



Table 1

*Adaptation of the Stages of Change Behavior Change Model to Advance PFCN Research*

SCM stages	Adaptation	PFCN processes
Precontemplation	A stage in which a person intentionally disregard triggers that would otherwise alert one to the need for planning for future frailty.	Active avoidance of PFCN
Contemplation	Awareness of risk of future frailty, understanding the relevance of PFCN to their own lives, and forming intentions to engage in PFCN.	Becoming aware of risk of needing future care
Preparation and values clarification	A persistent phase which links the awareness stage to all other action steps through information gathering.	Gathering information about future care needs
Action and goal setting	Process that may include care-specific discussions with people in the person's circle of influence, e.g., spouse, relative, friends or clinicians. May also include concrete planning for care preferences, an action that requires older adults to proactively engage in behaviors that make their care preferences known to others.	Deciding on future care preferences
Maintenance	A stage in which older adults have made or continue to make concrete plans proactively and engage in behaviors that prevent or delay the need for care through health-enhancing behaviors, e.g., diet, exercise, awareness of available assistive devices, and other preventive actions.	Making concrete plans for future care needs

Preparation for Future Care Needs Among Older Adults

PFCN was developed by Sørensen and colleagues (Pinquart & Sørensen, 2000; Sørensen & Pinquart, 2000a, 2000b, 2001; Sørensen & Zarit, 1996) using both qualitative and quantitative

methods of research among older adults across different geographic settings. Prior to the development of the instrument to measure PFCN, most of the studies on LTC planning, like most of the instruments used to measure it, were narrow in scope, employed single-item indicators, examined behaviors not specifically related to LTC or PFCN, or had not examined the processes involved in preparation for future care needs from least to most concrete (Friedemann, Newman, Seff, & Dunlop, 2004; Greenglass, Schwarzer, & Taubert, 1999; Hiraoka, 1991; Kulys & Tobin, 1980; Niimura et al., 2011; Sörensen, 1996; Sörensen & Pinqart, 2001). The development of the PFCN construct and instrument used to assess it, therefore, represented a major paradigm shift in the research on LTC planning (Sörensen & Pinqart, 2001).

#### The PFCN Measure Conceptualized

PFCN is a robust construct that is formulated around the idea that planning involves a series of steps from least to most concrete. Four stages of concreteness emerge in this model: (a) becoming aware of risk of needing future care; (b) gathering information about future care needs; (c) deciding on future care preferences; and (d) finally making concrete plans for future care needs (Sörensen & Pinqart, 2000a; Sörensen & Pinqart, 2001). Conceptually, awareness sets the stage for more concrete activities, eventually leading to the development, implementation, and monitoring of both short- and long-term plans (Delgadillo, Sörensen, & Coster, 2004). Subsequent research has found that information gathering is central to the entire PFCN process (Sörensen et al., 2008) and shares similarities with the concept of feedback (Aspinwall & Taylor, 1997). Although not included as a stage of concreteness, *active avoidance of PFCN* is another important dimension that is included in the network of PFCN processes.

Sörensen and Pinqart (2000c) have used the Aspinwall-Taylor model (1997) to describe how preparation processes are activated. A cognitive-behavioral response is typically executed

when changes are detected in one's environment or personal context. For example, advancing age and increasing ADL deficit might alert persons to the increased risk of needing care in the future. The change is appraised as a potential threat and sets into motion PFCN strategies. Subsequent studies have confirmed a positive correlation between increased vulnerability, expectations of needing care, and planning behaviors in older adults (Sörensen & Pinquart, 2001).

A key consideration throughout the need appraisal process is personal wherewithal. Goals need to be realistic and reflect one's social, financial, and community resources (Sörensen & Pinquart, 2001a). Access to a wider range and higher quality of resources has been associated with more concrete engagement in PFCN. Negative changes in personal resources or in access to social programs can exert enormous strain on vulnerable populations like older adults. These factors are known to promote negative beliefs about the benefits of planning for LTC needs (Sörensen & Pinquart, 2000a, 2000b). In contrast, studies have also found that PFCN enhanced knowledge of available resources and supports (Sörensen & Pinquart, 2001) that may help individuals to better manage existing resources and create targeted care plans even during uncertainty (Brechling & Schneider, 1993). Nonetheless, there is considerable evidence that socioeconomic and community resources play an integral role in the care planning process (Pinquart, Sörensen, & Davey, 2003; Sörensen & Pinquart, 2000a, 2000b, 2000c).

#### Prevalence of Preparation for Future Care Needs Among Older Adults

There is considerable variability among published reports as to the extent to which aging persons make preparation and execute plans for future care needs. Fairly consistent rates were reported by High (1990), Kulys and Tobin (1980), and Sörensen and colleagues (Sörensen & Zarit, 1996; Sörensen & Pinquart, 2000c). Among these studies, two in three aging persons had

thought about the risk of needing assistance or care but less than 12% had made specific plans in advance to prepare for future frailty.

A study by Timmermann (2001) further highlights the disconnect among Americans about the perceived need to plan for and finance their LTC needs and actual execution of those plans. One in three older Americans stated that their care needs would be financed through LTC insurance yet research conducted by Alexih (2007) found that fewer than 10% of older Americans had actual LTC plans in place. Studies assessing living arrangements have reported higher rates of preparation. Black and Reynolds (2008) reported that 30% of older persons had made living arrangement plans in the event of future care need. A study conducted by the Joint Center for Housing Studies (2000) reported that approximately 50% of older adults had made necessary modifications to their homes that would promote independence and ensure ease of mobility.

Stoller (1982) used qualitative methods to extrapolate additional information about PFCN among older adults. These content-oriented measures also yielded higher rates of preparation. Stoller's findings have been confirmed in subsequent PFCN qualitative research (Sörensen, Pinquart, & Benson, 1997; Sörensen & Pinquart, 2000b) that found that more than 50% of older persons reported having short-term plans in place. These rates were fairly consistent with some quantitative studies. Clark, Boehmer, Rogers, and Sullivan (2010) assessed LTC planning (e.g., purchasing LTC insurance, making living arrangements, executing a will, and naming a health proxy) among middle-aged and older unmarried women. Overall, more than three-fourths had executed at least one planning strategy and approximately 50% had completed two activities; yet fewer than 4% had completed all four activities.

Studies assessing rates of estate planning are also highly variable. Rates of having executed a will ranged from 50% among a national survey conducted by AARP (2008) to 73% among sexual minority adults (McFarland & Sanders, 2003). In other studies, rates ranged from one in three in a nationally representative sample of older adults (Hopp, 2000) to approximately three in four older adult females (Black & Reynolds, 2008). It is important to note, however, that advancing age is associated with higher rates of completion of both a health care proxy and will (AARP, 2008; Clark et al., 2010; Excellus Blue Cross Blue Shield, 2008).

Besides inconsistencies in how LTC planning was operationally defined, the cross-sectional designs, use of different measures, and, in some cases, use of convenience sampling might limit comparison of these studies. Nonetheless, it remains unclear why and to what extent aging persons are engaging in LTC planning across care planning dimensions and thus warrants further investigation. Regardless of the actual rates of planning, Miller and Mor (2006) cited that the current aging populace was not equipped to cope with FCN.

#### Elaboration of Potential Determinants of PFCN

Figure 2 illustrates, conceptually, the multi-directional nature of the relationship between PFCN and potential determinants. These determinants can then be organized into five broad categories: predisposing, need, and enabling characteristics, psychological dimensions, and personality traits. The relationship between these factors and the individual PFCN processes is highly variable. A determinant may predict engagement in one PFCN process but actually decrease engagement in another. Thus, these determinants do not guarantee engagement in all levels of concreteness. This section provides a brief overview of the determinants of PFCN.

The personal factors that predispose individuals to higher levels of planning for LTC include female gender, advanced age, non-minority status, higher education, and social

integration (Hafen & Sørensen, 2008; Sørensen & Pinqart, 2000a). There are several key characteristics that enable persons to have better access to and use of resources, an essential dimension of PFCN. Key factors include higher income level, robust family and other social support, community engagement, access to transportation services, clinician inquiry about health care planning (Chapleski, 1989; Clark et al., 2010; Sørensen & Pinqart, 2000c), and the broader sociocultural characteristics of society that may be linked to national differences in health care system characteristics (Pinqart et al., 2003; Staudinger, Fleeson, & Baltes, 1999). For example, both middle-age and older Americans were more likely than their German counterparts to have a health-centric worldview and engage in PFCN (Pinqart et al., 2003).

Clinically-evaluated health status has received considerable attention in the literature on PFCN. Health-related vulnerability is associated with planning for LTC needs. Specifically, negative health changes alert individuals to the need for care, a factor commonly associated with increased likelihood of planning for future frailty (Delgadillo et al., 2004; Sørensen et al., 2008; Sørensen & Pinqart, 2000a, 2000b, 2000c). Other published reports have demonstrated a correlation between planning for LTC needs and several dimensions of functional loss including frequency and severity of ADL and instrumental ADL deficits (Forbes & Hoffart, 1998; Maloney et al., 1996; Sørensen & Pinqart, 2000a; Sørensen & Pinqart, 2000c). Incidentally, greater medical burden has also been found to contribute to negative beliefs about the usefulness of planning for future need (Sørensen et al., 2008).

In addition to these three components, psychological factors also predict engagement in future care planning. Several studies have linked internal locus of control with PFCN engagement (Prenda & Lachman, 2001; Sørensen, 1998; Sørensen & Pinqart, 2001). In another study, depression symptom severity was inversely related to information gathering; specifically,

individuals with more depression symptomology were less likely to inquire about future need or available resources (Sörensen et al., 2008). There are several personality traits that have been linked to PFCN. Sörensen et al. (2008) reported that older persons high in neuroticism and agreeableness were more likely to consider their future care needs but were not more likely to take action towards planning, whereas individuals high in openness were more likely to think about their future care and gather information about care preferences. Prenda and Lachman (2001) reported similar findings.

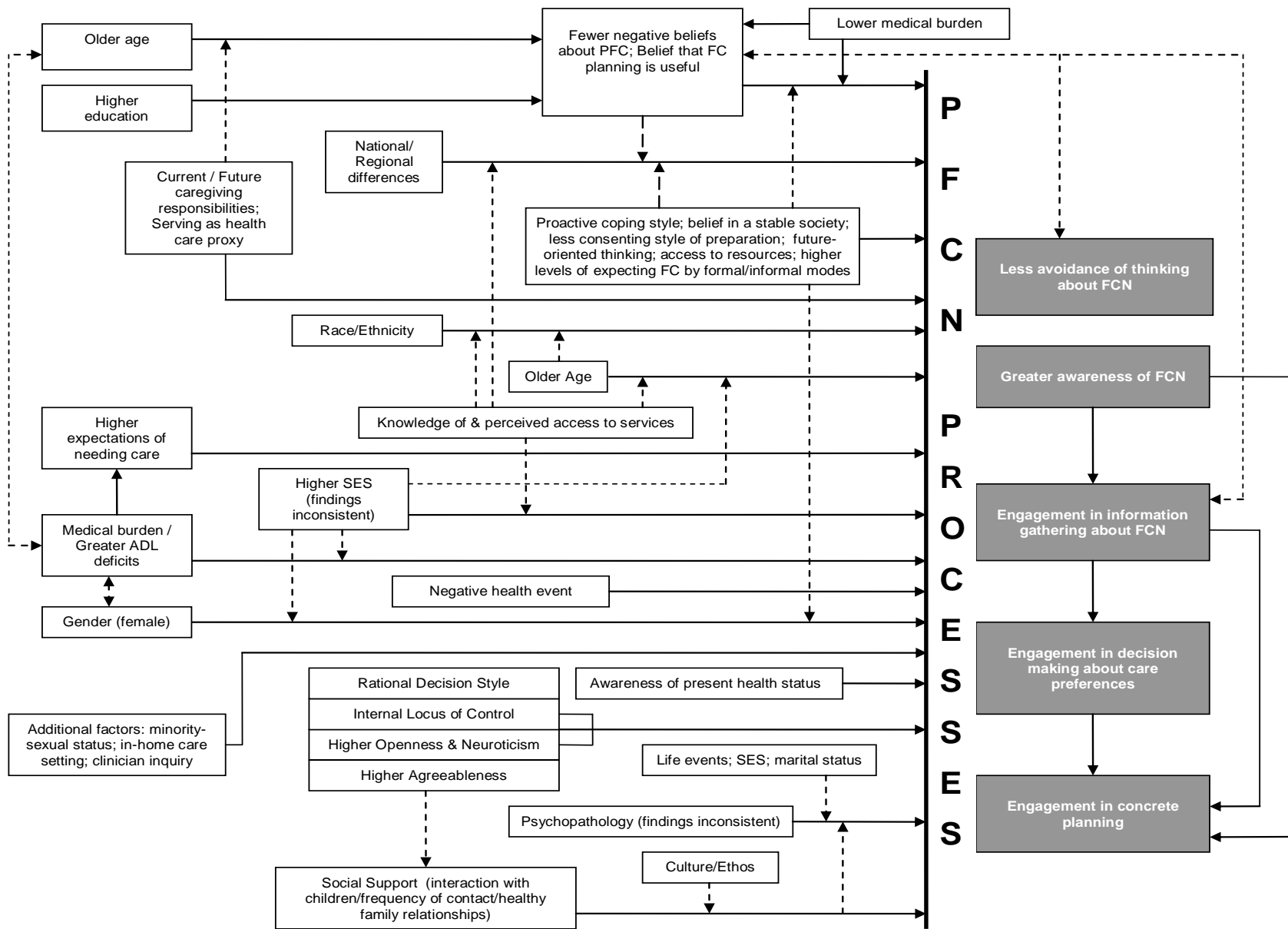


Figure 2. Determinants of PFCN Processes

Note: Dotted unidirectional lines represent mediation, whereas dotted multi-directional lines represent a correlation effect. Solid unidirectional lines that intercept other solid lines are moderating variables.



### Elaboration of Potential Barriers to PFCN

Barriers to PFCN have also emerged in the literature. High cost, low quality, and limited availability of care options including informal and in-home care predicted lower engagement (Pinquart & Sørensen, 2002a; Pinquart et al., 2003). Similarly, belief that one had insufficient informational and financial resources or that future personal or social resources were uncertain also hindered planning behaviors (Pinquart & Sørensen, 2002a; Pinquart et al., 2003; Sørensen & Pinquart, 2000b). Barriers that have further been identified include consenting styles of preparation (e.g., rely on care plans that are proposed by others) and avoidant problem-solving styles that led people to believe that future care plans were beyond their control (Maloney et al., 1996; Pinquart et al., 2003; Pinquart & Sørensen, 2002a; Sørensen & Pinquart, 2000b, 2001).

People who felt that future care needs were unpredictable or might change over time had lower levels of participation (Sørensen & Pinquart, 2000b). An overwhelming sense of security was found to be detrimental to LTC planning because individuals may ignore adverse environmental triggers (Kulys & Tobin, 1980). Other barriers have included low levels of perceived vulnerability of needing future care and the belief that planning could endanger present well-being (Pinquart & Sørensen, 2002a). Similar barriers have been identified in advance care planning research (Fried et al., 2010).

### Aging in Place

Baby Boomers will continue to reach full-retirement age and more of these individuals are choosing to age in place. There is growing consensus that this desire for an autonomous, self-reliant lifestyle must be reconciled with multimorbidities, disabilities, and functional limitations. Leading a self-determined, autonomous life in older age presents a challenge not only to the individuals themselves but also to those around them and society in general (AMA, 2008). A

wide array of environmental, clinical, psychosocial, and personal resources will be needed to promote continued autonomy. Individually and collectively these resources will help to better ensure successful aging in place despite the presence of complex geriatric syndromes that can jeopardize autonomy in old age (AMA, 2008).

Proactive behavior is one of many competencies that are relevant for aging in place. (Aspinwall, 1997a; Apsinwall, 1997b). These findings have been confirmed in the literature on LTC planning and PFCN. Individuals who have engaged in future-oriented cognitions and planning experienced greater satisfaction with the discussion and planning processes in their families (Sörensen & Zarit, 1996). Proactive older adults also reported fewer adverse health problems because they reported having more perceived control (Reinardy, 1992). Planning in advance increased the likelihood of developing a targeted care plan (Maloney et al., 1996) and ensured access to a wider range of services and supports (Sörensen et al., 2008).

Other outcomes of planning for LTC needs included enhanced life satisfaction (Prenda & Lachman, 2001) and increased locus of control and self-efficacy (Sörensen et al., 2008). Degree of life satisfaction generally increased as individuals advanced to more concrete goal-setting processes (Sörensen & Zarit, 1996; Steele et al., 2003). Numerous studies have reported on the positive correlation between awareness of LTC preferences, active planning, and subjective well-being in older adult samples (Brechling & Schneider, 1993; Coulton, Dunkle, Haug, Chow, & Vielhaber, 1989; Kahana et al., 2005; Pinquart & Sörensen, 2002b; Reinardy, 1995; Steele et al., 2003).

Both unexpected and indirect benefits have emerged among those individuals who engaged in preparation for future care needs. Future care planning promoted adoption of health-promoting behaviors such as engagement in physical exercise and proactive orientations (Kahana

et al., 2005). Because care plans were in place, planners perceived that family members would enjoy greater life satisfaction and less stress (Abramson, 1988; Sörensen & Zarit, 1996). Family members themselves have confirmed these perceptions (Sörensen & Zarit, 1996). Proactive older adults also reported that they gained a sense of security regarding their future, believed they were no longer a burden to potential caregivers, and were better able to cope with their present health conditions (Pinquart and Sörensen, 2002a). Qualitative research in the field of advance care planning has reported similar benefits (Fried et al., 2010).

### Unintended Outcomes of PFCN

The benefits of engaging in PFCN are many. However, there is evidence that some planning processes may actually exacerbate psychological dysfunction. Aspinwall and Taylor (1997) suggested that when dealing with chronic stressors, proactive coping may lead to rumination and increased levels of anxiety. Persons classified as *ruminators* (e.g., high self-awareness but no care plan in place) have been shown to report the lowest levels of life satisfaction and psychological well-being and more symptoms of anxiety. Awareness alone, however, does not translate into better coping planning or progression through PFCN stages (Pinquart & Sörensen, 2002b; Skarborn & Nicki, 1996; Steele et al., 2003).

