

RELATIONSHIPS BETWEEN TEMPERAMENT TYPE AND PERCEIVED
SELF-EFFICACY AMONG INFORMAL CAREGIVERS

By

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by

Teresa A. Tozzo Lyles

This document is dedicated to my parents, Carmen and Donald Tozzo;
my children, Leslie, Brianna, and Morgann Lyles;
and the Tozzo, Julian, and Clark Families

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Abstract of Dissertation Presented to the Graduate School
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This study examined the relationship between four temperament types, as defined by The Keirsey Temperament Indicator II, and self-efficacy, as defined by the Caregiving Self-Efficacy Scale, among informal caregivers. The study also examined relationships between self-efficacy and daily duration of care, total duration of care, caregiver health, and degree of difficulty in care among informal caregivers. Participants included 25 informal caregivers who completed the instrument for the pilot study, and 160 who completed the final study. Participants in the study were 18 years or older and caring part-time or full-time for someone 21 years of age or older. Most caregivers were White (85.6%), female (82%), and older than age 50 (83.2%). Most male and female caregivers were categorized under the temperament type of “Guardians.”

No significant association existed in the level of self-efficacy among the four categories of temperament types. However, using bivariate analysis methods (One-way ANOVA and Spearman’s Correlation), when comparing total self-efficacy score with total duration of time in caregiving, caregiver health, and difficulty of care, significant associations existed ($p=.017$, $p=.020$, and $p=.045$ respectively)

Results of a Stepwise Multiple Linear Regression Analysis of temperament, self-efficacy, total duration of care, and relationship to care receiver showed significance in a negative

direction between self-efficacy and total duration of care, for “Artisans” ($p=.029$; coeff $b=-.882$), if the care receiver was a friend ($p<.001$; coeff $b=-2.136$), and if the care receiver fit the “Other” response option ($p<.001$; coeff $b=-1.652$). No significance existed between level of self-efficacy, the four temperament types, and duration of care provided by caregivers. If caregivers were “Artisans” they were more likely to stay in the caregiver role longer, but if the care receiver was either a friend or another relationship other than the ones listed in the survey (i.e., hospice volunteer), caregivers were more likely to spend less time in the caregiver role.

Findings from this study will assist friends, family members, health care facility staff, and formal health care providers in (1) assessing self-efficacy among caregivers with different temperament types, (2) selecting methods to reach and assist informal caregivers in their caregiving role more effectively, and (3) identifying peer advocates to assist individuals identified as those just entering the caregiver role.

CHAPTER 1 INTRODUCTION

With the increase in the numbers of baby boomers reaching retirement age, the increase in average life span, and the population of older Americans increasing dramatically, more spouses, family members, and others provide care to older adults with a chronic or terminal illness. Informal caregiving, defined as care provided by a family member, close friend, or volunteer assistant, has been estimated at \$196 billion annually (Arno, Levine & Memmott, 1999). During the latter part of the 1990s, some 28.8% of persons aged 65 to 74 reported a limitation caused by a chronic condition, and 54.4% reported at least one physical or medical disability (Wright, 1997; Arno et al., 1999).

Spouses represent more than 30% of caregivers, with an estimated 75% aged 65 and older. Many younger family members also provide part-time care and support. Studies show that caring for a spouse with a serious illness, dementia, or other physical ailments decreases the caregivers' focus on their own preventive health – smoking cessation, proper nutrition, regular exercise, and stress reduction (Connell, 1994; Cameron, Franche, Cheung, & Stewart, 2002). For example, after assuming caregiving responsibilities, 39% of informal caregivers ate less nutritionally, 32% decreased their exercise regimen, and 43% increased the amount of smoking (Wright, 1997).

The stress and burden of informal caregiving often become the responsibility of females in the care receiver's family (i.e., mothers, daughters, daughters-in-law, wives), resulting in negative emotional and physical consequences and health risks for female caregivers (Wright, 1997; Sawatzky & Fowler-Kerry, 2003). Female caregivers, specifically caregiver wives, report the highest levels of depression in the caregiver population, typically ranging from 28% to 55% in this population. The amount of time spent in the caregiver role influences health status,

evidenced by more than 60% of caregivers developing health problems after 18 months of providing care for a family member or friend (Wright, 1997).

Many men and women aged 65 years and older are retired, but many others continue to work part-time or full-time. Approximately 4.2 million people aged 65 and older remained in the labor force in 2000 (U.S. Department of Health & Human Services, Administration on Aging, 2001). These employed seniors continue to worry about their own health, yet more than 75% of caregivers do not focus on their own health behavior. Caregivers tend to engage more in self-care than in seeking formal health services (American Association of Retired Persons, 2002). Female caregivers tend to seek personal health care only when absolutely necessary and when it does not interfere with caregiving for their spouse (American Association of Retired Persons, 2002).

Research Problem

In the health care environment, formal caregivers (i.e., physicians, nurses, counselors) inquire about patient health status, but they seldom ask caregivers or care receivers about their personal lives. However, personal characteristics of caregivers, such as temperament type, can help explain environmental dynamics, social norms, and influence behavior patterns and stress levels of persons receiving care. For example, although the individual characteristic of temperament type generally remains stable throughout life, self-efficacy changes with a new life role or life situation (i.e., becoming a parent or taking on the care of an ill family member). Therefore, it is likely that caregiver temperament can predict levels of overall self-efficacy in the care and well-being of the care receiver. Age, gender, time in the caregiver role, and overall health of the caregiver may determine medical decisions made for the care receiver and in general for the care giver. This study examined relationships between specific temperament types and perceived self-efficacy of males and females in a caregiver role.

Rationale

Temperament, or the emotional disposition of an individual, rather than personality, relates more closely to the emotional make-up of an individual, and can better predict and determine personality, decision-making, and coping skills (Morris, 2000). The study of temperament dates back to the ancient Greeks with the “Theory of Humors” in 5 B.C. (Heineman, 1995, para 2). Contemporary studies on temperament and personality generally appear in business and managerial settings, and also have been used to determine medical and dental student study habits and the ability to work with and interact with others (Morris, 2000).

Following extensive research, Katherine Briggs identified four dominant personality dimensions: Extroversion-Introversion (E-I), a person’s focus of attention; Sensing-Intuition (S-N), how one gathers information; Thinking-Feeling (T-F), decision-making process of the individual; and Judging-Perception (J-P), interaction with the outside world.

The four main temperament types used by Keirsey include 16 sub-types (Myers-Briggs, 1985; Daley, 2000; Morris, 2000). Keirsey and Bates (1984) re-conceptualized the personality types envisioned by Myers-Briggs into four temperaments – artisans, guardians, idealists, and rationals – that focus on how individuals react to and perceive their surroundings. Based on the analysis of the Myers-Briggs Temperament Indicator, Keirsey created a less complicated and easier method for respondents (Heineman, 1995, para 23; Different drums: Kiersey.com, 1998, para. 10).

Self-efficacy, a construct first conceptualized by Bandura as part of his *Social Cognitive Theory*, reflects the belief that an individual can perform specific tasks or make intelligent decisions. Self-efficacy, which varies according to situations and life events, also involves the belief that individuals can complete a task or make the best decision for oneself or a loved one. The Caregiver Self-Efficacy Scale, used in this study, was conceptualized for the purpose of

assessing self-efficacy in the caregiver role (Bandura, 1977; Steffen, McKibbin, Zeiss, Gallagher-Thompson, & Bandura, 2002). Researchers only recently have begun to study self-efficacy in the caregiver role (Steffen et al., 2002; Gignac & Gottlieb, 1996).

To date, few research designs have combined the three variables – temperament, self-efficacy, and caregiving. This study will determine if individual temperament type affects perceived self-efficacy in the caregiver role (i.e., does one temperament type show higher levels of self-efficacy than the other four types). Lack of such studies and the plausible relationship between these variables establishes a need and provides the rationale for conducting this study.

Research Questions

1. Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and temperament type as determined by the Keirsey Temperament Indicator II?
2. Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and daily duration of care provided by the caregiver?
3. Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and total duration of care provided by the caregiver?
4. Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and intensity/difficulty of care provided by the caregiver?
5. Does a significant association exist in self-efficacy scores as determined by “Total Scale Scores” on the Caregiving Self-Efficacy Scale and caregiver health status?
6. Does a significant association exist among overall duration of care and temperament type as determined by the Keirsey Temperament Indicator II, self-efficacy scores as determined by “Total Scale Scores” on the Caregiving Self-Efficacy Scale, and relationship to care receiver?

Delimitations

1. Participants, aged 18 and older, were volunteers from caregiver support organizations serving the North Central Florida geographical area.
2. Data were collected in calendar years 2005-2006.
3. The Keirsey Temperament Indicator II was used to determine temperament type of participants as caregivers.

4. The Caregiving Self-Efficacy Scale was used to determine perceived self-efficacy of participants as caregivers.
5. The Caregiver Information Profile was used to obtain demographic information about participants as caregivers.
6. Participants had served in a caregiving role for at least one month for someone with a chronic or terminal illness as defined in this study.

Limitations

1. Volunteers who participated in the study may not represent all members of the organizations involved in the study.
2. Data collected during calendar years 2005-2006 may differ from data collected during other time periods.
3. The Keirsey Temperament Indicator II may not address all aspects of temperament among participants as caregivers.
4. The Caregiving Self-Efficacy Scale may not determine all aspects of perceived self-efficacy of participants as caregivers.
5. Demographic information obtained by the Caregiver Information Profile may not capture all pertinent information about participants as caregivers.
6. The experiences of individuals serving as caregivers for different time frames or durations, or for different types of illnesses, may differ from the experiences of participants in this study.

Assumptions

1. Volunteers who agreed to participate in the study were considered adequate to represent the membership of their respective organizations.
2. Data collected during calendar years 2005-2006 were considered adequate for the purpose of the study.
3. The Keirsey Temperament Indicator II was considered adequate to address temperament type among participants as caregivers.
4. The Caregiving Self-Efficacy Scale was considered adequate to determine perceived self-efficacy of participants as caregivers.
5. Demographic information obtained by the Caregiver Information Profile was considered adequate to describe study participants as caregivers.
6. Individuals serving in a caregiving role for at least one month for someone with a chronic or terminal illness as defined in the study were considered adequate as participants for the purpose of the study.

Definition of Terms

Activities of Daily Living (ADLs). Emotional, spiritual, and medical needs provided by a caregiver to a care receiver such as bathing and assistance with eating (Arno et al., 1999).

“Artisans.” A temperament type under the Keirsey Indicators, Artisans are concrete in communicating and utilitarian (practical) in implementing goals, and they can be highly skilled in tactics, and finding multiple solutions to a problem. Artisans are gifted with tools, such as language, a computer, thoughts or a paint brush (Artisans: Keirsey.com, 1996, para. 1; Understanding the Four Temperament Patterns: The why, 2001, para , 7).

Care receiver. An individual who receives care from an informal caregiver.

Formal caregivers. Individuals in a health profession, such as primary physicians, specialists, nurses, therapists, and counselors, who provide care for an individual in a formal care setting such as a hospital, private practice, or medical facility.

“Guardians.” A temperament type under the Keirsey Indicators. Guardians are concrete in communicating and cooperative in implementing goals, and they can be highly skilled in logistics (Heineman, 1995, para 23; Understanding the four temperament patterns, 2001, para 7).

“Idealists.” A temperament type under the Keirsey Indicators. Idealists are abstract in communicating and cooperative in implementing goals, and they can be highly skilled in diplomatic integration (Heineman, 1995, para 21; Different drums: Kiersey.com, 1998, para. 10).

Informal caregiver. An individual voluntarily caring for another person (care receiver) including friends or relatives. The individual needing care experiences health problems or disabilities, and needs assistance with grocery shopping, bathing, eating, and dressing. Informal caregiving includes care provided by spouses, children, other family members, and friends in a home or other informal setting.

Instrumental activity of daily living (IADLs). Tasks performed by a caregiver for a care receiver such as helping with finances and helping to prepare meals (Arno et al., 1999).

“Rationals.” A temperament type under the Keirsey Indicators, Rationals are abstract in communicating and utilitarian in implementing goals, and they can be highly skilled in strategic analysis (Heineman, 1995, para. 20; Understanding the four temperament patterns: The why, 2001, para , 7).

Self-efficacy. A component or construct of several health behavior and health education theories that addresses individuals’ personal beliefs that they can perform a specific behavior or action, or that they can overcome temptations, barriers, or negative behaviors created by others in their environment (Steffen et al., 2002).

Social support. The process of seeking or receiving emotional, instrumental, medical, or monetary provisions to increase an individual’s self-esteem or efficacy. Social support can be formal, as in support from health care providers, or informal as from family and friends.

Temperament. The emotional disposition of an individual which, in turn, directs personality and choices in terms of behavior (Heineman, 1995, para 20; Understanding the four temperament patterns: The why, 2001, para. 7).

Summary

As the U.S. population continues to age, more individuals are becoming informal caregivers for family members and friends with chronic and terminal illnesses. Much of the expenses that caregivers incur are out-of-pocket. Caregiver stress causes individuals to neglect their own health, potentially creating more serious health problems for the future. While all caregivers encounter stress, individuals respond differently to the initial experience and to the experience over time. To date few studies have explored the relationships existing among

temperament, self-efficacy, and caregiving. This study examined those relationships among individuals serving as informal caregivers in the northeast Florida geographical area.

CHAPTER 2 REVIEW OF THE LITERATURE

This study explored relationships among temperament, self-efficacy, and caregiving among individuals serving as informal caregivers in the northeast Florida geographical area. This chapter presents a review of literature related to these topics, factors that influence individuals serving in the informal caregiver role, research that defines and describes each temperament type, and research that examines self-efficacy in relation to disease as applied to formal and informal caregivers.

Informal Caregivers and Factors Affecting Their Roles

Informal Caregiving

Informal caregiving refers to care provided by family and friends and represents a part of our nation's multiple medical solutions and problems. Most individuals who become informal caregivers assume the role due to a traumatic event, catastrophic illness, progressive chronic illness (e.g., Alzheimer's Disease), or death of one parent where the surviving parent needs care.

Caregiving situations vary because of family dynamics (i.e., younger versus older caregivers), disease diagnosed (i.e., heart disease versus Alzheimer's Disease), time spent in the caregiving role, and intensity of care required. For example, intensity of caregiving varies from driving the care receiver to physician appointments to changing a catheter bag. Apart from the primary caregiver, caregiving often involves a circle of extended family or friends, who may first notice subtle changes in the person needing care. Caregiver distress often results from erratic behavior of care receivers rather than the disease itself (Hebert, Levesque, Vezina, Lavoie, Ducharme, Gendron, Preville, Voyer, & Dubois, 2003; Small, McDonnell, Brooks, & Papadopoulos, 2002; Gottlieb & Rooney, 2004; K. Meneskie, Personal Communication via e-mail, February 18, 2005; D. Rimkunas, Personal Communication via email, February 25, 2005).

For example, subtle changes in someone with early onset of Alzheimer's Disease may include intact long-term memory but poor short-term memory, confusion, fear, and anger at loved ones.

Emotional, spiritual, and medical needs, assistance with activities of daily living (bathing, dressing, transferring in and out of bed, assistance with eating) and instrumental activities of daily living (assistance with finances, preparing meals, housekeeping, laundry) increasingly are met by family and friends, including assistance by minor children, adolescents, and young adults who may live in the home with the care receiver. Although difficult to assess, the monetary value of services provided by these caregivers is substantial. Researchers predict that the value of family caregiving will exceed that of nursing home care by a 2:1 margin in the new millennium (Arno et al., 1999; University of Texas, School of Nursing at Houston, Center on Aging, 2005; D. Gatsche, personal communication, September 22, 2004; E. Cairns, personal communication, September 22, 2004).

Changes in the Caregiver Role

While advances in health and medical care have increased the lifespan for adult citizens, financial provisions for the elderly have not advanced at the same pace. When the Medicare system took effect in the 1960s, medical costs were projected and established for those aged 50 and older. However, costs and provisions to assist those living into their 80s and beyond did not fit into the long-term vision for the original system. The current health care system does not meet the needs of elderly individuals who suffer from chronic and terminal illnesses (Arno et al., 1999).

Nationwide, as the population ages, informal caregiving represents an essential asset. More than 75 million baby boomers will be age 65 and older in the 21st century with the fastest growing segment of the elderly population, those aged 80 and older, increasing from 122,000 at the beginning of the 20th Century to more than 4.3 million in 2000 (Adler, 2002; Partnership for

Solutions, 2002; American Association for Geriatric Psychiatry: Health care professionals, 2004, para. 1). In 1995, Florida's population of elderly of those age 65 and older made up 19% of the total population – the largest proportion of any state – and the percentage of this population was projected to increase to 26% of the total population by 2025. Therefore, Florida is a focus of future concern for the state's health care system (Goulding, Rogers, & Smith, 2003).

Currently, between 40% and 80% of caregivers live with the care receiver. Almost half of caregivers serve in that role for at least five years, with eight years as the average time spent in caregiving because the progression of the care receiver's illness often is slow. The elderly population, those aged 65 and older, numbered 35 million in 2000, or approximately 12.4% of the U.S. population. The same population group is expected to increase by more than 20% by 2030, with about 70 million individuals aged 65 and older who will be alive in the U.S. by 2030 (Goulding et al., 2003; National Family Caregivers Association: Caregiving Statistics, 2000, para. 1; U.S. Department of Health & Human Services, Administration on Aging, 2001; National Family Caregivers Association: Family Caregivers and Caregiving Families – 2001, 2001, pg. 4, para. 2).

According to the National Family Caregivers Association (George & Kansas, 2001, para. 7), approximately 54 million Americans, or about 27% of the total population, were involved in family caregiving in 1999, but less than 19% of caregivers felt they had received adequate training to deal with the new role (National Family Caregivers Association, Family Caregivers and Caregiving Families, 2001, pg. 12, para. 1). Because women's status in the home and workplace has changed during the past 50 years, the impact of caregiving disproportionately affects women's roles and duties. While 35% to 40% of men age 40 and older actively participate in caregiving, women most often fill the role of primary caregiver. Approximately

70% of primary caregivers are women aged 60 or older, and 33% of female caregivers aged 36 to 50 are raising minor children while caring for an elderly parent or family member (National Family Caregivers Association, Caregivers Association, Family Caregivers and Caregiving families, 2001, pg. 4, para. 4; National Family Caregivers Association, Education and Resources, Yes, I am a Family Caregiver, Caregiver Resource, 2002, para. 7).

The number of individuals with chronic conditions also continues to increase. In 2000, approximately 50 million individuals with terminal or chronic illnesses received some type of care from a family member or friend. By 2030, an estimated 150 million people, or 48% of the population, will be living with a chronic condition (U.S. Department of Health & Human Services, Administration on Aging, 2001; Partnership for Solutions, 2002). Of individuals aged 65 and older, 80% will have at least one chronic illness, and 50% will have two or more (Goulding, et al., 2003). Currently, about 20% of individuals in the U.S. have multiple chronic illnesses. Most of the emotional and financial burden of caring for the chronically ill falls outside the health care system. The chronically ill, who often need long-term care, may receive mixed advice about medications, treatments, and health care regimens from formal caregivers (physicians, nurses), thereby increasing the cost of managing their illness and increasing the stress on informal caregivers (Partnerships for Solutions, 2002).

Early in the caregiver role, depending on the type (chronic versus terminal) and duration of disease or illness, caregiver responsibilities can be overwhelming. When a care receiver has been diagnosed with cancer, researchers report that the months immediately following an initial hospitalization for surgery or treatment prove the most difficult. However, caregivers for those with dementia or Alzheimer's Disease report that stress increases as the disease progresses (Weitzner, Jacobsen, Wagner, Friedland, & Cox, 1999; Alzheimer's Caregiver Support Online,

2002, para. 6). In a 1997 study of caregivers, 37% reported they received no paid assistance, 35% of caregivers indicated they did not find enough time for themselves, and 29% needed assistance in managing physical or emotional stress (Wagner, 1997; National Alliance for Caregiving & AARP, 2004, pg. 18, para. 1).

On average, 41% of caregiving duties require “constant care,” which means at least eight hours of daily full-time care. Family caregivers often experience depressive symptoms, characterized by anxiety, which is usually accompanied by a decrease in caregiver healthy eating and exercise habits. The National Family Caregiver Association (2001) reports a decline in healthy eating behavior from 70% to 59%, and a decline in regular exercise from 61% to 30%, from before becoming a caregiver to after becoming a caregiver. Caregivers also reported a decline from 70% to 47% in consulting a physician about their own health (National Family Caregivers Association, Who are family caregivers?, 2001, para. 5). Caregiver quality of life can be as bad as, or worse than, that experienced by the care receiver, especially when the caregiver also experiences chronic or terminal illness. Caregivers may experience an increase in emotional and financial difficulties as the disease or illness of the care receiver progresses. Many caregivers are forced to decrease their workload or quit work entirely to manage caregiver responsibilities (Weitzner, et al., 1999).

Medical Costs of Caregiving

Society generally underestimates and under-appreciates the value of caregiver time, lost wages, and medical costs for their own medical needs. As an example of government attempts to address this need, the Clinton Administration proposed a \$6 billion package for long-term care solutions of chronically ill patients and their families.

The U.S. spends more than any other country on the health care of individuals 65 and older (\$12,100 per person). Currently, health care by informal caregivers represents an estimated \$196

billion (approximately 18%) of total national health care spending, currently at about \$1 trillion. However, informal caregiving is not calculated in the national health care budget. Caregiver financial burden increases as the disease/illness progresses and as caregiver demands increase (Goulding et al., 2003; Chou, 2000; Yun, Rhee, Kang, Lee, Bang, Lee, Kim, Kim, Shin, & Hong, 2004; Arno, et al., 1999).

Florida has traditionally been known as a state with a large elderly population. Many elderly people retire to the state, thus requiring medical care and attention for end-of-life years. Florida ranks fourth in the nation for number of informal caregivers (more than 1.6 million), fourth for annual informal caregiver hours per billion (1.7), and fourth for annual dollar value of informal caregiver hours (about \$15 billion). California (first), Texas (second) and New York (third) are ranked above Florida in all three categories (National Family Caregivers Association and the Albert Einstein College of Medicine, 2002).

Costs of medication and treatment for the chronically ill are often paid out-of-pocket. Expenses are absorbed by family members or friends who eventually become informal caregivers. These unexpected expenses can become part of the total caregiving burden (Scholte op Reimer, de Haan, Rijnders, Limburg, & van den Bos, 1998). Out-of-pocket expenses multiply incrementally with the number of chronic conditions, such as \$130 per year for prescription drugs for one chronic condition versus \$930 annually for five or more conditions (Partnership for Solutions, 2002). Some national estimates of the value of annual home care services provided by caregivers are close to \$200 billion (National Family Caregivers Association, *Who are family caregivers?*, 2004, pg. 2, para. 4).

Caregiving affects the U.S. health care system and caregivers' personal health. Caregivers with chronic illnesses report higher levels of stress and have a 63% higher mortality rate than

same-age counterparts who are not caregivers (Schultz & Beach, 1999). Individuals who provide care in excess of 30 hours a week experience more symptoms of stress and anxiety. Two studies reported that intensity and difficulty of care required by cancer and dementia patients dictates the number of weekly hours and amount of out-of-pocket medical and other costs provided by family to the sick individual (Hayman, Langa, Kabeto, Katz, DeMonner, Chernew, Slavin, & Fendrick, 2001; Langa, Chewnew, Kabeto, Herzog, Ofstedal, Willis, Wallace, Mucha, Straus, & Fendrick, 2001).

Alzheimer's Disease is probably the most expensive long-term disease to treat, with current annual expenses estimated as high as \$29.1 billion, and with approximately 50% of those with Alzheimer's Disease or dementia living at home (Small, et al., 2002; Hebert, et al., 2003). In addition to Alzheimer's Disease, other forms of dementia, such as those associated with stroke and Parkinson's disease will create a greater need and increased stress among informal caregivers (Vitaliano, Zhang, & Scanlan, 2003). Caregivers for those with Alzheimer's Disease miss about five days of work during a six-month period and average about 85 hours of care each week (85 ± 60.2). Caregivers for those with more severe symptoms miss correspondingly more work. Researchers in this study found that intervention (home health care assistance) and its costs depend on stage of the disease and other factors such as when interventions are implemented (Small et al., 2002, p. 323).

Within the past few years, researchers have assessed benefits and costs of informal caregiving. Results showed that as time spent in the informal caregiver role increased, the "marginal benefits" decreased and the "marginal costs" increased. When asked what type of assistance they would most appreciate, most caregivers indicated that they needed assistance with housework (Smith & Wright, 1994; van den Berg, Brouwer, Exel, Koopmanschap, 2004).

Lost income of caregivers, out-of-pocket expenses, and additional health care costs figure into estimating total costs of informal caregiving for someone with dementia (Moore, Zhu, & Clipp, 2001). Researchers calculated the total annual costs of informal care for dementia patients coming from lost wages of caregivers at \$10,709 and the cost of caregiver time at \$6,295. These calculations included assistance with all types of services (i.e., Activities of Daily Living and Instrumental Activities of Daily Living) provided to care receivers (Moore, et al., 2001).

A study of Korean caregivers caring for those with cancer, showed that caregivers' quality of life decreased incrementally with the amount of family savings that were depleted, which included loss of a job or other source of income ($p < 0.0001$) (Yun et al., 2004).

In a study based in Arkansas that explored easing caregiver burden, nursing home placement, and caregiver-care recipient relationships, researchers found that caregivers in the treatment group, who were paid by the researchers to participate in the study, seemed to be less stressed and reported better physical and emotional health than those who were not paid (Foster, Brown, Phillips, & Carlson, 2005).

Health Risks of Caregiving

Many factors influence the health behavior and health status of caregivers, including the type and severity of the care receiver's illness and the physical and mental restrictions of both caregiver and care receiver. About one-third of caregivers of an elderly individual will suffer some physical or emotional distress, more than 10% will have some mental or health problems, and many will also experience chronic fatigue (National Alliance for Caregiving & AARP, 2004; Foster et al., 2005; Teel & Press, 1999).

Caregiver wives report higher levels of depression and lower levels of self-esteem than caregiver daughters or daughters-in-law (Collins & Jones, 1997; Pinquart & Sorensen, 2005). Rates of depression among caregiver women range from 28% to 55% versus 14% to 16% among

the general population of women. While male and female caregivers differ in their coping mechanisms, caregiver wives are usually more emotionally involved than caregiver husbands. As time progresses, women develop and adopt more “problem-solving coping strategies similar to those used by husband caregivers” (Wright, 1997, p. 272). Coping strategies in the caregiver role include drawing on a network of individuals for social support and using different methods and sources to learn more about the disease or disorder. However, during the course of a chronic disease, available social support can decline over time (Glanz, Reimer, & Lewis, 2002).

