

Dyadic Outcomes of Gratitude Exchange between Family Caregivers and their Siblings

by

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## ABSTRACT

Family caregivers are a quickly growing population in American society and are potentially vulnerable to a number of risks to well-being. High stress and little support can combine to cause difficulties in personal and professional relationships, physical health, and emotional health. Siblings are, however, a possible source of protection for the at-risk caregiver. This study examines the relational and health outcomes of gratitude exchange between caregivers and their siblings as they attend to the issue of caring for aging parents. Dyadic data was collected through an online survey and was analyzed using a series of Actor-Partner Interdependence Models. Intimacy and care conflict both closely relate to gratitude exchange, but the most significant variable influencing gratitude was role. Specifically, caregivers are neither experiencing nor expressing gratitude on the same level as their siblings. Expressed gratitude did not relate strongly or consistently to well-being variables, though it did relate to diminished negative affect. Implications for theory, the caregiver, the sibling, the elder, the practitioner, and the researcher are addressed in the discussion.

## DEDICATION

For Mom and Aunt Cheryl, two inspiring sisters and caregivers

For Carlos and Caleb, the greatest blessings of my life

For Dad, one who gives good gifts--like a college education

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## CHAPTER 1 INTRODUCTION AND RATIONALE

One of the greatest changes in the landscape of adult life in the last century has been how far the horizon stretches. Once an accomplishment, old age was a rare event for a small proportion of a generation. Now, reaching 85 is common, even expected, and aging can be easily associated with living a healthy and satisfying life. At the same time, however, old age carries with it an increasing risk of chronic illness and disability, conditions that necessitate the assistance of others. This assistance is most commonly provided by a family member, in spite of major changes to the composition of family life in the contemporary era. To illustrate this, I would like to detail some of the travails of my mother, Ruth, a typical caregiver.

*I was 9 or 10 when Mom started taking care of Grandma. I remember Grandma's phone calls early morning before school. "Ruth, I'm coughing up green phlegm. I need to go see Dr. McMillan." Good morning to you, too, Grandma. Mom was 44 years old when she started caring for my grandma. It started officially with two complete knee replacements, but there were little things before the surgeries. A stay-at-home mom, Mom was initially both available and willing to care for Grandma's rehabilitation. One knee replacement failed, and a few months of recovery turned into an 18 month ordeal. Grandpa was having trouble taking care of Grandma—he would forget medications and appointments or forget how to cook meals. Not long after, Grandpa was diagnosed with Alzheimer's disease. Grandma could not care for him adequately, so Mom took on*

*“small” duties. Her late forties were spent chauffeuring her parents to doctors’ offices and my brother and me to school. After school, there was gymnastics practice, guitar and piano lessons, and youth groups. Hair to braid, meals to cook, laundry piles to wash, competitions to attend with good cheer, sheet music to buy. Drop me off, go over to Grandma’s, pick me up. Run by the pharmacy and the grocery store. Pick Ryan up. Make dinner. Zone out in front of the television. Go to bed. Start again.*

*Mom’s fifties saw a dramatic increase in caregiving. Grandma’s health declined after Grandpa passed away. Grandma could no longer afford her Plavix and stopped taking it, causing mini-strokes and the onset of dementia. Mom became an expert in medication management, government health insurance, illness diagnosis, and emotional support. “Your legs are swollen because the new dose of your diuretic hasn’t kicked in yet. I already ordered the new pain patch. I know you’re lonely. You told me when you called a few hours ago. Why don’t you come over for dinner tonight?” Mom put at least 30 hours each week into her mother’s care. She started wearing out. In the meantime, Ryan and I grew up. Theoretically, things should have gotten easier, right? But then Dad was diagnosed with Stage IV throat cancer and required 5 years of additional and difficult care.*

*Mom, now 64, remains overwhelmed and battles a variety of health concerns. Depression. Anxiety. Weight management. Pain. Post-traumatic stress disorder. She has probably had the latter, untreated, since Dad’s cancer. The nightmares should have been a clue. Grandma, though in assisted living now, requires regular care and attention. My*