In other studies *avoiders* (e.g., individuals with low self-awareness) reported fewer symptoms of psychological dysfunction than planners, although they were less satisfied with their preparation (Pinquart & Sörensen, 2002a; Steele et al., 2003). Among some groups of *planners* (e.g., high level of self-awareness and proactive orientations), studies have found that selecting care preferences caused increased mental dysfunction (e.g., worry and depression). Perceived resource limitations and greater awareness of present health condition can contribute to health anxiety if autonomy is perceived to be threatened (Pinquart & Sörensen, 2002b; Steele

et al., 2003). There is overwhelming support, however, for the numerous benefits incurred by people who progress through the PFCN stages. Table 2 summarizes the psychological outcomes associated with PFCN engagement.

Table 2

*Psychological Outcomes Associated with PFCN Engagement*

<b>PFCN Sub-scale</b>	<b>Psychological Outcomes</b>
Active avoidance of PFCN	<ul style="list-style-type: none"> <li>● Lowest levels of depression symptom severity when compared to ruminators and planners</li> <li>● Lower levels of worry and depression</li> <li>● Increased satisfaction with future care plans when compared to ruminators</li> </ul>
Becoming aware of risk of needing care	<ul style="list-style-type: none"> <li>● Enhanced subjective well-being</li> <li>● Low levels of life satisfaction and psychological wellbeing among ruminators</li> <li>● Increased levels of worry and depression</li> <li>● Increased anxiety</li> </ul>
Gathering information about future care needs	<ul style="list-style-type: none"> <li>● Enhanced life satisfaction</li> <li>● Decreased levels of worry and depression</li> </ul>
Deciding on future care preferences	<ul style="list-style-type: none"> <li>● Enhanced life satisfaction</li> <li>● Improved decisional control</li> <li>● Enhanced subjective well-being</li> <li>● Increased levels of worry and depression</li> </ul>
Making concrete plans for future care needs	<ul style="list-style-type: none"> <li>● Enhanced subjective well-being</li> <li>● Decreased levels of worry and depression</li> <li>● Higher levels of life satisfaction</li> <li>● Greater life satisfaction among family members</li> <li>● Incur less stress for elder and family members</li> </ul>
Global PFCN behaviors	<ul style="list-style-type: none"> <li>● Gain a feeling of security regarding the future</li> <li>● Belief that no longer a burden to potential helpers</li> <li>● Belief that PFCN helps to cope with one's present health conditions</li> <li>● Higher satisfaction with preparation</li> <li>● Greater knowledge of services</li> </ul>

### Health-Related Quality of Life

Health can be measured in different units (e.g., population level, a particular subgroup, or at the individual level) and by employing a variety of measures (Fryback, 2010). Fryback (2010) classified these health measures into four categories: (a) health indicators, (b) disease-specific measures, (c) general health profiles, and (d) summary HRQoL indexes. HRQoL has been used by researchers, clinicians, and public health professionals as a complementary endpoint to mortality and morbidity. Complex measures of health are needed to better understand changes in the overall health of the general population or specific subgroups. Unlike other measures that can be used for explanatory or descriptive purposes or to assess the impact of a specific disease or condition, summary HRQoL indexes are aggregated measures that can be used to summarize and evaluate net changes in a population's health (Fryback, 2010).

#### Summary Measure of Population Health

A very common use of HRQoL scales is in epidemiologic surveillance research to assess a population's general health and disease burden (CDC, 2000). Most HRQoL measures include questions about self-reported health status, social and physical functioning, vitality, mental hygiene, and limitations to daily living (The EuroQoL Group, 1990; Feeny, Furlong, Boyle, & Torrance, 1995; Kaplan, Seiber, & Ganiats, 1997). Conceptually, HRQoL is a reliable measurement of health as defined by the World Health Organization (1946, p. 100): "health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". These measures can be used by clinicians to understand how multimorbidities and related conditions interfere with maintenance of health and autonomous living. Public health agencies can use these measures to monitor changes in HRQoL with the aim of identifying

disparities that may exist in clinical and functional health status among vulnerable populations such as socially isolated and medically vulnerable subgroups (CDC, 2000).

### Challenges to HRQoL in Late-Life

Chronic disease and disability generally become more prevalent in late-life. People may be living longer, but they may spend a greater portion of their lives living with disability and loss of autonomy. It is well-established that the type and number of chronic conditions and the presence of secondary illnesses are linked to a reduction in HRQoL in older adult samples (Robert-Koch-Institute [RKI], 2003). These health conditions are often accompanied by second order effects such as pain, sleep disorders, and other complications that lead to further HRQoL deficits (AMA, 2008). In fact, pain is one of the most commonly cited health complaints by aging adults (Lautenbacher, Kundermann, & Krieg, 2006). Some published reports have demonstrated that the presence of these moderating factors may actually be a stronger indicator of reductions in HRQoL than disease pathology itself (Freedman & Martin, 2000; Verbrugge & Patrick, 1995).

Multiple health and functional impairments create a significant challenge to older adults who want to age in place because these conditions impact negatively on those activities of everyday living and the competencies required for the pursuit of goals (AMA, 2008). Studies of community-dwelling older adults have found that a lower HRQoL was associated with clinical factors such as poor health status, biophysiological and psychological impairment, and greater burden of disease. HRQoL deficits were also related to a broad range of social factors including solitary living, loneliness, and resource insecurity (CDC, 2006; CDC, 2011). More importantly, aging persons have a much more difficult time returning to homeostasis after the occurrence of a

physical insult (AMA, 2008). The presence of HRQoL deficits, then, is an important indicator of future clinical vulnerability.

### HRQoL and Preparation for Future Care Needs

Perceived or clinically evaluated health status have been described as the most consistent predictors of health service use, a behavior that can emerge in a PFCN context (Strain & Blandford, 2002). Further, active coping behaviors promoted improved quality of life among studies of adolescent and adult samples with diabetes (Grey, Boland, Davidson, Li, & Tamborlane, 2000; Watkins et al., 2000). Few studies, however, have directly examined the HRQoL-PFCN relationship among older adult samples. Among the few studies that do exist, investigators have reported fairly consistent outcomes.

Qualitative research indicated that aging persons reporting better self-rated health were less likely to plan for their future care when compared to those with poorer self-rated health. Healthier individuals had a lower perceived risk of needing care in the future, a factor commonly associated with PFCN engagement (Pinquart & Sörensen, 2002a). In another study active avoidance of PFCN was associated with fewer numbers of self-reported ADL deficits (as reported by Pinquart & Sörensen, 2002b). A study conducted among Japanese middle-aged and older adults with psychological deficit found that high levels of quality of life and social functioning were not sufficient to promote proactive behaviors because older adults needed a robust support system to help encourage these behaviors. In this same study higher HRQoL correlated with a more positive attitude toward aging but less active preparing behaviors (Niimura et al., 2011).

Sörensen and Pinquart (2000c, 2001) found that greater ADL deficits predicted greater expectation of needing care in the future and progression through the stages of concreteness

(e.g., awareness of FCN, selecting care options, and concrete planning) among older adult samples. Higher ADL deficits also led to more active avoidance. Research suggests that greater medical burden is often associated with negative beliefs about the usefulness of planning (Sörensen & Pinguart, 2001). In both studies ADL deficits were based on the clinician-evaluated index that has been shown to correlate with self-reported ADL impairment (van Exel, Scholte op Reimer, & Koopmanschap, 2004).

### Trait Hope

Personality traits and dispositions are stable characteristics that persist over time. These characteristics differ considerably from affective states, the temporal moods and emotions that are elicited in response to environmental triggers. *Trait hope* is a generalized disposition that is central to the formulation of human motivation, a powerful resource used to direct behaviors (Lopez, Snyder, & Pedrotti, 2003; Scioli et al., 1997; Snyder et al., 1991, 1996). Snyder et al. (1991, p. 570-571) conceptualized hope as “a cognitive set that is based on a reciprocally derived sense of successful (a) *agency* (goal-directed determination) and (b) *pathways* (planning of ways to meet goals)”. The pathways dimension of hope refers to the steps that we use to achieve a specified goal. Agency thinking is viewed as the motivation we have to progress through these steps to achieve the desired outcome (Snyder, 2000). These two dimensions of hope share similarities with other concepts that have emerged in both coping and PFCN literature (e.g., goals clarification, planning, and self-regulation).

### Hope – A Matter of Resilience or Risk

There is growing recognition in psycho-analytic literature that personality characteristics must be discussed from the vantage of both benefit and liability. Few in our society would question the importance of possessing hope when faced with situations that test one’s resolve and



wherewithal (Folkman, 2010). This perspective needs to be balanced, however, against the notion that *too much of a good thing* can result in harm, an aphorism that dates back to the 15<sup>th</sup> century (Grant & Schwartz, 2011; Martin, n.d.).

Until more recently, however, research in positive psychology has focused primarily on the protective characteristics of hope. Hope provides a buffer against negative life change and, in turn, promotes health and well-being over the life course (Snyder et al., 1996). The hope construct has been described both as a source of resilience that helps individuals deal with anxiety caused by future uncertainties and as a resource that helps regulate conflicting expectations through both problem- and emotion-focused coping. This knowledge is particularly salient to aging adults who often face obstacles to successful aging (Folkman, 2010; Ong, Edwards, & Bergeman, 2006).

For example, aging adults may anticipate increasing ADL deficits so they revise their expectations about the future by preparing for future frailty (problem-focused). The expectation that these health-seeking behaviors may prolong healthy longevity may also help regulate psychological distress (e.g., emotion-focused coping) (Folkman, 2010; Ong et al., 2006). Because hope is a forward-oriented disposition that creates will and perseverance, some theorists believe that this trait may make persons more medically compliant (Downman, 2008). Similar health benefits have been identified in the literature on dispositional optimism (Ironson et al., 2005; Orom, West, Downs, Rayford, & Underwood, 2009; Steginga & Occhipinti, 2006).

There is growing recognition, however, that in excess these protective characteristics may actually take on a negative role. As an example, excess hope can create a biased reality that confers risk because it distorts the risk appraisal process (Grant & Schwartz, 2011; Jansen et al., 2011). Individuals may displace negative perceptions of a situation or repress environmental

triggers altogether. In these cases it is increasingly difficult for individuals to discern what can or cannot be altered, opening the door to denial of both distressful information and threat to autonomy (Breznitz, 1983; Downman, 2008; Ezzy, 2000; Folkman, 2010; Smith & Sparkes, 2005). Despite these concerns research has suggested that most depart only modestly from actual reality while the majority of people have a relatively accurate perception (McMillan, Gilbody, Beresford, & Neilly, 2007). Nonetheless, unrealistic hope has been described in the literature as a latent psychological construct, a marker of denial, and a maladaptive adaptation strategy (Bhagotra, Sharma, & Raina, 2008).

Despite this knowledge researchers in the field of positive psychology have rarely examined the notion of a nonlinear relationship between personality characteristics and indicators of well-being. Grant and Schwartz (2011) employed the term *nonmonotonic* to describe this curvilinear relationship, which generally takes the shape of an inverted U. The theory is premised on the idea of the Aristotelian mean, a concept that is similar to the Yerkes-Dodson law (Yerkes & Dodson, 1908). These theories suggest that personality characteristics at moderate levels play a protective role. As they move away from the mean, however, towards either absence or excess, the characteristics often take on a negative identity.

Consistent with this theory, research has identified a nonmonotonic relationship between numerous personal characteristics including hope, optimism, and self-efficacy and indicators of well-being (Baumeister, Campbell, Kreuger, & Vohs, 2003; Dunning, Health, & Suls, 2004; Radcliffe & Klein, 2002; Whyte & Saks, 2007; Vancouver & Kendall, 2006; Vancouver, Thompson, Tischner, & Putka, 2002). To illustrate this theory high levels of hope, optimism, or self-efficacy have been found to foster a sense of complacency, impair decision-making capacity, prevent successful adaptation and ability to reconstruct one's identity, and lead to health-risk

behaviors such as failure to comply with clinician recommendations (Ezzy, 2000; Jansen et al., 2011; Smith & Sparkes, 2005).

### Role of Trait Hope on PFCN Processes

Building on this knowledge, trait hope is a useful construct when assessing resources for motivation used to engage in PFCN. Research has demonstrated that a stable disposition is closely related to coping competencies, which are known to impact health-promoting behaviors (Rose et al., 2002). Generally, people possessing higher but not excessive levels of control beliefs assume greater personal responsibility for their health (Wurm et al., 1997). Aging persons are more likely than other age groups to experience biophysiological insults; therefore, Wurm et al. (1997) have argued that perceived control is an essential resource for healthy longevity. Proponents of the nonmonotonic theory have further demonstrated the complex and multifactorial effect that hope may have on planning for LTC needs (Grant & Schwartz, 2011). Surprisingly, however, little data exist directly comparing the relationship between hope and planning processes in late-life.

Research on hope and coping theory may provide insight. Lopes and Cuhna (2008) assessed the moderating effects of hope on the relationship between adaptive strategies and proactive planning among middle-aged and older adults. The researchers found that hope moderated the effects of pessimism and passive coping (e.g., reactive behavioral adaptation and functioning). Specifically, among adults high in pessimism, hope reduced the occurrence of passive planning. Despite these findings, trait hope did not enhance engagement in proactive planning for either of the adaptive strategies (Lopes & Cuhna, 2008).

Lopes and Cuhna (2008) also found that pessimism was inversely related to proactive coping. This finding is important because it challenges the assumptions of earlier empirical

research. Norem (2003) suggested that a pessimistic outlook might have positive effects on planning behaviors. Norem (2003) labeled this as *defensive pessimism*. Defensive pessimism is thought to trigger proactive coping behaviors (e.g., planning, in advance, for unforeseen adversities which may occur in the future). Norem (2003) further suggested that defensive pessimism was similar to the pathways dimension of hope. In Lopes's and Cuhna's (2008) research, a dimension of coping emerged, namely passive coping, that helped to provide clarity to this hypothesized relationship. There was no evidence that pessimism increased engagement in proactive behaviors but rather influenced passive coping styles.

Greenglass and Fiksenbaum (2009) investigated the relationship between proactive coping and a positive cognitive-motivational state of mind referred to as *getting on with life* among a sample of older adult rehabilitation patients. Patients who possessed this emotional state were more likely to engage in proactive coping behaviors (Greenglass & Fiksenbaum, 2009). Ong et al. (2006) further found that among older adults with higher levels of trait hope, trait hope promoted positive adaptation to daily life stress. Low levels of trait hope were associated with lower resilience and prolonged negative emotional reactivity. Still others have argued that excessive or unrealistic hope impedes one's ability to adapt to changing circumstances (Smith, Loewenstein, Jankovic, & Ubel, 2009). A nonmonotonic relationship was also found between state hope and readiness for change, a motivational construct that is likely to appear in a PFCN context (Jarrat, 2007).

Research in PFCN and the field of psychology provide yet additional insight. These studies reported a positive correlation between proactive coping and internal locus of control and self-efficacy, concepts that share some similarities with dispositional hope (Snyder et al., 1991; Sörensen, 1998; Sörensen & Piquart, 2000b ; Sörensen & Piquart, 2001). These findings are

consistent with Rose et al. (2005) who reported that higher levels of optimism were associated with an active coping orientation.

In contrast to these findings, Sörensen and Pinquart (2000b) found that uncertainty about present or future stability negatively impacted feelings of control and engagement in PFCN, whereas Kulys and Tobin (1980) found that an overwhelming sense of security was a barrier to active planning. Niimura et al. (2011) reported that an optimistic outlook did not promote preparing behaviors while de Ridder, Schreurs, and Bensing (2000) found that moderate levels of optimism led to a more effective coping response. These findings are supported by Williams, O'Brien, and Colder (2004) who have argued that an overly optimistic view of the future may undermine planning for LTC needs.

#### Role of Personality Characteristics on HRQoL

Although HRQoL is influenced by burden of disease and disability, published reports have demonstrated that disposition and personality also impact health outcomes. In studies among adults with diabetes, dispositional control beliefs exerted an enormous influence over the quality of life experienced by these patients (Rose et al., 1998, 2002). Dispositional control beliefs were further found to be linked to the processes that promote healthy aging over the life course among samples of healthy adults (Wurm et al., 2007).

These characteristics have also been shown to delay or decelerate the progression of declining health status among aging adults (Benyamini et al., 2000), contributing to enhanced quality of life (Greenglass & Fiksenbaum, 2009). Research has further suggested that control beliefs – optimism and self-efficacy – were more important indicators of higher quality of life than clinically-evaluated health status (Rose et al., 2005). On the other hand, emotional

dysfunction has been associated with poorer clinical and psychosocial outcomes (DeNeve & Cooper, 1998; Steptoe & Wardle, 2005).

## CHAPTER 3

### METHODS

#### Hypotheses

1. HRQoL would be negatively associated with awareness of risk, information gathering, deciding on care preferences, and concrete planning and positively associated with active avoidance.
2. HRQoL would have a positive association with trait hope.
3. Trait hope would have a positive association with awareness, information gathering, decision making and have a negative association with active avoidance and concrete planning because hope in excess may actually confer risk.
4. We hypothesized that poor HRQOL would be negatively related to PFCN, and that trait hope would moderate this relationship such that this association would be weakened in individuals with less trait hope.

#### Participants

This study involves a secondary analysis of data collected in western New York State. The complete design of the Depression Outcomes in Older Adult Primary Care Patients' Study is described elsewhere (Sanders, Lyness, Eberly, & Caine, 2006; Seaburn, Lyness, Eberly, & King, 2005). In brief, between 2001 and 2004 a cohort of approximately 1,500 individuals aged 65 years and older was recruited at family-primary care and medical clinics in the Rochester, NY area. Physician staff gave permission to recruit in their facilities and also assisted with the process. Of the initial pool, 749 gave their consent to participate in the study. Participants consented to a review of their medical charts, an interview conducted by trained research

assistants, and completion of several study questionnaires. These data were used to assess the general health of older adults.