Compared to depressed individuals in the general population, most caregivers report fewer visits to physicians and other health care professionals, greater use of psychotropic medications for anxiety, use of alcohol and tobacco as coping mechanisms, and eating and exercising less after assuming the caregiver role (Collins & Jones, 1997; Wright, 1997). Even when a caregiver had previously discussed his or her mental health concerns before the care recipient’s diagnosis, less than half (46%) were willing to use mental health services and, as stated above, used more drugs (Vanderweker, Laff, Kadan-Lottick, McColl, & Prigerson, 2005). However, some caregivers increase the number of self-visits to a physician, and increase the amount of drugs used, perhaps to restore a balance in healthy sleeping, and decrease exercise and leisure time (Wright, 1997).

Placement of the care receiver in a caregiving facility, such as a nursing home, may precede a significant decline in both the care receiver’s and the caregiver’s health. The decline can include lack of sleep and improper rest. Caregivers with more health problems are more likely to serve less time in the caregiving role. The study also found that individuals caring for those with a form of dementia (i.e., Alzheimer’s Disease) are at greater risk of declining health (Scharlach, Midanik, Runkle, & Soghikian, 1997).

The progression of symptoms and overall decline in health of the care receiver may leave caregivers feeling helpless and confused, especially when the caregiver's own health begins to decline, and as work and other family obligations increase (Scharlack, et al., 1997; K. Mladinich, personal communication, August 25, 2004).

Once a caregiver is placed in assisted living, spousal caregivers continue to function in a caregiver role by visiting the spouse almost daily. Not surprisingly, the health of spousal caregivers can continue to decline even after their significant other enters a care facility because this population of caregivers tend to be older than age 65 (Wright, 1997). Most care recipients with dementia are institutionalized, on average, from two to six years after diagnosis (Mausbach, Coon, Depp, Rabinowitz, Wilson, Arias, Kraemer, Thompson, Lane, Gallagher-Thompson, 2004). However, most studies on caregivers and care recipients with dementia focus on the Caucasian population. This observation about the literature on caregivers is relevant because many Caucasian caregivers and care receivers have access to better health care, and a different type of support system than Hispanic or African American caregivers. Minority caregivers tend to keep family members in the home longer even though the care recipient may have more debilitating illnesses. Therefore, other studies should focus on a culturally diverse population to assist with needs and demands of caregivers helping with those with dementia.

Relationship between caregiver health and level of caregiving.

Other studies show that individuals providing moderate to high levels of caregiving, when compared to non-caregivers, are less likely to maintain adequate health behaviors or use preventive services, such as remembering physician's appointments, getting prescriptions refilled, and getting adequate rest (Burton, Newsom, Schultz, Hirsch, & German, 1997).

Those providing a high level of care reported not getting enough sleep (24%), not getting enough exercise (29%), and not resting adequately when sick (14%) were all significant at the

$p < .0001$ level. Those providing higher levels of care also were more likely to forget to take medications (19%, $p < .001$) and less likely to make medical appointments (7%, $p < .05$). The relationship between perceived sense of control and personal preventive health behaviors was significant at all levels of caregiving and at both levels for sense of control under variables such as “not getting enough rest” ($P < 0.0001$) (Burton, et. al., 1997). For the population in this study, confidence, which is defined as sense of control, in the caregiver role seems to influence health behaviors for the caregiver – when a caregiver’s feelings more powerless, their personal care decreases.

Even if care receivers have insurance that provides long-term care, studies confirm that approximately 50% of caregivers show no change in the care they provide, indicating that even with formal caregiving options, the informal caregiver continues to provide essential assistance to the care receiver. Essential assistance included daily visits to the care receiver, feeding, bathing, dressing, and providing prescription medications. These out-of-pocket expenses are part of the overall caregiver burden and contribute to caregiver stress (Cohen, Miller, & Weinrobe, 2001).

A five-year study assessing transitions in caregiver roles found that about 50% experienced some type of change, including the death of a spouse or a spouse being placed in a long-term facility (Burton, Zdaniuk, Schulz, Jackson, & Hirsch, 2003). Individuals who changed from non-caregiver status to heavy caregiver status involving meeting the most basic physical functions showed more depressive symptoms and were more likely to exhibit unhealthy behaviors (5.59 vs. 6.94, $p < .01$) (Burton, et al., 2003).

Schultz and Beach (1999) explored the association between caregiving and mortality in sub-groups of caregivers “physiologically compromised and exposed to varying levels of

caregiving strain” (p. 2216). After four years of follow-up, deaths among those providing care and those who had reported physical strain (31 of 179, 17.3%) were significant ($p < .025$).

When assessing stress levels pre- and post-bereavement among caregivers, those in the control group (non-caregivers) recorded higher post-bereavement rates of depression. Depression remained unchanged for caregivers with high levels of strain during the caregiver role. African-American caregivers had significantly lower depression symptom scores than Whites at both pre-bereavement and post-bereavement (Schultz, Beach, Lind, Martire, Hirsch, Jackson, & Burton, 2001).

Another study ($N=52$) measured socio-demographic, physical, and psychosocial characteristics of family caregivers for stroke survivors including satisfaction with health care resources, social support, activities of daily living, and instrumental activities for daily living (Grant, Weaver, Elliott, Bartolucci, & Giger, 2004). The study found Caucasians at about four times higher risk for depression compared to their minority counterparts (i.e., African American and Hispanic individuals). Results suggest that caregivers who experience a decrease in their “sense of belonging with others” may be at higher risk of distress in the weeks after the care receiver returns home from a hospital stay from stroke-related complications (Grant et al., 2004).

In a study exploring predisposing, enabling, and need components of caregivers’ use of care services, caregivers aged 65 years or older showed higher depressive symptoms and used more formal services, such as in-home care services than younger caregivers (Bookwala, Zdaniuk, Burton, Lind, Jackson, Schulz, 2004). Perceived sense of mastery of formal services related positively to self-efficacy among caregivers (Bookwala et al., 2004).

With chronic illnesses, such as heart disease or heart failure, caregiver quality of life may be compromised. Caregivers, and care receivers with heart failure, reported their overall quality

of life, measured as “sense of well being.” Care receivers rated their quality of life lower than their caregivers prior to being hospitalized ($p=0.035$) (Luttik, Jaarsma, Veeger, & van Veldhuisen, 2005). Caregiver quality of life was seen as fairly stable during the course of the study, while care receiver quality of life fluctuated with the decline of health and their subsequent stabilization.

Care receivers with cancer/terminal illness.

Losing a family member to a terminal illness is a stressful life event, but if an individual is a caregiver of the terminally ill family member, the time leading up to the loss can be an added stressor as well. End of life issues and experiences may involve hospital care and Hospice care (Haley, LaMonde, Han, Burton, & Schonwetter, 2003).

Caregiver distress was examined as it related to amount of time spent assisting advanced cancer patients (those estimated to have less than six months of life remaining). Caregivers with less than a high school education reported significantly more depression, more tension, and more total mood disturbances. In general, caregivers of cancer patients experience more physically debilitating symptoms in addition to depression (Cameron et al., 2002).

Caregivers of patients with terminal illness were recruited for a study on bereavement (Ferrario, Cardillo, Vicario, Balzarini, & Zotti, 2004). Caregivers who were asked to complete an instrument with scales that measured caregiver strain, cognitive function, and life satisfaction, were assessed at three, six and 12 months after the death of their loved one. Results showed that caregivers who perceived more “emotional burden” were more likely to indicate less satisfaction with life overall. Satisfaction with life decreased significantly from three months to 12 months ($P=0.001$). The relationship the caregiver had with the spouse was also a predictor of “bereavement maladjustment after 12 months” ($P\leq 0.001$) (Ferrario et al., 2004) – if the

caregiver reported a more positive relationship with their spouse, they tended to report higher levels of life satisfaction post-bereavement.

In another study, caregivers were recruited to assess the impact for caregiving of a terminally ill individual who recently had died (Brazil, Bedard, Willison, & Hode, 2003). Caregivers were asked to identify ADLs and how long they had provided assistance for specific tasks. Most of the caregivers in this study were female, the spouse of the patient, lived in the home with the care receiver, and did not work outside the home. The number of visits to a general practitioner and caregiver age were significant determinants of high caregiver burden ($p=0.043$).

Caregivers tending to terminally ill individuals, especially those in palliative care or hospice care, experience different levels of distress and seek different levels of support. In palliative care, caregivers anticipate the death of their loved ones. When caregivers were presented with a support intervention (i.e., learning how to cope and exchanging information with others and in seeking formal or informal support), caregivers who were employed full-time were less likely to accept the support intervention ($P=0.006$) (Harding, Higginson, Leam, Donaldson, Pearce, George, Robinson, & Taylor, 2003).

Spousal caregivers of patients with end-stage lung cancer and dementia (diagnosed with less than six months of life remaining) were interviewed to assess daily duration of care, total time in the caregiving role, caregiver self-reported health, self-reported (perceived) benefits of caregiving, and level of care receiver impairment (i.e., abilities to perform ADLs and IADLs) (Haley et al., 2003). The only variable that was significantly associated with caregiver depression was behavioral problems of the care receiver ($p<0.05$). No other variables, including

patient diagnosis and hours of care each week, were significantly associated with caregiver stress.

Caregivers for patients diagnosed with metastatic breast cancer were assessed for financial burden for palliative and other treatment (Grunfeld, Coyle, Whelan, Clinch, Reyno, Earle, Willan, Viola, Coristine, Janz, Glossop, 2004). Caregivers who were depressed at the start of the “terminal” period, as defined in this study, were equally as depressed at the start of the palliative period ($p=0.02$). The amount of money spent on prescription drugs was the best indicator of financial burden among caregivers, especially those without additional health insurance coverage ($p=0.04$) (Grunfeld et al., 2004).

Similarly, researchers studied caregiving during the terminal phase of illness for the care receiver (Brazil, et al., 2002). The last three months of life proved to be the most critical due to the need for increased patient care and an increase in the need for outside services, such as nursing care assistance. Caregiver burden was attributed to the impact “caregiving has on the personal health of caregivers and on the extent to which caregiving interrupts the usual activities of the caregiver” (Brazil et al., 2002, p. 381).

Among caregivers with partners who were cancer patients, the impact of caregiving on disrupted schedules and caregiver self-esteem decreased in the six months following the care receiver’s discharge from a healthcare facility. As the care receiver’s health improved, so did the health of the caregiver (Nijboer, Tempelaar, Sanderman, Triemstra, Spruijt, van den Bos, 1998).

Care receivers with mental illness.

Those caring for individuals with any kind of mental illness may carry the stigma of their loved one and experience difficult care management, which include factors such as caring for an older individual with mental illness and living in the home with the care receiver (Groff, Burns, Swanson, Swartz, Wagner, & Tompson, 2004).

Caregivers of care recipients diagnosed with schizophrenia were assessed for stress and stress-related symptoms. Interviews were provided at baseline, then four, eight and twelve months after baseline. Unlike most caregiver studies, almost half (41%) of the caregivers were male and 63% were Black. Results of the study indicate that those who lived with the care recipient were more likely to have higher self-reported levels of strain ($p < 0.001$), and the more days the care receiver spent in outpatient care, the less strain on the caregiver (Groff et al., 2004).

Care receivers with dementia

Well-documented studies of caring for someone with dementia have shown that the caregiver is at greater risk of having a psychological disorder than those in other caregiving roles and in the same age-group population (McConaghy & Caltabiano, 2005; Covinsky, Newcomer, Fox, Wood, Sands, Dane, & Yaffe, 2003). Dementia is a debilitating disease with an often long-term progression. While care receivers may be physically capable, their mental health deteriorates gradually. Acknowledging the risks to caregivers of dementia patients is important for clinicians and formal caregivers because mental and physical debilitation is complex and affected by many factors (De Frias, Tuokko, Rosenberg, 2005; Covinsky et al., 2003).

Caregiver wives of Alzheimer's Disease patients showed lower overall morale than caregiver husbands (Collins & Jones, 1997; Wright, 1997; Eisdorfer, Czaja, Loewenstein, Rubert, Arguelles, Mitrani, Szapocznik, 2003). In general, caregivers of those with any form of dementia (i.e., Alzheimer's Disease) are more likely than non-caregivers to experience higher levels of depression, anxiety, and poorer health (Mausbach et al., 2004).

Caregivers and care receivers who had been diagnosed with dementia were assessed for health in the "paired relationship." Caregivers who reported higher "caregiver burden" were more likely to be in poorer psychological health ($P < 0.05$) (McConaghy & Caltabiano, 2005).

In a longitudinal study of individuals caring for someone diagnosed with dementia, researchers examined the use of a physician by caregivers (Baumgarten, Battista, Infante-Rivard, Hanley, Becker, Bilker, & Gauthier, 1997). Caregivers need psychiatric assistance 10 times more often than non-caregivers ($p=.008$), but they did not necessarily seek physician care at a higher rate than non-caregivers.

Caregivers' self-reported health status and the relationship between caregiver and care receiver mental health, were assessed to compare demands on caring for older individuals with dementia (De Fries et al., 2005). Older caregivers had higher self-esteem and had more support from family members. Caregivers who were older, physically healthier, and who reported fewer health issues from being a caregiver, were more likely to report having poorer health if the care recipient was male ($p<0.05$) (De Fries, et al., 2005).

Few studies have assessed the characteristics of both caregivers and care receivers with dementia to predict depressive symptoms among the caregivers. Patient traits associated with caregiver depression include less education, being younger, being male, being Hispanic, and depending more on the caregiver for Activities of Daily Living (ADLs) ($P<.001$). Caregiver characteristics significantly associated with their depression include their relationship to the care receiver (significant for being a wife versus husband), hours spent caregiving each week, and caregiver health (Covinsky et al., 2003). Hispanic caregivers displayed higher rates of depression, possibly due to expectations of the caregiving role, denial about care receiver disease, and language barriers with formal care providers.

Wackerbarth and Johnson (2002) studied essential information and support needs of family caregivers for individuals with Alzheimer's Disease and dementia. Respondents reported a need for information: general information (i.e., how to plan), diagnosis and treatment information

(i.e., results of tests, help with treatment decisions), and legal information relating to financial issues (i.e., health plan coverage, legal terms). When compared to men, women used more emotion-focused coping strategies, which are associated with higher levels of negative health outcomes (Wackerbarth & Johnson, 2002). Also, female caregivers experienced more stress and poorer overall health than male caregivers (Nijboer, Triemstra, Tempelaar, Mulder, Sanderman, & van den Bos, 2000; Dilworth-Anderson, et al., 2004).

Degree of Support and Caregiver Distress

Caregiving and health risks

Biochemically and psychologically, caregiving produces a great deal of stress. One study determined that individuals under stress have lower antibody response to vaccinations and lower counts of “natural killer cell activities” (Davis, Weaver, Zamrini, Stevens, Kang., & Parker, 2004, p. 91). When looking at biochemical changes, specifically cortisol production in caregivers of individuals with Alzheimer’s Disease, significant differences occurred between those in a non-caregiving role compared to caregivers ($P=0.006$). Cortisol levels were determined through saliva samples in caregiver wives. Approximately 46% of total caregiver wives were taking psychotropic medications, but 80% of total caregiver wives said their overall health was “good” or “excellent” (Davis et al., 2004).

Caregiving especially can affect functioning of the immune response and heart rate reactivity, blood pressure levels, and mortality among some older spousal caregivers (Dilworth-Anderson, Goodwin, & Williams, 2004). In a meta-analysis that assessed stress hormones as a measure of physiological function in caregivers, researchers found that some hormones affect cardiac functioning (cortisol, epinephrine, norepinephrine), and others affect immune response (norepinephrine, prolactin) (Vitaliano et al., 2003). Therefore, the longer individuals are in the caregiving role, the longer they are exposed to stress hormones that affect cardiac and immune

function. Some studies have defined primary stressors as those associated with the health of the care recipient, while secondary stressors were associated with being a caregiver apart from the caregiving role (i.e., dealing with workplace situations and dealing with family members) (Amirkhanyan & Wolf, 2003).

With the growing number of individuals living well into their 80s and more individuals separated from their elderly family members, more older individuals are caring for those in their same age group or even older (Ekwall, Sivberg, & Hallberg, 2004). In a Swedish research study on older informal caregivers (age, $M=81.8$ years), researchers found that women who had higher levels of involvement in supervising care for another individual ($p<0.001$), and assisting with Instrumental Activities of Daily Living (IADLs) was positively associated with better quality of life for the older caregiver (Amirkhanya & Wolf, 2003).

Caregiving compromises one's mental and physical health, including depression, low self-esteem, and possible substance abuse, all of which can be indicators of potential frustration and possible care receiver abuse. In a study assessing potentially harmful behavior (Beach, Schultz, Williamson, Miller, Weiner, & Lance, 2005), informal caregivers and their care recipients were asked how often help was needed. For example, caregivers were asked how often they had to provide assistance with Activities of Daily Living (ADLs) or IADLs to the care recipient, and the care recipients were asked how often they asked for assistance for the same tasks (Beach et al., 2005). Care recipients who reported needing more ADL and IADL assistance and who were in poorer health were more likely to be the recipients of harmful behavior from the caregiver (i.e., yelling, insulting) (Beach et al., 2005).

Logsdon and Robinson (2000) suggested five essential characteristics of social support that may influence one's ability to effectively match recipient needs and expected support from

someone with whom the caregiver may share an intimate relationship. Negative support or nonsupport among women caring for those with dementia had a negative impact on caregiver health. Women cited “unmet expectations” for support as the “most pervasive difficulty” (Neufeld & Harrison, 2003, p. 327), and their responses were influenced by type of relationship between caregiver and helper. Negative support from family or friends included conflict between the caregiver and others in determining the health status of the care receiver and criticism of caregivers’ decisions in caring for care recipients.

Caregivers and family support

Family systems and family dynamics play an important role in determining caregiver emotional function (Mitrani, Feaster, McCabe, Czaja, & Szapocznik, 2005). Using the “structural family theory,” Hispanic and non-Hispanic caregivers (N=177) were assessed at three intervals after starting in the caregiver role (6, 12, and 18 months) based on consistent and repeated patterns of interactions within the family unit. Researchers tested items for an effective measure of family and caregiving. Cultural dynamics plays an important role in the Hispanic population, especially those involved in caregiving. Enmeshment, or the interference and boundary violations between family members, is an example of cultural dynamics assessed in this study. Hispanic family members often use enmeshment as a “protective factor,” so as not to deal with certain issues as a caregiver, such as stress levels and difficulty of care – it is assumed that Hispanic men and women will care for sick and elderly family members, regardless of their social or economic status (Mitrani et al., p. 452).

Caregiver employment status outside the home and informal caregiver burden were predictors of caregivers’ level of mental health (Cannuscio, Colditz, Rimm, Berkman, Jones, & Kawachi, 2004). The correlation was observed among women who do not work outside the home, who were caring for a spouse, and had high levels of stress. Similarly, the association

between women who do work and provide spousal care were also at high stress levels. Stress levels were not as high among caregivers of parents. The group with the highest risk for depression was women who provided more than 36 hours a week of care and who had few social ties (Canniscio et al., 2004).

One predictor of caregiver burden is the ease with which care recipients can follow and adhere to health care regimens. Perceived pressure in the caregiving role correlated with “more psychological distress” (Pott, Deeg, Van Dyck, & Jonker, 1998, p. 47). In a similar study on caregiver burden and how well care receivers gave attention to their own health care, a positive correlation was found between caregiver’s personal resources, self-esteem, general social support, and caregiver burden (Greenberger & Litwin, 2003). Studies assessing those individuals who cared for Alzheimer’s disease patients showed that, when outside support increased in dealing with patient problem behavior, negative reactions to the behavior by the caregiver decreased (Hebert, et al., 2003).

In a study of patient-caregiver groupings, with patients in advanced stages of cancer, researchers found that “elevated levels of anxiety in patients” were directly associated with “higher levels of anxiety in their caregivers” and that caregivers felt they were concerned for their mental health after the cancer diagnosis of the patient (Harding, Higginson, & Donaldson, 2003, p. 640; Vanderwerker, et al., 2005). This study showed a direct relationship between decline in informal caregiver psychological health and increased caregiver burden with patient pain and anxiety.

Cultural and Ethnic Factors in Caregiving

Research on caregivers has traditionally focused on White (Caucasian) individuals. Minorities in the United States experience at least twice the rate of chronic illness, including dementia, possibly due to the lack of adequate health care, financial resources, medical choices,

and information about their care (Neary & Mahoney, 2005). African Americans historically have extended the caregiving role to relatives and friends outside the immediate family to survive “generations of racial oppression and economic hardships” (Hamilton & Sandelowski, 2003, p. 665). Cultural rituals, religious experience, and traditions (i.e., normative experience) affect those in the caregiver role and those who require care (Koffman & Higginson, 2003; Roff, Burgio, Gitlin, Nichols, Chaplin, & Hardin, 2004).

When compared to their White counterparts, African Americans have a lower life expectancy and were more likely to be in poorer physical health (69.6 years for African Americans versus 76.4 years for Whites) (Kim, Bramlett, Wright, & Poon, 1998; Pinquart & Sorensen, 2005). Minority caregivers are also more likely to be younger, single, an adult child, a cousin, a grandchild, provide longer care time in the home, and be female (Pinquart & Sorensen, 2005; Neary & Mahoney, 2005).

When dealing with those in the caregiver role, Hispanics and African Americans demonstrate different health communication issues and barriers than Caucasians. Hispanics experience language barriers with those who are formal health care providers, lack of information about the illness/disease, and issues involving acculturation. Proficiency of caregivers in using the English language was significant if the elderly disabled person receiving care attempted to use formal health care services (Wright, 1997; Calderon-Rosado, Morrill, Chang, & Tennstedt, 2002; Neary & Mahoney, 2005).

Cultural socialization in African American communities helps them better deal with stressors in the caregiver role, as well as extended exposure to caregiving as children, teenagers, and eventually as adults. This socialization is more prevalent in the African American and Hispanic/Latino communities, thereby presenting a higher propensity for family involvement.

This socialization is less prevalent in Caucasian households because of different types of socialization and smaller family units (i.e., due to lower birth rates and higher divorce rates) (Dilworth-Anderson, et al., 2004; Pinquart & Sorensen, 2005; Ayalong, 2004).

Based on a study of Latina and Caucasian caregivers of individuals with Alzheimer's Disease, researchers found that Latina caregivers tend to be younger, less educated, had lower incomes, and provided more care on a daily basis than their Caucasian counterparts (Coon, Rubert, Solano, Mausbach, Kraemer, Arguelles, Haley, Thompson, Gallagher-Thompson, 2004). Using the Resources for Enhancing Alzheimer's Caregiver Health (REACH program), Latina caregivers reported having more positive experiences and participating in more prayer and religious activity than their Caucasian counterparts ($p < .001$), even though the care recipient seemed to have more behavior problems and had more impairments.

In a study using REACH data with a similar Latino population and length in the caregiver role, ethnicity was assessed as a possible factor to determine time to institutionalization (Mausbach et al., 2004). Latina women have "more days of survival" in the caregiver role than Caucasians, from time of diagnosis to institutionalization, but Latinas who viewed caregiving as less positive did not feel as confident in their role compared to other Latina women who felt more confident as caregivers ($P = .044$) (Mausbach et al., 2004, p. 1080).

How an individual is socialized to view caregiving represents another important factor when studying race and ethnicity among caregivers (Roff et al., 2004). Research on the resources for REACH program assessed differences in positive attitudes in the caregiver role and what contributed to these positive experiences among African Americans and Caucasians. As predicted, African American caregivers reported more positive aspects as caregivers ($p < .001$),

were lower in SES, reported lower anxiety levels, and tended to be more religious than Caucasians (Roff et al., p. P188).

Studying cultural values and beliefs among informal caregivers, researchers found that no differences existed between African Americans and Whites in gender and education (Dilworth-Anderson, Brummett, Goodwin, Williams, Williams, & Siegler, 2005). However, African Americans were more likely to “adhere more strongly to cultural reasons for providing care,” and females in this group were more likely to adhere to providing care (Dilworth-Anderson, et al., 2005, p. S259). The researchers concluded that differences in cultural socialization within the African American community created strong beliefs, traditional values, and attitudes about caring for dependent family members. They also found that African Americans with a higher level of education were less likely to adhere to these traditional values. This finding suggests education and income may have a significant impact on caregivers in several ways. First, those with higher levels of education have better jobs with health insurance benefits and therefore have better access to health care benefits. Second, African Americans who have better jobs may also have the means to provide in-home care or assisted living care for older family members.

African American caregivers were less likely than Whites to place the older adult in a nursing home or similar facility, regardless of illness, although both groups experienced similar stressors in their caregiving roles (Stevens, Owen, Roth, Clay, Bartolucci, & Haley, 2004; Wolinsky, Callahan, Fitzgerald, & Johnson, 1992; Gaugler, Leach, Clay, & Newcomer, 2004). For those African American individuals who were placed in a nursing home with Alzheimer’s Disease or some form of dementia, contributing factors included being a caregiver of males, higher caregiver burden, and care receivers who were more “cognitively impaired” (Gaugler et al., 2004).

African American caregivers reported less stress in caring for an elder with dementia, although their White counterparts had higher family income and tended to be older ($M=72.2$ for Whites vs. $M=55.2$ for African Americans; $P < .0001$) (Stevens et al., 2004). Caregivers with higher income and who were older tended to place chronically ill family members in a nursing home at a higher rate. Therefore, literature on African American and Hispanic caregivers suggests it is important to evaluate and assess how they cope with stress effectively in specific situations.

African Americans recorded significantly lower mental health rating scores than Caucasians, and Caucasians were more likely to perceive their overall health as good or excellent compared to their African American counterparts (Kim, et al., 1998). When controlling for education level, this difference decreased dramatically for both groups. Age, gender, education, income, physical health status, and self-perceived level of health were significant predictors of health behavior. African Americans participated less in regular physical activity, but the researchers operationally defined physical activity as “playing tennis, jogging, and hiking;” not typical exercises for many ethnically diverse groups.

Age of African American caregivers also affected the degree of depression, with younger caregivers showing higher rates of depressive symptoms (Wright, Hickey, Buckwalter, Hendrix, & Kelechi, 1999). However, while caregivers usually decrease their daily exercise after assuming the caregiver role (Wright, 1997), it is important to present minority caregivers with exercise regimens pertinent to their culture and lifestyle.