*mother provides that care largely on her own. But she has four siblings. One, Aunt Cheryl, is active in helping with caregiving, offering an average of ten hours per week. This older sister provides both social and instrumental support for Mom. She readily pours a glass of wine and listens to complaints and concerns at the end of the day. Their relationship has grown in intimacy. But Mom rarely hears from her other three siblings, despite the fact that two of them live within a one hour drive of her and her mother. They are unaware of the type of care she does and do not often offer appreciation.*

This story of my mother and her family meets the definition of elder care offered by Zarit and Edwards (2008), “Caregiving constitutes a change in ongoing patterns of exchange and assistance in response to a new disability, which results in one or more people providing regular help to the elder” (p. 256). Mom’s story is not unusual (though her love for her mother and the level of care she offered are a rare blessing). The caregiver status is common, yet the healthcare and research communities are only beginning to recognize the many needs of the caregivers. The general public understands even less about the experience and challenges of caregiving. Research endeavors identify extensive financial, physical, social, and emotional concerns for caregivers, many of which go unidentified by family members. Caregivers do more than provide care *for* a loved one. They also care *about* that loved one; this is the distinction between the caregiver effect and the family effect (respectively; Bobinac, van Exel, Rutten, & Brouwer, 2010). Both of these processes – caring for and caring about – can lead to physical and emotional exhaustion and can affect multiple components of the caregiver’s

lifestyle and well-being. One study (Hoffman, Lee, & Mendez-Luck, 2012) indicated that the mere exposure to caregiving, exclusive of duration of care, family background, or other personal and social characteristics, promoted poor health behaviors among baby boomer caregivers. These behaviors included smoking, sedentary behavior, and poor eating habits, all of which are associated with disability and chronic illness.

The health of the caregiver, however, represents only one area of concern. Social and intimate relationships bear the weight of caregiving. While there is a possibility for increased closeness in intimate relationships because of the shared tasks associated with caregiving (Canary & Stafford, 1994), caregivers often report difficulty in marriage (Creasey et al., 1990), particularly when the elderly parent experiences depression and the caregiver perceives the caregiving to be a greater burden (Adamson et al., 1992). Diminished leisure time detracts from time with friends, who may provide a valuable source of social support (Lovell, Moss, & Wetherell, 2012). Some caregivers with younger children see an increase in stress as they juggle the responsibilities that have come to be known as the burden of the “sandwich generation,” though some research indicates that this is not as common of a caregiving experience as previously thought (Grundy & Henretta, 2006). The sibling relationship often also suffers and can be a source of significant conflict and strain. Semple (1992) identified three areas of family conflict surrounding the caregiving experience: first, regarding definitions of the elder’s illness and how to provide care; second, over how and how much the family as a whole assists the care recipient; third, over how specific family members treat and assist the

caregiver. Discrepancies in these areas yield higher stress levels for the primary caregiver (Bourgeois et al., 1996).

But just as the sibling relationship can be problematic for the caregiver, it can also be a protective mechanism against some of the risks of caregiving. A significant body of research demonstrates sibling support to be highly adaptive throughout many stages of life. Sibling affection can moderate the relationship between stress and internalizing symptoms such as depression and anxiety (Gass, Jenkins, & Dunn, 2007). Sibling support may also provide compensatory effects for the lack of support from other key attachment figures (such as a parent or spouse) by improving outcomes in depression, loneliness, self-esteem, and life satisfaction (Milevsky, 2005). More research is needed to understand and offer intervention for the role that siblings can play for caregiver well-being. One route for intervention is through the promotion of gratitude in the relationship. Research in gratitude indicates that the expression of gratitude and the act of helping another are conceptually and practically linked (McCullough et al., 2001), and that gratitude can transform the well-being of the individual and possibly the relationship (Lambert & Fincham, 2011).

And so we return to my mother. She would appreciate more support from her siblings. She wishes to see them contribute and to hear them say, “Thank you for all you do for Mom.” What would happen for Mom, for her health, if she heard her siblings express thanks? What would happen for the siblings? As with my mother, caregiver health is in jeopardy across the country. Sibling relationships, however, can improve



caregiver well-being in two interconnected ways: 1) through greater participation in the caregiving process, and 2) through better expressions of appreciation. These factors work to create a positive feedback loop: greater participation can contribute to more gratitude, and more gratitude can encourage greater participation. Participation can alleviate burden and gratitude can improve subjective well-being. Expressions of gratitude between siblings in the caregiving process provide a potential point of intervention in favor of caregiver health that requires exploration.