The prospective cohort study received funding for a period of 5 years. Depending on the time of entry, follow-up on participants ranged from 1-4 years. The Trait Hope Scale (THS) and PFCN questionnaire were introduced later in the study and provided minimal or no time for follow-up. The present study, therefore, uses a cross sectional design to determine the relationship between key variables of interest. A total of 66 respondents were available for inclusion in the present analysis. The sample had a mean age of 73.85 (SD=5.09). Mean education level was 15.35 years (SD=1.77). (See Table 3 for other demographic characteristics).

Table 3

*Demographic Characteristics of Individuals (N=66)*

<b>Variable</b>	<b>Primary Care Sample Mean (SD), Percent [N = 66]</b>
Age	73.85 (5.09)
Education	15.35 (1.77)
Race and Ethnicity	
White	95.5%
Black or African American	1.5%
Asian	1.5%
Hispanic or Latino	1.5%
Sex: Female	63.6%

Measures

Participants were asked to complete five measures, the PFCN Process Measure (short form), Medical Outcomes Study Short Form-36, version 1 (SF-36v1), Trait Hope Scale (THS), Cumulative Illness Rating Scale (CIRS), and Karnofsky Performance Status Scale (KPSS). Selected demographic information was also obtained. A description of the study variables is



given in Table 4 along with internal consistency and reliability scores as determined in the present study.

#### PFCN Process Measure (Short Form)

Developed by Sørensen and Pinquart (2001), the PFCN process measure is a multi-dimensional construct that describes the series of steps involved in planning for future care needs. This self-administered questionnaire contained 15 items used to assess five PFCN subscales. These subscales included: (1) Becoming Aware of Risk of Needing Care; (2) Gathering Information About Future Care Needs; (3) Deciding on Future Care Preferences; (4) Making Concrete Plans for Future Care Needs; and (5) Active Avoidance of PFCN.

Each item is rated on a 5-point Likert scale ranging from 1 = “not at all true of me” to 5 = “completely true of me”. Each scale has demonstrated acceptable reliability in previous studies with larger samples of older adults, Cronbach  $\alpha = 0.67$  to  $0.93$  (Hafen & Sørensen, 2008) and Cronbach  $\alpha = 0.72$  to  $0.87$  (Sørensen & Pinquart, 2001) and in the current sample (See Table 4). Analyses were conducted with the mean across subscale items. With the exception of the Active Avoidance of Future Care Planning subscale, higher subscale scores indicate higher levels of engagement in PFCN.

#### Medical Outcomes Study Short Form-36, Version 1 (SF-36v1)

The SF-36v1 is the most widely used summary HRQoL index (Fryback, 2010; Ware, Snow, & Kosinski, 2000) and includes questions measuring eight multi-item dimensions of health: physical functioning, role limitations due to physical health problems, role limitations due to emotional problems, bodily pain, general health, energy and fatigue, social functioning, and mental well-being. Five indicators of HRQoL were available for examination in the present

study: (1) Physical Functioning, (2) Role Limitations due to Physical Health, (3) Role Limitations due to Emotional Problems, (4) Social Functioning, and (5) Pain.

The validity and reliability of the 36-item self-administered SF-36v1 is well established (e.g., Cronbach's  $\alpha > 0.85$ , reliability coefficient  $>0.75$  for all indicators except social functioning; Brazier et al., 1992). In a review of studies, the median reliability coefficients for each scale was  $\geq 0.80$ , with the exception of social functioning (e.g., 0.76; Ware, Snow, Kosinski, & Gandek, 1993). The items have also demonstrated good construct validity (Brazier et al., 1992). In the present study Cronbach's  $\alpha$  ranged from 0.70 to 0.91. The scores from the SF-36 scales were converted to norm-based t-scores based on the 1998 general U.S. population. Scoring was done with QualityMetric Health Outcomes Scoring Software 4.0 (e.g., <http://www.qualitymetric.com>; Ware et al., 2000). Higher subscale scores indicate a better health condition.

#### Trait Hope Scale (THS)

Developed by Snyder and colleagues (1991), the THS has been used extensively in psychological and behavioral research to assess hope as a stable disposition in adults (Flores & Obasi, 2003). The eight-item THS is comprised of two subscales assessed with four items each: agency (e.g., "*I energetically pursue my goals*") and pathways (e.g., "*There are lots of ways around any problem*"). Respondents indicate level of agreement with each statement with 1 = "I disagree a lot" to 5 = "I agree a lot". In the present study, the total hope score (e.g., sum of the two subscales combined) and individual subscale scores were used. Higher THS scores reflect higher degree of hope.

The overall hope scale (Cronbach's  $\alpha$  ranged from 0.74 to 0.84) and its subscales (e.g., agency [Cronbach's  $\alpha$  ranged from 0.70 to 0.84] and pathways [Cronbach's  $\alpha$  ranged from 0.63 to

0.86]) have demonstrated good internal consistency and test-retest reliability (0.85 over a 3-week interval to 0.82 over a 10-week interval) across several studies (Snyder et al., 1991). In the present sample of primary care patients Cronbach's  $\alpha$  ranged from 0.77 to 0.88.

#### Cumulative Illness Rating Scale (CIRS)

The CIRS measure (Linn, Linn, & Gurel, 1968) was used to investigate medical illness burden due to the presence of disease state. This measure is used to quantify the level of pathology across thirteen major organ systems. CIRS ratings are based on a physician review of participants' primary care charts and other available health-related records. The examiner rates disease severity on a 5-point severity scale ranging from "none" to "extremely severe".

The CIRS is a reliable and valid measure (Conwell, Forbes, Cox, & Caine, 1993; Miller et al., 1992; Royall, Cabello, & Polk, 1998) that has demonstrated good interrater (correlation coefficients were 0.81 and 0.78) and intrarater reliability (ranged from 0.80 to 0.89) in prior studies (Hudon, Fortin, & Vanasse, 2005). The measure has also demonstrated good concurrent validity with other comorbidity measures (e.g. correlation coefficient >0.40) (Extermann, Overcash, Lyman, Parr, & Balducci, 1998) in prior studies as well as in the current study (KPSS and CIRS, correlation coefficient 0.59). Previous research has also shown that CIRS ratings are highly correlated with postmortem autopsies made by a medical examiner (Conwell et al., 1993). In the present study the total CIRS score was used. This score is calculated by adding the level of impairment of all 13 organ systems together. Higher CIRS scores indicate better health as marked by lower medical illness burden.

#### Karnofsky Performance Status Scale (KPSS)

We measured illness-related functional impairment using the KPSS, a physician rated scale ranging from 0–100 that quantifies the degree of physical impairment and disability due to

medical illness (Crooks, Waller, Smith, & Hahn, 1991). Similar to CIRS, the KPSS score is determined by a physician review of the individual's medical chart and therefore ensures an objective assessment of clinical impairment. This measure has also demonstrated good inter-rater reliability (Cronbach's coefficient  $\alpha = 0.97$ ), predictive validity ( $r = 0.30$ ) and construct validity when compared to similar measures of functioning (e.g.,  $p < 0.01$ ) (Mor, Laliberte, Morris, & Wiemann, 1984). Higher KPSS scores reflect higher functional status.

### Demographics

We asked respondents for self-identified age, gender, race and ethnicity, and education in years.

Table 4

*Description of the Variables*

Scale	Number of Items	Item Example	$\alpha$
Becoming aware of risk of needing future care (PFCN)	3	I pay attention to information in the media on the risks of needing help or care in old age (1 = not at all true of me, 5 = completely true of me).	0.74
Gathering information about future care needs (PFCN)	3	I have compared different options for obtaining help or care in the future (1 = not all true of me, 5 = completely true of me).	0.78
Deciding on future care preferences (PFCN)	3	I know what options for care I don't want (1 = not at all true of me, 5 = completely true of me).	0.75
Making concrete plans for future care needs (PFCN)	3	I have written down my preferences for care (1 = not at all true of me, 5 = completely true of me).	0.55
Active avoidance of PFCN (PFCN)	3	I don't like to think about the risk of needing help or care in the future (1 = not at all true of me, 5 = completely true of me).	0.64
Physical functioning (SF-36)	10	Does your health now limit you in these activities? Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports (0 = no, not limited at all, 3 = yes, limited a lot).	0.91
Role limitations due to physical health (SF-36)	4	During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health? Cut down the amount of time you spent on work or other activities (0 = no, 1 = yes).	0.85

Table 4. (continued)

Scale	Number of Items	Item Example	$\alpha$
Role limitations due to emotional problems (SF-36)	3	During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)? Cut down the amount of time you spent on work or other activities (0 = no, 1 = yes).	0.80
Social functioning (SF-36)	2	During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (0 = none of the time, 4 = all of the time).	0.70
Pain (SF-36)	2	How much bodily pain have you had during the past 4 weeks (0 = not at all, 5 = quite a bit).	0.79
Medical illness burden (CIRS)	12	Cardiovascular and Respiratory System - cardiac (e.g., heart only; 0 = none, 4 = extremely severe).	--
Illness-related functional impairment (KPSS)	-	(0 = dead, 100 = normal, no complaints, no evidence of disease).	--
Trait hope (THS)	8	I energetically pursue my goals (1 = I disagree a lot, 5 = I agree alot).	0.88
Agency (THS)	4	I energetically pursue my goals (1 = I disagree a lot, 5 = I agree alot).	0.77
Pathways (THS)	4	There are lots of ways around any problem (1 = I disagree a lot, 5 = I agree alot).	0.88
Demographic characteristics		Gender, age, race and ethnicity, education	--

*Note.* SF-36=Short-Form-36 Health Survey; CIRS=Cumulative Illness Rating Scale; KPSS=Karnofsky Performance Status Scale; PFCN=Preparation for Future Care Needs Process Measure, short form; THS=Trait Hope Scale

### Statistical Analyses

We investigated normality, outliers, and multicollinearity problems. Skewness and kurtosis values were used to assess data normality. No violation of these assumptions was detected. We applied Grubb's extreme studentized deviate method to identify potential outliers (Barnett & Lewis, 1998). One multivariate outlier was detected and subsequently removed from analysis, leaving 65 cases. Finally, to assess multicollinearity variance inflation factors were calculated. Variance inflation factors ranged from 1.11 to 8.37; thus, collinearity was not a serious problem for our set of predictor variables (Pereira de Carvalho & Damiao Cruz, 1996).

Pearson correlations were used to examine the bivariate relationships between the study's variables of interest. Variables were excluded if they reached  $r > 0.80$  [ $> 0.70 \pm 1$ ] (Tabachnick & Fidell, 2001). The only substantial collinear relationship was between illness-related functional impairment and two SF-36 subscales. Illness-related functional impairment was not included as a covariate in the models containing physical functioning or role limitations due to physical health as predictors because of multicollinearity concerns.

We employed moderated multiple regression (MMR), a form of hierarchical linear regression (Bennett, 2000; Cohen & Cohen, 1983; Jaccard, Turrisi, & Wan, 1990; Nunally & Bernstein, 1994) to test the moderator hypothesis controlling for age, race, gender, education, illness-related functional impairment, and medical illness burden. Aiken and West (1991) have argued that this approach is the preferred strategy for investigating moderator effects. It was necessary to control for differences in objective medical burden by using clinician-based measures because objective medical burden is highly correlated with self-rated health (Duberstein et al., 2003; Sinclair, Lyness, King, Cox, & Caine, 2001).

Following Jaccard et al. (1990) and Nunally and Bernstein (1994), a series of multilevel MMRs were conducted to test the moderator hypothesis. For each analysis we ran the model with the predictor and covariates in step one. Next, at step two the moderator was entered as a predictor. The focal interaction term (hrqol X hope) was entered into the regression equation in the third step. Separate multilevel analyses were conducted for each PFCN criterion variable (e.g., becoming aware of risk of needing future care, gathering information about future care needs, deciding on future care preferences, making concrete plans for future care needs, and active avoidance of PFCN). Variables were mean centered prior to being added to the models (Baron & Kenny, 1986; Jaccard et al., 1990). Taking into account the structure of the THS, we tested three different interaction effects: (a) a single-factor model consisting of the eight items; (b) a four-item agency dimension; and (c) a four-item pathways dimension (Bryant & Cvengros, 2004; Snyder et al., 2001). This process was then repeated for each of the five HRQoL indicators (e.g.,  $PFCN = b_0 + b_1HRQoL + b_2Hope + b_3HRQoL*Hope + e$ ), which resulted in 75 separate moderator tests.

To establish whether a significant interaction was present, the F-value for the overall model had to be significant at  $p < 0.05$ . If this criterion was satisfied, the significance level of the interaction term was then investigated. Prior research has suggested that MMR significantly reduces statistical power (Aguinis & Stone-Romero, 1997; Aiken & West, 1991; Jex & Elacqua, 1999). Pedhauzer (1982) has recommended using a more liberal significance criterion ( $p \leq 0.10$ ). These recommendations, which were empirically based (House & Wells, 1978; La Rocco & Jones, 1978), have been used in subsequent studies (Aguinis & Stone-Romero, 1997; Frese, 1999; Jex & Elacqua, 1999). Therefore, in the present study a significance criterion of  $< 0.10$  was used for  $b_3$ . A moderator effect would be present if the change in  $R^2$  (e.g., denoted by  $\Delta R^2$ )



met this significance level. Following Cohen (1992) and Tylka (2004), an increment change in  $\Delta R^2$  of  $\geq 0.02$  for  $b_3$  would indicate a unique contribution to the overall variance explained by the model.

Post-hoc analyses were performed to better understand the nature of the interaction effects that were significant. Cohen and Cohen (1983) recommend computing low, medium, and high values of the moderator, representing, one standard deviation below and above the mean. We then compared the slopes for each of these groups (Aiken & West, 1991). Although a significant interaction suggests that the slopes differ between groups, this does not mean that each slope differs from zero and that the null hypothesis can be rejected (Frazier, Tix, & Barron, 2004). Modgraph software (Jose, 2008) was used to plot the relationship between the criterion and predictor variable for different levels of the moderating variable and to calculate simple slope statistics. All other analyses were performed using SPSS (version 20.0, IBM SPSS, Chicago, Illinois).

## CHAPTER 4

### RESULTS

An examination of the moderating role of trait hope on the relationship between HRQoL and PFCN processes was conducted among 65 older adults in primary care in western New York state. Bivariate zero-order correlations were used to examine Hypothesis 1 through 3. Multiple moderated regression analysis was used to examine the moderator hypothesis (Hypothesis 4). Results are presented below.

Hypothesis 1: HRQoL Would be Negatively Associated with Awareness of Risk, Information Gathering, Deciding on Care Preferences, and Concrete Planning and Positively Associated with Active Avoidance

As hypothesized, bivariate zero-order correlations indicated that physical functioning was significantly negatively associated with information gathering and concrete planning (See Table 5). Social functioning demonstrated a significant negative correlation with awareness of the risk and concrete planning and a positive correlation with active avoidance. Limitations due to physical health and emotional problems were also inversely associated with concrete planning. Emotion-based limitations were further negatively associated with awareness of risk. Pain had the weakest association with PFCN processes, whereas social and physical functioning had the strongest association.

Table 5

*Zero-Order Correlations Between HRQoL and PFCN*

	Mean (SD) or %	Physical functioning	Role limitations due to physical health	Role limitations due to emotional problems	Social functioning	Pain
Active avoidance of future care planning	2.81 (0.77)	.16	.21	.22	<b>.33**</b>	.14
Becoming aware of risk of needing care	2.85 (0.89)	-.22	-.21	<b>-.25*</b>	<b>-.28*</b>	-.15
Gathering information about future care needs	2.56 (1.04)	<b>-.25*</b>	-.17	-.14	-.21	.02
Deciding on future care plans	3.16 (0.98)	-.23	-.17	-.19	-.24	-.14
Making concrete plans for future care needs	2.49 (0.95)	<b>-.33**</b>	<b>-.27*</b>	<b>-.28*</b>	<b>-.38**</b>	-.23

Note. N=65; \*Correlation is significant at the 0.05 level (2-tailed); \*\*Correlation is significant at the .01 level (2-tailed)

Hypothesis 2: HRQoL Would Have a Positive Association with Trait Hope

Table 6 describes the bivariate correlations between HRQoL and trait hope. There was a weak relationship between HRQoL and trait hope; however, none of the associations were significant. All but one HRQoL indicator demonstrated a small, positive correlation with trait hope and its subscales. Social functioning, however, had a small, negative correlation with pathways thinking. Based on these results, Hypothesis 2 could not be substantiated.

Table 6

*Zero-Order Correlations Between HRQoL and Trait Hope*

	Mean (SD) or %	Hope	Agency	Pathways
Physical functioning	41.95 (10.87)	.20	.19	.17
Role limitations due to physical health	46.01 (11.25)	.13	.19	.05
Role limitations due to emotional problems	50.15 (9.87)	.09	.08	.08
Social functioning	49.71 (9.86)	.01	.16	-.13
Pain	47.04 (10.45)	.15	.20	.07

Note. N=65

Hypothesis 3: Trait Hope Would Have Positive Association with Awareness, Information Gathering, Decision Making and Have a Negative Association with Active Avoidance and Concrete Planning Because Hope in Excess May Actually Confer Risk

None of the assumptions for Hypothesis 3 were supported in bivariate analysis. The strength of the relationships was weaker than expected and the direction of these relationships was in the opposite direction than hypothesized. Unexpectedly, hope demonstrated a significant negative correlation with awareness (See Table 7). The agency, but not pathways, dimension of hope also demonstrated a significant negative correlation with awareness. Although not significant, hope and its subscales were further negatively correlated with information gathering and positively associated with active avoidance, decision making, and concrete planning.