Wallsten (2000) compared gender, race, and income as factors in caregiving based on a cross-sectional study. The average time spent caregiving was at 5.29 years; with mean income for African American caregivers at \$9,226 annually, and \$16,111 for Caucasian caregivers

annually. For health symptoms reported by caregivers, Caucasian females recorded the highest rate of health symptoms compared to African American females. African Americans and Caucasians reported equal numbers of individuals in their social support circles.

In a qualitative study of 28 African American men and women diagnosed with prostate and breast cancer, respectively, all individuals had participated in reciprocal “giving and receiving” relationships (Hamilton & Sandelowski, 2003, p. 656). Social support circles among African American families are considered “kinship systems.” The common ground for most African American individuals seemed to be seeking information and consolation through people in their church or immediate family community, and through religion in general. Most individuals participated in reciprocal relationships throughout their illness, increased their self-esteem and overall positive attitudes in dealing with their illness (p. 670).

Few studies have examined Asian caregivers. Researchers conducting a multiethnic study of family caregivers (African American, Asian Americans, Latino, and Anglo European-American) studied how ethnically diverse populations view dementia (i.e., in medical versus non-medical terms) (Hinton, Franz, Yeo, & Levkoff, 2005). The majority of caregivers described dementia to care receivers in both “biomedical and folk models.” Although most caregivers in this study used both models to describe dementia, a significant association was found between ethnicity, education, and model type. Implications of this study for a group of ethnically diverse caregivers include having formal care providers learn more about family dynamics and traditions in communicating with care receivers. “Folk model” explanations among caregivers dealing with care of those with dementia could hinder and influence treatment and medical decisions.

Picot's caregiver rewards scale (PCRS) assessed cross-cultural Chinese adult caregivers, who were born abroad but were currently living in the U.S. (Hseueh, Phillips, Cheng, & Pico, 2005). Caregivers in this study had lived in the U.S. for a mean of 19 years (range from two to 58 years). Most caregivers were women (70%) and had annual incomes that ranged from \$40,000 to \$149,000 (84%). Rewards in the caregiver role were the primary focus of the scale. Results showed that Chinese caregivers in the study felt that their role as caregivers achieved "personal growth, fulfilling payback and close bonds with family members" (Hseueh et al., 2005, p. 768). These findings are fairly consistent with similar studies among Chinese families and their caregivers.

Formal and non-formal (i.e., traditional) long-term health care preferences were assessed among a population of older Korean Americans who had sustained a hip fracture or suffered a stroke (Min, 2005). Care recipients in this study were older than 65 years. Factors used to assess health care preference included traditional family values, degree of acculturation, and "level of informal support" that incorporated Activities of Daily Living and Instrumental Activities of Daily Living (p. 373). Those who were married and had sustained a hip fracture, or who had previously sustained a hip fracture, were more likely to choose a mixed health care format (i.e., combination of formal and non-formal health care). For those who reported having strong traditional values and had suffered a stroke, individuals were not as likely (15%) to choose a mixed health care format. However, older individuals who had experienced a stroke were more likely to choose the all-formal health care option. Overall, individuals who were female, reported being in better health, and who had higher levels of education were more likely to choose a mixed health care format (Min, 2005).

In a qualitative study of Thai caregivers living in the U.S., several important aspects of caregiving emerged (Limpanichkul & Magilvy, 2004). Caregivers had a considerable degree of family support, which helped with emotional and financial well being. Social support from neighbors and friends also was prevalent among this group of caregivers. Coping strategies included strong religious beliefs (Buddhism) and participation in activities such as praying. Finally, a strong partnership with the care receiver was essential, and included “using humor and understanding the care recipient” (p. 22).

Two studies based in the United Kingdom assessed needs of informal caregivers among a South Asian population caring for those with dementia (Adamson & Donovan, 2005), and a South Asian and African/Caribbean population caring for those with a variety of disabilities (Katbamna, Ahmad, Bhakta, Baker, & Parker, 2004). One study used qualitative methods (Adamson & Donovan, 2005) and the other study used a combination of qualitative and quantitative methods. Both studies confirmed it is expected that adult sons and daughters, including daughters-in-law, will care for elderly family members.

When care recipients had a variety of disabilities (Katbamna et al., 2005), husbands of female caregivers were “rarely responsible for intimate forms of care” (p. 400), but did assist in tasks such as taking children to school or clinical appointments. Many female caregivers of children with disabilities stated that their husbands provided the only source of “emotional support” they needed for continuation of care. Most caregivers lived in an extended household environment, and many adults relied on younger children to interpret questions and concerns to formal health care providers because they spoke little or no English.

Many caregivers reported that caregiving skills were part of their lifestyle since childhood (Adamson & Donovan, 2005), and often described their current caregiving role as being natural

(p. 39). Again, lack of support from family members influenced the degree of satisfaction and stress among caregivers. Caregiver responsibilities were mandated according to what the study states as “hierarchy of caring responsibilities” (p. 45). Female married caregivers viewed their roles as an extension of their other marital roles.

In summary, it is important to assess multiple factors involved in caregiving. These factors include current health status of the caregiver, current health status of the care recipient, age of the caregiver, age of the care recipient, race/ethnicity of the caregiver, and type of disease or illness of the care recipient. The research shows minority caregivers (i.e., Latino/Hispanic and African Americans) have lower SES, have less quality access to health care, and care for individuals who present more severe symptoms, but they tend to institutionalize less, feel more positive and feel less depressed than their Caucasian counterparts. In the African American culture, caring for a family member is considered “normative” and therefore more engrained than in the Caucasian culture. For Latinos, the concept of “la familia,” which basically places family above the self, is a deterrent to institutionalizing family members sooner and motivation for continued care. For all cultural groups (i.e., African Americans, Latino, and Asians), it is important for formal care providers to acknowledge how individual groups and families frame the disease (biomedical versus folk models), which could potentially influence the well-being and care for the care recipient.

Temperament Type

Temperament, personality, and character are not only three distinct parts of an individual’s persona, but they work together in a manner that predisposes individuals to certain attitudes and actions. According to research in this area, temperament is described as a pre-disposing factor, and as Keirse states (1998), “our brain is a sort of computer with temperament for its hardware, and character as its software” (p. 20).

In general, the basic characteristics of personality include the manner in which an individual uses words and ideas (abstract versus concrete), and how we accomplish tasks (i.e., tools we use), which can be either cooperative versus utilitarian (Keirsey, 1998). Individuals who are cooperative in nature essentially follow the approved guidelines and procedures, while those following a more utilitarian path will use any method that can “promise success with minimum cost and effort” (Keirsey, 1998, p. 28).

The concept of distinguishing temperament dates back to ancient Greek and Roman times to Hippocrates (370 BC), Plato (340 BC), Aristotle (325 BC), and Galen (190 A.D.). Galen, a Roman physician, believed that the balance on our bodies is dependent in the balance of our four bodily fluids: Sanguine (lively, upbeat), Choleric (excitable, quick-tempered), Melancholic (worrisome, sad), and Phlegmatic (slow-moving, dejected). Plato categorized people similarly. Early philosophers focused on individual predispositions toward certain behaviors (Keirsey, 1998, p. 23). These four bodily fluids as described by Galen, and the four attributes an individual can “contribute to the social order” as described by Plato, are described by the four Keirsey temperament types (Keirsey, 1998).

Other researchers, such as Pavlov and Freud, in the field of personality and character, which is closely related to the field of psychiatry, focused more on stimuli and basic instincts of humans (Biological Aspects of Personality: PSY 230 Theories of Personality, 2000, para. 6; Keirsey, 1998, p. 20). In the 1920s, Carl Jung began to formulate the basis for the modern Temperament Theory. Jung stated that individuals have basic archetypes, which are derived from four psychological functions – thinking, feeling, sensation, and intuition (Jung, 1926). Temperament, which is consistent over time, relates to why people behave a certain way and the

motivations for their behavior (Keirsey, 1998, p. 26; *Understanding the Four Temperament Patterns*, 2000, para. 1).

During the 1940s, Katherine Cook Briggs and her daughter Isabel Briggs Myers created the Myers-Briggs Type Indicator, which extended Jung's theories and categorized different dimensions of temperament into discrete functions. The MBTI was specifically designed to identify 16 patterns that projected action and attitude (Keirsey, 1998, p. 3). The receiving functions include Sensing (S – using the five senses to focus on realism, details, and practicality) and Intuition (N – using insight beyond senses, creativity, and being future-oriented). Judgment functions involve evaluation of circumstances and include Thinking (T – evaluating situations through a cause and effect process and a more impersonal and objective outlook) and Feeling (F – focused more on personal values, humanism, harmony). How individuals deal with energy is described as either Extrovert (E – energy going into external objects in the environment, communicating easily, open to new experiences, and sociable) or Introvert (I – energy comes from environment, more solitary and private, and thinking before expressing feelings) (Calahan, 1996; Daley, 2000).

Myers and Briggs also examined “orientation” to the outside world through the characteristics of Judging (J – preferring more organized and decisive activities, close-ended) and Perceiving (P – information gathering continuing as long as possible, more spontaneous, open to new ideas and experiences) (Calahan, 1996; Daley, 2000). Myers and Briggs felt that the perceiving or judging preference revealed “a person's attitude or orientation to life” and aptly determined how individuals dealt with their external environment. Thus, temperament type (a predisposing factor) represents an important indicator of how caregivers will define and respond to their caregiving role. For example, a perceiving caregiver, identified as an “Idealist,” may

often look for meaning and significance in making a decision in a given situation. Idealists more likely will value the opinion of family members.

During the transition from childhood to adolescence, and into adulthood, individuals display what Jung called “dominant and auxiliary characteristics” (Daley, 2000, p. 21). With auxiliary characteristics or functions, an individual develops a balance between the internal and external worlds. This transition is important in caregiving because, for instance, a caregiver who is considered an “Introverted” temperament type may use both self-knowledge and knowledge from the Internet to make the best medical and quality-of-life decisions for the care receiver.

Psychologist David Keirsey (Keirsey & Bates, 1984; Keirsey, 1998) developed an instrument to determine individual temperament based on the work of Myers and Briggs. Each temperament has characteristics of the 16 patterns conceptualized by Myers and Briggs. The Keirsey Temperament Sorter was created based on the belief that temperament can be manifested from how an individual uses language and tools (i.e., computers), and that temperament is defined by “differentiation not integration” as Myers and Briggs proposed (Calahan, 1996).

Keirsey’s temperament types include Artisans (SP), Guardians (SJ), Idealists (NF), and Rationals (NT) (Daley, 2000). McCarley and Carskaden (1987) compared the Keirsey Temperament Sorter and the Myers-Briggs Type Indicator for validity and found both instruments comparable in construct validity (i.e., some types were low and some types were high).

The four “Artisan” types are ESTP (“Promoter”), ISTP (“Crafter”), ESFP (“Performer”), and ISFP (“Composer”) (Keirsey, 1998, p. 11). The four “Guardian” types are ESTJ (“Supervisor”), ISTJ (“Inspector”), ESFJ (“Provider”), and ISFJ (“Protector”) (Keirsey, 1998, p.

11). The four “Idealist” types are ENFJ (“Teacher”), INFJ (“Counselor”), ENFP (“Champion”), and INFP (“Healer”) (Keirsey, 1998, p. 12). The four “Rational” types are ENTJ (“Fieldmarshal”), INTJ (“Mastermind”), ENTP (“Inventor”), and INTP (“Architect”) (Keirsey, 1998, p. 12).

Artisans are “talented at using tools” such as language and computers, as well as being skilled and creative. In decision-making skills, Artisans tend to be the most impulsive of the four types and “trust their impulses without reserve” (Keirsey, 1998, p. 56).

Guardians are more rule-oriented, use more reasoning skills and are described as “stable, secure, and following protocol.” The best way to describe Guardians is as administrators; their “first instinct is to take charge and tell others what to do” (Keirsey, 1998, p. 84). Guardians feel responsible for the morality of those around them.

Rationals are more analytical, they “value expertise and seek progress” and are most likely to think more abstractly. The four Rational roles tend to be more strategic in nature, tend to remain calm, tend to seek knowledge, and most often trust their own reasoning. The most famous Rational was Albert Einstein (Keirsey, 1998, p. 161).

Idealists focus on “cooperative interactions” that deal with moral and ethical issues. Idealists are more diplomatic in nature, and are more adept at interpersonal communication skills (Understanding the Four Temperaments, 2000, para. 9). Idealists are the most abstract of the four temperaments, and tend to be inductive in their thought process, which signifies that they will take a “few particulars to sweeping generalities” (Keirsey, 1998, p. 121). Because Idealists usually process in the abstract, their thought and speech patterns tend to be interpretive, which means that certain comments are “how one thing is really something else” (Keirsey, 1998, p. 121).

Individuals display a predisposition or affinity for certain functions (Understanding the Four Temperaments, 2000, para. 1). As individuals progress through the life cycle, these predispositions become more evident in decision making and skill development. Refinement of one's preferences into adulthood can assist in helping make decisions about professions, family, health care, and children.

When individuals move into the caregiver role, they experience different stressors that cause a state of arousal, thereby setting the individual into a "coping" mode regarding that stressor (Morris, 2000). Temperament, an individual's propensity to act in a certain manner, when combined with confidence and determination, may predict how a caregiver will cope with, and respond to, stressors. Temperament is important among caregivers as a function of what motivates and drives decisions, interactions with others, and actions. In the caregiver role, decisions and actions regarding the care receiver and the caregiver, him or herself will affect the health and quality of life for both individuals and those in the immediate family. Therefore, it is important to determine the temperament of the caregiver to help assist in the facilitation of information flow, awareness, and communication between formal (medical staff) and informal caregivers.

Morris (2000) examined temperament types among students selected for dental school using the Keirsey Temperament Sorter II (N=299). Extroversion (84.3%) exceeded Introversion (15.7%) among dental school applicants. No significant proportional differences existed between male and female students. Most (94%) preferred judging over perceiving (6.4%). Feelings were preferred more by females than by males in the "mental function" category, and the comparison showed statistical significance. Findings for dental students were similar to results from studies involving medical students. Although this study did not focus on the role of

caregivers, it depicts the percentage of males and females who have different temperament traits – more women have the “feeling” trait. In addition, one research study suggested that some temperament types are more likely to engage in unhealthy behaviors and take more risks (Daley, 2000).

In a study that assessed caregiver characteristics inherent in temperament types, researchers showed that if caregivers displayed a higher propensity for depression during the first year of caregiving, there was a higher rate of patient admission to a nursing home. The number of activities of daily living provided by the caregiver, the caregiver’s age, and the caregiver’s health were used as indicating factors in the study (Yaffe, Fox, Newcomer, Sands, Lindquist, Dane, & Covinsky, 2002).

Hadley (2003) combined Bandura’s construct of self-efficacy and the Keirsey Temperament Indicator II, and applied both of these concepts to determine if they related directly to job performance. The Keirsey Temperament Indicator II and the Myers-Briggs Type Indicator usually are used to assess job performance standards in the workplace or in schools.

In summary, temperament is a predisposing factor that changes little throughout the lifetime, although certain aspects, such as decision-making skills, develop during adolescence and adulthood. Temperament is important in the caregiving role because it often defines one’s natural preferences (i.e., formal versus traditional health care). It is important for those in formal health care fields to understand how different temperaments process and communicate. Temperament types are found in all races, cultures and ethnicities’, therefore, this aspect can bring insight into how health educators, doctors, and other health care providers “get their point across” for optimum benefits and quality of life among caregiver and care receiver.

Self-Efficacy and Outcome Expectancies

Self-Efficacy, conceptualized by Albert Bandura, is a construct of the *Social Cognitive Theory*, which extends to the *Social Learning Theory* and helps to predict and understand behavior (Glanz, et al, 2002). Originally, Bandura applied *Social Cognitive Theory* to children's behavior in a laboratory setting. According to Bandura (1986), self-efficacy influences how we make choices, the motivation or effort put forth toward an action, how we accept or reject life changes, and how we feel about our choices, actions, and changes. Social relationships enhance feelings of self-worth, self-esteem, and a sense of well-being when individuals feel valued by meaningful others (Miller, Townsend, Carpenter, Montgomery, Stull, & Young, 2001).

Self-efficacy involves "one's capabilities to organize and execute the sources of action required to manage prospective situations" (Bandura, 1986, p. 5). Self-efficacy develops over time and is influenced by one's failures and achievements, influenced by significant others, by observing others, and by a person's emotional state while performing a behavior or taking an action. An important determinant of how self-efficacy develops involves "self-reflection," defined as the ability of individuals to "analyze their experiences, think about their own thought processes, and alter their thinking accordingly" (Brown, 1997, para. 21).

Four factors influence the development of self-efficacy: mastery experiences (balance of successes and failures in tasks), vicarious experiences (watching others similar to oneself perform and succeed in various behaviors), social persuasion (verbal persuasion about one's capabilities), and positive mood enhancement and stress reduction (increasing efficacy at reducing stressors in life-changing situations) (Bandura, 1994).

Self-Efficacy and Effect on Health and Disease

Researchers examined enhancement of support for health behavior change among postmenopausal women younger than 75, diagnosed with Type II diabetes, and who were at risk

for heart disease (Toobert, Strycker, Glasgow, Barrera, and Bagdade, 2002). Participants were randomly assigned to three groups: usual care (N=123), lay-led peer group (N=78), and computer-based support involving community resources (N=78). Measures included behavior changes (diet and eating habits), physiological changes (carotid artery intimal-media thickness), psychosocial changes (quality of life and depression), and process measures (perceived social support, perceived stress, obstacles, barriers) (p. 578). Participants attended retreats to assist them in preparing meals and eating healthier, to learn stress management techniques such as yoga, and to study exercise guidelines for their lifestyles. Support group leaders scheduled interventions during the follow-up period. Results indicated that those who had a follow-up intervention tended to respond more positively to the information and resources provided to them.

Conn, Burks, Pomeroy, Ulbrich, and Cochran (2003) studied older women (N=203) and the health benefits of exercise designed to reduce their risks for cardiovascular disease. Individuals with high self-efficacy maintained higher exercise expectations and continued their routines. Self-efficacy emerged as a strong indicator for primary care intervention. Exercise self-efficacy expectations had a direct significant effect on exercise behavior and on processes of change ($p < .0001$).

The Arthritis, Diet, and Activity Promotion Trial (ADAPT) tested self-efficacy for behavior change in lifestyles of overweight, non-active men and women with osteoarthritis (Miller, Rejeski, Williamson, Morgan, Sevick, Loeser, Ettinger, & Messier, 2003). This study was designed to “test the effect of diet and exercise on self-reported physical function” (Miller et al., p. 473). Women were randomized into four groups – healthy controls, dietary weight loss with no structured exercise, structured exercise with no dietary loss, and exercise and weight

loss. The study included an 18-month follow-up evaluation. In addition, physical functioning and four different BMI levels ($p=0.0062$) were directly related to women who were in different BMI categories as described above. Therefore, how well an individual could perform (physical functioning) was directly related to how confident he or she felt about themselves.

Northouse, Mood, Kershaw, Schafenacker, Mellon, Walker, Galvin, and Decker (2002) found that quality of life among women with recurring breast cancer ($N=189$) related directly to levels of self-efficacy, social support systems, and cohesiveness or strength of the family unit, and support with the patient. Women with fewer current concerns gave less negative appraisals of the illness and caregiving and subsequently reported a higher quality of life. Self-efficacy had a direct and positive effect on patients' mental health.

Death of a spouse greatly affects the widowed individual's self-esteem, quality of life, and other self-efficacy issues, especially after an extended period of caregiving (Fry, 2001). In one study, widows showed lower self-esteem, while education and income predicted widows' quality of life. Widows who reported greater levels of quality of life also reported greater levels of perceived self-efficacy in the categories of spirituality, interpersonal relationships, and social support (Fry, 2001). Similarly, other research indicated that caregivers who showed no significant strain in the pre-bereavement period were more likely to experience a higher level of depression post-bereavement ($P=0.002$), and African Americans recorded significantly lower depression symptom scores than Whites in the pre- and post-bereavement period (Schultz, et al., 2001, p. 3127).

Self-Efficacy Among Health Professionals

The relationship between the informal caregiver and the care receiver is important to understanding the role of the formal caregiver. Although exposure of the care receiver and caregiver to formal caregivers is minimal compared to family and friends, health care

professionals should understand the impact they can have on basic daily functioning, overall mental health, and self-efficacy of the caregiver and care receiver.

Pinto, Friedman, Marcus, Kelley, Tennstedt, and Gillman (2002) examined telephone-based interventions by formal caregivers to promote physical activity among health professionals. Sedentary adults (72% women, 45% African American) were placed in two groups, both requiring telephone-based interventions. One group received a healthy eating promotion and the other group received a physical activity promotion. Both groups were assessed at baseline, at three months, and at six months after the beginning of phone interventions. Self-efficacy with physical activity represented the degree of confidence one feels in being a physically active individual. Moderate physical activity for energy expenditure at three months showed the only statistically significant interaction ($p=0.02$) with self-efficacy. Follow up by formal health care providers and degree of concern were part of the intervention.

Health professionals can play an important role in reducing effects of depression among cancer patients. Health professionals can increase their own self-efficacy in the formal caregiving role by understanding factors involved with patient diagnosis, such as their own supportive role, attitudes, and beliefs about communicating with cancer patients (Parle, Maguire, & Heaven, 1997). After completing a skills workshop on dealing with cancer patients' emotional well-being, health care professionals "rated the likely outcome of a discussion of psychological concerns for a terminally ill patient as more positive" ($P < .001$) (Parle, et al., 1997, p. 239). Although health professionals may feel confidence or high self-efficacy in dealing with patient emotions, they do not feel as confident in managing these feelings.

Self-Efficacy and Caregivers

Gottlieb and Rooney (2004) studied coping and self-efficacy regarding mental health among caregivers for persons with dementia ($N=141$). Optimism and relational self-efficacy

(i.e., degree of emotional involvement with the care receiver) predicted coping effectiveness. Caregiver exposure to dementia symptoms, being less optimistic, and holding weaker beliefs in one's coping effectiveness were significant predictors of a negative health effect ($p < 0.01$). In addition, coping had a major impact on the caregiver's mental health even after controlling for outcome expectancies.

In a study on self-efficacy of family caregivers who were helping cancer patients manage end-of-life pain (Keefe, Ahles, Porter, Sutton, McBride, Pope, McKinsty, Furstenberg, Dalton, & Baucom, 2003), caregiver self-efficacy was significant when correlated with caregiver strain, positive mood, negative mood, and the patient's physical well being. In situations where caregivers reported higher self-efficacy, care receiver reported having more energy, feeling less ill, and spending less time in bed.

Similarly, Tang, and Chen (2002) examined health promotion behaviors of Chinese family caregivers for stroke patients. Regression analysis revealed the variable of caregiver's health status as the only positive predictor of caregiver self-efficacy. Satisfaction with social support was the strongest predictor of caregiver health promotion behavior (p. 331).

Gitlin, Corcoran, Winter, Boyce, and Hauck (2001) studied the effects of a home environmental intervention on self-efficacy and upset in caregivers and the daily function of dementia patients (N=171). Caregivers were randomly assigned to a treatment group in which they were exposed to a home environmental intervention. Caregivers assigned to a control group were exposed to a usual care setting and were educated on how to adjust their environment to simplify caregiver workloads and reduce stress. Most caregivers (59%) were daughters or daughters-in-law. In addition, 126 (74%) were White, and 43 (25%) were African American. Among the respondents, the mean number of months spent in the caregiver role was 45 months.

The largest interaction occurred for caregiver behavior self-efficacy and behavior upset ($p=.04$). In this study, caregivers reported managing Instrumental Activities of Daily Living (IADL) and Activities of Daily Living (ADL) on a moderate self-efficacy level. Minority participants in the treatment group showed greater improvement in IADL and ADL self-efficacy.

In a similar study using skills training interventions for female caregivers of relatives with dementia ($N=169$), those in anger and depression management groups showed significant reductions in levels of anger, and depression decreased significantly, while self-efficacy increased between the first and second data collections (T1, T2, respectively) (Coon, Thompson, Steffen, Sorocco, & Gallagher-Thompson, 2003).

Fortinsky, Kercher, and Burant (2002) compared measurement and correlates of family caregiver self-efficacy for managing dementia ($N=197$). They sought to develop a strategy to measure family caregiver self-efficacy for managing dementia, incorporating domains of symptom management and use of community support services. More than 80% of caregivers were female, and about 20% classified themselves as African American. Caregivers who reported a higher level of dementia symptom-management self-efficacy also reported fewer depressive symptoms. This study suggests that self-efficacy represents a coping mechanism in response to the stress of caring for a relative with dementia.

Expectancies (or incentives) differ from expectations, both *Social Cognitive Theory* constructs because they reflect the value an individual places on “a particular outcome” (Glanz et al., 2002, p. 172-173). In the caregiver role, expectancies influence the behavior of individuals in determining choices for themselves and for the care receivers for the most positive outcome. For example, if the care receiver has a terminal illness, the caregiver will make decisions that

seem best to optimize quality of life for that individual regardless of his or her own personal health (Wright, 1997).

Summary

Chapter 2 presented a review of literature related to various aspects of informal caregiving including health, stress, and ethnicity. The review also addressed the importance of the role of self-efficacy, and how temperament can act as an important determinant of decision-making. Temperament is considered to be fairly stable through the life span, with each individual predisposed to certain characteristics within that temperament.

Although no known literature to date has assessed temperament using the Keirsey Temperament Indicator II and self-efficacy among informal caregivers, studies using the Myers-Briggs Type Indicator and self-efficacy primarily focused on issues such as self-assessment of schizophrenics, first-time mothers, work place risks, and career decisions. Studies reviewed in this chapter imply that certain temperament types interact with self-efficacy to influence risk taking in personal care and decisions, including health care decisions, interactions in a group setting, degree and dynamics of social support systems, and relationship dynamics with the care recipient.

The review included factors that influence individuals serving as informal caregivers such as cost and personal risks, research that defines and describes types of temperament, and research that examines self-efficacy in relation to disease as applied to formal and informal caregivers. Though temperament and self-efficacy can influence how individuals respond to the caregiver role, the literature review produced few studies that directly examined the relationships existing among temperament and self-efficacy among informal caregivers. In this study, self-efficacy combined with expectancies, is presented as an enabling factor.