This dissertation will explore the relationship between gratitude exchange and well-being through a dyadic survey study of family caregivers and their siblings. The study will delineate the caregiver lifestyle, how care is distributed across the family system, and the importance of sibling participation and relationship quality for the caregiver. Finally, the rationale will address the potential impact of gratitude exchange on caregiver health and well-being. Chapter 2 details the methodology used to investigate these issues. An in-depth look at the demographics and family structure of the caregivers and siblings who participated in the study precedes the documentation of measures used in the online questionnaire distributed to participants. A discussion of the analytical techniques and theory complete the chapter. Chapter 3 reveals statistical results from the actor-partner interdependence models used for answering research questions and testing hypotheses. Chapter 4 concludes the dissertation with a discussion of the theoretical and practical implications of the findings, with suggestions for intervention and further study.

## **Understanding Family Caregivers**

### **The Demographics of Caregiving**

The most recent demographics from the Administration on Aging (AoA) point to the increasing size of the elder population and the importance of their care in the United States. In 2011, 13.3% of Americans were 65 years of age or older (41.4 million). Projections to the year 2040 point to an older population that will nearly double to 79.7 million as the last of the baby boom generation reaches 65 (AoA, 2012). As Americans live longer, the older population increases in number and in age. By 2040, 14.1 million Americans will be 85 or older, compared to the 5.7 million in 2011. At 85 or older, most individuals experience limited activity. However, health problems often beset individuals during earlier phases of the aging process. Thirty-five percent of men and 38% of women aged 65 or older in 2011 reported some type of disability (i.e., difficulty in hearing, vision, cognition, ambulation, self-care, or independent living; AoA, 2012). Twenty-eight percent of Medicare beneficiaries aged 65 or older reported difficulty with performing a daily living activity such as bathing/showering, dressing, or eating. An additional 12% reported difficulty with instrumental tasks such as preparing meals, shopping, or managing money (AoA, 2012).

As elders require greater assistance, caregiving often begins for one or more close family members. The National Alliance for Caregiving (NAC) and AARP (2009) sponsored a study that estimated that 17% of U.S. households include a caregiver for someone over the age of 50. Up to 29% of the entire population—totaling 65 million

people—provide care to other family members or friends and spend an average of 20 hours per week doing so. Thirteen percent of family caregivers spend 40 hours per week or more in care activities. The study indicated that the most common caregiver demographic was that of a middle-aged, married and employed woman caring for her mother. Approximately 66% of all caregivers are women, and more than a third of those women have children or grandchildren under the age of 18 living in their home. Caregivers in the study commonly attended to parents with prevalent health issues such as Alzheimer’s disease, cancer, diabetes, heart disease, challenges with mobility, and blindness.

The findings above provide a window on the practical demands of caregiving, but the picture is incomplete without pointing to the cultural and familial need for caregivers. Traditional societies include care for the elderly as part of the model of family life. Within this model of filial care, respect for elders and multigenerational care within the home provide a clear precedent for families facing health concerns (Chakrabarti, 2013). As families dispersed across broad geographical regions, these traditions became less familiar in many American families (Zarit & Edwards, 2008). The increasing availability of assisted living facilities and nursing homes offered the possibility of expert care and enhanced convenience (Harris-Kojetin et al., 2013). But as elders live longer under improved medical care, the demand for caregiving increases, changing the lifestyle of many middle aged individuals. Many caregivers find the opportunity to care for their loved ones an honor, a way to give back to a person or persons who gave to them. Other

caregivers find the experience to be an undesirable burden. Many express a mix of these sentiments (Amaro & Miller, 2013), but the conversation in caregiving scholarship necessarily focuses on the stress associated with caregiving.

### **The Outcomes of Caregiving**

In order to understand the physical and psychological outcomes of caregiving, scholars often turn to basic models of stress that have been developed in the psychological literature. The dominant model reflected in studies of caregiver stress is the stress-appraisal-coping paradigm developed by Lazarus and Folkman (1984). This model addresses the relationship between stress and resilience, or the degree to which one responds to risk circumstances with positive outcomes (Rutter, 1990). Sandler and colleagues (1997) defined stress as a stimulus event that a person perceives as impinging on their well-being. Stress events may be positive (such as a wedding) or negative (such as a funeral), but the perception of the event as stressful can affect the well-being of those involved.