Table 7

*Zero-Order Correlations Between Trait Hope and PFCN*

	Mean (SD) or %	Hope	Agency	Pathways
Active avoidance of future Care planning	2.81 (0.77)	.07	.10	.03
Becoming aware of risk of needing care	2.85 (0.89)	<b>-.31*</b>	<b>-.42**</b>	-.16
Gathering information about future care needs	2.56 (1.04)	-.14	-.17	-.08
Deciding on future care plans	3.16 (0.98)	.19	.12	.21
Making concrete plans for future care needs	2.49 (0.95)	.15	.10	.17

Note. N=65; \*Correlation is significant at the 0.05 level (2-tailed); \*\*Correlation is significant at the .01 level (2-tailed)

Hypothesis 4: Poor HRQoL Would be Significantly Negatively Related to PFCN, and That Trait

Hope Would Moderate This Relationship Such That This Association Would be Weakened in

Individuals with Less Trait Hope

Among the MMR analyses, nine models (12.00%) had significant interaction effects (e.g.,  $< 0.10$ ). A similar pattern of moderating effects occurred for the agency subscale but not for the pathways subscale. Therefore, there was reason to conclude that the moderating effect obtained for hope occurred primarily through the agency dimension. It should be noted that the interaction effects accounted for a small to medium increase in the overall variance in these models (significant  $R^2$  increments ranged from 4% to 9%) (Cohen & Cohen, 1983). The significant moderator effects will now be examined more closely and compared to Hypothesis 4.

## Becoming Aware of Risk of Needing Care

### Examining the Role Limitations due to Emotional Problems X Trait Hope Interaction.

Role limitations due to emotional problems and trait hope did not have a significant association with becoming aware of risk of needing care. In step three, however, trait hope was found to moderate the association between role limitations due to emotional problems and becoming aware of risk of needing care ( $B = 0.004$ ),  $t(64) = 1.84$ ,  $p = 0.07$ , although this effect was small, accounting for an additional 4% of the overall variance in awareness (Table 8).

Table 8

*Output for Role Limitations due to Emotional Problems X Trait Hope with Becoming Aware of Risk of Needing Future Care*

Step and variable	<i>B</i>	<i>SE B</i>	<i>t</i> <sup>a</sup>	<i>P</i>	95% Confidence Interval		$\beta^b$	$\Delta R^2$
					Lower Bound	Upper Bound		
Dependent variable: Becoming aware of risk of needing future care								
Step 1								
Role limitations due to emotional problems	-.01	.01	-.38	.70	-.03	.02	-.05	.22*
Step 2								
Role limitations due to emotional problems	-.01	.01	-.45	.66	-.03	.02	-.06	
Trait hope	-.04	.02	-1.58	.12	-.08	.01	-.19	.03
Step 3								
Role limitations due to emotional problems	-.01	.01	-.42	.68	-.03	.02	-.06	
Trait hope	-.03	.02	-1.34	.19	-.08	.02	-.16	
Role limitations due to emotional problems X Trait hope	.004	.002	1.84	.07 <sup>+</sup>	.00	.01	.24	.04 <sup>+</sup>
Overall $F(9,55) = 2.60^*$								

<sup>a</sup>  $df = 64$ .

<sup>b</sup> Values are standardized.

<sup>+</sup>  $p < .10$ . \*  $p < .05$ . (2-tailed significance).

As mentioned earlier, post-hoc exploration including simple slopes analyses were performed by plotting the predicted values for the criterion variable for representative groups at the mean and one standard deviation above and below the mean level of trait hope (See Figure 3). Hypothesis 4 stated that emotion-based role would be inversely related to awareness of risk and that lower trait hope would weaken this relationship. Post-hoc results failed to support these

assumptions. Low hope had the most robust impact on the relationship between emotion-based role limitations and becoming aware of risk of needing care ( $b = -0.02$ ,  $p < 0.001$ ) (See Table 9).

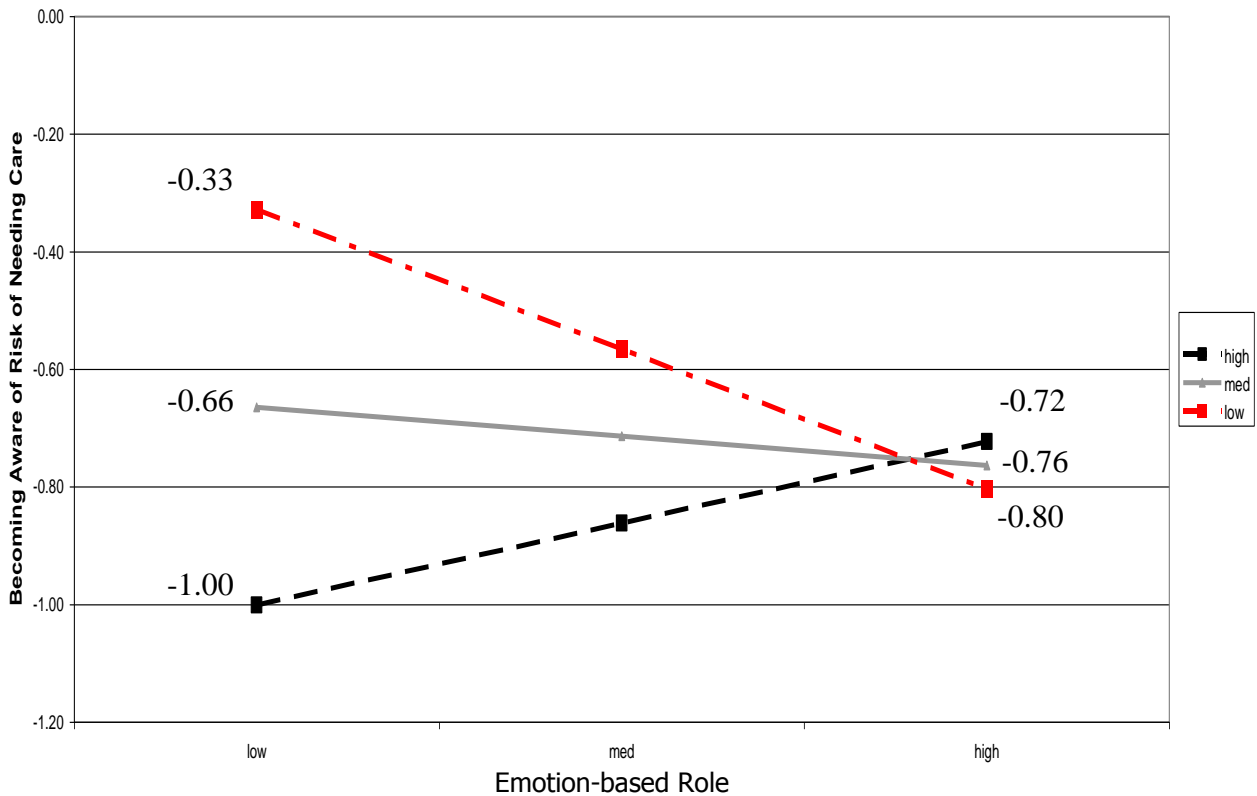


Figure 3. Depiction of the Role Limitations due to Emotional Problems X Trait Hope Interaction in Predicting Becoming Aware of Risk of Needing Care.

Note: Low hope was defined as one standard deviation below the mean; medium hope was at the mean; and high hope was one standard deviation above the mean.

As expected, lower levels of trait hope had a significant impact on the relationship between emotion-based role and awareness levels but in the opposite direction than hypothesized. Lower hope strengthened rather than weakened the relationship between emotion-based role and awareness of risk. Older adults with greater role limitations and lower levels of trait hope were more aware of the risk of needing care when compared to individuals with comparable role limitations who reported higher levels of hope. Unexpectedly, higher hope weakened the relationship. In fact, older adults with high levels of hope ( $Y = -1.00$ ) who reported



greater role limitations due to emotional problems had the lowest levels of awareness (See Figure 3).

Table 9

*Simple Slopes for Moderation Analysis for Role Limitations due to Emotional Problems X Trait Hope with Becoming Aware of Risk of Needing Future Care*

Hope level	Simple slope (b)	p-value
High hope	0.01	0.17
Medium hope	-0.01	<0.001
Low hope	-0.02	0.02

Examining the Role Limitations due to Emotional Problems X Pathways Interaction.

Similar to the previous findings, both emotion-based role limitations and pathways thinking were not significantly related to awareness of risk. Pathways thinking did have a significant, positive moderating effect on the relationship between these variables ( $B = 0.01$ ),  $t(64) = 1.81$ ,  $p = 0.08$ , a finding that was in the opposite direction than expected. The  $R^2$  change was 0.04 and accounted for an additional 4% of the variance in awareness levels (See Table 10).

Table 10

*Output for Role Limitations due to Emotional Problems X Pathways with Becoming Aware of Risk of Needing Future Care*

Step and variable	<i>B</i>	<i>SE B</i>	<i>t</i> <sup>a</sup>	<i>P</i>	95% Confidence Interval		<i>β</i> <sup>b</sup>	<i>ΔR</i> <sup>2</sup>
					Lower Bound	Upper Bound		
Dependent variable: Becoming aware of risk of needing future care								
Step 1								
Role limitations due to emotional problems	-.01	.01	-.38	.70	-.03	.02	-.05	.22*
Step 2								
Role limitations due to emotional problems	-.01	.01	-.38	.70	-.03	.02	-.05	
Pathways	-.02	.04	-.50	.62	-.09	.06	-.06	.00
Step 3								
Role limitations due to emotional problems	-.003	.01	-.21	.83	-.03	.02	-.03	
Pathways	-.01	.04	-.34	.74	-.09	.06	-.04	
Role limitations due to emotional problems X Pathways	.01	.00	1.81	.08 <sup>+</sup>	-.00	.01	.24	.04 <sup>+</sup>
Overall $F(9,55) = 2.26^*$								

<sup>a</sup> *df* = 64.

<sup>b</sup> Values are standardized.

<sup>+</sup>  $p < .10$ . \*  $p < .05$ . (2-tailed significance).

Higher and lower values of pathways thinking followed the same trend as in the previous model. Older adults with higher pathways thinking and greater role limitations had the lowest levels of awareness of risk ( $Y = -0.75$ ) (See Figure 4), although these findings were not significant (See Table 11). Medium ( $b = -0.00$ ,  $p < 0.001$ ) and low levels of pathways thinking ( $b$

= -0.02,  $p = 0.03$ ) had a greater impact on the relationship between role limitations and awareness levels, strengthening rather than weakening the negative relationship between these variables (See Table 11).

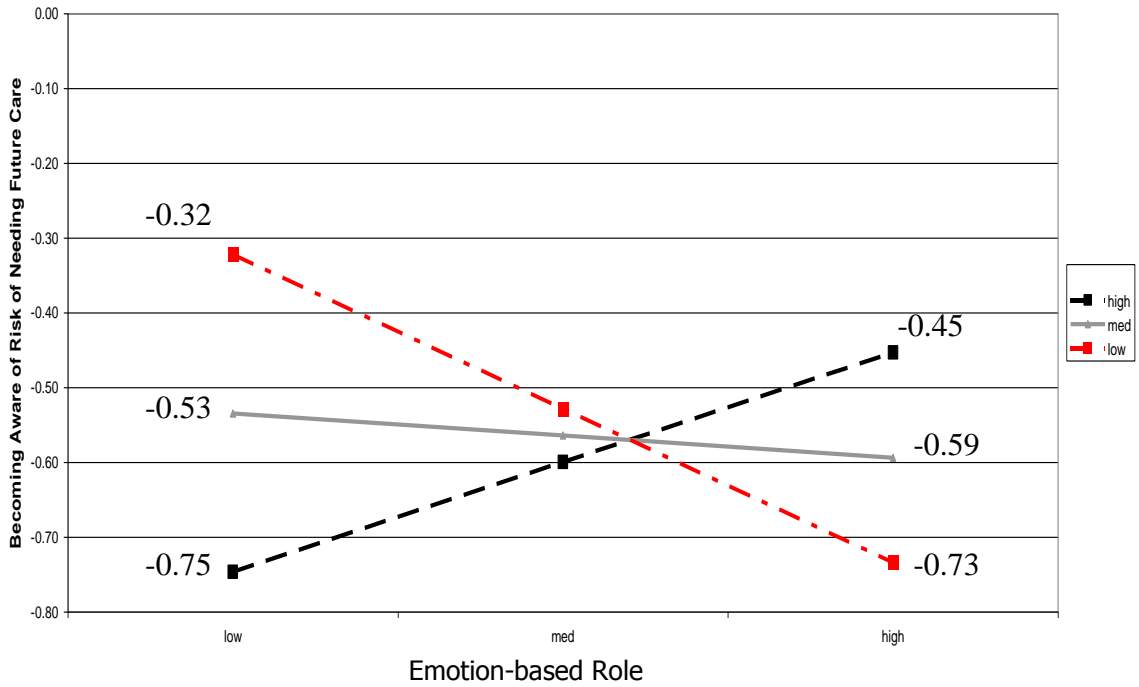


Figure 4. Depiction of the Role Limitations due to Emotional Problems X Pathways Interaction in Predicting Becoming Aware of the Risk of Needing Care.

Note: Low pathways was defined as one standard deviation below the mean; medium pathways was at the mean; and high pathways was one standard deviation above the mean.

Table 11

*Simple Slopes for Moderation Analysis for Role Limitations due to Emotional Problems X Pathways with Becoming Aware of Risk of Needing Future Care*

Pathways level	Simple slope (b)	p-value
High pathways	0.01	0.20
Medium pathways	-0.00	<0.001
Low pathways	-0.02	0.03

## Gathering Information About Future Care Needs

### Examining the Role Limitations due to Emotional Problems X Trait Hope Interaction.

Neither role limitations nor trait hope were significantly associated with gathering information about future care needs. In step three, however, trait hope was found to interact with role limitations due to emotional problems when predicting gathering information about future care needs ( $B = 0.01$ ),  $t(64) = 1.94$ ,  $p = 0.06$  (Table 12). This effect was small ( $\Delta R^2 = 0.05$ ), accounting for an additional 5% of the variance in information gathering. That trait hope had a positive moderating effect is contrary to Hypothesis 4. Although not shown, the regression analysis also indicated that gender had a significant, negative association with decision making. Females were more likely to make decisions about care preferences ( $B = -0.61$ ),  $t(64) = 2.23$ ,  $p = 0.03$ .

Table 12

*Output for Role Limitations due to Emotional Problems X Trait Hope with Gathering**Information About Future Care Needs*

Step and variable	<i>B</i>	<i>SE B</i>	<i>t</i> <sup>a</sup>	<i>P</i>	95% Confidence Interval		$\beta^b$	$\Delta R^2$
					Lower Bound	Upper Bound		
Dependent variable: Gathering information about future care needs								
Step 1								
Role limitations due to emotional problems	.01	.01	.50	.62	-.02	.04	.07	.22 <sup>*</sup>
Step 2								
Role limitations due to emotional problems	.01	.01	.47	.64	-.02	.04	.06	
Trait hope	-.02	.03	-.59	.56	-.07	.04	-.07	.01
Step 3								
Role limitations due to emotional problems	.01	.01	.52	.60	-.02	.04	.07	
Trait hope	-.01	.03	-.33	.74	-.06	.05	-.04	
Role limitations due to emotional problems X Trait hope	.01	.002	1.94	.06 <sup>+</sup>	.00	.01	.25	.05 <sup>+</sup>
Overall $F(9,55) = 2.33^*$								

<sup>a</sup> *df* = 64.<sup>b</sup> Values are standardized.<sup>+</sup>  $p < .10$ . \*  $p < .05$ . (2-tailed significance).

Hypothesis 4 further stated that information gathering was inversely related to emotion-based role and that lower hope would weaken this relationship. Post-hoc results were partially supported. Emotion-based role had a weak, positive association with information gathering, a finding in the opposite direction than expected. Lower hope did weaken this positive association;

whereas, higher hope strengthened the relationship (See Figure 5). An analysis of the simple slopes indicated that emotion-based role limitations strongly predicted gathering information about future care risk for those older adults with high hope ( $p = 0.01$ ) than at medium ( $p < 0.001$ ) and low levels of trait hope ( $p = 0.14$ ) (See Table 13). Emotion-based role did predict information gathering for individuals with medium hope ( $b = 0.001$ ), although, this effect was slightly smaller when compared to those with high hope ( $b = 0.03$ ).

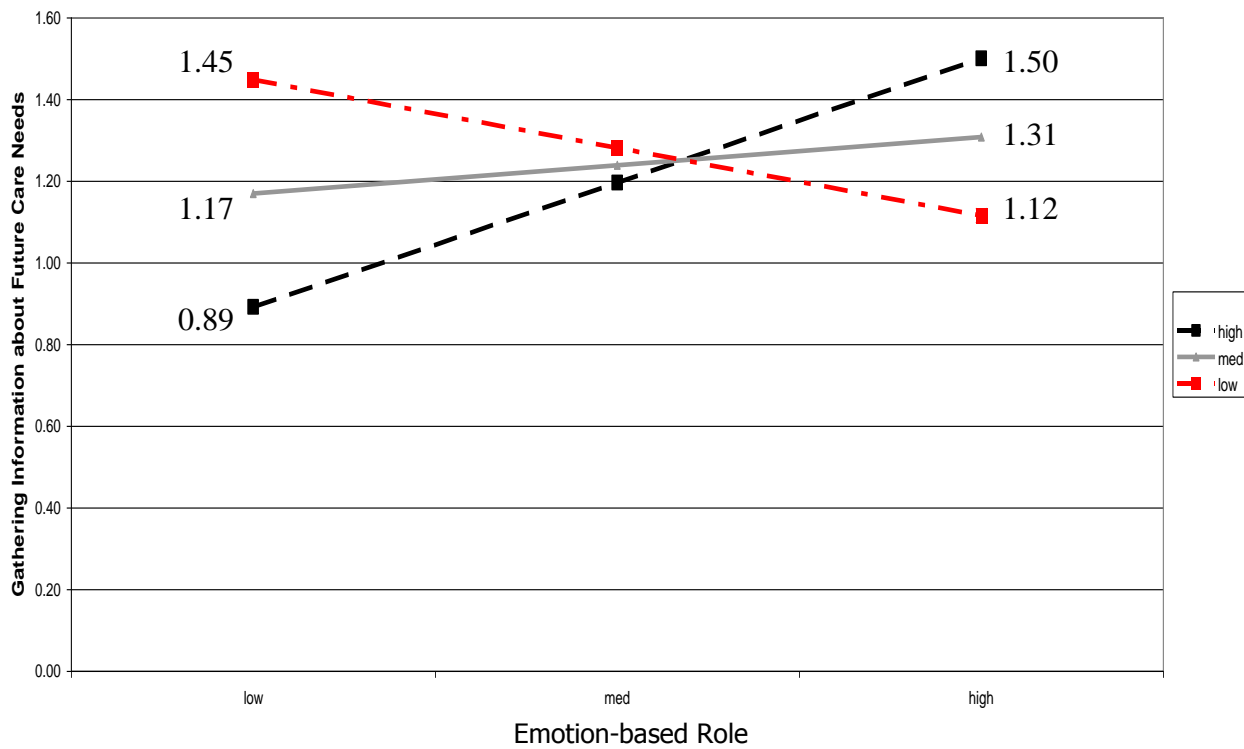


Figure 5. Depiction of the Role Limitations due to Emotional Problems X Trait Hope Interaction in Predicting Gathering Information About Future Care Needs.