Because of the intense nature and diversity of tasks involved in caregiving, and the growing population of caregivers in the U.S., a better understanding of how temperament influences self-efficacy regarding attitudes and beliefs about caregiving, can present health care providers and researchers in the field a better understanding of how to assist caregivers. Chapter 3 describes the research design, instruments, and process used to gather information about informal caregivers

Table 2-1. Incremental caregiving hours and incremental cost of informal care attributable to dementia

Dementia Severity	Incremental Cost per Year			
	Incremental Hours Estimated Per Week	Using Low-range Estimated Cost of Informal Care	Using Mid-range Estimated Cost of Informal Care	Using High Cost of Informal Care
Normal Cognition	Reference	Reference	Reference	Reference
Mild dementia	8.5	\$2,610	\$3,630	\$4,780
Moderate dementia	17.4	\$5,340	\$7,420	\$9,770
Severe dementia	41.5	\$12,730	\$17,700	\$23,310

Langa, et al., 2001, pg. 775

Table 2-2. Adjusted weekly hours and yearly costs of informal caregiving

	Hrs. per Week	95% CI (hours)	Cost per Year	95% CI
No history of cancer	6.9	6.5-7.2	\$3,000	\$2,800-\$3,100
History of cancer, no recent treatment	6.8	6.4-7.1	\$2,900	\$2,700-\$3,000
History of cancer, recent treatment	10.0+	9.6-10.5	\$4,200+	\$4,100-\$4,500

Hayman et al., 2001, p. 3222; + denotes P< .05

CHAPTER 3 METHODS

This study examined relationships that exist between different temperament types and perceived self-efficacy among individuals serving in an informal caregiver role. The effects of self-efficacy on several caregiver characteristics were also examined. This chapter describes the methodology used in this study, which includes the research design, research variables, instruments, the pilot study, and the final study.

Research Design

The study used a cross-sectional survey research design to explore possible relationships between temperament and self-efficacy among informal caregivers. With this design, a standard protocol can be administered to a group of participants using standardized procedures that require a reasonable amount of time. Likewise, data can be analyzed uniformly and objectively (McDermott & Sarvela, 1999). Participants included individuals 18 years or older who provided part-time or full-time caregiver care for at least one individual 21 years or older. Participants also participated in support groups, health forums, and health fairs. Two models provided a theoretical framework for this study.

Social Cognitive Theory (SCT), originally called *Social Learning Theory*, was conceptualized by Bandura in the 1960s (Bandura, 1986). Self-efficacy, the most often used construct in the *SCT*, helps determine an individual's confidence level in performing an action or series of actions. Combined with outcome expectancies (i.e., "will others also perceive my action as beneficial"), self-efficacy can determine duration of performing an action, such as serving in a caregiver role. In studies on understanding the caregiver role, self-efficacy helps determine caregiver reactions to stressors and other psychosocial factors. Self-efficacy also plays a role in overcoming environmental barriers in performing the behavior, or in not starting a

negative behavior (i.e., cigarette smoking). This study used the constructs of self-efficacy and outcome expectancies from *SCT* to examine how temperament type interacts with self-efficacy in the caregiver role (Wilson, Friend, Teasley, Green, Reaves, & Sica, 2002; Glanz et al., 2002, p. 173-174).

Temperament Theory, defined by Carl Jung, posits that seemingly random behavior actually reflects one's natural preferences, and that certain people are predisposed to display different behaviors (temperament types).

In one study of employee motivation (Burke, 2004), the factors of choice, competence, and meaningfulness represented the “primary intrinsic motivators” for the Artisan, Rational, and Idealist, respectively. Choice, competence, and meaningfulness scales were significantly different among three temperaments – Artisans, Rationals, and Idealists. The Keirsey Temperament Indicator II, as used in this study, applied Jung's theory to identify four temperament types: Rationals, Idealists, Artisans, and Guardians (Temperament: Temperament versus character, 1998, para. 1). No previous study combining the Keirsey Temperament Indicator II with a self-efficacy scale among informal caregivers was found in the literature.

Research Variables

The study included one explanatory (independent) variable (temperament type) from the Keirsey Temperament Indicator II, with four response options: Artisans, Idealists, Rationals, Guardians. The Keirsey Temperament Indicator II has 70 questions and is similar to the Myers-Briggs Temperament Indicator in that it uses a “series of forced-choice” responses. Each of the 70 questions for the Keirsey Temperament Indicator II did not “reflect any of the other dichotomies” (Daley, 2000). For example, the 10 specific questions for the dyad characteristic of E/I were grouped and did not reflect on any of the questions for the dyad characteristics of S/N, T/F, or J/P. Each question for this instrument has two response options: a or b. The 16

temperament types, as originally defined by Myers and Briggs, are combined into four discreet temperaments defined by Keirsey. These four temperaments were discussed in Chapter 2. The Caregiving Self-Efficacy Scale was used as a dependent (outcome) variable for research question 1, and as an explanatory (continuous) variable in research questions 2 through 5.

The study also included several outcome (dependent) variables: (1) the Caregiving Self-Efficacy Scale, a continuous variable, included scale options ranging from 0 to 100 displayed in increments of 10, but respondents were free to answer with any number in the scale range that accurately indicated their degree of confidence; (2) intensity of care, a categorical variable, asked “how difficult or how demanding is it for you to care for this person” (not difficult at all, a little difficult, difficult, very difficult, and extremely difficult); (3) total duration of care, a categorical variable, asked “how long have you provided care for this person” (6 months or less, 6-12 months, 1 year, 2 years, 3 years, 4 years, 5 years or more); (4) daily duration of care, a categorical variable, asked “on average, how much time do you spend each day caring for this person” (1 hour or less, 1-3 hours, 4-6 hours, 7-9 hours, 10-12 hours, 12 hours or more); and (5) relationship to the care receiver, a categorical variable, asked “your relationship to the person you care for” (my parent, my spouse, my child, a grandparent, an in-law, my friend, my partner, other).

To provide consistency in data analysis for some of the variables listed above, several categories were collapsed. For example, for total duration of care, the first two categories (6 months or less and 6-12 months) were combined to produce categories at one-year intervals.

Instruments

Instruments for the study were selected by conducting an extensive literature review of instruments previously used by researchers to examine self-efficacy, temperament, and other functions and aspects of caregiving. The protocol for this study included two main instruments

and caregiver population demographics: (1) Caregiving Self-Efficacy Scale (Steffen et al., 2002), (2) Keirsev Temperament Indicator II, and (3) Caregiver Profile Information.

Caregiving Self-Efficacy Scale

After extensively reviewing the literature, this scale was deemed most appropriate to measure self-efficacy among caregivers. The instrument was created originally for caregivers of dementia patients. The scale was designed specifically to measure perceived efficacy among this population of caregivers. The 15-item scale includes three sub-scales: “Obtaining Respite Care,” “Controlling Upsetting Thoughts About Caregiving,” and “Responding to Disruptive Behaviors” (Appendix D). Respondents rated their perceived confidence on a 0 to 100 scale, with 0 as “cannot do at all” and 100 as “certain can do.” Bandura, who conceptualized the construct of self-efficacy, used in both *SCT* and *SLT* in the 1970s, contributed to the development of this scale for adequate reliability and validity. After reviewing the 15 items, the researcher determined that the items would pertain to caregivers providing care to terminally ill or chronically ill individuals, including all types of dementia.

The development process for the Caregiving Self-Efficacy Scale included rigorous item analysis procedures. The original scale produced reliability coefficients of .80 or higher for each of the three sub-scales, and for the total scale. This total scale, which represented one of the dependent variables for the study, was considered a “continuous” variable because the scores from the three sub-scales were averaged to produce an overall score from 0 to 100 (ex., 85.4). For the purpose of this study, only the total self-efficacy score was used (i.e., total number for the three sub-scales). Permission was obtained from the first author to use the scale and the instrument was used as originally published for the current research study (Steffen et al., 2002).

Keirsey Temperament Indicator II

The Keirsey Temperament Indicator II instrument uses four “bipolar scales” to sort individuals into 16 personality types. These four scales include Extroversion/Introversion (E/I), Thinking/Feeling (T/F), Sensing/Intuition (S/N), and Judging/Perceiving (J/P) (Alpine Media Corporation, 2003, p. 6-7). Keirsey extended the process to sort individuals into four temperament types with four distinct personality attributes within each temperament, using a 70-item scale (Appendix E). The four types are: Artisans (ESTP, ESFP, ISTP or ISFP), Guardians (ESTJ, ESFJ, ISTJ, or ISFJ), Idealists (ENFJ, ENFP, INFJ, or INFP), and Rationals (ENTJ, ENTP, INTJ, or INTP).

The Keirsey Temperament Indicator II resembles the Myers-Briggs Temperament Indicator in format and approach, though it is more limited in scope. David Keirsey modeled the Keirsey Temperament Indicator II after the work of Myers and Briggs. The Keirsey Temperament Indicator II has been applied in assessing temperament among dental and medical students, in a classroom setting, and in business settings, but not specifically among caregivers or in any other health behavior venue known to this researcher. No peer reviewed journal publications provided adequate estimates of validity and reliability for the Keirsey Temperament Indicator II, so validity and reliability of the instrument were assessed using the final population data. The print version of the Keirsey Temperament Indicator II instrument was used for both the pilot and final study populations because that version better suited the nature and age of the study population.

Each of the four Keirsey temperaments is considered continuous in nature. Statistical analyses were previously conducted on a wide scale of the computerized version of the Keirsey Temperament instrument (Alpine Media Corporation, 2003). Reliability for this instrument was previously measured using several methods including Item-Response Theory method (ranging

from .33 to .76), internal consistency coefficients alpha (.80 and higher), and test-retest methods (.80 and higher).

For example, using Item-Response Theory among males and females in each group, for the four “bipolar scales,” reliability estimations ranged from .81 to .83: **E/I**, total sample=.83, males=.83, females=.83; **S/N**, total sample=.82, males=.82, females=.82; **T/F**, total sample=.83, males=.82, females=.82; **J/P**, total sample=.82, males=.81, females=.82. (Alpine Media Corporation, 2003, p. 38).

Using Pearson’s correlation to compare the Myers-Briggs Temperament Indicator and the Keirsey Temperament Indicator II, correlation coefficients of .62 and higher for the eight temperaments, E/I, S/N, T/F, J/P were reported (Hadley, 2003). Another study produced Pearson correlation coefficients ranging from .68 to .84 (Ludy, 1999; Calahan, 1996).

Validity measures also were conducted by the Alpine Media Corporation (2003) on the Keirsey Temperament Indicator II. The 140 variables coincided with the 70 items. Factor analysis of the Keirsey Temperament Indicator II identified 11 factors with eigenvalues of 1.0 or greater. These 11 factors included, but limited to, Factor 1 (sensing versus intuition), Factor 2 (thinking versus feeling), Factor 3 (extroversion versus introversion), Factor 4 (judging versus perceiver). Factors 10 and 11, which were the weakest, included a variation of S/N, but also included T/F and J/P. Factor 9 was closely related to Factor 1, Factor 6 was closely related to Factor 2, and Factors 5, 7, and 8 were closely related to Factor 4. The Alpine Media Corporation analysis included scores from more than 77,000 individuals who completed the instrument. The analysis used SPSS and factor analysis statistical procedures to determine the number of unique factors or constructs that accounted for significant variance in the population data set (Alpine Media Corporation, 2003, p. 50). Of 11 factors mentioned previously, nine showed significant

loadings with some greater than .24, and with most greater than .35. This finding indicates that the instrument validity and relationships among factors is fairly strong.

Other studies used regression analysis to examine extroversion/introversion, self-efficacy, and other demographic study variables, including satisfaction in the field of cardiopulmonary care (Hadley, 2003; Ludy, 1999). Other than the validity study mentioned previously (Alpine Media Corporation, 2003), the literature review did not locate other studies that addressed validity as extensively.

Caregiver Profile Information

A 17-item caregiver profile was developed to obtain demographic information about caregivers such as age, gender, marital status, race/ethnicity, income level, relationship to the care receiver, and items related to the frequency, duration, and difficulty of the care provided. Additional profile items included age and gender of the person receiving care, and medical resources or information used before and after becoming a caregiver (Appendix F). The revised profile information used with the final study population included one additional question (#21) based on suggestions from the pilot study participants (“Do you care for more than one individual? If yes, how many”). Some caregivers provide care for more than one individual, which influences multiple factors in the caregiving role.

Pilot Study

Preliminary Review

A draft version of the study protocol was prepared to include a script for prospective participants (Appendix G), the Caregiving Self-Efficacy Scale (Appendix D), the Keirsey Temperament Indicator II (Appendix E), and the Caregiver Profile Information (Appendix F).

The researcher contacted four individuals who were currently caregivers (Appendix H), and asked them each to complete the entire instrument. These same individuals assessed the

instrument for readability, comprehension, and cultural sensitivity. They also noted the time required to complete the entire instrument. The four individuals also offered comments or suggestions about the structure and questions of the instrument. One suggestion was to copy and enlarge the Keirsey Temperament Indicator II for caregivers who had difficulty reading smaller print. Acting on this suggestion, the researcher provided this option at all meetings, forums, and seminars where data were collected. As an additional check of the protocol and procedures, the researcher asked four non-caregiver graduate students to read the instrument and answer all items as quickly and accurately as possible. The researcher compared completion times of four caregivers and completion times of the non-caregivers in order to accurately present a completion time estimation to volunteers for the pilot study and final population. The completion time for the four panel members was longer than the completion time by the graduate students. The time participants in both the pilot study and final population took to complete the instrument ranged from 15 to 35 minutes.

Procedures

Beginning in Summer 2005, social support organizations were contacted and requested to participate in the study (Appendices A and B). Participants for the pilot study (N=25) were recruited from meetings of social support groups facilitated by the Family Caregiver Support Program (Appendix C). Although circumstances differ, pilot studies usually include a small number of subjects, often selected for convenience (Alreck & Settle, 1995). Caregiver meetings for the pilot study were held in North Central Florida counties, other than Alachua County, during August and September 2005 (Appendix C).

Participants were recruited at a caregiver support group meeting with the group facilitator present. The group facilitator previously had been contacted and the researcher had received permission to attend the meeting and ask for volunteers. Participants for the pilot study, as well

as the final study population, were caring for an individual in their homes or at another facility (hospital, assisted living or nursing home), and on a full-time or part-time basis. Participants provided care that included some Activities of Daily Living (ADLs) such as bathing, changing and feeding, or some Instrumental Activities of Daily Living (IADLs) such as shopping, paying bills, cooking, and helping to clean a house or apartment (Arno et al., 1999).

A codebook was set up before data were collected. Each item in the instrument was coded for data management purposes. Surveys for the pilot study population were numbered from 1 to 25. The Keirsey Temperament Indicator II items were coded according to temperament type as outlined in the test manual. The information was recorded in an Excel© spreadsheet, followed by information from the remainder of the survey.

At the meetings, the researcher introduced herself and briefly described the survey and its contents, and her affiliation with the University of Florida. She indicated that a gift card incentive would be provided upon completion of the entire survey. Volunteers who agreed to participate received two copies of the Informed Consent, a Keirsey Temperament Indicator II booklet, the Caregiving Self-Efficacy Scale, and the Caregiver Profile Information questions. Each participant kept a copy of the Informed Consent form with contact information, and a signed copy was given to the researcher.

At the meetings, the researcher instructed participants to answer all items in the best way possible, and to answer each item as it pertained to them at the present time. For example, a frequent comment about some items on the Keirsey Temperament Indicator II was, “Both of these apply; how do I answer it?” The researcher was present during the completion of the survey if any questions arose about instrument items. The researcher always instructed participants to choose the better response for their current caregiving situation.

While the survey was being completed, some participants discussed the questions with other participants or made comments to the researcher about the survey. Therefore, a noise factor evolved during survey completion, perhaps due to the fact that many caregivers were close friends, regardless of age and ethnicity. As one caregiver said, “We are like a family.” During other meetings in the pilot study, some participants arrived 10-15 minutes after the meeting began. Therefore, a “lag” time occurred between completion of the survey by participants who arrived on time and those who arrived late. During the time the latecomers were completing their survey, other group members chatted among themselves or queried the researcher further about her study.

All surveys were checked to ensure that all sections were completed. Only one survey was not fully completed. Participants who completed the protocol received their choice of a 60-minute telephone card or a \$5.00 gift certificate from Publix or WalMart. Most of the requests were for gift certificates from Publix or WalMart and both were equally popular. Completed surveys were returned to the researcher who presented participants with the gift card of their choice. Participants who chose not to finish and complete the survey, did not receive a gift card. When all surveys had been collected from participants, the researcher thanked the group for their assistance and left the meeting.

Groups for the pilot study ranged from three to 10 participants. Pilot study participants required an average of 25 minutes to complete the protocol. Participants who wanted to know their temperament type were assured confidentiality by the researcher and contacted by mail at a later date with the information.

Informed Consent

The University of Florida Institutional Review Board (IRB) approved the data collection procedures for the pilot study and for the final study population (Appendix I). Participation in

the pilot testing and final study was voluntary. All participants received a description of study procedures and information regarding their rights as a participant, and complete confidentiality was guaranteed and protected. Participants were informed that they could discontinue answering questions at any time during the process without penalty.

Because volunteers were recruited from specific caregiver support meetings, only the support group name was used to identify participants on the Excel© spreadsheet. The only identification of participants was by type of group for the data collected and by number on the survey for analysis purposes (i.e., Hospice, Caregiver meeting, Health Fair/Forum). Only the researcher had full access to identification of participant names through the signed informed consent forms.

Findings

Descriptive statistics were calculated to determine baseline frequency rates in each temperament category, average self-efficacy scores, frequency rates for race/ethnicity, frequency rates for self-reported health, and frequency of self-reported difficulty in caring for their friend or family member.

Females comprised 92% of the pilot study population (n=23), with the percent of White/Caucasian and African American participants at 60% and 40%, respectively. These were the only two races represented in the pilot study. Most caregivers (72%) were aged 50 or older (n=18) and married (52%, n=13). Most caregivers reported their overall health as excellent, very good, or good (68%, n=17).

Guardians were the most frequently reported temperament type (72%, n=18), followed by Idealists (16%, n=4), and Artisans (12%, n=3). No participants in the pilot study were reported in the Rational type.

The majority of care receivers were aged 60 or older (80%, n=20), with most being a parent (28%, n=7) or a spouse (24%, n=6). Regarding degree of difficulty in caring for the individual, caregivers most often reported “a little difficult” (44%, n=11) or “difficult” (28%, n=7). The most often reported illness of the care receiver was some form of dementia (i.e., Alzheimer’s Disease), which participants wrote in under the “Other” response option. The exclusion of dementia as an option was an oversight when creating the instrument.

Potential bias was controlled in four ways. First, the same data protocol was followed at almost all meetings, health fairs, and health forums. Meetings usually were about one hour in duration, while health fairs and health forums were at least four hours in duration (i.e., 10 a.m. to 2 p.m.). Second, the researcher was present to assist with questions or concerns at all meetings for the pilot study and almost all meetings for the final population. The only exception where the researcher was not present was with the Hospice volunteers. This process is discussed in the “Final Study” section. Third, the researcher was able to assess, at the time of completion, whether the caregiver had inadvertently missed or skipped any items. Fourth, data analyses were limited to responses from volunteer participants who were 18 years or older, who were currently caring full-time or part-time for a friend or family member 21 years of age or older, and who were caring for the individual in their home or at another facility with frequent access.

Based on results from pilot testing, some adjustments were made to the data collection procedures, instruments, and caregiver profile demographic information. In the pilot study, the self-efficacy scale and demographics portions of the instrument were printed on both sides of the survey (i.e., front and back of the paper). This created confusion among some pilot study participants because caregivers did not notice the questions on the back side of the paper, missed some questions and left them unanswered. However, because the researcher was present at all

Pilot Study caregiver meetings and reviewed the survey before presenting the gift card, she was able to return the unanswered portions to volunteers and they were asked to complete the unanswered portion.

For the final population, participants received surveys printed on one side only. Also, for the pilot study, the researcher did not seal the 70 Keirseley Temperament Indicator II questions from the coding portion of the booklet (see Appendix E), and some participants turned to the coding portion of the booklet after completing the 70 questions. For the final study, the researcher stapled or taped the question portion of the booklet from the coding portion of the booklet and wrote “Do Not Open” to prevent confusion among participants. The researcher also verbally asked participants to stop immediately after completing the 70 questions.

Likewise, on the self-efficacy scale, some participants in the pilot study attempted to calculate their own total scores. The researcher instructed participants for the pilot study and the final population to leave the total score line blank.

Final Study

Instrumentation

The final version of the study protocol was prepared to include a script for prospective participants (Appendix G), the Caregiving Self-Efficacy Scale (Appendix D), the Keirseley Temperament Indicator II (Appendix E), and the Caregiver Profile Information (Appendix F). The Caregiver Profile Information included one additional item suggested during the pilot study: 21. “Do you care for more than one individual?” This item required a “yes” or “no” answer from participants. If “no” then the researcher coded the number of care receivers as “1.” If “yes,” then the caregiver was asked “If yes, how many total?” Below item 21, the caregiver responded to the subsequent items “NOTE: If you are caring for more than ONE person, please answer the following questions for ONE of the individuals you care for.” The researcher did not prompt

caregivers to answer regarding the most (or least) difficult care receiver. Therefore, caregivers may have responded for the person that occupies more of their time.

Procedures

Data for the final study were collected during Fall 2005 and Spring 2006. Participants for the final population were recruited from caregiver meetings, health forums of social support groups facilitated by the Family Caregiver Support Program, health fairs sponsored by various organizations including the county Aging Care Services, health fairs sponsored by county Hospice organizations, Haven Hospice volunteer base, and support groups at various assisted living facilities (Appendix B).

To collect information from the volunteer base at North Central Florida Hospice organization, the researcher submitted documents for review by the research board at Hospice, met with the board to address questions or concerns, and ultimately received approval. Finally, the researcher met with volunteer group facilitators and discussed appropriate procedures and options to distribute the survey to their volunteers to control bias in this group. The researcher instructed volunteer group facilitators how to answer general questions regarding the survey, and how to answer questions unique to their particular situations. Hospice volunteers were unique in that some were currently caregivers to a family or close friend, but all Hospice volunteers were providing frequent and continuing “respite” caregiving to families, or family members, and caring for someone with a terminal illness. When the researcher received permission to use the Hospice volunteers, information regarding the process of recruitment was not provided. However, the researcher was able to use this volunteer base after providing careful instruction to group facilitators, a detailed set of instructions, and a precise script presenting any concerns.

Participants for the final study (N=160) came from some 10 counties in the North Central Florida region, including Alachua County. The researcher traveled north to the Florida-Georgia

border, south to Weeki Wachi, as well as east and west between these locations to recruit caregivers. At least 10 meetings were cancelled during the course of data collection due to facilitators being unavailable or facilitators not having enough caregivers (participants) who could attend.

The original group of participating organizations grew in number during the course of data collection due to referrals from the original organizations and from individuals. Only the original organizations contacted before the pilot study began are listed (Appendix B) due to the large number of organizations ultimately involved. One of the original organizations, the Alzheimer's Association of North Central Florida, decided not to permit the researcher to attend meetings and recruit volunteers.

Sample size was set by effect size and Type I error rate. Effect size in this study was interpreted as meaning that no association existed among variables. Effect size was estimated at 10 participants per treatment. Type 1 error rate was set at $\alpha=05$, and effect size (designated as ω^2) was set conservatively ($\sim.10$) for a projected pool of up to 200 participants (Cohen, 1988; Practical Introduction to Power and Effect Size, pg. 1). Definitions of effect size are small ($r = \pm.20$); medium ($r = \pm.30$), and large ($r = \pm.50$).

Estimation of power for a statistical test allows the researcher to determine how many participants are necessary in each group to show adequate probability to assess significance, if any. Power of a statistical test depends on alpha level or Type 1 error rate, effect, and sample size. In general, sample sizes of more than 100 individuals are considered to have good statistical power (Kaplan, 2006, para 1). The researcher attended meetings until 160 participants had responded to the survey. This number was sufficient to support the data analyses and provide adequate validity and reliability.

Participants in the final study completed the instrument in the same manner as in the pilot study (i.e., at support group meetings, health forums, etc.). The number of social support groups, health fair groups, and health forum participant groups ranged in size from three to 25, depending on type of group and county in which the group or event took place. During the pilot study, most surveys were completed at the beginning of a caregiver meeting. During the final study, when the researcher attended meetings, health fairs, and forums, participants completed the survey at the beginning of an event, during a lunch break, at the end of a meeting, or at other times during the event.

As in the pilot study, talking by participants and non-participants created a noise factor. At health fairs and health forums, the researcher sat at a designated table with chairs available for participants to complete the survey. During these events, participants talked with the researcher throughout the day. At adjoining tables, other health care providers offered blood pressure checks, bone density tests, and other screening exams, often causing a distraction for participants completing the instrument. This distraction often caused participants to take longer at their responses. At some health fairs and forums, participants requested to take the survey to other chairs and tables in the room to complete them. Some participants opted to sit outside the building or at a quieter location to complete the instrument, which meant that the researcher was not always in close proximity to the participants for questions regarding the survey. Some participants (about 10%) declined the gift card incentive offered to them for completing the survey.

Each completed instrument was assigned a number and recorded by type of group in the codebook at the time of data collection. The number coincided with the specific support group

(i.e., 1=Alzheimer's group, 2=general social support group, etc.). Other than the group code, no other means existed to identify participants.

Data Analysis

Data were obtained from volunteer participants who were 18 years or older, who were currently caring full-time or part-time for a friend or family member 21 years of age or older, and who were caring for the individual in their home or at another facility with frequent access.

The Keirsey Temperament Indicator II was coded according to temperament type in the booklet as outlined in the test manual. Originally, each temperament type was coded as "0" for not having the temperament, and "1" for having the temperament. For example, if a volunteer was a "Guardian" temperament, only this temperament would have a "1" and the other three would have a "0." When analyzing the significance of the research question, temperament types were recoded. One temperament was recoded as "1," and then the others were recoded as "2," "3" and "4." Finally, the four types were combined under one variable for analyses (Meyer, McGrath, & Rosenthal, 2003). Responses that were left blank (i.e., not answered) were coded as "0" for items on the Keirsey Temperament Indicator II, and Caregiver Demographics. Blank responses on the Caregiving Self-Efficacy Scale were also coded as "0."

Other categorical variables, such as total time in the caregiver role and daily time spent in the caregiver role, also were recoded. After examining frequency tables for these variables, categories were collapsed and recoded for a more accurate calculation in data analyses. All Keirsey Temperament information was recorded on an Excel© spreadsheet, followed by information from the remainder of the survey, including the Caregiving Self-Efficacy Scale total score, and caregiver demographic information, and then transferred to SPSS© v. 14.0 for statistical analysis.