The relationship between stress and well-being is moderated by protective and vulnerability mechanisms. The former lessens the effect of stress on well-being, while the latter strengthens the effects (Rutter, 1990). People employ these mechanisms in the face of risk, or the experience of stressful events that can potentially lead to adverse outcomes (Rutter). Without risk, protection is simply an advantage; vulnerability is simply unlucky. But with risk, these mechanisms become potentially powerful contributors to resilience. Consider a caregiver at risk for depression. If that caregiver has protective mechanisms in

her life such as a good friend or a supportive spouse, she is more likely to experience higher levels of resilience in her stressful situation. She may experience depression, but perhaps to a lesser degree or for a shorter period of time. Another caregiver at risk for depression who has a number of vulnerability mechanisms such as lower education, or perhaps the presence of addiction in the home, is much less likely to experience high resilience—she may slip into major depression. Vulnerability mechanisms increase perceptions of negative stress, while protective mechanisms shelter the person at risk from the full impact of the circumstance. Resilience is the human default (Masten, 2001), but it fluctuates as protective and vulnerability mechanisms moderate. A caregiver may have the protection of a strong relationship with a spouse or adult child, but if the sibling relationship is problematic and in a season of conflict, that vulnerability mechanism increases in influence. The following sections detail common risks for the caregiver.

In every life stage, individuals encounter unique challenges and blessings. Certain stages of life often bear similarities and patterns for multiple individuals, as the caregiving experience does for many middle aged adults and their siblings. One of these common experiences is the perception of stress in the caregiving experience, often termed caregiver burden, which can result in a variety of risks for the caregiver and/or her family members.

**Caregiver burden.** The provision of informal care associates with “caregiver burden,” a term referring to the extent to which caregivers’ emotional or physical health, social interactions, and financial well-being change with the care of a loved one (Zarit,

Todd, & Zarit, 1986; Marvadi et al., 2005). The burden on caregivers can be significant and multidimensional, and burden has been the focus of a wide-ranging research for nearly 30 years (Savundranayagam, Montgomery, & Koloski, 2010). Many factors can contribute to the caregiver's perception of burden, including the disease or disability type, sociodemographic factors, and ethnic and cultural factors.

The disease or disability that elicits care relates to caregiver burden in unsurprising ways. For instance, the severity of symptoms in illnesses such as Parkinson's disease (PD) can increase caregiver burden (Schrag, Hovris, Morley, Quinn, & Jahanshahi, 2006). Specifically, Schrag and colleagues found that the caregiver's burden increased with the care recipient's increasing disability and increased symptoms of PD, particularly with mental health problems such as depression, hallucinations, or confusion, as well as with physical problems such as falls. Similarly, the severity of behavioral disturbance increased caregiver burden for caregivers of Alzheimer's disease (AD) patients (Bergvall et al., 2011) and other non-demented adults (Pinquart & Sorensen, 2003). However, the relationship between illness symptoms and caregiver burden may vary with the caregiver's relationship to the care recipient. In Pinquart and Sorensen's meta-analysis of caregiver burden research, physical impairments and care recipients' behavior problems had a stronger relationship to burden for spousal caregivers than for adult children caring for a parent. Regardless of relationship, however, disease-related factors seem to contribute powerfully to burden. A study by Kim and colleagues found that disease-related factors explained 16% of the variance in caregiver burden

(Kim, Chang, Rose, & Kim, 2011). The study by Kim, et al. also investigated the role of sociodemographic factors and caregiving activities. These scholars found that caregivers who were older, married, or living in the same household as the care recipient were more likely to have higher burden. Burden was also predicted by the impairment of activities of daily living in the care recipient and the number of hours spent in caregiving (Kim et al.). The medical complexity of the care also contributes to caregiver strain. Moorman and Macdonald (2012) found that caregivers providing any type of nursing care were more strained than those offering only personal care.