Note: Low hope was defined as one standard deviation below the mean; medium hope was at the mean; and high hope was one standard deviation above the mean.

Table 13

*Simple Slopes for Moderation Analysis for Role Limitations due to Emotional Problems X Trait*

*Hope with Gathering Information About Future Care Needs*

Hope level	Simple slope (b)	p-value
High hope	0.03	0.01
Medium hope	0.001	<0.001
Low hope	-0.02	0.14

Examining the Role Limitations due to Emotional Problems X Agency Interaction.

Although role limitations and agency thinking were not significant predictors of information gathering, agency thinking did have a significant moderating effect. Agency thinking was found to interact with role limitations when predicting gathering information about future care needs ( $B = 0.01$ ),  $t(64) = 1.97$ ,  $p = 0.05$  (Table 14). The associated  $R^2$  change was 0.05, accounting for an additional 5% of the variance in information gathering. Similar to the previous findings, gender was also a significant predictor of information gathering ( $B = -0.61$ ),  $t(64) = 2.23$ ,  $p = 0.03$ .

Table 14

*Output for Role Limitations due to Emotional Problems X Agency with Gathering Information*

*About Future Care Needs*

Step and variable	<i>B</i>	<i>SE B</i>	<i>t</i> <sup>a</sup>	<i>P</i>	95% Confidence Interval		<i>β</i> <sup>b</sup>	<i>ΔR</i> <sup>2</sup>
					Lower Bound	Upper Bound		
Dependent variable: Gathering information about future care needs								
Step 1								
Role limitations due to emotional problems	.01	.01	.50	.62	-.02	.04	.07	.22*
Step 2								
Role limitations due to emotional problems	.01	.01	.42	.67	-.02	.04	.06	
Agency	-.06	.06	-1.01	.32	-.16	.05	-.13	.01
Step 3								
Role limitations due to emotional problems	.004	.01	.28	.78	-.02	.03	.04	
Agency	-.04	.05	-.81	.42	-.15	.06	-.10	
Role limitations due to emotional problems X Agency	.01	.01	1.97	.05 <sup>+</sup>	.00	.02	.25	.05 <sup>+</sup>
Overall $F(9,55) = 2.45^*$								

<sup>a</sup> *df* = 64.

<sup>b</sup> Values are standardized.

<sup>+</sup> *p* < .10. \* *p* < .05. (2-tailed significance).

Evaluation of the Modgraph results revealed that the hypothesized relationship between these variables was partially supported, but in a direction opposite than expected. Similar to the previous findings, emotion-based role had a weak, positive association with information gathering and pathways thinking had a small, negative impact on this PFCN behavior. Lower



pathways thinking, as a moderator, weakened the relationship between emotion-based role and information gathering (See Figure 6). High agentic thinking strengthened the association and had the most robust impact on positive association between emotion-based role and information gathering ( $b = 0.03, p = 0.01$ ) (See Table 15).

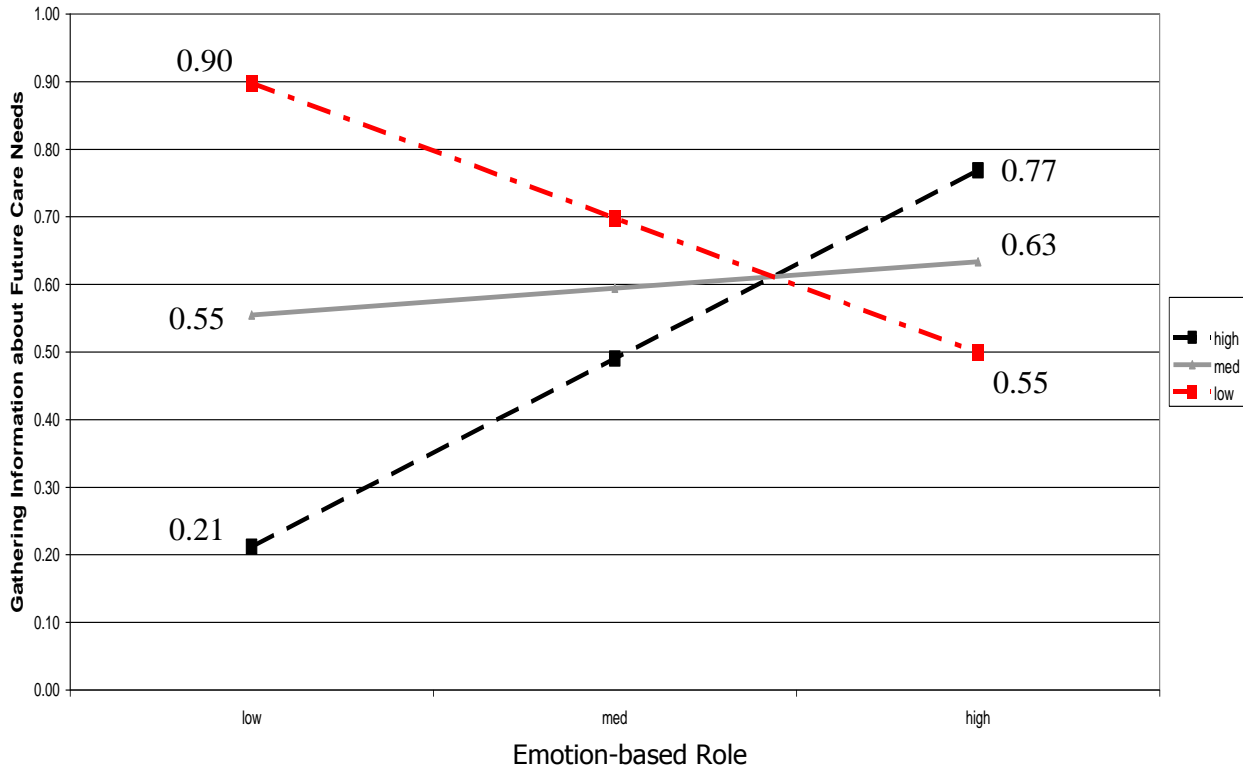


Figure 6. Depiction of the Role Limitations due to Emotional Problems X Agency Interaction in Predicting Gathering Information About Future Care Needs.

Note: Low agency was defined as one standard deviation below the mean; medium agency was at the mean; and high agency was one standard deviation above the mean.

Table 15

*Simple Slopes for Moderation Analysis for Role Limitations due to Emotional Problems X*

*Agency with Gathering Information About Future Care Needs*

Hope level	Simple slope (b)	p-value
High agency	0.03	0.01
Medium agency	0.00	<0.001
Low agency	-0.02	0.13

#### Deciding on Future Care Preferences

Examining the Physical Functioning X Trait Hope Interaction. Results of the MMR analyses showed that trait hope was significantly and positively related to decision making ( $B = 0.06$ ),  $t(64) = 2.13$ ,  $p = 0.04$  while physical functioning was not. Trait hope was further found to moderate the relationship between physical functioning and deciding on future care preferences ( $B = 0.004$ ),  $t(64) = 1.97$ ,  $p = 0.05$ ; although this effect was small, accounting for an additional 5% of the variance in making decisions about future care preferences (Table 16). Gender was also significantly associated with deciding on future care preferences such that females were more likely to make decisions about care preferences ( $B = -0.61$ ),  $t(64) = 2.37$ ,  $p = 0.02$ .

Table 16

*Output for Physical Functioning X Trait Hope with Deciding on Future Care Preferences*

Step and variable	<i>B</i>	<i>SE B</i>	<i>t</i> <sup>a</sup>	<i>P</i>	95% Confidence Interval		$\beta^b$	$\Delta R^2$
					Lower Bound	Upper Bound		
Dependent variable: Deciding on future care preferences								
Step 1								
Physical functioning	-.01	.01	-.99	.33	-.04	.01	-.15	0.16 <sup>+</sup>
Step 2								
Physical functioning	-.02	.01	-1.24	.22	-.04	.01	-.18	
Trait hope	.05	.03	1.79	.08	-.01	.10	.23	0.04 <sup>+</sup>
Step 3								
Physical functioning	-.01	.01	-.79	.43	-.04	.02	-.12	
Trait hope	.06	.03	2.13	.04*	.00	.11	.27	
Physical functioning X Trait hope	.004	.002	1.97	.05 <sup>+</sup>	.00	.01	.24	0.05 <sup>+</sup>
Overall $F(8,56) = 2.45^*$								

<sup>a</sup>  $df = 64$ .

<sup>b</sup> Values are standardized.

<sup>+</sup>  $p < .10$ . \*  $p < .05$ . (2-tailed significance).

Contrary to our assumptions, lower hope strengthened the negative relationship between physical functioning and deciding on future care preferences. It is important to note, however, that older adults with lower hope were less likely to make decisions about their future care ( $Y$  ranged from -1.02 to -1.65) (See Figure 7) when compared to higher hope elders across physical functioning levels. In fact, lower hope had the most robust influence on physical functioning and

decision making ( $b = -0.03, p < 0.001$ ). Medium values of hope had a similar but slightly smaller influence ( $b = -0.01, p < 0.001$ ) (See Table 17).

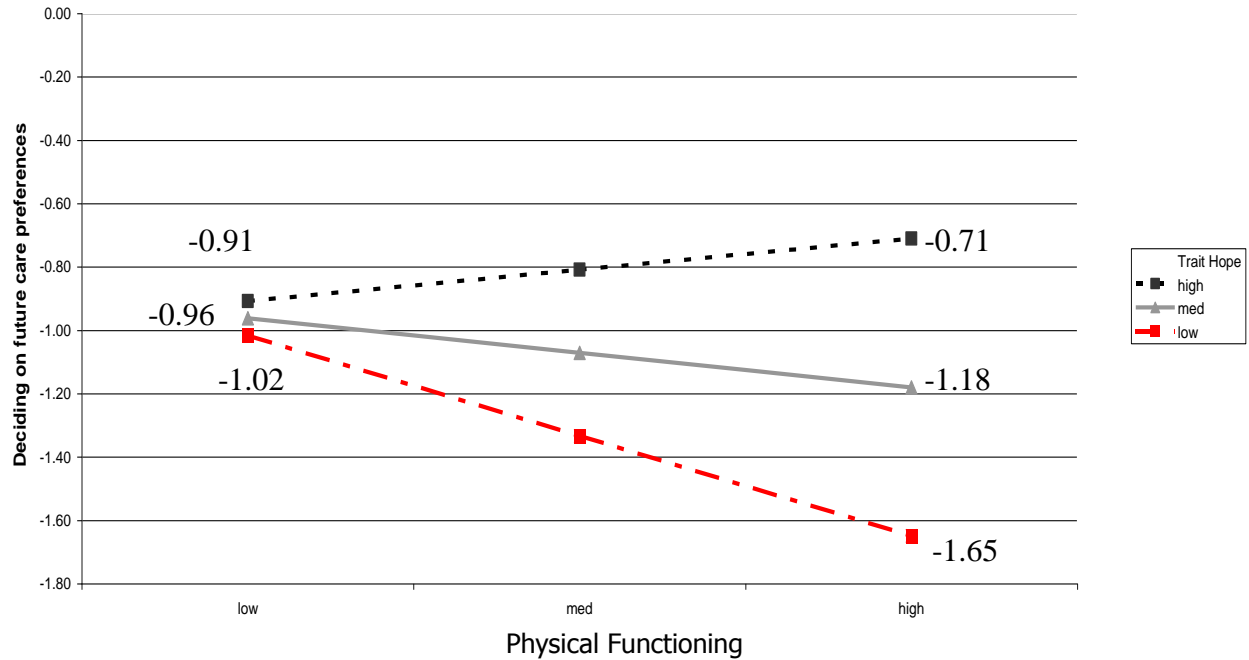


Figure 7. Depiction of the Physical Functioning X Trait Hope Interaction in Predicting Deciding on Future Care Preferences.

Note: Low hope was defined as one standard deviation below the mean; medium hope was at the mean; and high hope was one standard deviation above the mean.

Table 17

*Simple Slopes for Moderation Analysis for Physical Functioning X Trait Hope with Deciding on Future Care Preferences*

Hope level	Simple slope (b)	p-value
High hope	0.01	0.48
Medium hope	-0.01	<0.001
Low hope	-0.03	<0.001

Examining the Social Functioning X Trait Hope Interaction. Similar to the prior model, trait hope was both an independent predictor of deciding on future care preferences ( $B = 0.06$ ),  $t(64) = 2.24, p = 0.03$  and moderated the relationship between social functioning and decision making ( $B = 0.01$ ),  $t(64) = 2.45, p = 0.02$ . The associated  $R^2$  change was 0.07; accounting for an additional 7% of the variance in making future care decisions (Table 18). Gender was also significantly associated with deciding on future care preferences such that females were more likely to make decisions about care preferences ( $B = -0.58$ ),  $t(64) = 2.37, p = 0.03$ .

Table 18

*Output for Social Functioning X Trait Hope with Deciding on Future Care Preferences*

Step and variable	$B$	$SE B$	$t^a$	$P$	95% Confidence Interval		$\beta^b$	$\Delta R^2$
					Lower Bound	Upper Bound		
Dependent variable: Deciding on future care preferences								
Step 1								
Social functioning	-.01	.01	-.84	.41	-.04	.02	-.11	.22*
Step 2								
Social functioning	-.01	.01	-.70	.49	-.03	.02	-.09	
Trait hope	.05	.03	1.93	.06 <sup>+</sup>	-.00	.10	.24	.05 <sup>+</sup>
Step 3								
Social functioning	-.01	.01	-1.09	.28	-.04	.01	-.13	
Trait hope	.06	.02	2.24	.03*	.01	.10	.27	
Social functioning X Trait hope	.01	.002	2.45	.02*	.00	.01	.30	.07*
Overall $F(9,55) = 3.11^{**}$								

<sup>a</sup>  $df = 64$ .

<sup>b</sup> Values are standardized.

<sup>+</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . (2-tailed significance).

Lower hope strengthened the relationship between lower social functioning and engagement in decision making, whereas higher hope weakened this relationship. Despite these findings, older adults with higher levels of hope, in general, exhibited substantially more decision making (See Figure 8). Further examination of Table 19 demonstrated that the slopes were steeper for low hope ( $b = -0.04$ ) than for medium ( $b = -0.01$ ) and high levels ( $b = 0.02$ ), suggesting that low hope had a more significant impact on lower social functioning and engagement in decision making.

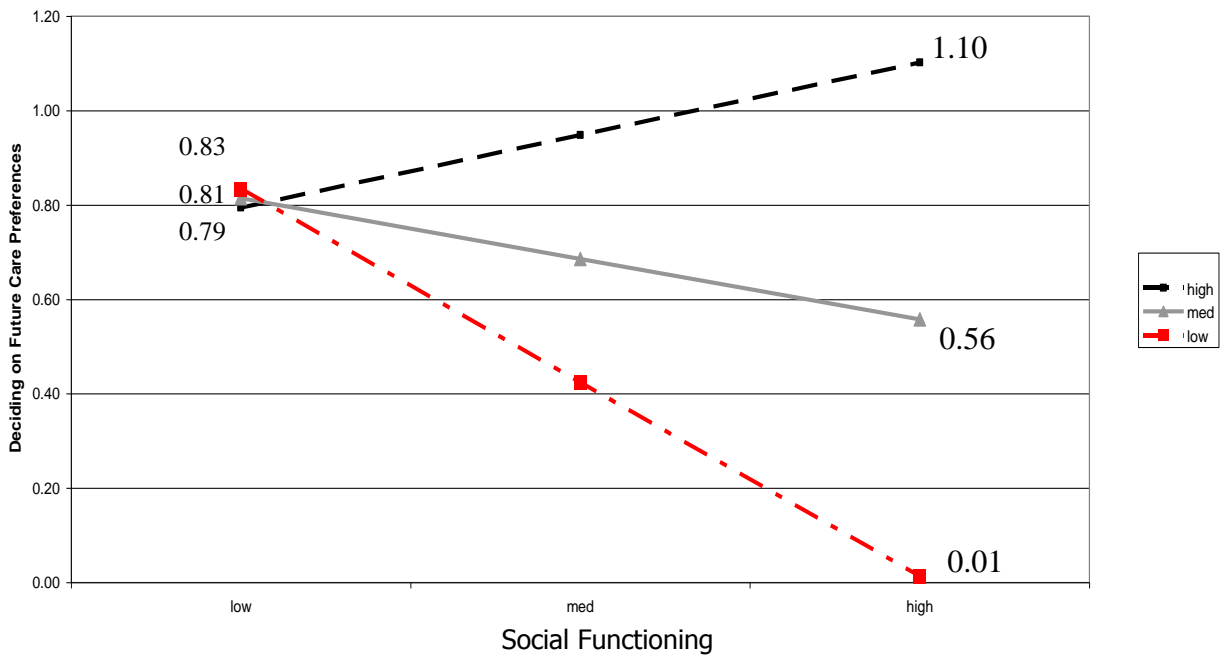


Figure 8. Depiction of the Social Functioning X Trait Hope Interaction in Predicting Deciding on Future Care Preferences.

Note: Low hope was defined as one standard deviation below the mean; medium hope was at the mean; and high hope was one standard deviation above the mean.