After determining that the data set was normally distributed, descriptive statistics were calculated to determine baseline frequency rates in each temperament category, average self-efficacy scores, frequency rates for race/ethnicity, frequency rates for self-reported health status, and frequency of self-reported difficulty in caring for the friend or family member.

Several types of data analyses were conducted on the final data set to determine a profile of participants in the study. Bivariate analyses included 1-way analysis of variance (ANOVA) and Spearman Rank Correlation measures that were used to analyze research questions one through five. Analyses for all research questions were tested at a .05 significance level for α . Multiple Linear Regression was used to examine associations between each of the four temperament types (explanatory variable), total self-efficacy score, total duration of care (outcome variables), and relationship to the care receiver (covariate).

Univariate Procedures

Univariate analyses can be used to present primary statistical information and to assess patterns within a data set (McDermott & Sarvela, 1999; Noland, 2000). In this study, frequency distributions and descriptive statistics were calculated to obtain baseline information about frequency of gender, race/ethnicity, temperament type, mean self-efficacy scores, and all other variables. These descriptive statistics were also used to determine a general profile of the caregiver population for the study.

Bivariate Analyses

One-Way Analysis of Variance (ANOVA), an inferential statistic, can be used with more than one independent variable, each of which may include two or more conditions. When only two conditions exist in a single independent variable, using a One-Way ANOVA is equivalent to a T-test. However, ANOVA has an advantage because it generalizes to experiments with more

than one independent variable, and may include more than two levels or conditions for each independent variable (Weaver, 2003, para. 1; BBN Corporation, 1997, para 5).

ANOVA compares variance of scores within conditions. Variance of condition produces the sum of squares within groups (SS_{wg}), and sum of squares between groups (SS_{bg}), respectively. Output from each observation (experiment) consists of “variations from an overall mean value” (Reliasoft Corporation, para. 2). These variations are due to factor or level, or to variation due to random error. The ANOVA model used is,

$$y_{ij} = \mu + \tau_i + \epsilon_{ij}$$

where, μ = the overall mean, τ_i = the level effect, and ϵ_{ij} = the random error component.

Spearman Rank Correlation measures “correlation between two value sequences,” usually with one ordinal and one continuous variable. Each sequence is ranked separately, with rank differences calculated at each position, i .

A nonparametric (distribution-free) rank statistic measures “strength of association between two variables” (Weisstein, page 1, para. 3).

Multivariate Analyses

A Stepwise multiple linear regression model was used to conduct multivariate analyses for the outcome (DV) and explanatory (IV) variables, and for any covariates. A multiple regression model can be used when explanatory (IV) variables are continuous when we enter temperament type as separate entities, as in the Keirsey Temperament Indicator II, and when the outcome variable is continuous, as in the Caregiving Self-Efficacy Scale, and with a normal distribution, as was indicated in this population. The four temperament types in the Keirsey Temperament Indicator II were treated as four different explanatory (continuous) variables

Multiple regression can be used to predict, or learn, about the relationship between a dependent variable and several independent variables (StatSoft, 2006; PA765, 2006). Multiple regression examines the relationship between each of the IVs and the DV after “taking into account the remaining IVs” (Rosner, 2000, p. 466-467).

$$Y = b_1x_1 + b_2x_2 \dots + b_nx_n + c$$

Where Y is the dependent variable and “ $\delta_1z_1 + \delta_2z_2 + \delta_3z_3$ ” is the dependent variable, the “b’s” are regression coefficients, which represent the change in the dependent variable (y) when the independent variable changes 1 unit. The “c” is the constant. Multiple regression is similar to assumptions given in correlations in that the “relationship linearity is observed with the absence of outliers” (PA 765, 2006). The error is assumed (PA 765, 2006).

Stepwise multiple regression, or statistical regression, computes the ordinary least squares, used for the best fit of the regression line. In this process, the independent variable that correlates best with the dependent variable is factored into the equation. Then, the rest of the independent variables with the highest partial correlation with the dependent variable, are computed after controlling for the first independent variable. Stepwise regression is most often used to explore and predict research questions (PA765, 2006).

Instrument Reliability

Instrument reliability for the Caregiving Self-Efficacy Scale and the Keirseey Temperament Indicator II was generated based on final study population data using Cronbach’s alpha measure of internal consistency (Cronbach, 1951; Traub, 1994; Crocker & Algina, 1986). The Caregiving Self-Efficacy Scale produced a total reliability of .90 (Table 3-1). Although not included in the analysis of data for this study, reliability coefficients also were generated for the

three subscales of the Caregiving Self-efficacy Scale: .85 (Obtaining Respite), .87 (Controlling Upsetting Thoughts about Caregiving), and .93 (Responding to Disruptive Patient Behavior).

To estimate reliability for the Keirsey Temperament Indicator II, each of the 70 items completed by all 160 participants was coded as “1” for “a” and “2” for “b.” This process generated a Cronbach’s alpha of .86 for the instrument total score. Although not included in the analysis of data for this study, reliability coefficients also were also generated for E/I (.77), S/N (.73), T/F (.70), and J/P (.72).

Questions for each dyad characteristic were grouped as follows: questions for E/I are numbers 1, 8, 15, 22, 29, 36, 43, 50, 57, and 64; questions for S/N are numbers 2, 3, 9, 10, 16, 17, 23, 24, 30, 31, 37, 38, 44, 45, 51, 52, 58, 59, 65, and 66; questions for T/F are 4, 5, 11, 12, 18, 19, 25, 26, 32, 33, 39, 40, 46, 47, 53, 54, 60, 61, 67, and 68, and questions for J/P are 6, 7, 13, 14, 20, 21, 27, 28, 34, 35, 41, 42, 48, 49, 55, 56, 62, 63, 69, and 70.

Summary

Chapter 3 described the methods used to examine associations between different temperament types and perceived self-efficacy among individuals serving in an informal caregiver role. The chapter included a description of the research design, research variables, instruments, the pilot study, the final study, and data analysis procedures. Data were collected from informal caregivers for the pilot study during August and September 2005 and for the final population from October 2005 through January 2006. A total of 25 caregivers participated in the pilot study and 160 caregivers participated in the final population.

Descriptive statistics were calculated to determine baseline frequency rates in each temperament category, average self-efficacy scores, frequency rates for race/ethnicity, frequency rates for self-reported health status, and frequency of self-reported difficulty in caring for the friend or family member. Bivariate analyses included 1-way analysis of variance (ANOVA),

and Spearman Rank Correlation measures were used to analyze research questions one through five. Analyses for all six research questions were tested at a .05 significance level for α . Multiple Logistic Regression was used to examine associations between each of the four temperament types (explanatory variable), total self-efficacy score, total duration of care (outcome variables), and relationship to the care receiver (covariate). Chapter 4 discusses results from analyses of the six research questions posed in the study.

Table 3-1. Instrument specification table

Scale Variable	Type of Variable	Item Number	Possible Responses For Each Item	Reliability Coefficient
Keirsey Temperament Indicator	Explanatory/ Outcome	70	2	.86
Caregiving Self-Efficacy	Explanatory/ Outcome	15	100	.90

Table 3-2. Keirsey Temperament Indicator II – Item to total correlation

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	.024	.86
Q2	.176	.86
Q3	.024	.86
Q4	.288	.85
Q5	.033	.86
Q6	.226	.86
Q7	.069	.86
Q8	.147	.86
Q9	.454	.85
Q10	.108	.86
Q11	.418	.85
Q12	.226	.86
Q13	.337	.85
Q14	.178	.86
Q15	.112	.86
Q16	.382	.85
Q17	.187	.86
Q18	.434	.85
Q19	.250	.86
Q20	.333	.85
Q21	.192	.86
Q22	.084	.86
Q23	.182	.86
Q24	.175	.86
Q25	.239	.86
Q26	.409	.85
Q27	.246	.86
Q28	.219	.86
Q29	.331	.85
Q30	.111	.86
Q31	.284	.85
Q32	.278	.85
Q33	.205	.86
Q34	.269	.85
Q35	.288	.85
Q36	.229	.86
Q37	.398	.85
Q38	.326	.85
Q39	.300	.85
Q40	.310	.85
Q41	.543	.85
Q42	.316	.85
Q43	.066	.86
Q44	.342	.85
Q45	.401	.85
Q46	.168	.86
Q47	.226	.86
Q48	.432	.85
Q49	.275	.85
Q50	.204	.86

Table 3-2. Continued

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q51	.238	.86
Q52	.224	.86
Q53	.288	.85
Q54	.245	.86
Q55	.392	.85
Q56	.319	.85
Q57	.110	.86
Q58	.481	.85
Q59	.414	.85
Q60	.370	.85
Q61	.355	.85
Q62	.422	.85
Q63	.369	.85
Q64	.164	.86
Q65	.230	.86
Q66	.324	.85
Q67	.166	.86
Q68	.196	.86
Q69	.138	.86
Q70	.483	.85

Table 3-3. Caregiving Self-Efficacy Scale – Item to total correlation

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1 (Respite)	.57	.89
Item 2 (Respite)	.55	.89
Item 3 (Respite)	.50	.89
Item 4 (Respite)	.47	.89
Item 5 (Respite)	.53	.89
Item 6 (Upset)	.55	.89
Item 7 (Upset)	.59	.89
Item 8 (Upset)	.55	.89
Item 9 (Upset)	.56	.89
Item 10 (Upset)	.48	.89
Item 11 (Disregard)	.65	.89
Item 12 (Disregard)	.68	.89
Item 13 (Disregard)	.58	.89
Item 14 (Disregard)	.69	.88
Item 15 (Disregard)	.66	.89

$$y_{ij} = \mu + \tau_i + \epsilon_{ij}$$

Figure 3-1: ANOVA Equation Model

$$Y = b_1x_1 + b_2x_2 \dots + b_nx_n + c$$

Figure 3-2: Multiple Linear Regression Model

CHAPTER 4 RESULTS

This study examined relationships that exist between different temperament types and perceived self-efficacy among individuals serving in an informal caregiver role. This chapter discusses characteristics of study participants including group type, gender, race, temperament type, caregiver and care receiver age, overall health status, and duration of care. The chapter also presents results from data analyses used to address the six research questions posed in the study.

Participant Characteristics

Study participants included caregivers 18 years of age or older. All participants were caring for an individual 21 years of age or older; caring for an individual with a chronic illness, terminal illness, or other debilitating illness; caring for an individual on a full- or part-time basis; and caring for an individual in their home or at a facility with frequent access by the caregiver. Data collection procedures produced 160 usable surveys (64%), which was considered adequate to support statistical tests used in data analyses.

The final population had a greater number of female caregivers (n=131, 82%), than of male caregivers (n=29, 18%). Most of the literature on caregivers indicate a greater number of female caregivers (about 70%), but the current population had a higher rate of female caregivers possibly because approximately one-third of caregivers were single, divorced or widowed and possibly husbands of caregivers were still working and not available to attend meetings.

Most participants were either White/Caucasian (85.6%) or African American (13.1%), which is not an equitable representation of ethnicities in the United States, but possibly an accurate indication of caregivers in the North Central Florida region. Only a few Hispanic individuals and only one Native American caregiver completed the survey. The population in

the Pilot Study portion was about equal Caucasians and African Americans. It seems that few Hispanic caregivers attended the meetings possibly because meetings were in rural areas, during times of the day that were not convenient, or transportation was not available. Individuals may not have had sufficient notice, may not have been able to drive to the location (i.e., sharing vehicles in the family), or there may have been a language barrier in the case of Hispanic caregivers. Therefore, results focused on males and females who reported their ethnicities as White/Caucasian and African American.

Caregiver Group Type, Gender, and Race

Table 4-1 provides a summary of participants by type of group where information was collected, gender, and race/ethnicity. The characteristics in Table 4-1 reflect the distribution of participants affiliated with various organizations contacted by the researcher prior to collecting information. The researcher sought an even distribution of participants from these organizations. Distribution by gender and race were chosen based on similar studies in the literature, and these variables were discussed and analyzed in this study.

Most caregiver information was collected at health fairs and forums (58.1%), followed by general caregiver meetings (28.1%). Health fairs and forums attracted a larger and more diverse population of caregivers. Caregiver meetings usually ranged in size from three to 10 participants. Most participants were female (82%) and White/Caucasian (85.6%). The literature confirms that more females than males serve in a caregiver role (Cannuscio et al., 2004; Collins et al., 1997). Some researchers estimate that as much as one-third (33%) of men serve as caregivers. The male population of caregivers was much smaller in this study.

Temperament Type, Age, Overall Health, and Duration of Care

Table 4-2 shows frequency and distribution of temperament type, age, overall health, total duration of time as a caregiver, and daily duration of time required in the caregiver role. Most

caregivers were aged 50 or older (n=133, 83.2%), and had provided care for at least two years (n=129, 64.4%). On average, they provided less than a full day of care, defined as 6 hours or less of care each day (n=97, 60.6%). Most caregivers generally described themselves as in “good” health or better (n=134, 83.8%). In terms of temperament type, the 160 participants were categorized as follows: Guardians (n=120, 75%), Artisans (n=22, 13.8%), Idealists (n=16, 10%), and Rationals (n=2, 1.3%). Most caregivers, regardless of gender, were Guardians possibly because some characteristics of this temperament include that they are more apt to take care of themselves and others around them. Guardians are first and foremost seen as administrators – take charge and get things done. Guardians are also cooperative and seek solutions. Similar to the general population (Alpine Media, 2003), most individuals seem to be Guardians.

Variables in Table 4-2 were selected based on a review of related studies from the literature. These variables were also used for comparisons in the current population of caregivers. Although not used for comparison for data analysis in the current study, age emerged as a particularly important variable because many caregivers were still caring for minor children, parents, and other family members. When comparing caregiver age, caregiver health and total duration of care (all three ordinal variables), age and health had a significant correlation, and total duration of care and health had a significant correlation. The younger the age of the caregiver, the better health reported by that caregiver, and the longer the caregiver was providing informal care, poorer health was reported.

Keirseley presented a distribution of temperaments drawn from a much larger population, and these participants completed the online version of the Keirseley Temperament Indicator II. A number of caregivers in this study had some degree of access to computers, but most probably could not have completed the online version of the instrument due to inadequate computer

access, time constraints, and lack of assistance in completing the protocol. Future studies on caregiving and self-efficacy may address the issue of first time parenting, although a different type of self-efficacy scale is required because of levels of expectations and pressures from family and friends to achieve skills. The dynamics in the home, especially among two working professionals, change with the addition of a child.

Temperament and Self-Efficacy

Temperament and self-efficacy were the independent variables used in the study. Among caregivers in this population, all temperaments showed similar levels of self-efficacy. No significant differences existed in how confident caregivers felt about providing assistance to the care receiver.

Table 4-2 shows a comparison of frequency of temperament types for caregivers in this study and those in a separate study of the general population. Table 4-3 shows a comparison of frequency of gender in each temperament type. Table 4-4 provides frequency and distributions of Temperament Type for the general population, not just those who served as caregivers (Alpine Media Corporation, 2002).

Table 4-4 shows the distribution of temperament type in this study compared to the national database compiled from individuals who completed the online version of the Keirsey instrument. This distribution is presented only for the purpose of visual inspection. Although the frequencies vary between the two groups, Guardians emerged as the most prevalent temperament type in both populations. Conversely, Rationals were the least prevalent temperament type in both populations.

The mean self-efficacy score of 973.03 (SD=280.39) indicated that caregivers were above average in their confidence in the caregiver role, perhaps because many of the caregivers in this

study were spiritual and had excellent social support systems. Self-efficacy scores ranged from 350 for the lowest score to 1,500 for the highest score, from a possible maximum score of 1,500.

A one-sample Kolmogorov-Smirnov Test for population distribution indicated that the test distribution was normal ($D=.33$). Therefore, the distribution for the current population was normal (i.e., no distinguishable outliers).

Research Questions

Research Question One

Does a significant association exist in “Total Scale Scores” on the Caregiving Self-Efficacy Scale between temperament type as determined by the Keirsey Temperament Indicator II?

No significant association existed in self-efficacy among the four temperament types. To address this question, a one-way ANOVA was conducted on temperament type self-efficacy. No significant association existed in the level of self-efficacy among the four temperament groups ($F=1.96$, $p=.122$) (Table 4-5).

Lack of a significant association may be explained in part by the fact that each temperament category included both extrovert or expressive (E), and introvert or reserved (I) characteristics. The E/I relationship dictates how individuals deal with significant others in the outside world. In this population, whether a person is E/I may determine how that person relates to those outside of the caregiver role, such as asking questions of physicians and other formal health care providers, and in making medical decisions about the care recipient based on interactions with formal health care providers (Keirsey, 1998). The E/I factor was not analyzed in this population and should probably be analyzed separately. Since no temperament type emerged as significantly different in level of self-efficacy, self-efficacy was used as an independent variable (explanatory) to address research questions two through five.

Research Question Two

Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and daily duration of care provided by the caregiver?

A Spearman Rho Correlation was used, and no significant association existed in self-efficacy for any of the six ranges (Appendix F) of time spent caring on a daily basis. To address this question, a Spearman’s rank order correlation was conducted with self-efficacy and daily duration of care. No significant association was found in self-efficacy for any of the six ranges (Appendix F) of time spent caring on a daily basis ($r=-.048$, $P=.545$) (Table 4-6). For comparison purposes only, no significant association existed when a one-way ANOVA was used ($F=1.344$, $p=.249$).

Self-efficacy was not a factor in how long an individual cares for someone on a daily basis. Thus, an individual who spends a brief amount of time each day in the caregiving role feels as confident as those who spend more time in the caregiving role.

Several factors may help explain this finding. Based on the review of literature and the characteristics of the study population, caregivers who care for individuals for more time during the day (i.e, 6 or more hours) often feel more confident because they have less difficulty in caring for that person, compared to caregivers who spend a brief amount of time (i.e., 1 or 2 hours) with someone with a more severe illness. Also, those who spend fewer hours in the caregiving role may also hold full time jobs outside the home, whereas those spending more daily hours in caregiving may not work outside the home. In addition, caregivers who spend more time each day with the care receiver may have found an adequate social support system (i.e., caregiver meetings), as well as other sources of informal support, such as close friends, neighbors, and family members.

Although not part of the analysis for research question (see Question #6), multivariate analysis indicated that caregivers who were not related to the care receiver tended to have shorter durations as a caregiver. The variable of duration of care was combined with self-efficacy, temperament, total duration of care and relationship to care receiver.

Research Question Three

Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and total duration of care provided by the caregiver?

A one-way ANOVA was used to show that a significant association existed between self-efficacy and total duration of care, both with the seven original duration ranges ($F=2.504$, $p=.024$), and with the four duration ranges ($F=3.49$, $p=.017$) (Table 4-7). For comparison, a Spearman Rho correlation was used with the four original duration ranges ($r=-.002$, $P=.982$).

Due to low number of selections for some of the response options, the category for total duration of care was recoded from seven ranges to four ranges. The first two variables, “6 months,” and “6-12” months,” were measured as time less than 12 months. Categories three and four were combined, as were categories five and six, based on frequency distributions. As individuals continued in the caregiver role, self-efficacy waned similarly during the first and second years, and similarly during the third and four years. Category seven, “5 years or more,” was retained as a discreet category. Caregiver self-efficacy was highest before one year, and after five years, of caregiving.

A one-way ANOVA with LSD post hoc analysis, conducted on self-efficacy and the total duration of care, showed significance both with the seven original ranges ($F=2.504$, $p=.024$), and with the four recoded ranges (reported below, $F=3.49$, $p=.017$).

Individuals often feel less stressed as they enter the caregiver role. Over time, stress increases and caregivers often feel depressed, and a decline occurs in their health. Their

involvement in friendship circles may decrease because caregivers cannot leave their homes to socialize. Also, during the first few years, caregivers may quit jobs to provide full-time care. Eventually, they may decide to place the care receiver in an assisted living facility. A transition occurs in getting to know the facility staff and helping the staff understand the needs of the care receiver, which creates new stressors for caregivers. Caregivers generally reach their limit of caregiving in the home after about five years, so transitioning into an assisted living facility may be viewed as getting the situation under control.

Whether the care receiver resided in the home or not was not addressed as a research question but, a t-test showed significance. Caregivers who cared for care receivers outside the home had higher levels of self-efficacy.

Research Question Four

Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and intensity/difficulty of care provided by the caregiver?

A Spearman Rho Correlation was used to show a significant relationship between self-efficacy and the degree of intensity/difficulty (ordinal) using the five original response options from the instrument (two-tailed, $r=-.184$, $p=.020$) (Table 4-8). For comparison a one-way ANOVA was used ($F=1.480$, $p=.211$).

Caregivers who reported low degrees of difficulty caring for their loved ones showed higher levels of self-efficacy. Most caregivers described their responsibilities as “not difficult at all,” “a little difficult,” or “difficult.” Only a few described their responsibilities as “very difficult” or “extremely difficult. However, as difficulty increased in the caregiving role, self-efficacy declined.

Caregivers usually feel personally responsible for their loved ones. Even if they feel some level of stress in the caregiver role, they feel a personal obligation and empathy to provide care.

Caregivers who provide care, such as assistance with Activities of Daily Living (ADL) versus Instrumental Activities of Daily Living (ADL), often do not consider this type of assistance as difficult or even as providing care, but merely as part of their role as a spouse, child, or close family member (Arno et al., 1999).

Research Question Five

Does a significant association exist in self-efficacy scores as determined by “Total Scale Scores” on the Caregiving Self-Efficacy Scale and caregiver health status?

A Spearman Rho Correlation was used to identify a significant relationship existed between self-efficacy and caregiver health, using the five original ranges from the instrument (two-tailed, $r=-.159$, $P=.045$) (Table 4-9). For comparison, a one-way ANOVA was used ($F=2.075$, $p=.106$).

Caregivers who feel healthier cope better in the caregiver role, and they feel more confident making important decisions for the care receiver. When caregiver health declines, caregivers do not feel as confident that they can provide the quality of care needed for their loved one. They may also feel that they cannot meet their own health needs due to the amount of time required in the caregiving role. As their health declines, especially if their health was poor when they began the caregiver role, caregivers may decide to place the care receiver in an assisted living facility sooner than anticipated. This decision may produce both relief and guilt for not continuing to care for their loved one. Caregivers may also feel fairly healthy compared to the care receiver.

Research Question Six

Does a significant association exist between overall duration of care and temperament type as determined by the Keirsev Temperament Indicator II, self-efficacy scores as

determined by “Total Scale Scores” on the Caregiving Self-Efficacy Scale, and relationship to care receiver?

Significant associations existed between level of self-efficacy, one temperament type, and two separate relationship categories to the care receiver (Table 4-10).

Among the four temperament types, self-efficacy level did not influence daily duration of care. In terms of the four temperament types, Artisans were most likely to remain the longest in the caregiver role. Among this population of caregivers, Artisans were the second most frequent among the four temperaments, but small in number (n=22). Among the other three temperaments, total duration in the caregiver role was not significantly different. As one characteristic of the Artisan personality, they are more likely to follow a philosophy of living “in the moment.” Artisans enjoy life and seek resources that suit their needs (Keirse, 1998). Therefore, Artisans may be more resourceful in finding outlets for their stress in the caregiving role, may not need formal types of support (i.e., attending caregiver meetings) and they may be more willing to accept assistance from friends and family in managing care for the care receiver.

Two relationships between care receiver and caregiver also were significant, but in the negative direction. First, if the care receiver was a friend or had a relationship other than the options listed (spouse, parent, child, grandparent, in-law, or partner), duration of care tended to be briefer. Perhaps some form of regret or a different level of frustration exists when the care receiver is not a family member. Second, relationships in the “other” category included those who provided respite care to families or to neighbors. The other category of relationships seemed to indicate a more emotional attachment to the care receiver; therefore, care provided was longer in duration.

Financial support may be a predictor of total duration of care. If the caregiver has adequate financial resources, their total duration of care may be longer because of access to formal caregivers (i.e., home care nurses). Caregiver satisfaction and confidence may be implications to understanding caregivers for health care providers and their recommendations for care receivers.

Summary

This chapter reported the results from examining responses of individuals serving in an informal caregiver role by group type, gender, race, temperament type, age overall health status, and duration of care. A population profile was generated showing the distribution of participants by temperament type, total self-efficacy score, and distribution of total time in the caregiver role. Most caregivers were White/Caucasian females, older than age 50, who cared for at least one individual.

Bivariate analysis indicated all four temperament types showed comparable self-efficacy levels. No one temperament produced a higher level of self-efficacy than any of the other three. Total level of self-efficacy did not affect amount of time spent on a daily basis in the caregiver role, perhaps because some individuals caring for a person one or two hours each day also held full time jobs outside the home, creating an added stressor.

Total level of self-efficacy was significantly affected by total time (duration of care) in a caregiver role, degree of intensity/difficulty in the caregiver role, and self-reported caregiver health. Caregivers felt more confident very early on, possibly because of higher levels of social support, and also after five years in the caregiver role, perhaps due to comfort level and other assistance received in caring for their loved one. Most caregivers did not report that caring for a loved one was “very difficult” or “extremely difficult,” but the more difficulty in the caregiver

role, the lower the self-efficacy level. The poorer the health status of the caregiver, the lower the level of self-efficacy.

Multivariate analysis indicated that the temperament type, Artisans, served in the caregiver role the longest of the four types. However, one implication could be that Artisans may need greater assistance as more time passes in the caregiver role, and Guardians may need more assistance at early onset in the caregiver role. Caregivers in a short-term relationship with the care receiver seemed to have less long-term emotional attachment and were caregivers for briefer durations. Chapter 5 presents a summary, conclusions, and recommendations from the study for future research in this field.