Ethnic and cultural factors have a less examined, but nonetheless important, influence on perceived caregiver burden. Caucasian caregivers are more likely to provide care for a spouse, Latinos are most likely to provide care for a parent, and African Americans are the most likely to provide care for other family members or unrelated others (Burton et al., 1995). In general, caregivers from African American, Afro-Caribbean, Latino or Hispanic groups, or Chinese, Korean, Japanese, and Indian communities reported lower levels of caregiver burden than Caucasian caregivers (Chakrabati, 2013). This may be due to a perception among Caucasians that caregiving is a threat or stressor, while other communities frame the experience in more positive terms (Chakrabati). However, ethnic minority groups are not exempt from the experience of stress or burden in caregiving, and reported worse physical health and more unhealthy behaviors than caregiving whites, after adjusting for sociodemographic differences (Chakrabati; Pinguart & Sorensen, 2003).

**Financial struggles.** Caregiving often demands high financial expenditures, to the extent that the average family caregiver of someone over 50 years old spends \$5,531 per year on out of pocket caregiving expenses, which in 2007 was more than 10% of the median income for a family caregiver (AARP, 2007). Nearly half of working family caregivers indicated that an increase in caregiving expenses caused them to use up all or most of their savings (NAC and Evercare, 2009). Not all of the financial effects of caregiving come out of pocket. Other studies consider caregivers who have to leave the workforce owing to caregiving demands. These studies factor in foregone wages and Social Security benefits, job security and career mobility, and employment benefits such as health insurance and retirement savings (Feinberg, Reinhard, Houser, & Choula, 2011). One analysis estimated that the lifetime income-related losses incurred by caregivers over the age of 50 who leave the workforce to care for a parent are about \$115,900 in wages, \$137,980 in Social Security benefits, and, with a conservative estimate, \$50,000 in pension benefits. These estimates range from a total of \$283,716 for men to \$324,044 for women in lost income and benefits over a caregiver's lifetime (MetLife Mature Market Institute, 2011). This evidence suggests that assuming the role of a caregiver for an aging parent in midlife may drastically increase women's risk of living in poverty and receiving public assistance in old age (Feinberg et al., 2011).

**Health concerns.** The financial costs to caregivers are a dark cloud for many, but these costs are not as ubiquitous as the health concerns for caregivers touted by practitioners and researchers in the elder care field. Caregivers encounter both primary



and secondary stressors. Primary stressors are events that occur in direct relation to the elder's disability or illness and to the assistance provided to the elder. These stressors may be objective (the actual task) or subjective (the immediate impact of the stressor on the caregiver). For example, a caregiver who must lift a parent in and out of bed may experience back strain. The lifting from bed provides a physical, objective stressor, while the resulting back pain (or frustration, exhaustion, or resentment) is a subjective stressor. Secondary stressors may also be overlooked strains that involve changes in the caregiver's life that result from efforts to respond to primary care tasks. These overlooked strains may include an inability to travel for leisure or business because no other person is available or willing to care for the parent.

The distinction between primary and secondary stressors allows researchers and clinicians to specify interventions more appropriately (Pearlin et al., 1990). Physical and psychological outcomes may result from primary or secondary stressors and are intimately linked—the physical may affect the psychological and the reverse. For instance, the difficult decisions and duress of care tasks frequently involve negative emotions such as anger, resentment, or guilt. These experiences can lead to a loss of sleep and physical illness (Donelan et al., 2002). General stress in caregiving has been linked to a lower sense of well-being (Rose-Rego, Strauss, & Smyth, 1998), depression (Bodnar & Kiecolt-Glaser, 1994), and even premature mortality for the caregiver (Schulz & Beach, 1999).

Health concerns also include a lack of care for the caregiver, whether by the self or a medical professional. Nearly three-quarters of family caregivers report not going to the doctor as often as they should. Sixty-three percent of caregivers report having eating habits that are worse than non-caregivers, while 53% report poorer exercise habits than before they began caregiving (NAC and Evercare, 2006). The amount and level of caregiving offered also is negatively associated with exercise (Sisk, 2000) and health-risk behaviors (Burton, Zdaniuk, Schulz, Jackson, & Hirsch, 2003).

Caregiver perceptions of burden contribute highly to these health deficiencies. Chang, Chiou, and Chen (2009) found that more daily hours of caregiving correlated with high burden, low emotional support and self-perceived health, poor mental health. Mental health, in particular, is an adverse outcome of burden. One study of caregivers to older stroke recipients in Japan found that increased burden was associated with worsening mental health, even after controlling for age, sex, chronic illness, average caregiving hours per day, and functional dependence on the care recipient (Morimoto, Schreiner, & Asano, 2003).