Table 19

*Simple Slopes for Moderation Analysis for Social Functioning X Trait Hope with Deciding on Future Care*

Hope level	Simple slope (b)	p-value
High hope	0.02	0.12
Medium hope	-0.01	<0.001
Low hope	-0.04	<0.001

Examining the Role Limitations due to Emotional Problems X Trait Hope Interaction.

Trait hope had a significant positive association with making decisions about future care preferences ( $B = 0.06$ ),  $t(64) = 2.22$ ,  $p = 0.03$  and moderated the relationship between role limitations due to emotional problems and trait hope ( $B = 0.004$ ),  $t(64) = 1.72$ ,  $p = 0.09$ . The associated  $R^2$  change was 0.04, accounting for an additional 4% of the variance in decision making (Table 20). Gender was found to predict deciding on future care preferences. Females were more likely to engage in decision-making processes ( $B = -0.57$ ),  $t(64) = 2.22$ ,  $p = 0.03$ .

Table 20

*Output for Role Limitations due to Emotional Problems X Trait Hope with Deciding on Future Care Preferences*

Step and variable	<i>B</i>	<i>SE B</i>	<i>t</i> <sup>a</sup>	<i>P</i>	95% Confidence Interval		$\beta^b$	$\Delta R^2$
					Lower Bound	Upper Bound		
Dependent variable: Deciding on future care preferences								
Step 1								
Role limitations due to emotional problems	-.010	.01	-.70	.49	-.04	.02	-.10	.21 <sup>*</sup>
Step 2								
Role limitations due to emotional problems	-.01	.01	-.64	.52	-.04	.02	-.09	
Trait hope	.05	.03	1.97	.05 <sup>+</sup>	-.00	.10	.24	.05 <sup>+</sup>
Step 3								
Role limitations due to emotional problems	-.01	.01	-.62	.54	-.03	.02	-.08	
Trait hope	.06	.03	2.22	.03 <sup>*</sup>	.01	.11	.27	
Role limitations due to emotional problems X Trait hope	.004	.002	1.72	.09 <sup>+</sup>	-.00	.01	.22	.04 <sup>+</sup>
Overall $F(9,55) = 2.63^*$								

<sup>a</sup> *df* = 64.

<sup>b</sup> Values are standardized.

<sup>+</sup>  $p < .10$ . <sup>\*</sup>  $p < .05$ . (2-tailed significance).

Lower hope strengthened the negative relationship between role limitations and decision making, a finding contrary to our hypothesis. Despite this effect, older adults with higher hope exhibited more decision making processes across emotion-based functioning levels ( $Y = -.049$  to  $-.027$ ) (See Figure 9). Further examination of Table 21 demonstrated that the slopes were steeper



for low hope ( $b = -0.03$ ) than for high levels ( $b = 0.01$ ), suggesting that low hope had a more significant impact on lower social functioning and engagement in decision making.

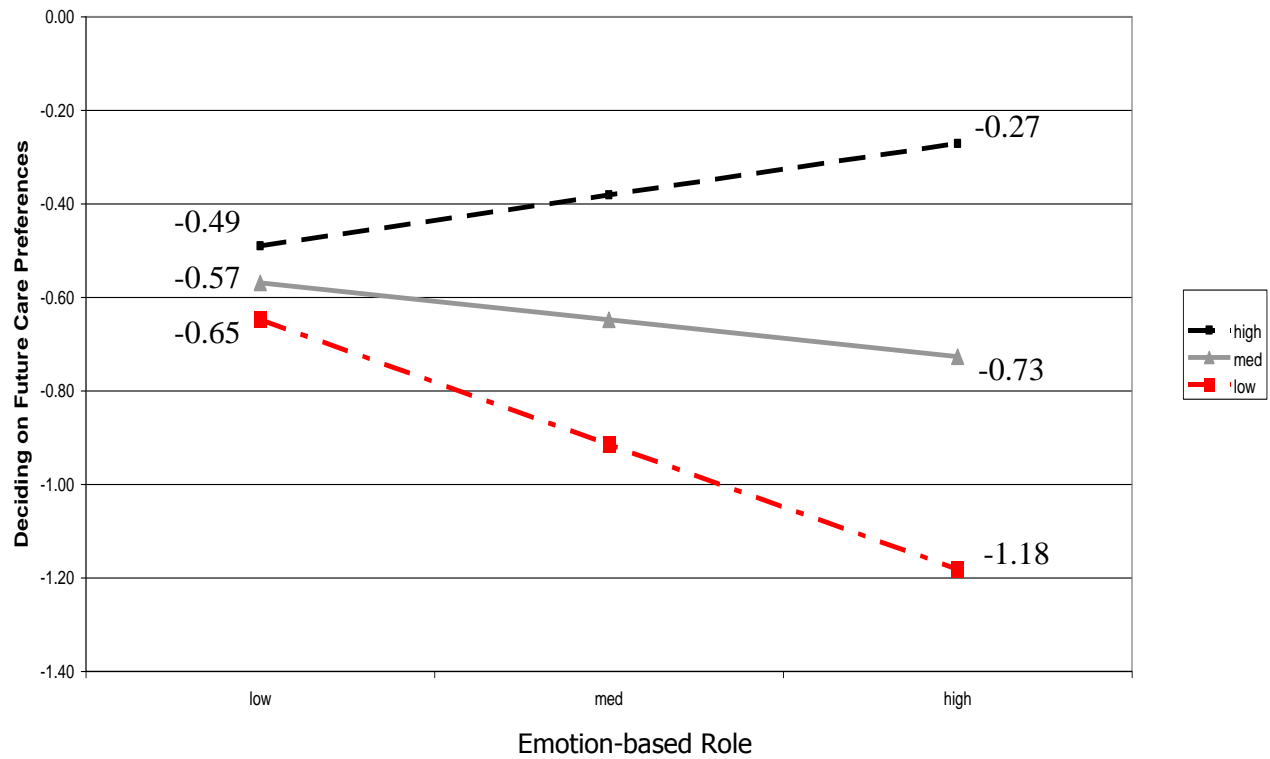


Figure 9. Depiction of the Role Limitations due to Emotional Problems X Trait Hope Interaction on Future Care Preferences.

Note: Low hope was defined as one standard deviation below the mean; medium hope was at the mean; and high hope was one standard deviation above the mean.

Table 21

*Simple Slopes for Moderation Analysis for Role Limitations due to Emotional Problems X Trait*

*Hope with Deciding on Future Care Preferences*

Hope level	Simple slope (b)	p-value
High hope	0.01	0.32
Medium hope	-0.01	<0.001
Low hope	-0.03	0.01

Examining the Physical Functioning X Agency Interaction. Agentic thinking moderated the relation between physical functioning and deciding on future care preferences ( $B = 0.01$ ),  $t(64) = 2.39$ ,  $p = 0.02$ . The associated  $R^2$  change was 0.08. This interaction accounted for an additional 8% of the variance in PFCN engagement (Table 22). The regression analysis also indicated that gender had a significant, negative association with decision making. Specifically, females were more likely to make decisions about care preferences ( $B = -0.60$ ),  $t(64) = 2.33$ ,  $p = 0.02$ .

Table 22

*Output for Physical Functioning X Agency with Deciding on Future Care Preferences*

Step and variable	<i>B</i>	<i>SE B</i>	<i>t</i> <sup>a</sup>	<i>P</i>	95% Confidence Interval		$\beta^b$	$\Delta R^2$
					Lower Bound	Upper Bound		
Dependent variable: Deciding on future care preferences								
Step 1								
Physical functioning	-.01	.01	-.99	.33	-.40	.01	-.15	.16 <sub>+</sub>
Step 2								
Physical functioning	-.02	.01	-1.12	.27	-.04	.01	-.17	
Agency	.05	.05	.93	.36	-.06	.15	.12	.01
Step 3								
Physical functioning	-.01	.01	-.56	.58	-.03	.02	-.08	
Agency	.06	.05	1.25	.22	-.04	.17	.16	
Physical functioning X Agency	.01	.004	2.39	.02*	.00	.02	.30	.08*
Overall $F(8,56) = 2.37^*$								

<sup>a</sup> *df* = 64.<sup>b</sup> Values are standardized.<sup>+</sup>  $p < .10$ . \*  $p < .05$ . (2-tailed significance).

Lower agency thinking strengthened the negative relationship between physical functioning and decision making, a finding contrary to our hypothesis. Despite this effect, older adults with higher agency exhibited more decision making processes, in general, for medium and higher levels of physical functioning ( $Y = -1.17$  to  $-0.98$ ) (See Figure 10). Further examination of Table 23 demonstrated that the slopes were steeper for low agency ( $b = -0.03$ ) than for high levels ( $b = 0.02$ ), suggesting that low agency had a more significant impact on lower physical functioning and engagement in decision making.

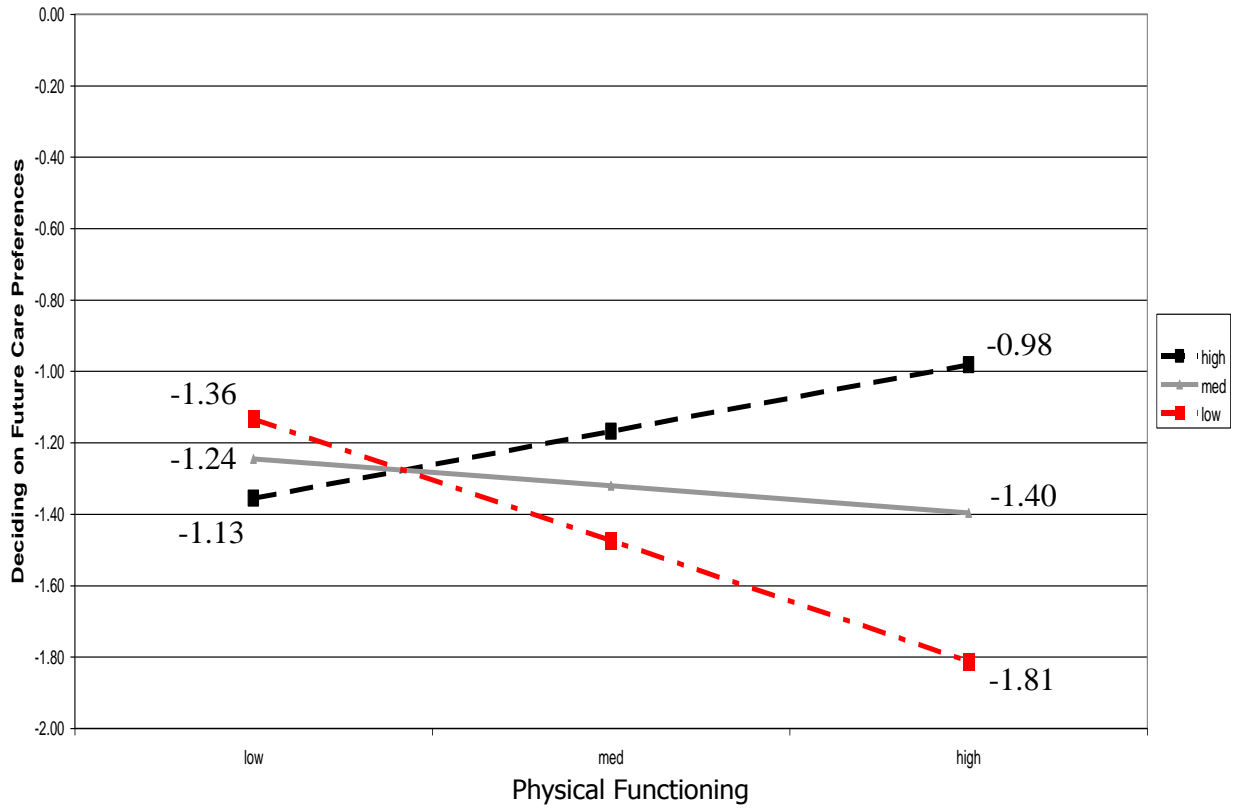


Figure 10. Depiction of the Physical Functioning X Agency Interaction in Predicting Deciding on Future Care Preferences.

Note: Low agency was defined as one standard deviation below the mean; medium agency was at the mean; and high agency was one standard deviation above the mean.

Table 23

*Simple Slopes for Moderation Analysis for Physical Functioning X Agency with Deciding on Future Care Preferences*

Hope level	Simple slope (b)	p-value
High agency	0.02	0.19
Medium agency	-0.01	<0.001
Low agency	-0.03	<0.001

Examining the Social Functioning X Agency Interaction. Agency thinking moderated the relationship between social functioning and deciding on future care preferences ( $B = 0.01$ ),  $t(64) = 2.69$ ,  $p = 0.01$ . The associated  $R^2$  change was 0.09. This interaction accounted for an additional 9% of the variance in PFCN engagement (Table 24). The regression analysis further revealed that gender had a significant, negative association with decision making. Specifically, females were more likely to make decisions about care preferences ( $B = -0.52$ ),  $t(64) = 2.12$ ,  $p = 0.04$ .

Table 24

*Output for Social Functioning X Agency with Deciding on Future Care Preferences*

Step and variable	$B$	$SE B$	$t^a$	$P$	95% Confidence Interval		$\beta^b$	$\Delta R^2$
					Lower Bound	Upper Bound		
Dependent variable: Deciding on future care preferences								
Step 1								
Social functioning	-.01	.01	-.84	.41	-.04	.02	-.11	.22*
Step 2								
Social functioning	-.01	.01	-.96	.34	-.04	.01	-.12	
Agency	.07	.05	1.28	.20	-.04	.17	.16	.02
Step 3								
Social functioning	-.01	.01	-1.0	.32	-.04	.01	-.12	
Agency	.09	.05	1.78	.08	-.01	.19	.22	
Social functioning X Agency	.01	.01	2.69	.01*	.00	.02	.33	.09**
Overall $F(9,55) = 2.97^{**}$								

<sup>a</sup>  $df = 64$ .

<sup>b</sup> Values are standardized.

\*  $p < .05$ . (2-tailed significance).

As in previous models, low agency thinking strengthened the negative association between social functioning and making decisions about future care needs. Similarly, however, high hope was generally associated with substantially higher engagement in decision making (See Figure 11). The influence of agency on the relationship between social functioning and decision making was larger at low levels of agency ( $b = -0.03$ ) than at high ( $b = 0.02$ ) and medium levels ( $b = -0.01$ ). The p-values of the associated simple slopes statistics revealed that the coefficients were not significant for the high agency group, whereas they were significant for the low ( $p < 0.001$ ) and medium level ( $p < 0.001$ ) (See Table 25).

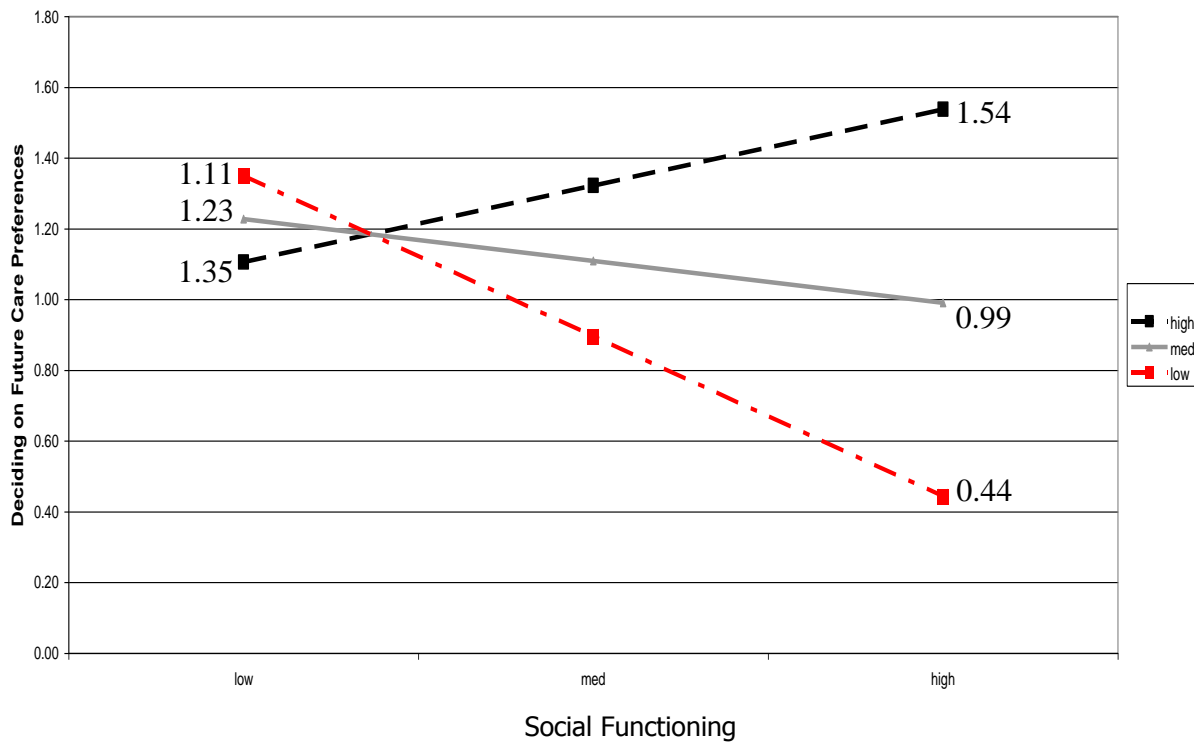


Figure 11. Depiction of the Social Functioning X Agency Interaction in Predicting Deciding on Future Care Preferences.

Note: Low agency was defined as one standard deviation below the mean; medium agency was at the mean; and high agency was one standard deviation above the mean.

Table 25

*Simple Slopes for Moderation Analysis for Social Functioning X Agency with Deciding on Future Care Preferences*

Hope level	Simple slope (b)	p-value
High agency	0.02	0.19
Medium agency	-0.01	<0.001
Low agency	-0.03	<0.001

#### Other Findings

Although not the focus of this study, there were other important findings from the bivariate analyses (See Table 27). Awareness had a significant, negative association with avoidance and significant, positive correlations with information gathering, decision making, and concrete planning. Planning had significant, positive associations with awareness, information gathering, and decision making. Advancing age predicted greater awareness of risk of needing care and non-Whites were more likely to avoid thinking about the risk of needing care. Both PFCN and HRQoL demonstrated significant, negative correlations with illness-related functional impairment and medical illness burden. Finally, agency demonstrated a significant positive correlation with education. These findings are consistent with other studies (Delgadillo et al., 2004; Duberstein et al., 2003; Hafen & Sörensen, 2008; Maloney et al., 1996; Sinclair et al., 2001; Sörensen et al., 2008; Sörensen & Pinguart, 2000a, 2000b, 2000c).