Table 4-1. Distribution of participants by group type, gender, and race

	<i>f</i>	%
Group		
Caregiver Meetings	45	28.1
Health Fairs and Forums	93	58.1
Hospice Group	20	12.5
Alzheimer's Association	1	.6
Assisted Care Facilities	1	.6
Gender		
Male	29	18.1
Female	131	81.0
Race		
African American	21	13.1
Native American	1	.6
White/Caucasian	137	85.6
Hispanic/Latino	1	.6

Table 4-2. Distribution by temperament type, age, overall health, and duration of care

	<i>f</i>	%
Temperament Type		
Artisan	22	13.8
Guardian	120	75.0
Idealist	16	10.0
Rational	2	1.3
Caregiver Age		
19 or under	7	4.4
20-29	3	1.9
30-39	6	3.8
40-49	11	6.9
50-59	34	21.3
60-69	52	32.5
70-79	47	29.4
Overall Health		
Excellent	38	23.8
Very Good	48	30.0
Good	48	30.0
Fair	24	15.0
Poor	2	1.3
Total Duration of Care		
6 months or less	16	10.0
6-12 months	10	6.3
1 year	15	9.4
2 years	23	14.4
3 years	21	13.1
4 years	15	9.4
5 years or more	60	37.5
Daily Duration of Care		
1 hour or less	31	19.4
1-3 hours	49	30.6
4-6 hours	17	10.6
7-9 hours	15	9.4
10-12 hours	11	6.9
12 hours or more	37	23.1
Relationship to Care Receiver		
Parent	56	35.0
Spouse	51	31.9
Child	8	5.0
Grandparent	8	5.0
In-law	8	5.0
Friend	12	7.5
Partner	1	.6
Other	16	10.0

Table 4-3. Distribution of Gender by Temperament Type

Keirsey Temperament Type	Male (<i>f</i>)	Female (<i>f</i>)	Total
Guardian	23	97	120
Artisan	4	18	22
Idealist	2	14	16
Rational	0	2	2

Table 4-4. Distribution of Participants by Temperament Type

KEIRSEY TEMPERAMENT TYPE	NATIONAL DATA BASE DISTRIBUTION	STUDY POPULATION DISTRIBUTION
Guardian	45.9%	74.2%
Artisan	17.6%	13.8%
Idealist	28.2%	10.1%
Rational	8.4%	1.3%

Table 4-5. ANOVA Table – Association between total score for Caregiving Self-Efficacy Scale and Keirsey Temperament Indicator II

	Sum of Square	df	Mean Square	F	Sig.
Between Groups	454051.5	3	151350.494	1.960	.122
Within Groups	12046498	156	77221.143		
Total	12500550	159			

Table 4-6. Spearman's rank correlation – Association between total score on Caregiving Self-Efficacy Scale and daily duration of care

			Caregiving Self-Efficacy Scale	Daily Duration of Care
Spearman's rho	CAREGIVING SELF-EFFICACY SCALE	Correlation Coefficient	1.000	-.048
		Sig. (2-tailed)		.545
		N	160	160
	DAILY DURATION OF CARE	Correlation Coefficient	-.048	1.000
Sig. (2-tailed)		.545	.	
		N	160	160

Table 4-7. ANOVA Table – Association between total score for Caregiving Self-Efficacy Scale and total duration of care in four duration ranges

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	785936.8	3	261978.946	3.489	.017
Within Groups	11714613	156	75093.673		
Total	12500550	159			

Table 4-8. Spearman's Rank Correlation – Association between total score on Caregiving Self-Efficacy Scale and difficulty of care provided

			Caregiving Self-Efficacy Scale	Difficulty of Care
Spearman's rho	CAREGIVING SELF-EFFICACY SCALE	Correlation Coefficient	1.000	-.184*
		Sig. (2-tailed)		.020
		N	160	160
	DIFFICULTY OF CARE	Correlation Coefficient	-.184*	1.000
Sig. (2-tailed)		.020	.	
		N	160	160

*.Correlation is significant at the 0.05 level (2-tailed)

Table 4-9. Spearman's Rank Correlation – Association between total score on Caregiving Self-Efficacy Scale and caregiver health

			Caregiving Self-Efficacy Scale	Caregiver Health
Spearman's rho	CAREGIVING SELF-EFFICACY SCALE	Correlation Coefficient	1.000	-.159*
		Sig. (2-tailed)		.045
		N	160	160
	CAREGIVER HEALTH	Correlation Coefficient	-.159*	1.000
		Sig. (2-tailed)	.045	.
		N	160	160

*.Correlation is significant at the 0.05 level (2-tailed)

Table 4-10. Stepwise multiple linear regression analysis of temperament, self-efficacy, total duration of care, and relationship to care receiver

Variable	b	SE	t	p
Artisan	.882	.400	2.204	.029
Friend	-2.136	.525	-4.066	<.001
Other (Volunteer)	-1.652	.461	-3.584	<.001

CHAPTER 5 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Our nation must face the medical, economic, and personal realities of caring for an aging population. The elderly in the U.S. currently account for about 12.4% of the population, with an expected increase of more than 20% by 2030. Individuals aged 65 and older will number about 70 million by 2030 (Goulding et al., 2003; National Family Caregivers Association: Caregiving Statistics, 2000, para. 1; U.S. Department of Health & Human Services, 2001; National Family Caregivers Association: Family Caregivers and Caregiving Families – 2001, 2001, pg. 4, para. 2). This trend is changing the dynamics of our economic and healthcare systems. The mental and physical well-being of caregivers must be protected because these individuals play a key role in providing care for minor children and for aging family members, often at the same time.

With the increase in average life span and in the population of older Americans reaching retirement age, more spouses, family members, and others must provide care to older adults with a chronic or terminal illness. Personal characteristics of caregivers may help explain environmental dynamics, social norms, and influences on persons receiving care. Temperament, or the emotional disposition of an individual, rather than personality, relates more closely to the emotional make-up of an individual, and can better predict and determine personality, decision-making, and coping skills (Morris, 2000). The individual characteristic of temperament type generally remains stable throughout life, while self-efficacy changes with a new life role or life situation.

Self-efficacy reflects the belief that an individual can perform specific tasks or make intelligent decisions, as well as the belief that individuals can complete a task or make the best decision for oneself or a loved one. Researchers have begun to study self-efficacy in the

caregiver role (Steffen et al., 2002; Gignac & Gottlieb, 1996), but few research designs have combined the three variables of temperament, self-efficacy, and informal caregiving.

Summary

During Summer 2005, social support organizations in the northeast Florida area were contacted and requested to participate in the study. A draft version of the study protocol was prepared that included a script for prospective participants, Caregiver Profile Information, the Caregiving Self-Efficacy Scale, and the Keirsey Temperament Indicator II. A panel of four individuals currently serving as caregivers reviewed the instrument for clarity and readability. Pilot testing was conducted on 25 caregivers to assess administration procedures. Based on results from pilot testing, adjustments were made to the script and Caregiver Profile Information.

A total of 160 individuals made up the final study population. Data for the final study were collected during Fall 2005 and Spring 2006. Participants for the final study were recruited at meetings of social support groups including the Family Caregiver Support Program, North Central Florida Haven Hospice, and other county and local organizations. Some groups operated in Gainesville and Alachua County, while others provided services throughout the northeast Florida geographical area.

Participants for both the pilot testing and final study were at least 18 years of age and currently caring for an ill friend or family member aged 21 and older. Participants were providing recipients with care that included activities such as shopping, paying bills, cooking, bathing, and helping to clean a house or apartment. Participants were caring for an older individual, such as a sibling, a parent or grandparent, not a young child or adolescent.

Participants completed the instruments at the support group meetings, health fairs, health forums, and similar support gatherings. The researcher explained the study to caregivers, including their rights as a volunteer, and guarantee of confidentiality in the study. Before

participating in the pilot testing or final study, participants were asked to sign an informed consent form indicating they understood the nature of the questions asked and that they were willing to participate. Participants were reminded that their participation was voluntary, that they were not required to answer any questions they did not wish to answer, and that they could withdraw from the study at any time. Informed consent forms were collected separately from the surveys so participants could not be identified with their responses. All participants received a description of the study procedures and information regarding their rights as a participant. Only the researcher knew the identity of participants.

The instruments were number coded to identify specific support groups. Other than the code, no means existed to identify individual participants. Participants received the instruments and responded directly on these forms. The researcher answered questions and provided assistance to participants as needed to facilitate the process. Those who completed the protocol received as an incentive their choice: a \$5.00 telephone card (or approximately 60 minutes), or a \$5.00 gift certificate from WalMart or Publix. If participants chose to withdraw from the study prior to completing the survey, they did not receive a gift card.

In terms of data analysis, two explanatory variables (temperament type and self-efficacy), four outcome variables (daily duration of care, total duration of care, difficulty of care, and caregiver health), and one covariate (caregiver relationship to care receiver) were chosen through research in Temperament Theory and Social Cognitive Theory (self-efficacy and outcome expectancies) to test for significant associations. One-way analysis of variance (ANOVA) and Spearman Rank Correlations analyzed the explanatory variables (IV) and dependent variables (DVs). A multiple linear regression model was used to conduct multivariate analysis for the outcome (DV) and explanatory (IV) variables. Multiple regression examined the relationship

between each of the IVs and DVs after “taking into account the remaining IVs” (Rosner, 2000, p. 466-467). Instrument reliability for the Caregiving Self-efficacy Scale and the Keirsev Temperament Indicator II was generated based on final study population data using Cronbach’s alpha measure of internal consistency (Cronbach, 1951; Traub, 1994; Crocker & Algina, 1986). Descriptive statistics were calculated for caregiver demographics including percent of caregivers in each of the four temperament categories, average self-efficacy score, percent of each age category, and gender distribution.

One main outcome from the data analysis confirmed no significant associations in the level of self-efficacy among the four temperament types. Therefore, regardless of age, gender, race, or other caregiver characteristics, no one particular temperament type proved more self-efficacious than the other three.

When looking at associations between total duration of care (with the seven original and four recoded variables), degree of intensity/difficulty (using the five original response options), and caregiver health, significant associations existed. If caregivers were just beginning in the caregiver role or had been a caregiver for more than five years, their level of self-efficacy was higher than those with caregiver experience from two to four years. If caregivers reported a higher degree of intensity, then their self-efficacy tended to be lower, and if caregivers reported that they had poorer health, then their self-efficacy also tended to be lower.

Finally, no significant association existed between level of self-efficacy, the four temperament types, and duration of care provided by caregivers when using a Multiple Linear Regression approach.

Findings from this study can help friends, family members, health care facility staff, and health care providers in assessing self-efficacy among caregivers with different temperament

types, selecting methods and messages to effectively reach and assist informal caregivers in their caregiving role, and assisting individuals as they enter the caregiver role. Although some of the association between variables used in multivariate analysis to assess this population of caregivers showed no significance, future studies can combine more demographic variables (i.e., gender of caregiver and care receiver) to understand how this population thinks, makes decisions, and reacts (i.e., personal health) is important for future decisions in the health behavior field.

Conclusions

The study addressed six research questions:

1. Does a significant association exist in “Total Scale Scores” on the Caregiving Self-Efficacy Scale between temperament type as determined by the Keirsey Temperament Indicator II? No significant association existed in the level of self-efficacy among the four temperament types ($F=1.96$, $p=.122$).
2. Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and daily duration of care provided by the caregiver? No significant association existed in self-efficacy for any of the six categories (Appendix F) of time spent caring on a daily basis ($r=-.048$, $P=.545$).
3. Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and total duration of care provided by the caregiver? A significant association existed between the independent variable of self-efficacy (continuous) and the dependent variable of total duration of care, both with the seven original variables ($F=2.504$, $p=.024$), and with the four recoded variables ($F=3.49$, $p=.017$).
4. Does a significant association exist between “Total Scale Scores” on the Caregiving Self-Efficacy Scale and intensity/difficulty of care provided by the caregiver? A significant

association existed between the independent variable of self-efficacy (continuous) and the dependent variable of degree of intensity/difficulty (ordinal) using the five original response options from the instrument (two-tailed, $r=-.184$, $p=.020$).

5. Does a significant association exist in self-efficacy scores as determined by “Total Scale Scores” on the Caregiving Self-Efficacy Scale and caregiver health status? A significant association existed between the independent variable of self-efficacy (continuous) and the dependent variable of caregiver health (ordinal), using the five original response options from the instrument (two-tailed, $r=-.159$, $P=.045$).
6. Does a significant association exist between overall duration of care and temperament type as determined by the Keirsev Temperament Indicator II, self-efficacy scores as determined by “Total Scale Scores” on the Caregiving Self-Efficacy Scale, and relationship to care receiver? No significant associations existed among level of self-efficacy, the four temperament types, and duration of care provided by caregivers.

Examining self-efficacy, temperament, total time in the caregiving role, and relationship to caregiver revealed both significant and non-significant associations. Several aspects of the study provided useful information about this population of caregivers. For example, the study found significant associations between self-efficacy and several caregiver characteristics and demographics – caregiver health, total duration of care, and difficulty in the caregiver role.

Temperament type among participants did not show significant differences in self-efficacy (i.e., caregivers felt fairly confident in caring for their loved ones) regardless of temperament type. Several reasons may explain why caregivers in this population showed no significant difference in self-efficacy levels. For example, many caregivers who completed the surveys

regularly attended the caregiver group meetings. Caregivers unable to attend the meetings with consistency may not have been adequately represented in the study.

Results from analyzing the research questions indicated that levels of self-efficacy were not significant in determining how long caregivers provided care on a daily basis, perhaps because those who cared for an individual for shorter durations during the day also had added stressors such as a job outside the home or caring for minor children. However, higher levels of self-efficacy determined how long an individual provided total care. Those who were caregivers for shorter periods of total time (6 months or less) and longer periods of time (5 years or greater) had higher levels of self-efficacy ($p=.017$) than those who were caregivers for 2, 3 or 4 years. Only caregivers of the temperament type, Artisans, served in the caregiver role longer. Conversely, those with less emotional attachment in their relationship with the care receiver served for the shortest periods. In addition, individuals who cared for more than one person (#21) were not cued (i.e., longer versus shorter time caring for the person) how to answer several questions about the care receiver (#22 and #23).

Consistent with the literature on caregiving, most participants in this study were women (82%), but the number exceeded the approximately 60-70% often reported in related research studies (National Family Caregivers Association, Caregivers Association, Family Caregivers and Caregiving families, 2001, pg. 4, para. 4; National Family Caregivers Association, Education and Resources, Yes, I am a Family Caregiver, Caregiver Resource, 2002, para. 7). The majority of caregivers in this study were older than age 50, and care receivers were older than age 60 (88.2%).

Care receivers also were more frequently women (58%) than men (42%). The age and gender of care receivers were consistent with current trends in the aging population. More

individuals are living into their 80s, more individuals live longer with multiple chronic illnesses, and women outlive men by an average of about seven years (Schultz & Beach, 1999).

Among participants, the most frequently reported illness of care receivers involved some form of dementia (60%), with heart disease and hypertension the next most often reported illnesses (21%). Caregivers were asked to report all diagnosed illnesses of the care receiver, if known. The literature shows that individuals who care for those with Alzheimer's or related forms of dementia may experience more mental debilitation than those in other populations (Vanderwerker, et al., 2005). However, this fact did not seem to affect the overall confidence (self-efficacy) level expressed by caregivers in this study.

The majority of caregivers (75%) cared for one individual, but 20% cared for two individuals at least part time. More than half (56%) of the participants cared for the individual in their own home. Most caregivers (60.6%) cared for an individual six hours or less a day, with 50% caring for three hours or less a day. However, about one-fourth of the volunteers in this study (23%) were full-time caregivers (12 hours or more each day). Caregivers often began by providing care part time, and they became more involved in the process as the disease progressed. Spouses usually spend more hours in caregiving than do non-spousal caregivers (Cannuscio, et al., 2004).

Most caregivers described demands of the caregiving role as "not difficult at all," "a little difficult," or "difficult" regardless of illness or disease of the care receiver (90.6%). Less than 10% felt the demands were "very difficult" or "extremely difficult." However, as the time spent in caregiving became more difficult and demanding, self-efficacy decreased up to 5 years. Research shows that as stress and demands increase, the caregiver may feel more angry and resentful, sometimes lashing out or verbally chastising the care receiver (Beach et al., 2005).

These changes may indicate lack of family or other support in caring for the individual, or poor health of the caregiver.

Research has shown that more than 50% of individuals serve as caregivers for at least five years, with eight years as the average time spent in caregiving, but depending on the illness, caregiver stress and physiological symptoms can appear after one year of caregiving (National Alliance for Caregiving & AARP, 2004; Foster et al., 2005; Teel & Press, 1999; National Family Caregivers Association: Family Caregivers and Caregiving Families – 2001, 2001, pg. 4, para. 2).

Findings for total duration of care indicated that caregivers show greater confidence at the beginning (“6 months or less”) and after a longer period of time in the caregiver role (“5 years or more”). Approximately 10% of participants had been in the caregiver role for six months or less, while more than 37% had been in the role for five years or more. Studies show that as time in the caregiver role passes, caregiver health declines and psychological stress increases (National Alliance for Caregiving & AARP, 2004; Foster et al., 2005; Teel & Press, 1999). Participants in this study had higher self-efficacy when caring for an individual after five years, than those who had been caring for an individual two to four years, perhaps because they hired assistants for help in the home, or they placed the care receiver in an assisted living facility. Additional data analysis revealed a significant difference between those who cared for individuals in their home and those who did not. Caregivers who cared for care recipients in the home had lower levels of self-efficacy.

While individuals are rarely prepared for the caregiver role, chronic stress (i.e., stress over an extended period of time) is usually not a factor when one begins to care for an individual. The majority of caregivers (73.8%) reported their health as “excellent,” “very good,” or “good.”

Caregivers may feel more efficacious after the initial caregiving period begins, but over time they feel more stressed and less able to fulfill their tasks as a caregiver effectively. As caregiver health declines, they feel less able to provide basic tasks (IADLs) for the care receiver. Research shows that caregiver mental health declines more rapidly, and that caregivers need more mental health services when they care for individuals with dementia (McConaghy & Caltabiano, 2005; Covinsky, et al., 2003). Caregivers who reported themselves as being less healthy also felt less confident in providing care for their loved one. Similarly, individuals who reported that caregiving was more difficult and demanding also reported lower levels of self-efficacy.

The researcher did not anticipate the extent of bonding among individuals attending caregiver meetings. Most caregivers felt a sense of unity and cohesion with other group members, regardless of race or age. Almost all caregivers displayed a high sense of spirituality, and many of the groups met in houses of worship. The positive energy and the spirituality among caregivers may have increased the self-efficacy among this population. Overall, this population of caregivers was fairly self-efficacious and attended caregiver meetings, and they also felt comfortable attending other events that required leaving the care receiver or attending the event with the care receiver if possible.

Study limitations should be noted when interpreting results from the study. The caregiver population for this study was drawn from the North Central Florida region and may not be generalized to other geographical regions of the United States. Therefore, caregiver temperament, self-efficacy levels, and other conclusions about caregiver characteristics should not be generalized to other populations, although similarities did exist between the current study population and other populations from similar studies as described in the literature.

Recommendations

1. Expand the scope of the current study by using a larger, more geographically and ethnically diverse study population that would extend to other parts within the state and surrounding states as well.
2. Recruit a broader range of individuals and organizations involved with caregiving such as assisted living facilities, local and state agencies on aging, houses of worship, and physician's offices.
3. Focus on specific characteristics that affect the extent and effectiveness of caregiving such as an analysis of components affecting caregiver health, more specificity in recording and analyzing factors that determine degree of difficulty in the caregiver role, and interaction of these factors with the amount of time spent in the caregiver role.
4. Apply qualitative research methods involving informal caregivers to gain richer and more personal insight into the medical care and personal care needs required by their loved ones.
5. Identify sources of health and medical information consulted by caregivers, and determine how caregivers and care receivers use such information.
6. Examine the relationship between self-efficacy, the types of resources, and the sources of social support consulted by an individual before and after the individual begins the caregiver role.
7. Explore the interactions that occur between caregiver and care receiver in various public settings such as health screenings, medical appointments, or at support group meetings.

8. Determine the effect of combining the variable of caregiver spirituality with self-efficacy, duration of care, degree of difficulty, and other caregiver demographics, on the level of self-efficacy among different temperament types.
9. Analyze data collected during the current study on level of self-efficacy among the four dyads, especially the Extroversion/Introversion dyad, identified as a characteristic among all four temperament types.
10. Use temperament type as the basis for planning interventions and creating health messages directed toward individuals serving in a caregiver role in order to reach a wider and more ethnically diverse population base. For example, use places of worship to identify and assist caregivers and others unable to attend regular caregiver support meetings, forums, and health fairs. Also, identify needs of caregivers who may need assistance at the onset of the caregiving role and at different times during in the caregiving role. Regardless of race or ethnicity, each temperament type acts similarly. Therefore, base information on how a particular temperament likely makes decisions about their health and the health of the care receiver.

The current study findings suggested important implications for professionals in health education and behavior. Individuals of the same temperament type behave similarly regardless of gender and ethnicity, so self-efficacy is an important factor to consider when assessing behaviors and planning interventions for informal caregivers. For example, a positive relationship existed between Artisans, self-efficacy, duration of care, and relationship to the care receiver. Artisans also were more likely to remain longer in the caregiver role.

11. Develop training protocols for management and staff of assisted living facilities that emphasize caregivers' needs for assistance and support, especially during periods of transition, such as when care receivers must be relocated from home into care facilities.
12. Assess caregiver self-efficacy as it relates to care receiver satisfaction.

APPENDIX A
LETTER OF INVITATION TO ORGANIZATIONS



Dear [*Organization Name, Address, and Contact*]:

I am writing to request your assistance in completing my doctoral dissertation research project, "Relationships Between Temperament Type and Perceived Self-Efficacy Among Informal Caregivers." I am requesting your permission to recruit volunteers, specifically those individuals in a caregiving role, who are caring for someone part time or full time and who are 21 years of age and older.

As per our previous conversations regarding this matter, I can now provide proper information and U.F. Institutional Review Board (IRB) approval, which is attached, in addition to a copy of an Informed Consent form, and a copy of the questionnaire the caregivers will be asked to complete. I understand that your organization must review all pertinent information to recruit volunteers. If you have any questions or need further information, please do not hesitate to contact me at the numbers listed below.

Thank you in advance for assisting me in this endeavor.

Sincerely,

Teresa Lyles, M.A., CHES
Doctoral Candidate
Department of Health Education and Behavior
University of Florida
Gainesville, FL 32611-8210
352-219-5166
352-528-3398

APPENDIX B
SOLICITATION POSTER FOR VOLUNTEERS IN PILOT STUDY



ARE YOU A CAREGIVER OF AN ADULT AGE 21 OR OLDER?

Have you been a caregiver for at least one month?

Are you a part-time or full-time caregiver, age 18 or older?

IF SO, I NEED YOUR HELP!

*I am a doctoral student at the University of Florida, and I would like to ask you some questions about your caregiving experience.

*You will complete a survey that takes about 25 minutes. The survey will not pose any risks to you.

*If you complete the survey, you will receive a \$5.00 gift card.

IF YOU ARE INTERESTED, please contact me at these numbers before December 1st:

Teresa Lyles, M.A., CHES

Doctoral Candidate

Department of Health Education and Behavior

University of Florida

Gainesville, FL 32611-8210

352-219-5166

352-528-3398

APPENDIX C
ORGANIZATIONAL CONTACTS AND PROFILES

Alachua County Caregiver Organization

Ms. Kathleen Luzier-Bogolea, M.A., M.A.H.S., Director

Family Caregiver Support Program

1215 N.W. 14th Avenue

Gainesville, FL 32601

Telephone: 352-377-3352

Website:

Mission: To improve the quality of life for caregivers and enable them to provide consistent and loving care.

Service Area: Alachua, Bradford, Citrus, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Lake, Levy, Marion, Putnam, Sumter, Suwannee, and Union Counties, Florida

Funding: Alzheimer's Disease and Related Disorders Association, Central & North Florida Chapter, Inc., and the State of Florida, Department of Elder Affairs

Membership: Approximately 1,000 including health professionals

Alzheimer's Disease & Related Disorders Association, Central & North Florida Chapter, Inc.

Richard Mitchell, Regional Director

1215 N.W. 14th Avenue

Gainesville, FL 32601

Telephone: 352-372-6266; 1-800-272-3900

Website: www.alz.org or www.alzorlando.org

Mission: Community outreach program providing support, education and community referrals to individuals and families dealing with potentially life-limiting illnesses.

Service Area: Central and North Florida (Alachua, Marion, Levy, Dixie, Gilchrist Counties)

Funding: Private and Public

Membership: Approximately 750

North Central Florida Hospice "Transitions" (Haven Hospice)

Tim Bowan, Director

4200 N.W. 90th Boulevard

Gainesville, FL 32606

Telephone: 352-378-2121; 1-800-330-2858

Website: <http://www.hospicecares.org/>

Mission: To assist individuals with life-limiting illness and their caregivers before seeking Hospice support.

Service Area: Hamilton, Columbia, Baker, Suwannee, Lafayette, Dixie, Levy, Gilchrist, Union, Bradford, Nassau, Duval, Clay, St. John's, Putnam, and Alachua Counties in Florida (Same service area as North Central Florida Hospice)

Funding: Hospice is a 501 (c) 3 not-for-profit organization. Medicare, Medicaid, and some private insurance plans cover some or all of hospice services. The provision of Hospice care is based on a person's need rather than the ability to pay. Donations, gifts, and memorial contributions to Hospice help provide significant support for hospice services.

Membership: Approximately 1,000

Better Living Resource, Inc.

Linda Henderson, Private Care Manager and Geriatric Consultant

5012 N.W. 18th Place

Gainesville, FL 32605

Telephone: 352-374-9118

Website: None

Mission: Managed care facility provide support and assistance from referred individuals

Service Area: Alachua County, Florida

Funding: State

Membership: Approximately 500

Senior HealthCare Center at Pecan Park

Deborah Jervis, Director

810 N.W. 16th Avenue, Suite A

Gainesville, FL 32601

Telephone: 352-371-9777

Website: None

Mission: Managed care facility providing support and assistance from referred individuals

Service Area: Alachua County, Florida

Funding: State

Membership: Approximately 200

TimberRidge Nursing and Rehabilitation Center

Carol Scheftic, Volunteer Services OR Darlene Goddard, Human Resources

9848 S.W. 110th Street

Ocala, FL 34481

Telephone: 352-854-8200

Website: None

Mission: Managed care facility the provides support and assistance from referred individuals.