**Relational strain.** In addition to these serious individual concerns, caregivers face possible relational strain with the elder as well as with other family members. Caregiving responsibilities reduce the amount of time caregivers are able to spend with family and friends, and/or engage in leisure activities. Social and leisure activities are closely linked to social support and relational maintenance, and caregivers who report limitations in this area also report greater perceived demand on their time, even when

factoring out the extent of an elder's impairment (Miller & Montgomery, 1990). This, then, creates a difficult cycle. The caregiver who perceives greater demand requires social support but necessarily limits the availability of that support by reducing engagement with other relationships.

Relational strain has been associated with role captivity (the sense of being trapped in one's role), overload, and caregiver ineffectiveness (Lawrence, Tennstedt, & Assman, 1998; Townsend & Franks, 1997; Yates, Tennstedt, & Chang, 1999). Relational strain also associated with caregiver negative health and depression (Lyons et al., 2002). One potential cause of relationship strain in caregiving is a discrepancy in the appraisal of caregiving duties. Greater relational strain is associated with a greater discrepancy in the appraisal of care duties between the caregiver and the elder in a study by Lyons and colleagues (2002). For instance, if an adult child cares for a parent and feels unappreciated or burdened, but the elder feels overprotected and dependent, more relationship strain is likely to exist for the caregiver.

Unmet expectations and negative interactions with family members also contribute significantly to relationship strain across multiple relationships for the caregiver. Neufeld and Harrison (2003) found that unmet expectations for support was a pervasive difficulty and encompassed unfulfilled or non-existent promises of assistance, unmet expectations for interaction, mismatched participation or aid, or incompetent contribution on the part of the would-be helper. Negative interactions, particularly with family members, took the form of disparaging remarks that belittled the caregiver's work

or experience, conflict in the appraisal of the care recipient's health status, criticism of the caregiver's decisions, and residual conflict from other family issues. Amaro and Miller (2013) found that, especially within the sibling interaction, similar types of negative interactions were perceived as the antithesis of gratitude and often spurred further conflict and negative emotion in the caregiver.

It is clear, then, that the increasing number of caregivers in the United States face many potential challenges. These concerns range from structural issues in the family to perceptions of burden, financial difficulties, health risks, and relationship strain. These stressors can detract from the well-being of the caregiver. Importantly, research on the caregiving process suggests that many of these issues can be managed in ways that might ameliorate these negative outcomes. Specifically, practical assistance from family members and more positive communication behaviors may contribute positively to well-being. The following section addresses the ways in which siblings can collaborate to improve the experience of caregiving for an elderly family member.

### **Siblings Providing Care Together**

Family members who face the need for elder care contend with a variety of communication quandaries, including a priori discussion of care management, equity of care provision, geographical distance of care providers, and sense-making habits. A central question for families caring for an aging parent is who among siblings will become a caregiver and how that individual will make decisions, a key source of conflict for the family (Semple, 1992). However, this question is rarely, if at all, answered

through interpersonal dialogue (Willyard et al., 2008). The role of caregiver is frequently assumed by desire or by default. Default reasons for caregiving include gender, family position, geography, and life situation.

The family member who assumes the caregiving role may receive varying amounts of help from spouse or siblings and at different times during care provision. Consequently, relationships with these family members will change with the negotiation of division of labor, in part because siblings participate in very little discussion or negotiation of caregiving tasks because of either marked resistance to such conversations or simply because the conversation was never initiated (Connidis & Kemp, 2008; Willyard et al., 2008). As a result, division of labor is usually inequitable and the majority of tasks typically fall to one person, necessitating the distinction between primary and secondary caregivers. This may spark a battle of excuses, in which siblings with more tenuous relationships with each other focus on making claims regarding their (in)ability to participate while emotionally close siblings consider one another's legitimate excuses in an attempt to be fair (Connidis & Kemp).