Table 26

*Zero-Order Correlations Between Key Variables*

	Mean (SD) or %	Hope	Agency	Pathways	Physical Functioning	Role Limitations due to Physical Health	Role Limitations due to Emotional Problems	Social Functioning	Pain	Active Avoidance of Future Care Planning	Becoming Aware of Risk of Needing Care	Gathering Information about Future Care Needs	Deciding on Future Care Plans	Making Concrete Plans for Future Care Needs
Age	73.78 (5.11)	-.21	-.16	-.21	-.24	-.16	-.22	-.08	-.06	.01	<b>.33**</b>	.10	.02	.14
Gender 1=Female, 2=Male	64.6%, Female	.12	.13	.08	.18	.13	.12	.13	.25	-.09	-.09	-.22	-.22	-.13
Years of Education	15.32 (1.77)	.16	<b>.27*</b>	.03	-.06	.09	.13	-.01	.09	-.09	-.24	.11	.20	.00
Race 1=White, 2=Non White	95.4%, White	-.15	-.06	-.18	-.24	-.20	-.12	-.00	-.12	<b>-.28*</b>	.05	.14	-.04	-.01
Illness- related functional impairment	77.86 (11.39)	.19	.21	.13	<b>.82**</b>	<b>.61**</b>	<b>.47**</b>	<b>.39**</b>	<b>.43**</b>	.24	<b>-.35**</b>	<b>-.37**</b>	<b>-.33**</b>	<b>-.41**</b>
Medical illness burden	38.09 (2.92)	.03			<b>.46**</b>	<b>.36**</b>	<b>.35**</b>	.18	.16	.05	-.18	<b>-.35**</b>	-.19	<b>-.25*</b>

*Note.* N=65; \*Correlation is significant at the 0.05 level (2-tailed); \*\*Correlation is significant at the .01 level (2-tailed)



## CHAPTER 5

### DISCUSSION

A considerable amount of research in future care planning has focused on situational, financial, and health domains as well as personal characteristics (e.g., age, gender, ethnicity, and education level) as predictors of engagement. More recently studies have begun investigating the role of specific trait dispositions and their influence on future care planning; however, few studies have examined the role of trait hope in this process. We examined the relationship between HRQoL and PFCN and the role of hope in moderating this relationship.

#### Hypothesis 1: Health-Related Quality of Life and Planning for Future Care Needs

An examination of the relationships between HRQoL and PFCN variables revealed that the relationships were in the theoretically predicted directions but varied in strength. As hypothesized, worsening social functioning, physical functioning, and emotion-based role were significantly associated with greater awareness of risk of needing care, gathering information about future care needs, and making concrete plans for future care needs as well as less active avoidance of PFCN, in bivariate analysis. Social functioning had the strongest association with PFCN scales ( $r$  ranged from -0.38 to 0.33). Similar and slightly weaker associations were found for both physical functioning and role limitations due to emotional problems and their relationship to PFCN. These findings suggest that declining physical and psychological functioning inhibit healthy social engagement in older adults. Adverse changes in health are often precursors to social isolation in vulnerable populations. Continued social engagement is an important component of healthy aging. As such, declining social functioning may be interpreted by older adults as being an immediate threat to their continued self-reliance and autonomous

living. It is not surprising, then, that in the present study, declining social functioning played an integral role in the processes involved in health and care goal planning.

There is robust support for the relationship between increasing clinical vulnerability and health service use. In fact, clinical vulnerability is typically the strongest predictor of health-seeking behaviors (Strain & Blandford, 2002). We also found that individuals with worsening physical and emotional health were more cognizant of their present health state, a factor that increased engagement in information gathering, decision making, and concrete planning. This finding is consistent with other published reports (Niimura et al., 2011; Pinguart & Sørensen, 2002a; Sørensen et al., 2008; Sørensen & Pinguart, 2000b, 2000c). Prior research has further suggested that limited ability to perform activities of daily living may motivate older adults to think more about care options in order to identify resources and supports that will help them adapt to changing needs (Delgadillo & Sørensen, 2004).

The current study population included older adults in primary care settings. These individuals may have greater exposure to long-term care options when compared to elders who do not have routine medical examinations. Medical examinations are important health-seeking behaviors for several reasons. Physicians play a key role in providing elders with information about managing changes in their physical health and functional abilities. Access to information about long-term care options can assist with the creation of custom care plans that reflect both individual preference and personal resources. The older adults in this study were likely to be exposed to this type of information which increases the likelihood that they would engage in concrete planning.

Although not directly measured in the present study, empirical research helps elaborate the upstream factors that may predict greater engagement in preparing behaviors as health

worsens. By planning for future care needs, individuals with increasing HRQoL deficits have been shown to experience a general sense of well-being by knowing that both their current and future needs are more likely to be met (Kahana et al., 2002). Still, others may believe that planning proactively endangers one's present well-being by expending financial, social, and health assets (Pinquart & Sörensen, 2002a). Older persons, who often have finite resources, may be most susceptible to this type of rumination (Freund & Baltes, 2002; Ouwehand, 2005). Ruminating about present or future risk without actively planning or engaging in goal-directed activities is linked to reports of lower life satisfaction and increased psychological distress (Pinquart & Sörensen, 2002b; Steele et al., 2003). Nonetheless, engagement in health promotion and planning behaviors serves as an important linkage between maintenance and improvements in one's health and functional ability and the desire to live a self-determined life. These benefits are experienced despite the continuing existence of chronic disease or disability (Kahana et al., 2002).

Older adults are likely to view reduction in risk behaviors (e.g., cigarette use, nutritionally insufficient diets, or sedentary lifestyle) and engagement in health promoting strategies (e.g., physical activity, preparing and planning behaviors, or social integration) as a pathway to reduce risk of premature mortality and functional decline (Carlson et al., 1999; Kahana et al., 2002). Studies have further shown that these cognitive representations are key motivating agents and buffer against the deleterious effects of aging (e.g., chronic disease, disability, and social loss). Moreover, participation in goal-directed behaviors in late life can enhance decisional control (Wurm et al., 1997) and promote teleological meaning of life (Ruuskanen & Ruoppila, 1995). What is unknown is whether the older adults in the present study engaged in goal-directed behaviors over their life course. It is likely, however, that planning over

the life course and the attendant benefits could lead to a similar pattern of planning in late-life, a hypothesis that would strengthen our findings.

### Hypothesis 2: Health-Related Quality of Life and Trait Hope

The hypothesis that better HRQoL would be associated with higher trait hope was inconclusive, although there were weak positive associations between these variables. Perceptions about one's present health status may reinforce the experience of hope and vice versa. Personality characteristics play an integral role in influencing self-reports of health and HRQoL (Kressin, Spiro, & Skinner, 2000) by mediating the relationship between illness and disability and the HRQoL experienced (Testa & Simonson, 1996). It is widely recognized that hope acts as a cognitive asset that buffers against negative life events and, by doing so, promotes well-being (Folkman, 2010; Ong et al., 2006; Snyder et al., 1996). Unexpectedly, in the present study, we did not find a strong link between trait hope and any dimension of HRQoL in bivariate analysis. That hope was only weakly associated with self-reported health suggests that older adults may continue to employ goal-directed behaviors regardless of present health status. These individuals may also view adverse changes in health and functioning as a normal part of the aging process. These factors may explain why hopefulness and poor HRQoL may coexist together.

While the experience of negative mood states and dispositions have been shown to have a deleterious impact on individuals' self-reports of health and daily functioning, more resilient characteristics may also have an equally important positive influence on self-reports. A strong sense of self-efficacy and an optimistic outlook have been linked to higher quality of life in patients undergoing diabetic management care (Rose et al., 2002). Hope shares some similarities with these 2 constructs. However, the findings of the present study only marginally support these

findings. Hope theory suggests that the experience of hope originates in a deep sense of motivation to develop (e.g., agentic thinking) and achieve predetermined outcomes (e.g., pathways thinking) (Snyder, 2000). In this sense, hope is operationalized as a resource to deal with situations that are within the individual's control. Declining health may be perceived as a biological process that is beyond one's influence. As such, older adults may have difficulty creating and organizing goals to address these biological mechanisms, thus explaining the weak yet positive associations between HRQoL and hope in the present study.

Dispositional control beliefs have been shown to influence illness-based coping strategies and greater medical compliance (Downman, 2008). Persons who engage in these and other health-enhancing behaviors are likely to experience improvements in their clinical vulnerability. In the present study older adults with higher trait hope reported slightly better physical and emotional functioning. These individuals may have placed more emphasis on health and lifestyle factors that optimize healthy aging processes (Wurm et al., 2007). Agentic thinking ( $r$  ranged from 0.08 to 0.20) generally shared a stronger relationship with the 5 SF-36 scales when compared to pathways thinking ( $r$  ranged from -0.13 to 0.17). Agentic thinking is associated with a sense of self-determination that may be more closely related to the mental and emotional components of HRQoL when compared to the pathways dimension of hope.

Trait hope may also buffer against the deleterious effects of aging by reducing psychological distress (Benyamini et al., 2000; Greenglass & Fiksenbaum, 2009). Prior research has demonstrated this link. Negative mood states and dispositions predicted poorer HRQoL including poorer emotional functioning (Steptoe & Wardle, 2005), whereas optimism and self-efficacy were stronger predictors of HRQoL than was clinically-evaluated health (Rose et al., 2005). Thus, resilient personalities protect against future health decline and optimize perceptions

of present health status. Surprisingly, trait hope did not demonstrate a similar pattern of relationship with self-reported physical and emotional functioning (e.g., high hope was associated with better functioning) in bivariate analysis. Although the relationship was in the direction originally hypothesized, the strength of this relationship was much weaker than expected.

Although high optimism and hope generally promote better adaptation to adverse change (Ironson et al., 2005; Orom et al., 2009; Steginga & Occhipinti, 2006), these same traits can confer risk when unrealistically high (Bhagotra, Sharma, & Raina, 2008; Grant & Schwartz, 2011; Jansen et al., 2011). Individuals may inaccurately appraise situations or ignore them altogether, thus jeopardizing health and other outcomes associated with well-being (Bhagotra, Sharma, & Raina, 2008). Our findings did not support such a hypothesis.

### Hypothesis 3: Trait Hope and Preparation for Future Care Needs

Few of our assumptions about the relationship between trait hope and PFCN were supported in bivariate analysis. The strength of the relationships was weaker than expected and in the opposite direction from the hypothesized association. Trait hope and agentic thinking had a significant and negative association with becoming aware of risk of needing care and weak positive association with active avoidance of PFCN and deciding on future care preferences. Hope further had a weak positive association with making concrete plans for future care needs, a finding that was contrary to our assumptions but similar to those reported by Rose et al. (2002).

Reconciling these apparent contradictions is important to the advancement of PFCN research. Personality characteristics are linked to both health-promoting and health risk behaviors. Norem (2003) has argued that defensive pessimism may trigger proactive coping behaviors by creating an environment in which an individual's well-being is perceived as being

threatened. Resilient emotional states and trait dispositions have also been shown to increase proactive orientations (Greenglass & Fiksenbaum, 2009), an important process underlying the PFCN model. Paradoxically, these same personality characteristics that have been shown to promote development of health and care goals (Ong et al., 2006; Rose et al., 2005; Sörensen & Pinquart, 2000b ; Sörensen & Pinquart, 2001) have also been shown to impede them (Jarrat, 2007; Niimura, 2011; Smith et al., 2009).

Despite the potential for high hope to deter some preparing behaviors, bivariate analysis suggested that the experience of higher hope may promote engagement in the more concrete stages of preparation for future care needs (e.g., decision making and concrete planning). PFCN research has suggested that individuals may progress through stages differently or skip a process altogether (Sörensen & Pinquart, 2000b; Sörensen & Pinquart, 2001). This may have been the case in the present study.

Another possible explanation for these variations in engagement by PFCN stage is that older persons who experience higher hope may attach less meaning to situational or other contextual factors that typically signal changes in health or the ability to perform everyday activities. Any change in health or care needs may be perceived as temporary or as rarely interfering with normal activities. These same individuals may place less emphasis on their day to day interactions with others or information available in the media that relates to health or care plans because they may naturally navigate towards a proactive planning model.

Biological models of personality may shed additional light on this relationship. Situational factors play a pivotal role in determining whether a person uses approach or avoidant strategies. The avoidant and approach systems are said to influence cognitions and behaviors in response to reinforcing agents and threats. However, these systems can be regulated through

various coping processes. Proponents of this model have further suggested that the analytic processes that occur in the neocortical region of the brain can regulate and ultimately override the impulse of either system (Carver & Connor-Smith, 2010). Coined *effortful control* (Kochanska & Knack, 2003; Nigg, 2006; Rothbart & Rueda, 2005), these analytic processes may shed important light on the nature of the relationship between hope and planning behaviors. Effortful control permits an individual to distinguish between threats across a variety of situational contexts, allowing the individual to make decisions and develop plans. This self-regulatory process also aids in prioritizing tasks and goals (Carver & Connor-Smith, 2010).

Older adults in the present study may have employed a similar pattern of self-regulation in helping to determine whether their individual contexts warranted concern. This could explain the lack of awareness of risk and information gathering despite more engagement in higher order strategies (e.g., making decisions about future care preferences). It is important to mention that low engagement in PFCN was most closely associated with agentic thinking ( $r$  ranged from -0.42 to 0.10) than with pathways thinking or hope. Agentic thinking involves the determination to establish and achieve goals. Individuals who possess higher agentic thinking are likely to have more confidence in their ability to establish and pursue goals when needed.

The pathways scale emerged as a stronger predictor of engagement in decision-making ( $r = 0.21$ ) and concrete planning ( $r = 0.17$ ) than did agentic thinking or hope. Pathways thinking involves the strategies employed to achieve a predetermined goal. A discussion regarding the role of perceived access to resources in helping explain this relationship is warranted. That goal-setting behavior could have occurred even though individuals apparently had less insight about their current situation or at least did not feel immediately threatened might have been influenced by the perception that one has sufficient resources. Furthermore, the experience of higher hope



may lead individuals to ignore environmental cues or at least to feel more hopeful that their present situation is not jeopardizing future outcomes when resources are available. The influence of pathways thinking could then serve as the impetus to engage in preparing behaviors, thus mitigating the influence of disengagement in some planning processes on decision-making and concrete planning.

Building on the biological model of personality, engaging in goal-directed behavior over one's life course could serve as an important reinforcing agent in late life, thus promoting planning and goal-setting behaviors. High hope individuals may feel more comfortable when plans are in place, independent of actual risk. Furthermore, because trait hope is a stable disposition that persists over time, the older adults high in hope were likely to be more competent with decision-making and planning because they had previously engaged in the behavior or had more confidence in their ability to set and attain goals. Older persons with low hope may have felt less confident in their ability to make decisions and secure plans even when faced with imminent concerns. Hope is likely to confer additional benefits that provide individuals with a platform for making decisions and plans irrespective of context or environment. Consequently, older adults with high trait hope may find preparing behaviors more satisfying and fulfilling than do their counterparts with low hope.

Goal-based models of behavior also warrant discussion. Implicit in a goal-based theory of behavior is the expectancy that a given outcome will occur (Bandura, 1986). An equally important factor underlying this model is the view that individuals can employ cost-benefit analysis to adjust the level of commitment to a goal (Miller & Wrosch 2007; Wrosch, Miller, Scheier, & Brun de Pontet, 2007). In the case of hope and planning, older persons who experience more hope may continue planning for future care needs while deemphasizing the role

of actual need as a determining factor (Carver & Connor-Smith, 2010). Carver and Connor-Smith (2010) have argued that goal modification ensures that individuals remain engaged at a level that holds the most promise for success.

Moreover, overly hopeful people may view environmental threats or biological insults differently than people who experience low hope. Goal-driven individuals may view these experiences as nothing more than a challenge to goals that have already been set or will be set at some point in the future (Carver & Connor-Smith, 2010). Furthermore, there is evidence that coping strategies contain trait-like characteristics and remain stable over time; although less stable than traits (Moos & Holahan, 2003; Murberg, Bru, & Stephens, 2002; Powers, Gallagher-Thompson, & Kraemer, 2003). These assumptions could help explain why high hope older adults avoided and even ignored risk of future frailty and yet made decisions and concrete plans about their future care.

#### Hypothesis 4: Trait Hope, Health-Related Quality of Life, and Preparation for Future Care Needs

During MMR analyses, five aspects of planning were examined: (1) active avoidance of PFCN, (2) becoming aware of risk of needing care, (3) gathering information about future care needs, (4) deciding on future care plans, and (5) making concrete plans for future care needs. As expected, but contrary to Lopes's and Cuhna's findings (2008), PFCN engagement was influenced by different combinations of the hypothesized interaction between self-reported health status and trait hope. Agentic thinking had a stronger influence on the HRQoL-PFCN relationship than pathways thinking. Therefore, the moderating effect obtained for trait hope occurred primarily through agentic thinking. That hope was moderated primarily through agentic thinking rather than pathways thinking is supported by research conducted by Tong, Fredrickson, Chang, and Lim (2010). Tong et al. (2010) conducted four studies among groups in different

cultures using different hope measures. Their findings suggested that hope is more closely associated with agentic rather than pathways thinking. The findings of the present study lend additional support to their findings. The HRQoL\*Pathways Thinking interaction was significant in only one of the models, whereas the HRQoL\*Agentic Thinking interaction was significant in three models.