Service Area: Alachua, Marion, Citrus County, Florida

Funding: Private, State

Membership: estimate not available

APPENDIX D
CAREGIVER SELF-EFFICACY SCALE

We are interested in how confident you are that you can keep up your own activities and also respond to caregiving situations. Please THINK about the questions carefully, and be as frank and honest as you can about what you really think you can do. Rate your degree of confidence from 0 to 100 using the scale given below:

Not Very Confident			Moderately Confident				Very Confident			
0	10	20	30	40	50	60	70	80	90	100

Self-Efficacy-Obtaining Respite

How confident are you that you can do the following activities: **Confidence 0 -100**

1. Ask someone to stay with the care recipient for a day when you have errands to be done _____
2. Ask someone to stay with the care recipient for a day when you feel the need for a break _____
3. Ask someone to stay with the care recipient for a day when you need to see your physician. _____
4. Ask someone to do errands for you _____
5. Ask someone to stay with the care recipient for a week when you need time for yourself _____

Self-Efficacy – Controlling Upsetting Thoughts About Caregiving

How confident are you that you can control thinking: **Confidence 0 - 100**

6. What a good life you had before the care recipient’s illness and how much you’ve lost. _____
7. What you are missing or giving up because of the care recipient _____
8. Future problems that might come up with the care recipient _____
9. Unpleasant aspects of taking care of the care recipient _____
10. How unfair it is that you have to put up with this situation _____

Self-efficacy – Responding to disruptive patient behaviors

How confident are you that you can:

Confidence 0 - 100

11. Answer without raising your voice, when the care recipient asks multiple times in a short period of time after lunch when lunch is. _____

12. Respond without raising your voice when s/he interrupts you multiple times while you are making dinner _____

13. Say things to yourself to calm down when you get angry because s/he repeats the same question over and over _____

14. Answer without raising your voice when s/he forgets your daily routine and asks when lunch is right after you've eaten _____

15. Respond without arguing back when s/he complains to you about how you're treating him/her. _____

TOTAL SCORE _____

APPENDIX E
KEIRSEY TEMPERAMENT INDICATOR II

The Keirsey Temperament Sorter II

Check either (a) or (b) answers and ~~transfer check marks to scoring form when finished.~~

- 1 When the phone rings do you**
__ (a) hurry to get to it first
__ (b) hope someone else will answer
- 2 Are you more**
__ (a) observant than introspective
__ (b) introspective than observant
- 3 Is it worse to**
__ (a) have your head in the clouds
__ (b) be in a rut
- 4 With people are you usually more**
__ (a) firm than gentle
__ (b) gentle than firm
- 5 Are you more comfortable in making**
__ (a) critical judgments
__ (b) value judgments
- 6 Is clutter in the workplace something you**
__ (a) take time to straighten up
__ (b) tolerate pretty well
- 7 Is it your way to**
__ (a) make up your mind quickly
__ (b) pick and choose at some length
- 8 Waiting in line, do you often**
__ (a) chat with the others
__ (b) stick to business
- 9 Are you more**
__ (a) sensible than ideational
__ (b) ideational than sensible
- 10 Are you more interested in**
__ (a) what is actual __ (b) what is possible
- 11 In making decisions do you go more by**
__ (a) data __ (b) desires
- 12 In sizing up others do you tend to be**
__ (a) objective and impersonal
__ (b) friendly and personal
- 13 Do you prefer contracts to be**
__ (a) signed, sealed, and delivered
__ (b) settled on a handshake
- 14 Are you more satisfied having**
__ (a) a finished product
__ (b) work in progress
- 15 At a party, do you**
__ (a) interact with many, even strangers
__ (b) interact with a few friends
- 16 Do you tend to be more**
__ (a) factual than speculative
__ (b) speculative than factual
- 17 Do you like writers who**
__ (a) say what they mean
__ (b) use metaphors and symbolism
- 18 Which appeals to you more:**
__ (a) consistency of thought
__ (b) harmonious relationships
- 19 In disappointing someone are you**
__ (a) frank and straightforward
__ (b) warm and considerate
- 20 On the job do you want your activities**
__ (a) scheduled
__ (b) unscheduled
- 21 Do you more often prefer**
__ (a) final, unalterable statements
__ (b) tentative, preliminary statements
- 22 Does interacting with strangers**
__ (a) energize you
__ (b) tax your reserves
- 23 Facts are more likely to**
__ (a) speak for themselves
__ (b) illustrate principles
- 24 Do you find visionaries and theorists**
__ (a) somewhat annoying
__ (b) rather fascinating
- 25 In a heated discussion, do you**
__ (a) stick to your guns
__ (b) look for common ground
- 26 Is it better to be**
__ (a) just
__ (b) merciful
- 27 At work, is it more natural for you to**
__ (a) point out mistakes __ (b) try to please
- 28 Are you more comfortable**
__ (a) after a decision __ (b) before a decision
- 29 Do you tend to**
__ (a) say right out what's on your mind
__ (b) keep your ears open
- 30 Common sense is**
__ (a) usually reliable
__ (b) frequently questionable
- 31 Children often do not**
__ (a) make themselves useful enough
__ (b) exercise their fantasy enough
- 32 When in charge of others are you**
__ (a) firm and unyielding
__ (b) forgiving and lenient
- 33 Are you more often**
__ (a) a cool-headed person
__ (b) a warm-hearted person
- 34 Are you prone to**
__ (a) nailing things down
__ (b) exploring the possibilities

- 35 In most situations are you more
 (a) deliberate
 (b) spontaneous
- 36 Do you think of yourself as
 (a) outgoing (b) private
- 37 Are you more frequently
 (a) a practical sort of person
 (b) a fanciful sort of person
- 38 Do you speak more in
 (a) particulars than generalities
 (b) generalities than particulars
- 39 Which is more of a compliment:
 (a) "There's a logical person"
 (b) "There's a sentimental person"
- 40 Which rules you more
 (a) your thoughts
 (b) your feelings
- 41 When finishing a job, do you like to
 (a) tie up all the loose ends
 (b) move on to something else
- 42 Do you prefer to work
 (a) to deadlines
 (b) just whenever
- 43 Are you the kind of person who
 (a) is rather talkative
 (b) doesn't miss much
- 44 Are you inclined to take what is said
 (a) more literally
 (b) more figuratively
- 45 Do you more often see
 (a) what's right in front of you
 (b) what can only be imagined
- 46 Is it worse to be
 (a) a softy (b) hard-nosed
- 47 In hard circumstances are you sometimes
 (a) too unsympathetic
 (b) too sympathetic
- 48 Do you tend to choose
 (a) rather carefully
 (b) somewhat impulsively
- 49 Are you inclined to be more
 (a) hurried than leisurely
 (b) leisurely than hurried
- 50 At work do you tend to
 (a) be sociable with your colleagues
 (b) keep more to yourself
- 51 Are you more likely to trust
 (a) your experiences
 (b) your conceptions
- 52 Are you more inclined to feel
 (a) down to earth
 (b) somewhat removed
- 53 Do you think of yourself as a
 (a) tough-minded person
 (b) tender-hearted person
- 54 Do you value more in yourself being
 (a) reasonable (b) devoted
- 55 Do you usually want things
 (a) settled and decided
 (b) just penciled in
- 56 Would you say you are more
 (a) serious and determined
 (b) easy going
- 57 Do you consider yourself
 (a) a good conversationalist
 (b) a good listener
- 58 Do you prize in yourself
 (a) a strong hold on reality
 (b) a vivid imagination
- 59 Are you drawn more to
 (a) fundamentals
 (b) overtones
- 60 Which seems the greater fault:
 (a) to be too compassionate
 (b) to be too dispassionate
- 61 Are you swayed more by
 (a) convincing evidence
 (b) a touching appeal
- 62 Do you feel better about
 (a) coming to closure
 (b) keeping your options open
- 63 Is it preferable mostly to
 (a) make sure things are arranged
 (b) just let things happen naturally
- 64 Are you inclined to be
 (a) easy to approach (b) reserved
- 65 In stories do you prefer
 (a) action and adventure
 (b) fantasy and heroism
- 66 Is it easier for you to
 (a) put others to good use
 (b) identify with others
- 67 Which do you wish more for yourself
 (a) strength of will
 (b) strength of emotion
- 68 Do you see yourself as basically
 (a) thick-skinned
 (b) thin-skinned
- 69 Do you tend to notice
 (a) disorderliness
 (b) opportunities for change
- 70 Are you more
 (a) routinized than whimsical
 (b) whimsical than routinized

DO NOT OPEN

APPENDIX F
CAREGIVER PROFILE INFORMATION (DEMOGRAPHICS)

16. Gender of caregiver:

- male
- female

17. Age of caregiver:

- 19 or under
- 20-29
- 30-39
- 40-49
- 50-59
- 60-69
- 70 or over

18. Marital status of caregiver:

- single
- married and living together
- married but separated
- divorced
- widow/widower
- other (please specify: _____)

19. Estimated combined household annual income:

- \$19,999 or less
- \$20,000-\$29,999
- \$30,000-\$39,999
- \$40,000-\$49,999
- \$50,000-\$59,999
- \$60,000-\$69,999
- \$70,000-\$79,999
- \$80,000 or more

20. Race/Ethnicity of Caregiver (“X” one or more, if applicable)*:

- American Indian/Alaska Native
- Asian Indian
- Black/African American
- Chinese
- Filipino
- Japanese
- Korean
- Pacific Islander
- Spanish/Hispanic/Latino
- Vietnamese
- White
- Multi-Ethnic/Multi-Racial

**Categories obtained from 2000 U.S. Census*

21. Do you care for more than one individual?

- Yes (if YES, how many **TOTAL** _____)
- No

*(NOTE: If you are caring for more than **ONE** person, please answer the following questions for **ONE** of the individuals you care for).*

22. Gender of person you care for:

- male
- female

23. Age of person you care for:

- 18-19
- 20-29
- 30-39
- 40-49
- 50-59
- 60-69
- 70-79
- 80 or over

24. Your relationship to the person you care for:

- my parent
- my spouse
- my child
- a grandparent
- an in-law
- my friend
- my partner
- other (please specify: _____)

25. Do you live at the same location with this person?

- yes
- no

26. How long have you provided care for this person?

- 6 months or less
- 6-12 months
- 1 year
- 2 years
- 3 years
- 4 years
- 5 years or more

27. On average, how much time do you spend each day caring for this person?

- 1 hour or less
- 1-3 hours
- 4-6 hours
- 7-9 hours
- 10-12 hours
- 12 hours or more

28. Overall, how difficult (how hard or how demanding) is it for you to care for this person?

- not difficult at all
- a little difficult
- difficult
- very difficult
- extremely difficult

29. If known, what is the disease/illness of the person you care for:

- cancer
- diabetes
- heart disease/disorder
- hypertension (high blood pressure)
- respiratory disease/illness (e.g., asthma)
- other (please specify: _____)
- do not know

30. How would you rate your overall health status NOW?

- excellent
- very good
- good
- fair
- poor

31. As best as you can remember, what was your primary source of medical information BEFORE you began your caregiver role?

- books
- magazines
- newspaper
- Internet/email/chat rooms
- family or friends
- doctor/nurses/other medical professional

32. As best as you can remember, what has been your primary source of medical information AFTER you began your caregiver role?

- books
- magazines
- newspaper
- Internet/e-mail/chat rooms
- family or friends
- doctor/nurses/other medical professional

APPENDIX G
SCRIPT FOR RECRUITING VOLUNTEER CAREGIVERS

Good (morning/afternoon/evening), my name is Teresa Lyles. I am a doctoral candidate in the Department of Health Education and Behavior at the University of Florida. As part of my dissertation research project, I am recruiting caregivers at least 18 years of age, who care for an individual at least 21 years of age, with a physical or mental need. I would appreciate your assistance in completing a survey as part of my dissertation research. You will not directly benefit from completing this survey, but findings from your answers may assist in helping individuals like you in the near future who are in a caregiver role. The survey takes about 25 minutes, and I am asking you to complete the survey before you leave this meeting. As a gesture of appreciation for completing the survey, I will give you your choice of a \$5.00 telephone card or a \$5.00 gift card from Publix or WalMart.

Your participation in this study is completely voluntary. If you decide to participate, you may decline to answer any question that you do not want to answer, and you can withdraw from the study at any time without any consequence. Your identity and your responses will remain confidential. If you agree to complete the survey, you will receive an informed consent form, which is a document that requires your signature for participation. You may keep a copy of the consent form, and I will keep the signed copy. All the information I just read to you is also written on the informed consent form.

Thank you for your attention. I appreciate your assistance with the survey. I will return to this meeting at the same time next week. Please invite any friends or family members who are caregivers, and who you think might be willing to participate in the study, to come to the meeting with you. If you are interested in receiving a summary of the research findings or if you are interested in knowing your temperament type, your identity will remain confidential. However, I will need a current address in order to send the information.

Have a good day.

APPENDIX H
PANEL OF CAREGIVERS TO REVIEW PROTOCOL

Ms. Jill Miller
1403 NW 31st Street
Gainesville, FL 32605

Ms. Kathy Mladinich
2615 NW 20th Street
Gainesville, FL 32605

Ms. Diane Gatsche
2157 NW 43rd Place
Gainesville, FL 32605

Mr. Keith Meneskie
11514 SW 89th Terrace
Ocala, FL 34481

APPENDIX I
UNIVERSITY OF FLORIDA INSTITUTIONAL REVIEW BOARD

Informed Consent Form

Relationships Between Temperament Type and Perceived Self-Efficacy Among Informal Caregivers

Please read this document carefully before you decide to participate in this study.

My name is Teresa Lyles and I am a doctoral candidate in the Department of Health Education and Behavior, College of Health and Human Performance, at the University of Florida. The name of my research project is *Relationships Between Temperament Type and Perceived Self-Efficacy Among Informal Caregivers*.

Thank you for your interest in my study.

I understand that you are currently a caregiver for someone with either physical or mental needs. My study focuses on how individuals feel about serving in the caregiver role. Your participation is important so we can better understand the needs of caregivers and care receivers. My survey will ask you about your role as a caregiver. The survey will take about 25 minutes to complete. There are no risks or benefits to you from participating in the study, other than the benefit of helping me gain knowledge about caregivers.

You must be at least 18 years old to participate in the survey. The person you care for must be at least 21 years of age. Your participation is completely voluntary. You may decline to answer any question you do not want to answer. You can withdraw from the study at any time without any negative consequences. Your responses and your identity will remain confidential. The information gathered from this study will be used for my dissertation research. Depending on information received about caregivers in this study, other publications may be submitted from the information. Your name will never be used in any document or reports associated with this study. The surveys are coded only for the purpose of analyzing the information. Your name will never appear on the survey.

If you have questions about the study, contact Teresa A. Lyles, Ph. D. candidate, Department of Health Education and Behavior, University of Florida, 352-392-0583 (ext. 1285) or Dr. R. Morgan Pigg, Jr., Professor, Department of Health Education and Behavior, 352-392-0583 (ext. 1281).

For more information about your rights as a research participant, contact the UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 352-392-0433.

Thank you very much for your consideration!

Teresa A. Lyles, Doctoral Candidate

I have read the procedure described above for the Informal Caregiver Survey. I attest that I am at least 18 years of age, voluntarily agree to participate in the survey, and have received a copy of the project description.

Participant: _____ Date: _____

Principal Investigator: _____ Date: _____

1. TITLE OF PROJECT: Relationships Between Temperament Type and Perceived Self-Efficacy Among Informal Caregivers

2. PRINCIPAL INVESTIGATOR:

Ms. Teresa A. Lyles, M.S., CHES, Ph.D. Candidate

Department of Health Education and Behavior

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Tlyles0814@aol.com

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3. SUPERVISOR:

Dr. R. Morgan Pigg, Jr.

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University of Florida

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rmpigg@hhp.ufl.edu

FAX: 352-392-1909

4. DATES OF PROPOSED PROJECT: June 1, 2005 – May 31, 2006

5. SOURCE OF FUNDING FOR THE PROJECT: Personal Funds

6. SCIENTIFIC PURPOSE OF THE INVESTIGATION: Research suggests that two factors – temperament and self-efficacy – can influence how individuals respond to the informal caregiver role, but few studies have explored relationships existing among temperament, self-efficacy, and caregiving. This study will examine those relationships among individuals serving as informal caregivers in the northeast Florida geographical area.

7. DESCRIBE THE RESEARCH METHODOLOGY IN NON-TECHNICAL

LANGUAGE (Pilot Study): During the Summer 2005, social support organizations in the northeast Florida area will be contacted and requested to participate in the study. A draft version of the study protocol will be prepared that includes a script for prospective participants, caregiver profile information, the *Caregiving Self-Efficacy Scale*, and the *Keirseey Temperament Indicator II*. A panel of four individuals currently serving as caregivers, or who served as caregivers in the past, will review the instrument for clarity and readability. Pilot testing will be conducted to assess administration procedures and instrument reliability with no more than 25 individuals. Based on results from pilot testing, adjustments will be made to the script and caregiver profile information. Data for the final study will be collected during the Fall of 2005. Participants will

complete the instruments at the support group meetings. The researcher and research assistant will read the script explaining the study to caregivers, including their rights, and the guarantee of confidentiality in the study. The instruments will be number coded to identify specific support groups. Other than the code, no means will exist to identify individual participants. Participants will receive the instruments and an optical scanning form to record their answers. The researcher and research assistant will answer questions and provide assistance to participants as needed to facilitate the process.

8. DESCRIBE THE RESEARCH METHODOLOGY IN NON-TECHNICAL

LANGUAGE (Final Study Population): During the Summer 2005, social support organizations in the northeast Florida area will be contacted and requested to participate in the study. A draft version of the study protocol will be prepared that includes a script for prospective participants, caregiver profile information, the *Caregiving Self-Efficacy Scale*, and the *Keirsey Temperament Indicator II*. A panel of four individuals currently serving as caregivers, or who served as caregivers in the past, will review the instrument for clarity and readability. Pilot testing will be conducted to assess administration procedures and instrument reliability with 250 individuals for the final study population. Based on results from pilot testing, adjustments will be made to the script and caregiver profile information. Data for the final study will be collected during Fall 2005 and Spring early 2006. Participants will complete the instruments at the support group meetings. The researcher and research assistant will read the script explaining the study to caregivers, including their rights, and the guarantee of confidentiality in the study. The instruments will be number coded to identify specific support groups. Other than the code, no means will exist to identify individual participants. Participants will receive the instruments and an optical scanning form to record their answers. The researcher and research assistant will answer questions and provide assistance to participants as needed to facilitate the process.

9. POTENTIAL BENEFITS AND ANTICIPATED RISK: The research methods involve using paper-and-pencil tests that pose no physical or economic harm to participants. Psychological risks will be no greater than those experienced in daily life.

10. DESCRIBE HOW PARTICIPANTS WILL BE RECRUITED, THE NUMBER AND AGE OF THE PARTICIPANTS, AND PROPOSED COMPENSATION (if any) (Pilot Study): Approximately 25 participants for the pilot test and 250 individuals for the final study will be recruited at meetings of several social support groups including the Family Caregiver Support Program, Alzheimer's Association, North Central Florida Hospice "Transitions", and organizations affiliated with the University of Florida Center for Aging. Some groups operate in Gainesville and Alachua County, while others provide services throughout the northeast Florida geographical area. Participants for both the pilot testing and final study will be at least 18 years of age and currently caring for an ill friend or family member age 21 and older. Participants will be providing recipients with care that includes activities such as shopping, paying bills, cooking, bathing, and helping to clean a house or apartment. Participants will be caring for an older individual, such as a sibling, a parent or grandparent, not a young child or adolescent. All participants will receive a description of the study procedures and information regarding their rights as a participant. Participants who complete the protocol will receive as an incentive their

choice of a \$5.00 telephone card or a \$5.00 gift certificate from WalMart or Publix. If participants chose to discontinue, they will not receive an incentive.

11. DESCRIBE HOW PARTICIPANTS WILL BE RECRUITED, THE NUMBER AND AGE OF THE PARTICIPANTS, AND PROPOSED COMPENSATION (if any) (Final Study Population): Approximately **250 participants for the final study**, will be recruited at meetings of several social support groups including the Family Caregiver Support Program, Alzheimer’s Association, North Central Florida Hospice “Transitions”, and organizations affiliated with the University of Florida Center for Aging. Some groups operate in Gainesville and Alachua County, while others provide services throughout the northeast Florida geographical area. Participants for both the pilot testing and final study will be at least 18 years of age and currently caring for an ill friend or family member age 21 and older. Participants will be providing recipients with care that include activities such as shopping, paying bills, cooking, bathing, and helping to clean a house or apartment. Participants will be caring for an older individual, such as a sibling, a parent or grandparent, not a young child or adolescent. All participants will receive a description of the study procedures and information regarding their rights as a participant. Participants who complete the protocol will receive as an incentive their choice of a \$5.00 telephone card or a \$5.00 gift certificate from WalMart or Publix. If participants chose to discontinue, they will not receive an incentive.

12. DESCRIBE THE INFORMED CONSENT PROCESS. INCLUDE A COPY OF THE INFORMED CONSENT DOCUMENT: The researcher and research assistant will read a script explaining the study to caregivers, including their rights, and the guarantee of confidentiality in the study. Before participating in either the pilot testing or final study, participants will be asked to sign a consent form indicating they understand the nature of the questions to be asked and that they are willing to participate. Participants will be reminded that their participation is voluntary, that they can choose not to answer any questions they do not wish to answer, and that they can withdraw from the study at any time. Informed consent forms will be collected separately from the surveys so participants may not be identified with their responses. All participants will receive a description of the study procedures and information regarding their rights as a participant.

(Please see attached copies of the consent form and other project materials.)

Principal Investigator's Signature

Supervisor's Signature

I approve this protocol for submission to the UFIRB:

Department Chair/Center Director, Date

LIST OF REFERENCES

- Adamson, J., & Donovan, J. (2005). "Normal disruption": South Asian and African/Caribbean relatives for an older family member in the UK. *Social Science & Medicine*, 60, 37-48.
- Adler, R. (2002). The age wave meets the technology wave: Broadband and older Americans. Senior Net. Retrieved May 15, 2004, from <http://www.seniornet.org>.
- Alpine Media Corporation. (2003). *The Temperament Sorter II: A statistical study*. 1st Ed. Orem, Utah: Alpine Media Corporation .
- Alreck P.L. & Settle, R. B. (1995). *The survey research handbook: Guidelines and strategies for conducting a survey*. 2nd Ed. Irwin: Chicago.
- Alzheimer's Caregiver Support Online. (2002). Florida Program Gives Online Support to Alzheimer's Caregivers. Retrieved May 13, 2003, from <http://alzonline.net/en/about/media/UF.php>.
- American Association for Geriatric Psychiatry. (2004). Sustaining the commitment: 2003 report from the task force on aging research finding Retrieved April 28, 2006, from <http://www.agingresearch.org/brochures/taskforce/taskforce/pdf>.
- American Association of Retired Persons (AARP), The Magazine. Caregiving: Changing Needs: What you should know, planning ahead (2002). Retrieved February 26, 2002, from <http://www.aarpmagazine.org/family/Articles/a2003-02-25-meformeresources.html>.
- Amirkhanyan, A. A., & Wolf, D. A. (2003). Caregiver stress and noncaregiver stress: Exploring the pathways of psychiatric morbidity. *The Gerontologist*, 43, 817-827.
- Arno, P. S., Levine, C., & Memmott, M. M. (1999). The economic value of informal caregiving, *Health Affairs*, 18, 182-188.
- Artisans: Keirsey.com, (1996). Retrieved May 15, 2004, from <http://keirsey.com/personality/sp.html>.
- Ayalong, L. (2004). Cultural variants of caregiving or the culture of caregiving. *Journal of Cultural Diversity*, 11, 131-138.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1994). *Encyclopedia of human behavior*. Vol. 4). In V.S. Ramachaudran (Ed.), New York: Academic Press, pp. 71-81.

- Baumgarten, M., Battista, R. N., Infante-Rivard, C., Hanley, J. A., Becker, R., Bilker, W. B., & Gauthier, . (1997). Use of physician services among family caregivers of elderly persons with dementia. *Journal of Clinical Epidemiology*, *50*, 1265-1272.
- BBN Corporation. PROPHET StatGuide: Analysis of variance (ANOVA) – testing equality of means. Retrieved January 10, 2006, from <http://www.basic.northwestern.edu/statguidefiles/anova.html>.
- Beach, S. R., Schulz, R., Williamson, G. M., Miller, L. S., Weiner, M. F., & Lance, C. E. (2005). Risk factors for potentially harmful informal caregiver behavior. *Journal of the American Geriatric Society*, *53*, 255-261.
- Biological Aspects of Personality: PSY 230, Theories of personality. Retrieved July 8, 2005, from <http://www.coping.org/adultlink/theories/lectures/psy230-5th.ppt>.
- Bookwala, J., Zdaniuk, B., Burton, L., Lind, B., Jackson, S., & Shultz, R. (2004). Concurrent and long-term predictors of older adults' use of community-based long-term care services: The caregiver health effects study. *Journal of Aging and Health*, *16*, 88-115.
- Brazil, K., Bedard, M., Willison, K., & Hode, M. (2002). Caregiving and its impact on families of the terminally ill. *Aging & Mental Health*, *7*, 376-382.
- Brown, K. M. (1997). Social Cognitive Theory. University of South Florida, Community and Family Health. Retrieved April, 18, 2002, from http://Hsc.usf.edu/~kmbrown/Social_Cognitive_Theory_Overview.htm.
- Burke, M. M. (2004). Exploring differences in intrinsic motivation based on Keirseyan temperament type. Dissertation, Alliant International University, San Francisco Bay, California.
- Burton, L. C., Newsom, J. T., Schultz, R., Hirsch, C. H., & German, P. S. (1997). Preventive health behaviors among spousal caregivers. *Preventive Medicine*, *26*, 162-169.
- Burton, L. C., Zdaniuk, B., Schulz, R., Jackson, S., & Hirsch, C. (2003). Transitions in spousal caregiving. *The Gerontologist*, *43*, 230-241.
- Calahan, C. A. (1996). The relationship of Keirsey's temperament types in marriage: Do wives' perceptions of marital quality predict marital satisfaction in a conservative church setting? Dissertation, Kansas State University, Manhattan, Kansas.
- Calderon-Rosado, V., Morrill, A., Chang, B-H., & Tennstedt, S. (2002). Service utilization among disabled Puerto Rican elders and their caregivers. *Journal of Aging and Health*, *14*, 3-23.
- Cameron, J. I., Franche, R-L., Cheung, A. M., & Stewart, D. E. (2002). Lifestyle interference and emotional distress in family caregivers of advanced cancer patients. *Cancer*, *94*, 521-527.