There are some instances in which families distribute care with equity. A study of such families suggested the need for shared labor between siblings caring for older parents in order to promote the health of the caregivers and the elder. Ingersoll-Dayton, Neal, Ha, and Hammer (2003) focused on families that equitably distributed caregiving responsibilities through turn-taking of certain tasks and clear specification of tasks by expertise and availability. Equitable sharing was associated with a redefinition of

caregiving not as a burden but as a support system in which siblings could enjoy time with each other, could set time aside to plan care together, and could involve parents in the decision making process.

The number of siblings and their gender also contribute to equity in caregiving responsibilities (Connidis, Rosenthal, & McMullin, 1996; Ingersoll et al., 2003).

Specifically, Brody, Hoffman, Kleban, and Schoonover (1989) found that sister dyads were more likely to participate jointly in care management and provision. They were, however, also more likely to experience conflict in the care provision context. Siblings may also affect one another's quantity of care. Tolkacheva, Broese van Groenou and van Tilburg (2010) found that the more care an individual's sibling gave, the more likely he or she was to provide care. That study and others also revealed sex differences in care, finding that the more sisters an adult child had, the less care that child gave (Eriksen & Gerstel, 2002; Hequembourg & Brallier, 2005). Eriksen and Gerstel found that sisters gave more help overall, gave a wider range of help, and were more willing than brothers to assist with practical tasks such as laundry, cleaning, or making meals.

Marital and parental statuses also contribute to the division of caregiving tasks. Adult children with partners tended to provide less care than their siblings (Tolkacheva et al., 2010). The same study found that adult children who had lower frequency of emotional support interactions with parents gave more care, suggesting that caregivers with emotional support from other sources than the parent were more likely to offer care.

Another major factor influencing the division of caregiving labor is geography. Despite desires for equity, a sibling who lives far from the care recipient is often not the primary caregiver and may attempt to share responsibilities with others through provision of instrumental tasks such as financial management or the negotiation of the health care system (MetLife, 2011; Roff, Martin, Jennings, Parker, & Harmon, 2007). Consistent with the findings of Willyard et al. (2008), Roff et al. found an avoidance of formal care planning between siblings in a qualitative interview analysis. This lack of planning seemed to result from a perception on the part of the distant sibling that the situation had not advanced far enough for a formal care plan. Participants identified conversations of formal planning as occurring primarily in situations of severe illness for the parent or care recipient.

Roff and colleagues (2007) also found that some distant siblings offered praise for the primary caregiving sibling's work, expressing thankfulness and relief that their sibling was able to help the parent(s). Other distant siblings criticized the primary caregiver for not spending enough time with the parent or not helping them financially. Several siblings perceived their sibling's (the primary caregiver) contributions as inadequate, arguing that they could do a better job if they lived closer. These siblings did not expect the primary caregiver to change or become more helpful. Roff et al. argue that knowledge of the primary caregiving sibling's involvement or lack thereof may help to explain high and low feelings of appreciation and subtle resentment between siblings. This knowledge may be accrued through regular communication.

The structure of family life in the caregiving context presents a variety of factors that prompt more or less equitable caregiving practices and relational challenges between siblings. These issues are salient for health and well-being for both the caregiver and the sibling. Still, the majority of studies on siblings in middle to later life focus on either the caregiver or the care receiver, ignoring the importance of the sibling and the broader family dynamics in which caregiving occurs (Connidis & Kemp, 2008; Hequembourg & Brallier, 2005). As such, this study is grounded in a systems theory framework to widen the view of the family portrait.

### **Siblings and the Family System**

Caregiving is both a common practice and a difficult one. If so many of the nation's middle aged individuals are providing care, and 78% of American children grow up with at least one biological sibling (US Census Bureau, 2011), scholars need to understand the sibling relationship in this context. While a stress process model focuses on individual differences, family systems theory situates the individual and the sibling dyad within the larger context of the family on the premise that one cannot understand the part without looking at the whole and vice versa; all relationships are interrelated subsystems and require inspection to see how the larger system operates. These principles of wholeness and interdependence reflect central premises of General Systems Theory (GST), a theory that emerged in World War II to explain weapons development and information sciences but which evolved to address fields as disparate as mathematics, biology, and fields addressing human interaction such as sociology and family



communication (Galvin, Dickson, & Marrow, 2006). Originally developed by von Bertalanffy (1934, 1968), GST explores relationships between various and apparently dissimilar systems (Beavin Bavelas & Segal, 1982). A system is a set of units that together compose a whole; a social system is a set of individuals who make relationships and who together make a complex unit, such as a family.