Becoming aware of risk of needing care was directly influenced by the hypothesized Role Limitations due to Emotional Problems\*Hope interaction as well as the Limitations due to Emotional Problems\*Pathways interaction. These interactions showed that rather than weakening trait hope and pathways thinking strengthened the negative relationship between role limitations and awareness levels among older adults. Contrary to our hypothesis, higher hope actually weakened this relationship and, in fact, was in the opposite direction than expected. Awareness levels were lower among older adults with higher hope who reported greater role limitations than among their counterparts who reported fewer emotion-based role limitations. In fact, older adults who reported lower hope and greater role limitations were more likely to be aware of the risk of needing care when compared to any other group of individuals.

These multivariate findings are intriguing. Older adults who exhibited less ability to set goals and map out plans to achieve them were generally more aware of their risk of needing care regardless of emotion-based role status, whereas greater competence resulted in less awareness of risk. There are two possible explanations for these findings. Hope in excess may actually inhibit the person's ability to interpret environmental triggers such as declining health status. Secondly, persons who possess higher levels of hope may have more confidence in their ability to appraise the seriousness of a situation and decide whether it warrants further investigation or action on the part of the individual. In which case, in the present analysis, higher hope

individuals did not perceive poor emotion-based role functioning as warranting concern. These factors may provide insight as to why higher hope was associated with less awareness. On the other hand, persons with lower hope may have a more critical view of their personal context because they possess less confidence in their ability to set and achieve health and care goals.

Gathering information about future care needs was also directly influenced by the hypothesized Role Limitations due to Emotional Problems\*Hope interaction as well as the Limitations due to Emotional Problems\*Agency interaction. Unlike the previous findings, emotion-based role had a weak positive association with information gathering. Lower hope and agentic thinking weakened rather than strengthened the positive relationship between emotion-based role and gathering information. In fact, lower hope had an inverse relationship with emotion-based role and information gathering. Post-hoc analyses indicated, however, that this finding was not significant. Higher hope and higher agency thinking did have a significant impact on the positive relationship between emotion-based role and information gathering. Despite these findings, persons with lower hope and agentic thinking and greater role limitations were more likely than any other group to gather information about future care needs.

It is surprising that persons who possess greater goal-setting competencies were less likely to gather information about their future care needs. This may be partially explained by the HRQoL indicator being measured. A physical condition that limits one's ability to perform activities of daily living may be a more direct trigger of adverse changes in one's health, whereas emotion-based role limitations may be more distal. Higher hope persons who reported fewer role limitations were more likely to gather information when compared to their counterparts who reported greater limitations, a finding that further supports this hypothesis. Still, this does not

help explain why lower hope persons gathered more information if role limitations were greater rather than fewer.

The answer may lie within the mechanisms that undergird hope theory. Higher hope individuals may perceive the magnitude and influence of role limitations differently than do persons with less ability to establish health and care goals. Trait hope is considered stable over time. Higher hope older adults were also likely to have established goals in the past, a factor that may influence how these individuals interpret the need to act on their present health status. On the other hand, any change in health status may exacerbate coping strategies among those individuals who lack sufficient skills to set goals and achieve them. This seems to have been the case in the present study among individuals with lower hope and agentic thinking.

Trait hope had the strongest influence on the relationship between HRQoL and deciding on future care plans. Five hypothesized interactions were significant: Physical Functioning\*Hope, Physical Functioning\*Agency, Social Functioning\*Hope, Social Functioning\*Agency, and Role Limitations due to Emotional Problems\*Hope. In each of the models lower hope and agentic thinking strengthened rather than weakened the negative relationship between the HRQoL indicators and decision making. Lower levels of trait hope and agentic thinking had the most robust impact on this relationship when compared to medium or high levels. Lower hope generally predicted less engagement in decision making regardless of self-reported HRQoL status when compared to higher hope individuals. These findings are consistent with the theory on hope. Decision making should occur more frequently among those individuals who possess greater levels of agentic and pathways thinking. Moreover, higher hope individuals with fewer HRQoL deficits can be described as using proactive coping skills. Prior to

the development of any self-reported health deficit these individuals were more likely to execute decisions about their health and social needs than any other group.

Trait hope also had a significant and positive association with decision making and both physical and social functioning, marking the first time that trait hope emerged as a main effect. This finding suggests that trait hope had a specific function in this PFCN process. Trait hope is known to act as a cognitive buffer against adverse life change. Therefore, trait hope played a protective role, enhancing one's ability to make decisions about health and care preferences regardless of health status. Agentive thinking did not emerge as a main effect but did moderate the relationship between HRQoL indicators and decision making. This finding further substantiates the important role of goal-setting skills in making decisions that will impact one's future care.

According to the theoretical reasoning that led to Hypothesis 4, declining health condition should trigger engagement in preparing behaviors. Or stated differently, older adults who are experiencing poorer functioning or increased difficulties in performing everyday activities should be more likely to execute goal-directed behaviors and strategies as a means. Proactive behaviors can be used as an adaptive process, as a means to secure desired outcomes, and to better ensure continued autonomy and self-reliance. At the same time the experience of higher hope is likely to influence the frequency in which individuals engage in setting goals. The degree to which health condition influences preparing behaviors is likely to depend on the hope experienced by the individual. Additionally, the findings in the present study also provided evidence to suggest that PFCN can be affected differentially by these interactions.

For example, when very hopeful, older adults with worsening health consistently reported the lowest levels of awareness and gathering information when compared to individuals with low hope (See Table 27). At the same time these same individuals' levels of decision making were

comparable to or higher than those with low hope and worsening health, yet substantially higher as health improved. Lack of hope and greater HRQoL deficits seemed to promote greater awareness but were not sufficient to support a more general goal-oriented schema that involved active engagement. These individuals may have been more likely to ruminate about risk without navigating towards active coping because they lacked goal-setting behaviors; furthermore, high hope individuals may have had less awareness or even dismissed the need to gather additional resources because they naturally migrate towards goal-setting behaviors without needing environmental cues. This may explain why low hope individuals had more or comparable levels of awareness and information gathering tendencies when compared to high hope individuals, regardless of the health experienced and yet were not executing decisions.

Table 27

*Planning Behaviors Among Older Adults in Primary Care*

	Lower planning behaviors	Higher planning behaviors
Becoming aware of risk of needing care	High hope; greater role limitations	Low hope; greater role limitations
	High pathways; greater role limitations	Low pathways; greater role limitations
Gathering information about future care needs	High hope; greater role limitations	High hope; fewer role limitations
	High agency; greater role limitations	Low agency; greater role limitations
Deciding on future care preferences	Low hope; higher physical functioning	High hope; higher physical functioning
	Low hope; higher social functioning	High hope; higher social functioning
	Low hope; fewer role limitations	High hope; fewer role limitations
	Low agency; higher physical functioning	High agency; higher physical functioning
	Low agency; higher social functioning	High agency; higher social functioning

Other Findings

Multivariate results indicated that gender also played a significant role in predicting engagement in planning for future care. Women were consistently more likely to gather information and execute decisions about their future care than were their male counterparts; although no differences were noted for awareness levels. Women typically live longer than men, have lower incomes than their male counterparts, and are more likely to live alone. Moreover, it is widely accepted that women engage in more health-seeking and health-promoting behaviors than men. That the present sample was two thirds female further substantiates the assumption



that women participate more in health-promoting behaviors. Together, these factors help explain why women were more likely to gather information and make care and health plans when compared to older adult males.

### Summary of Findings

Trait hope moderated the relationship between HRQoL and three of the five PFCN processes. Contrary to Hypothesis 4, trait hope did not moderate the relationship between HRQoL and active avoidance of risk of needing care. Similarly, the data did not support the hypothesis that hope moderated the relationship between HRQoL and making concrete plans for future care needs. The influence that the HRQoL\*Hope interaction had on awareness and information gathering when compared to decision-making provides support to the notion that PFCN engagement can be affected differentially by these interactions.

In the majority of cases older adults reporting higher hope and a better health condition had a higher frequency of PFCN engagement. However, higher hope typically did not have a significant impact on these relationships. Simple slopes tests confirmed that the experience of low to medium hope had a significant influence on the relationship between HRQoL and planning behaviors in the majority of cases. Older adults reporting greater limitations but lower hope were more aware of situational factors that might affect their future care and were more likely to obtain information about future risk when compared to their counterparts who experience more hope. At the same time these individuals were less likely to execute decisions when compared to those who experience more hope.

The unexpected finding that individuals with greater limitations who experience low hope were more aware of risk than among those with high hope suggests that for some older adults awareness of risk may have functioned for purposes other than setting health or care plans

in place. Similarly, the finding that individuals with fewer limitations who experience more hope were less likely to be aware or gather information but more likely to make decisions may suggest that these older adults more naturally use executive functions to attain goals without needing to attach meaning to personal or situational factors. Despite these findings, few of the hypothesized interactions were statistically significant. This finding is likely the result of a small sample size and the lack of power to detect significant differences. The fact that the remaining variance uniquely attributable to the interaction ranged between 4% and 9% suggests that trait hope is an important contributor to planning behaviors and warrants further investigation.

#### Implications for Clinical Practice

Should physicians be concerned if a patient has little hope that their condition will improve over time? The answer is complex and is influenced by a multifactorial network of interacting forces. In this study we found evidence that older adults who experience more hope in their daily lives are more likely to make preparations in advance for their future care needs but that these preparations decrease as health worsens. On the other hand worsening health signals the need to gather information among low hope individuals. These findings suggest that the experience of higher hope serves as the impetus for goal-directed behavior among individuals with high hope but may deter planning among individuals with low hope. As such these results indicate that the experience of higher hope has a protective effect in most cases, causing individuals to navigate naturally towards a more concrete planning schema. This finding strongly reinforces the idea that clinicians should assess a patient's history of goal-setting behaviors in order to estimate current goal-directed determination in the future. Clinicians can then assist those patients for whom setting care and health goals may present more of a challenge.

Another important implication of these findings is that individuals with similar health conditions but differing levels of trait hope may evaluate their HRQoL differently. Kressin and colleagues (1999) have argued that it is important for clinicians to understand how personality characteristics affect self-reports of health and functioning. Clinicians may need to provide greater reassurance to those patients who report more impairment yet for whom clinical indicators are absent in order to reassure them that perceptions of health need not inhibit everyday activities. This reassurance may promote improvements in both HRQoL and clinically-evaluated health over time (Kressin, Spiro, Bosse, & Garcia, 1999).

Personality and psychological characteristics are closely related to one's illness-coping strategies that in turn influence health-promoting and health-seeking behaviors (Bandura, 1995). Studies have demonstrated that active coping strategies can be acquired in late life (Bode et al., 2007; Churchill & Davis, 2010) and that these coping strategies can lead to improvements in quality of life among adults in mid- and late-life (Gilden, Casia, Hendryx, & Singh, 1990; Watkins, et al., 2000). Helping individuals with low hope adopt new coping-focused skills to achieve their goals may lead to a greater experience of hope. Interventions that focus on coping behaviors are appropriate strategies to indirectly influence patients' hope levels.

An equally important implication is that higher levels of agentic and pathways thinking leads to greater capacity for making decisions about health and care goals. Proactive coping behaviors were most evident among those persons with fewer HRQoL limitations and higher hope. Hope, as a resilient psychological factor, is an important component of healthy aging and well-being. Numerous studies have demonstrated the effectiveness of interventions to enhance hope among samples of healthy and clinically compromised young and older adults (Duggleby et al., 2007; Fukui et al., 2011). These studies offer promising evidence that hope is not static.

Rather, hope is an organic psychological factor that can be enhanced with evidence-based programming. Hope-based programs can directly influence the experience of hope in older adults and, therefore, increase one's capacity for goal-attainment behaviors.

Furthermore, the increased risk of functional impairment and chronic illness in late-life necessitates a different framework for coping with stressors. In particular, older adults will need to place more emphasis on proactive coping behaviors and problem solving strategies that seek to prevent the occurrence of a stressor or minimize its impact before it occurs. National data indicate that four in five older adults with three or more ADL deficits continue to live in the community but require assistance (Desai et al., 2001). Formal services will become increasingly important as fewer and fewer family members will be available to provide much needed care (Desai et al., 2001). In reality, however, older persons rely almost exclusively on informal mechanisms of support despite the availability of formal services (Lyons & Zarit, 1995).

Communicating to older adults about the benefits of long-term care planning will continue to be an important role for health professionals to fulfill during this era of global aging. With this in mind, evidence-based programming that blends health-promoting behaviors and learned hopefulness may yield greater results both at the individual and group-level among older adult populations. Health messages need to be reinforced and individuals need to be provided with access to information and resources that can help create a healthy aging environment. These awareness and dissemination campaigns often fail to broach the relationship between psychological factors and health-engagement. Wellness models that feature both health promoting concepts and learned hopefulness, therefore, address a significant gap in public health research and practice.

### Limitations

Several important limitations of this study warrant discussion. There are a number of sampling-related concerns. Due to the volunteer nature of the sample, it is unclear whether these findings are generalizable to other older adult populations. A related issue is the homogeneity of the sample with respect to key demographic variables including education and ethnicity. Inclusion of ethnic and socioeconomic minorities is important in studies assessing preparing behaviors because research had indicated that socioeconomic disadvantage and minority status are often inversely related to knowledge and access to services and resources (Bradley et al., 2002). Furthermore, and because the study represents a secondary data analysis, the researchers could not determine a priori the approximate sample size needed to detect statistical significance. The sample that was available for this study was small, resulting in inadequate statistical power to detect significance. In addition, the correlational design does not allow for causal inferences. The study's findings do, however, provide empirical support for the moderation model. Together, these factors suggest the need for longitudinal studies among a more representative sample of older adults to establish causality and to strengthen support for the moderation model.

Several methodological issues warrant discussion. Because effect sizes were small to medium, additional research is needed to further substantiate these findings in larger studies. Loss of measurement precision with the SF-36v1 is a notable limitation (McHorney, Ware, Rogers, Raczek, & Lu, 1992). Several considerations must be addressed. It has been argued that longer-form measures may introduce respondent burden. The SF-36v1 has also performed equally well or better than other measures in detecting differences in health (Ware et al., 1993; Ware, Gandek, & IQOLA Project Group, 1994; Beaton, Bombardier, & Hogg-Johnson, 1994). On a related note some SF-36v1 scales were missing and summary physical and mental

components could not be calculated. Future studies should consider using the SF-36 version 2 that was developed to address some of the deficiencies identified in version 1 and ensure that all scales are available for statistical analyses. Snyder's THS is not a direct measure of hope (Tong et al., 2010) but rather assesses generalized hope and the goal-directed actions that one can achieve through one's own resources. Because clinical vulnerability may be associated with declining personal resources, a more direct measure of hope that is linked to a specific goal or action may be helpful for identifying variations in hope across different goal contexts. Use of alternative hope measures (e.g., trait, state, and direct) may further improve our understanding of the relationship between HRQoL, hope, and planning behaviors. Finally, a number of variables known to influence preparation for future care needs were not included in the current study. For example, we did not include family or social support (Bradley et al., 2002; Clark et al., 2010; Sörensen & Pinquart, 2000c) or recent life events (Sörensen et al., 2008; Sörensen & Pinquart, 2000b) as potential predictors of PFCN engagement. Thus, further studies should examine how hope interacts with interpersonal or micro-situational factors to influence PFCN.

#### Future Research Directions

The findings of the current study and the limitations discussed suggest the need for additional research to further examine the study's findings. Because the present study was largely exploratory in nature, studies are needed to validate the moderation model in other older adult samples. Intervention studies could also be designed to examine causal relationships implied by the theoretical framework. Such studies can be used to examine the influence of interventions focused on problem-solving skills training and its effects on HRQoL, trait hope, and engagement in future care planning. Future studies should also determine a priori the sample size needed to ensure adequate power to detect statistical significance. It may be beneficial to

extend beyond the present study by examining other potential moderators, that is, other psychological or personality characteristics that may influence the HRQoL-PFCN relationship. Likewise, it may also be important and of value to identify and investigate potential downstream variables that can be predicted by increasing levels of HRQoL deficits and engagement in PFCN and certain Personality characteristics. For example, what are the effects of optimism, HRQoL deficits and PFCN engagement on managing functional loss or dealing with adverse life events? Finally, additional longitudinal studies using a more representative sample of older adults are needed to better ensure the generalizability of the study's findings.

In contrast to other positive states and dispositions, there is considerable variation in hope theory (Bruininks & Malle, 2005), possibly reflecting a fundamental lack of understanding in what comprises hope. Snyder's (2000) cognitive-based concept of hope is grounded in goal-setting action (Bruininks & Malle, 2005). As such, it may not account for the experience of hope when a person has little perceived control over the outcome (e.g., worsening health; Bruininks & Malle, 2005). Other theories of hope have concentrated on the actual circumstances in which people experienced hope (Averill, Catlin, & Chon, 1990). Their research sheds important light on the experience of hope beyond a goal-setting framework and represents an area of further research to examine the moderator hypothesis.

Despite the aforementioned limitations, the present study improved on prior PFCN research in several important ways. Although this research suggests that trait hope is an important factor to consider in future care planning research, future studies may identify specific circumstances that strengthen or weaken its influence on planning behaviors. Identifying variables other than HRQoL that are correlated with trait hope can play an important role in

identifying at-risk subgroups of older adults. Clinicians can use this information to guide discussions about future care planning with older adult patients.

In addition to assessing upstream factors that create an environment in which planning occurs, it will be important to examine other personal characteristics, such as coping styles and problem-solving skills, that influence why older adults elect not to engage in future care planning. For example, how does temporal discounting (e.g., a process in which individuals disregard the effects of an adverse outcome that will occur at some point in the future; Okhuysen & Bonner, 2005) interfere with a person's ability to recognize increased risk of needing care and taking steps to manage these changes?

### Conclusion

Moderating variables such as trait hope are important in understanding associations between health domains and planning behaviors. Psychoanalytic research is now focused more on examining the mediational and moderating influence of psychological variables such as trait hope on specific behaviors and outcomes (Barricks, Parks, & Mount, 2005). The current study provides support for the moderating role of trait hope and its relationship to planning behaviors. As such, the present study enhances our understanding of PFCN engagement among older adults in primary care settings. Older adults with lower trait hope are less likely to set care and health-goals regardless of self-perceived health status and functional limitations. These results highlight the need for health professionals to gain a better understanding of their patients' personal characteristics when discussing issues related to future care planning.



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