- Cannuscio, C. C., Colditz, G. A., Rimm, E. B., Berkman, L. F., Jones, C. P., & Kawachi, I. (2004). Employment status, social ties, and caregivers' mental health. *Social Science & Medicine*, *58*, 1247-1256.
- Chou, K-R., (2000). Caregiver burden: A concept analysis. *Journal of Pediatric Nursing*, *15*, 398-407.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Assoc.
- Cohen, M. A., Miller, J., & Weinrobe, M. (2001). Patterns of informal and formal caregiving among elders with private long-term care insurance. *The Gerontologist*, *41*, 180-187.
- Collins, C. C., & Jones, R. (1997). Emotional distress and morbidity in dementia carers: A matched comparison of husbands and wives. *International Journal of Geriatric Psychiatry*, *12*, 1168-1173.
- Conn, V.S., Burks, K. M., Pomeroy, S. H., Ulbrich, S. L., & Cochran, J. E. (2003). Older women and exercise: Explanatory concepts. *Women's Health Issues*, *13*, 158-166.
- Connell, C. M. (1994). Impact of spouse caregiving on health behaviors and physical and mental health status. *The American Journal of Alzheimer's Care and Related Disorders & Research*, *January/February*, 26-36.
- Coon, D. W., Rubert, M., Solano, N., Mausbach, B., Kraemer, H., Arguelles, T., Haley, W. E., Thompson, L. W., & Gallagher-Thompson, D. (2004). Well-being, appraisal, and coping in Latina and Caucasian female dementia caregivers: Findings from the REACH study. *Aging & Mental Health*, *8*, 330-345.
- Coon, D. W., Thompson, L., Steffen, A., Sorocco, K., & Gallagher-Thompson, D. (2003). Anger and depression management: Psychoeducational skill training interventions for women caregivers of a relative with dementia. *The Gerontologist*, *43*, 678-689.
- Covinsky, K. E., Newcomer, R., Fox, P., Wood, J., Sands, L., Dane, K., & Yaffe, K. (2003). Patient and caregiver characteristics associated with depression in caregivers of patients with dementia. *Journal of General Internal Medicine*, *18*, 1006-1014.
- Crocker, L. A., & Algina, J. (1986). *Introduction to classical and modern test theory*. New York: Holt, Rinehart, and Winston.
- Cronbach, L. J. (1955). *Text materials in modern education: A comprehensive theory and platform for research*. Urbana: University of Illinois Press.
- Daley, E. M. (2000). The relationship between temperament type and self-reported health risk-taking behaviors in selected college students. Dissertation, University of South Florida, College of Public Health.

- Davis, L. L., Weaver, M., Zamrini, E., Stevens, A., Kang, D-H., & Parker, C. R., Jr. (2004). Biopsychological markers of distress in informal caregivers. *Biological Research for Nursing, 6*, 90-99.
- De Frias, C. M., Tuokko, H., & Rosenberg, T. (2005). Caregiver physical and mental health predicts reactions to caregiving. *Aging & Mental Health, 9*, 331-336.
- Dilworth-Anderson, P., Goodwin, P. Y., & Williams, S. W. (2004). Can culture help explain the physical health effects of caregiving over time among African American caregivers? *Journal of Gerontology: Social Sciences, 59B*, S138-S145.
- Dilworth-Anderson, P., Brummette, B. H., Goodwin, P., Williams, S. W., Williams, R. B., & Siegler, I. C. (2005). Effect of race on cultural justifications for caregiving. *Journal of Gerontology: Social Sciences, 60B*, S257-S262.
- Different Drums: Kiersey.com. (1998). Retrieved June 15, 2004, from <http://keirse.com/Drummers.html>.
- Ekwall, A., Sivberg, B., & Hallberg, I. R. (2004). Dimensions of informal care and quality of life among elderly family caregivers. *Scandinavian Journal of Caring Science, 18*, 239-248.
- Eisdorfer, C., Czaja, S. J., Loewenstein, D. A., Rubert, M. P., Arguelles, S., Mitrani, V. B., & Szapocznik, J. (2003). The effect of a family therapy and technology-based intervention on caregiver depression. *The Gerontologist, 43*, 521-531.
- Ferrario, S. R., Cardillo, V., Vicario, F., Balzarini, E., & Zotti, A. M. (2004). Advanced cancer at come: Caregiving and bereavement. *Palliative Medicine, 18*, 129-136.
- Fortinsky, R. H., Kercher, K., & Burant, C. J. (2002). Measurement and correlates of family caregiver self-efficacy for managing dementia. *Aging & Mental health, 6*, 153-160.
- Foster, L., Brown, R., Phillips, B., & Carlson, B. L. (2005). Easing the burden of caregiving: The impact of consumer direction on primary informal caregivers in Arkansas. *The Gerontologist, 45*, 474-485.
- Fry, P. S. (2001). Predictors of health-related quality of life perspectives, self-esteem, and life satisfactions of older adults following spousal loss: An 18-month follow-up study of widows and widowers. *The Gerontologist, 41*, 787-798.
- Gaugler, J. E., Leach, C. R., Clay, T., & Newcomer, R. C. (2004). Predictors of nursing home placement in African Americans with dementia. *Journal of the American Geriatric Society, 52*, 445-452.
- Gignac, M. A., & Gottlieb, B. H. (1996). Caregivers' appraisals of efficacy in coping with dementia. *Psychology and Aging, 11*, 214-225.

- Gitlin, L. N., Corcoran, M., Winter, L., Boyce, A., & Hauck, W. W. (2001). A randomized, controlled trial of a home environment intervention: Effect on efficacy and upset in caregivers and on daily function of persons with dementia. *The Gerontologist*, *41*, 4-14.
- Glanz, K., Rimer, B. K., & Lewis, F. M. (Eds.) (2002). *Health behavior and health education: Theory, research, and practice*. 3rd Ed. San Francisco: Jossey-Bass. pp. 67-95
- George, S., & Kansas, J. D. (2001, December). The national caregiver's support program. Retrieved February 28, 2003, from <http://www.neln.org/bibs/georgefinal.html>.
- Gottlieb, B. H., & Rooney, J. A. (2004). Coping effectiveness: Determinants and relevance to the mental health and affect of family caregivers of persons with dementia. *Aging & Mental Health*, *8*, 364-373.
- Goulding, M. R., Rogers, M. E., & Smith, S. M. (2003, February 14). Public health and aging: Trends in aging: - United States and Worldwide. *MMWR Weekly*, *52*, Retrieved January 25, 2005, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5206a2.htm>.
- Grant, J. S., Weaver, M., Elliott, E. R., Bartolucci, A. R., & Giger, J. N. (2004). Sociodemographic, physical and psychosocial factors associated with depressive behaviour in family caregivers of stroke survivors in the acute care phase. *Brain Injury*, *18*, 797-809.
- Greenberger, H., & Litwin, H. (2003). Can burdened caregivers be effective facilitators of elder care-recipient health care? *Journal of Advanced Nursing*, *41*, 332-341.
- Groff, A., Burns, B., Swanson, J., Swartz, M., Wagner, H. R., & Tompson, M. (2004). Caregiving for persons with mental illness: The impact of outpatient commitment on caregiving strain. *The Journal of Nervous and Mental Disease*, *192*, 554-562.
- Grunfeld, E., Coyle, D., Whelan, T., Clinch, J., Reyno, L., Earle, C. C., Willan, A., Viola, R., Coristine, M., Janz, T., & Glossop, R. (2004). Family caregiver burden: Results of a longitudinal study of breast cancer patients and their principal caregivers. *Canadian Medical Association Journal*, *170*, 1795-1801.
- Hadley, J. G. (2003). A test of Bandura's theory: Generalized self-efficacy and the personality traits of introversion and extroversion as measures of job performance. Dissertation, Saybrook Graduate School and Research Center, California.
- Haley, W. E., LaMonde, L. A., Han, B., Burton, A. M., & Schonwetter, R. (2003). Predictors of depression and life satisfaction among spousal caregivers in Hospice: Application of a stress process model. *Journal of Palliative Medicine*, *6*, 215-224.
- Hamilton, J. B., & Sandelowski, M. (2003). Living the golden rule: Reciprocal exchanges among African Americans with cancer. *Qualitative Health Research*, *13*, 656-674.
- Harding, R., Higginson, I. J., & Donaldson, N. (2003). The relationship between patient characteristics and carer psychological status in home palliative cancer care. *Support CareCancer*, *11*, 638-643.

- Harding, R., Higginson, I. R., Leam, C., Donaldson, N., Pearce, A., George, R., Robinson, V., & Taylor, L. (2003). Evaluation of a short-term group intervention for onformal carers of patients attending a home palliative care service. *Journal of Pain Symptom Management*, 27, 396-408.
- Hayman, J. A., Langa, K. M., Kabeto, M. U., Katz, S. J., DeMonner, S. M., Chernew, M. E., Slavin, M. B., & Fendrick, A. M. (2001). Estimating the cost of informal caregiving for elderly patients with cancer. *Journal of Clinical Oncology*, 19, 3219-3225.
- Hebert, R., Levesque, L., Vezina, J., Lavoie, J-P., Ducharme, F., Gendron, C., Preville, M., Voyer, L., & Dubois, M-F. (2003). Efficacy of a psychoeducative group program for caregivers of demented persons living at home. *The Journal of Gerontology Series B: Psychological Sciences and Social Sciences*, 58B, S58-S67.
- Heineman, P. L. (1995). History of temperament and temperament theory. Retrieved September 16, 2004, from <http://www.personalityproject.org/perproj/others/heineman/history.htm>.
- Hinton, L., Franz, C. E., Yeo, G., & Levkoff, S. E. (2005). Conceptions of dementia in a multiethnic sample of family caregivers. *Journal of the American Geriatric Society*, 53, 1405-1410.
- Hseuh, K-H., Phillips, L. R., Cheng, W. Y., & Picot, S. J. F. (2005). Assessing cross-cultural equivalence through confirmatory factor analysis. *Western Journal of Nursing Research*, 27, 755-771.
- Jung, C. G. (1926). *Psychological types*. H.G. Baynes Translator. New York: Harcourt. (Original work published in 1920).
- Kaplan, D. Statistical power in structural equation models. Retrieved April 26, 2006, from <http://www2.gsu.edu/~mkteer/power.html>.
- Katbamna, S., Ahmad, W., Bhakta, P., Baker, R., & Parker, G. (2004). Do they look after their own? Informal support for South Asian carers. *Health and Social Care in the Community*, 12, 398-406.
- Keefe, F. J., Ahles, T. A., Porter, L. S., Sutton, L. M., McBride, C. M., Pope, M. S., McKinstry, E. T., Furstenberg, C. P., Dalton, J., & Baucom, D. H. (2003). The self-efficacy of family caregivers for helping cancer patients manage pain at end-of-life. *Pain*, 103, 157-162.
- Keirse, D. (1998). *Please understand me II: Temperament character intelligence*. 1st Ed. Del Mar, CA: Prometheus Nemesis Book Company.
- Keirse, D., & Bates, M. (1984). *Please understand me, Character and temperament types*. 5th Ed. Del Mar, CA: Prometheus Nemesis Book Company.
- Kim, J-S., Bramlett, M. H., Wright, L. K., & Poon, L. W. (1998). Racial differences in health status and health behaviors of older adults. *Nursing Research*, 47, 243-250.

- Koffman, J. S., & Higginson, I. J. (2003). Fit to care? A comparison of informal caregivers of first-generation Black Caribbeans and White dependents with advanced progressive disease in the UK. *Health and Social Care in the Community, 11*, 528-536.
- Langa, K. M., Chernew, M. E., Kabeto, M. U., Herzog, A. R., Ofstedal, M. B., Willis, R. J., Wallace, R. B., Mucha, L. M., Straus, W. L., & Fendrick, A. M. (2001). National estimates of the quantity and cost of informal caregiving for the elderly with dementia. *Journal of General Internal Medicine, 16*, 770-778.
- Limpanichkul, Y., & Magilvy, K. (2004). Managing caregiving at home: Thai caregivers living in the United States. *Journal of Cultural Diversity, 11*, 18-24.
- Logsdon, M. C., & Robinson, K. (2000). Helping women caregivers obtain support: Barriers and recommendations. *Archives of Psychiatric Nursing, 14*, 244-248.
- Ludy, J. E. (1999). Practitioner attitudes concerning professional satisfaction in the cardiopulmonary profession. Dissertation, University of Central Florida, Orlando, Florida.
- Luttik, M. L., Jaarsma, T., Veeger, N. J. G. M., & van Veldhuisen, D. J. (2005). For better and for worse: Quality of life impaired in HF patients as well as in their partners. *European Journal of Cardiovascular Nursing, 4*, 11-14.
- Mausbach, B. T., Coon, D. W., Depp, C., Rabinowitz, Y. G., Wilson-Arias, E., Kraemer, H. C., Thompson, L. W., Lane, G., & Gallagher-Thompson, D. (2004). Ethnicity and time to institutionalization of dementia patients: A comparison of Latina and Caucasian female family caregivers. *Journal of the American Geriatric Society, 52*, 1077-1084.
- McCarley, N., & Carskaden, T. (1987). Findings and strategies leading to empirically based type descriptions. *Journal of Psychological Type, 13*, 9-14.
- McConaghy, R., & Caltabiano, M. L. (2005). Caring for a person with dementia: Exploring relationships between perceived burden, depression, coping and well-being. *Nursing and Health Sciences, 7*, 81-91.
- McDermott R., & Sarvela, P. (Eds.) (1999). *Health, education, and evaluation*. McGraw-Hill College.
- Miller, B., Townsend, A., Carpenter, E., Montgomery, R. V. J., Stull, D., & Young, R. F. (2001). Social support and caregiver distress: A replication analysis. *Journal of Gerontology: Social Sciences, 56B*, S249-S256.
- Miller, G. D., Rejeski, W. J., Williamson, J. D., Morgan, T., Sevick, M. A., Loeger, R. F., Ettinger, W. H., & Messier, S. P. (2003). The arthritis, diet and activity promotional trail (ADAPT): Design, rationale, and baseline results. *Control Clinical Trials, 24*, 462-480.
- Min, J. W. (2005). Preference for long-term care arrangement and its correlates for older Korean Americans. *Journal of Aging and Health, 17*, 363-395.

- Mitrani, V. B., Feaster, D. J., McCabe, B. E., Czaja, S. J., & Szapocznik, J. (2005). Adapting the structural family systems rating to assess the patterns of interaction in families of dementia caregivers. *The Gerontologist*, 45, 445-455.
- Moore, M. J., Zhu, C. W., & Clipp, E. C. (2001). Informal costs of dementia care: Estimates from the National Longitudinal Caregiver Study. *Journal of Gerontology: Social Sciences*, 56B, S219-S228.
- Morris, D. O. (2000). Personality types of dental school applicants. *European Journal of Dental Education*, 4, 100-107.
- Myers-Briggs, I., McCaulley, M. H., & Most, R. (Ed). (1985). *Manual, a guide to the development and use of the Myers-Briggs type indicator*. Consulting Psychologists Press: Palo Alto, CA.
- National Alliance for Caregiving and AARP. (2004, April). Caring in the U.S. Retrieved July 8, 2005, from <http://www.caregiving.org/data/04finalreport.pdf>.
- National Family Caregivers Association (NFCA). Education and Support: Yes, I am a family caregiver. Retrieved August 31, 2004, from http://www.thefamilycaregiver.org/ed/v4_a3.cfm.
- National Family Caregivers Association (NFCA). Family caregivers and caregiving families – 2001. Retrieved May 13, 2004, from http://www.thefamilycaregiver.org/pdfs/FCCF2001_report.pdf.
- National Family Caregivers Association (NFCA). Who are family caregivers? Caregiving statistics. Retrieved May 13, 2004, from <http://www.thefamilycaregiver.org/who/stats.cfm>.
- National Family Caregivers Association (NFCA). Who are family caregivers? Comparing survey stats and understanding why they differ: How many caregivers in the US? Retrieved August 31, 2004, from http://www.thefamilycaregiver.org/who/comp_survey.cfm.
- National Family Caregivers Association (NFCA). Who are family caregivers?: NFCA's 2001 survey of self-identified family caregivers. Retrieved August 31, 2004, from http://www.thefamilycaregiver.org/pdfs/FCCF2001_report.pdf.
- National Family Caregivers Association (NFCA) and Albert Einstein College of Medicine. (2002). Prevalence and economic value of family caregiving. Retrieved August 30, 2004, from http://www.thefamilycaregiver.org/pdfs/state_stats.pdf.
- Neary, S. R., & Mahoney, D. F. (2005). Dementia caregiving: The experiences of Hispanic/Latino caregivers. *Journal of Transcultural Nursing*, 16, 163-170.

- Neufeld, A., & Harrison, M. J. (2003). Unfulfilled expectations and negative interactions: Nonsupport in the relationships of women caregivers. *Journal of Advanced Nursing, 41*, 323-331.
- Nijboer, C., Tempelaar, R., Sanderman, R., Triemstra, M., Spruijt, R. J., & van den Bos, G. (1998). Cancer and caregiving: The impact on the caregiver's health *Psycho-Oncology, 7*, 3-13.
- Nijboer, C., Triemstra, M., Tempelaar, R., Mulder, M., Sanderman, R., & van den Bos, G. A. M. (2000). Patterns of caregiver experiences among partners of cancer patients. *The Gerontologist, 40*, 738-746.
- Noland, V. J. (2000). An assessment of adolescent sibling violence and its relationship to parental and dating violence. Dissertation, University of South Florida, College of Public Health, Department of Community and Family Health.
- Northouse, L. L., Mood, D., Kershaw, T., Schafenacker, A., Mellon, S., Walker, J., Galvin, E., & Decker, V. (2002). Quality of life of women with recurrent breast cancer and their family members. *Journal of Clinical Oncology, 20*, 4050-4064.
- PA765. Multiple regression. Retrieved April 13, 2006, from <http://www2.chass.ncsu.edu/garson/PA765/regress.com>.
- Parle, M., Maguire, P., & Heaven, C. (1997). The development of a training model to improve health professionals skills, self-efficacy and outcome expectancies when communicating with cancer patients. *Social Science and Medicine, 44*, 231-240.
- Partnership for Solutions. (2002, December). Partners, chronic conditions: Making the case for ongoing care. Prepared by Partnership for Solutions, Johns Hopkins University for the Robert Wood Johnson Foundation. <http://www.partnershipforsolutions.org/DMS/files/chronicbook2004.pdf>
- Pinquart, M., & Sorensen, S. (2005). Ethnic differences in stressors, resources, and psychological outcomes of family caregiving: A meta-analysis. *The Gerontologist, 45*, 90-106.
- Pinto, B. M., Friedman, R., Marcus, B. H., Kelley, H., Tennstedt, A., & Gillman, M. W. (2002). Effects of a computer-based, telephone counseling system on physical activity. *American Journal of Preventive Medicine, 23*, 113-120.
- Pott, A. M., Deeg, D. J., van Dyck, R., & Jonker, C. (1998). Psychological distress of caregivers: The mediator effect of caregiving appraisal. *Patient Education Counseling, 34*, 43-51.
- Roff, L. L., Burgio, L. D., Gitlin, L., Nichols, W., Chaplin W., & Hardin, J. M. (2004). Positive aspects of Alzheimer's caregiving: The role of race. *Journal of Gerontology B and Psychological Science, Social Science, 59*, P185-P190.

- Rosner, B. (2000). *Fundamentals of biostatistics*. 5th edition. Pacific Grove, CA: Duxbury Thomson.
- Sawatzky, J. E., & Fowler-Kerry, S. (2003). Impact of caregiving: Listening to the voice of informal caregivers. *Journal of Psychiatric Mental Health Nursing*, 10, 277-286.
- Scharlach, A. E., Midanik, L. T., Runkle, M. C., & Soghikian, K. (1997). Health practices of adults with elder care responsibilities. *Preventative Medicine*, 26, 155-161.
- Scholte op Reimer, W. J. M., de Haan, R. M., Rijnders, P. T., Limburg, M., & van den Bos, G. (1998). The burden of caregiving in partners of long-term stroke survivors. *Stroke*, 29, 1605-1611.
- Schultz, R., & Beach, S. R. (1999). Caregiving as a risk factor for mortality: The caregiver health effects study. *Journal of the American Medical Association*, 282, 2215-2219.
- Schultz, R., Beach, S. R., Lind, B., Martire, L. M., Hirsch, C., Jackson, S., & Burton, L. (2001). Involvement in caregiving and adjustment to death of a spouse. *Journal of the American Medical Association*, 285, 3123-3129.
- Small, G. W., McDonnell, D. D., Brooks, R. L., & Papadopoulos, G. (2002). The impact of symptom severity on the cost of Alzheimer's Disease. *Journal of American Geriatric Society*, 50, 321-327.
- Smith, K., & Wright, K. (1994). Informal care and economic appraisal: A discussion of possible methodological approaches. *Health Economics*, 3, 137-148.
- StatSoft, Inc. Multiple regression. Retrieved April 13, 2006, from <http://www.statsoft.com/textbook/stmulreg.html>
- Steffen, A. M., McKibbin, C., Zeiss, A. M., Gallagher-Thompson, D., & Bandura, A. (2002). The revised scale for caregiving self-efficacy: Reliability and validity studies. *Journal of Gerontology: Psychological Sciences*, 57B, P74-P86.
- Stevens, A., Owen, J., Roth, D., Clay, O., Bartolucci, A., & Haley, W. (2004). Predictors of time to nursing home placement in White and African American individuals with dementia. *Journal of Aging and Health*, 16, 375-397.
- Tang, Y-Y, & Chen, S-P. (2002). Health promotion behaviors in Chinese family caregivers of patients with stroke. *Health Promotion International*, 17, 329-339.
- Teel, C. S., & Press, A. N. (1999). Fatigue among elders in caregiving and noncaregiving roles. *Western Journal of Nursing Research*, 21, 498-520.
- Temperament: Temperament versus character? (1997). Retrieved July 8, 2004, from <http://keirse.com/pumII/temper.html>.

- Toobert, D. J., Strycker, L. A., Glasgow, R. E., Barrera, M., & Bagdade, J. D. (2002). Enhancing support for health behavior change among women at risk for heart disease: The Mediterranean lifestyle trial. *Health Education Research, 17*, 574-585.
- Traub, R. E. (1994). *Reliability for the social sciences: Theory and applications*. Thousand Oaks, CA: Sage.
- Understanding the four temperament patterns. The Why. Retrieved December 4, 2004, from <http://4temperaments.com>.
- University of Texas, School of Nursing, Center on Aging. Retrieved February 28, 2005, from <http://son.uth.tmc.edu/coa/default.htm>.
- U.S. Department of Health & Human Services, Administration on Aging. A profile of older Americans: 2001. Retrieved February 28, 2002, from http://www.aoa.gov/prof/statistics/profile/2004/2_pf.asp.
- Van den Berg, B., Brouwer, W., van Exel, J., & Koopmanschap, M. (2004). Economic valuation of informal care: The contingent valuation method applied to informal caregiving. *Health Economics*, published online, www.interscience.wiley.com; DOI: 0.1002/hec.893.
- Vanderweker, L. C., Laff, R. E., Kadan-Lottick, N. S., McColl, S., & Prigerson, H. G. (2005). Psychiatric disorders and mental health service use among caregivers of advanced cancer patients. *Journal of Clinical Oncology, 23*, 6899-6907.
- Vitaliano, P. P., Zhang, J., & Scanlan, J. M. (2003). Is caregiving hazardous to one's physical health? A meta-analysis. *Psychological Bulletin, 129*, 946-972.
- Wackerbarth, S. B., & Johnson, M. M. S. (2002). Essential information and support needs of family caregivers. *Patient Education and Counseling, 47*, 95-100.
- Wagner, D. L. (1997, June). National Alliance for Caregivers: Comparative analysis for caregiver data for caregivers to the elderly, 1987 and 1997. Retrieved February 20, 2004, from <http://www.caregiving.org/data/analysis.pdf>.
- Wallsten, S. S. (2000). Effects of caregiving, gender, and race on the health, mutuality, and social supports of older couples. *Journal of Aging and Health, 12*, 90-111.
- Weaver, B. (2003, July 7). One-way analysis of variance. Retrieved January 10, 2006, from <http://www.angelfire.com/wv/bwhomedir/notes/anova1.pdf>.
- Weisstein, E. W. (2004). Spearman Rank Correlation Coefficient. From *MathWorld*-A Wolfram Web, Retrieved March 2, 2005, from <http://mathworld.wolfram.com/SpearmanRankCorrelationCoefficient.html>).

- Weitzner, M. A., Jacobsen, P. B., Wagner, H., Jr., Friedland, J., & Cox, C. (1999). The caregiver quality of life index – cancer (CQOLC) scale: Development and validation of an instrument to measure quality of life of the family caregiver of patients with cancer. *Quality of Life Research*, 8, 55-63.
- Wilson, D. K., Friend, R., Teasley, N., Green, S., Reeves, I. L., & Sica, D. A. (2002). Motivational versus social cognitive interventions for promoting fruit and vegetable intake and physical activity in African American adolescents. *Annals of Behavioral Medicine*, 24, 310-319.
- Wolinsky, F. D., Callahan, C. M., Fitzgerald, J. F., & Johnson, R. J. (1992). The risk of nursing home placement and subsequent death among older adults. *Journal of Gerontology: Social Sciences*, 47, S173-S182.
- Wright, L. K. (1997). Health Behavior and Caregivers. In D. S. Gochman (Ed.) *Handbook of Health behavior research*, Vol. III. New York: Plenum Press, pp. 267-284.
- Wright, L. K., Hickey, J. V., Buckwalter, K. C., Hendrix, S. A., & Kelechi, T. (1999). Emotional and physical health of spouse caregivers of persons with Alzheimer's disease and stroke. *Journal of Advanced Nursing*, 30, 552-563.
- Yaffe, K., Fox, P., Newcomer, R., Sands, L., Lindquist, K., Dane, K., & Covinsky, K. E. (2002). Patient and caregiver characteristics and nursing home placement in patients with dementia. *Journal of the American Medical Association*, 287, 2090-2097.
- Yun, Y. H., Rhee, Y. S., Kang, I. O., Lee, J. S., Bang, S. M., Lee, W. S., Kim, J. S., Kim, S. Y., Shin, S. W., & Hong, Y. S. (2004). Economic burdens and quality of life of family caregivers of cancer patients. *Oncology*, 68, 107-114.

BIOGRAPHICAL SKETCH

Originally from Hawthorne, New Jersey, Teresa A. Tozzo-Lyles grew up in Miami, Florida. She eventually moved to the North Central Florida area, which she has called home to her family and her beloved animals for more than 20 years. Teresa is of Italian and Cuban descent, and she speaks both English and Spanish fluently.

Teresa graduated from the University of Florida with a bachelor's degree in newswriting and editing in 1981. After graduating, Teresa worked as a staff reporter on a small daily newspaper in the Central Florida area. She then returned to Gainesville and began work at the University of Florida, where she was employed for more than 10 years, including administrative work in the Department of Radiology, Shands Teaching Hospital at the University of Florida, until 1997, thus completing her first exposure to working in a health care setting. Teresa completed a master's degree in mass communication in 1994 from the University of Florida, while working full time at Shands Teaching Hospital. During the early 1990s, Teresa actively began volunteering in her church community.

Teresa received a Ph.D. in health behavior from the University of Florida, in December 2006. Her interest areas include health communication, health behavior, and caregiving. She plans to continue her career in the field of health behavior and health education. Teresa's family includes three loving daughters – Leslie, Brianna and Morgann – and a large supportive and extended family, as well as a network of caring friends.