GST includes six essential properties (von Bertalanffy, 1950). The first, wholeness, is the principle that one cannot understand the system by examining the parts in isolation. Indeed, claims about family life are speculative without examining more than one person in the family. The second, interdependence, represents the interrelations among all members of the system and the environment. For instance, the child and the mother cannot have a relationship without the existence of a relationship between mother and father. The child, mother, and father are interrelated and depend upon each other for various system needs. Third, all systems have subsystems, forming a hierarchy. In the family these subsystems are interpersonal relationships between subunits such as the sibling-to-sibling or child-to-parent relationship. These subsystems may also include personal or psychobiological subsystems, as each individual represents a system.

The fourth principle is the presence of boundaries and a degree of openness in a system (von Bertalanffy, 1950). This principle refers to how a system receives and processes information from outside of the systems permeable boundaries. All families, for instance, receive information from other systems such as schools, workplaces, government institutions, and other families. The family must then both facilitate and

restrict the flow of information from the outside and demarcate from within. For example, a caregiver and an elder receive information from a doctor about the elder's health. This subsystem makes a (perhaps default) decision about how much information they wish to take in on that topic and must process and apply that information within the relationship.

System feedback is the fifth principle of GST. This principle maintains that families organize by rules and that the organization shifts based on system feedback and maintains organization or homeostasis based on negative feedback (von Bertalanffy, 1950). Importantly, positive and negative feedback are not the same as positive and negative reinforcement (Beavin Bavelas & Segal, 1982). Instead, the system as a whole provides feedback. In a negative feedback operation, a change begins, the system takes notice and counteracts the change, and the system restores homeostasis. Consider first a caregiver who protests the number of hours she must commit to an aging parent and requests help. Other family members who do not wish to deviate from the status quo may oppress that caregiver's desire by failing to step up to help or by reframing the caregiver's request as selfish. The caregiver cannot find help from family and must continue in her role. In a positive feedback operation, however, change increases. Consider now a caregiver who proffers the same protest and request for help. Siblings choose to respond with help for the caregiver. The caregiver's reaction is to encourage their help with gratitude, and the siblings feel increasingly inclined to help. This can eventually change the system and efficiency of subsystems. Both positive and negative

feedback may be useful to a family, depending on various needs; neither form of feedback is inherently good or bad (Beavin Bavelas & Segal).

The positive and negative feedback possible within a system compose the sixth principle of GST, equifinality (von Bertalanffy, 1950). Equifinality proposes that, in open systems like the family, the process of positive or negative feedback determines the end result or goal of the system (Galvin et al., 2006), though these results are not deterministic because of the complex nature of feedback and of the system itself. Many disparate beginnings may lead to the same outcome depending on the nature of feedback and interdependent relationships. The reverse is also true, that the same beginning may lead to unique outcomes if the process differs (Beavin Bavelas & Segal, 1982).

General Systems Theory provides a unifying and interdisciplinary theory with diverse applications that frequently include family life. The components of a system—wholeness, interdependence, hierarchy, openness, feedback, and equifinality—help to expose the workings of complex family relationships. A family systems approach implies the need to explore multiple members of the family. This study addresses one subsystem, the sibling dyad, but also attends to the implications of that dyad's interaction on the caregiver's individual subsystem (his or her body/well-being), which may influence other system relationships (such as the relationship between each sibling and parent, or among siblings and their own family units) based on the principle of interdependence. Because family systems evolve over time, the sibling unit is not static and should be assessed in

context. Thus, the following section addresses the workings of the sibling system in middle age.

### **Siblings in Middle Age**

The interdependence of the family system endures through the lifespan. As siblings relate as adults, they communicate with varying intent and levels of commitment and support. These communication approaches will come to constitute varying types and levels of interdependence and will generate the positive or negative feedback that affects system operation. When system change is necessary, communication behaviors become especially pertinent. Families can develop strategic use of healthy communication patterns to maintain well-being for the individual and the system and subsystems. For instance, when a sibling offers more support to a caregiver, the relationship between sibling and caregiver is likely to improve, as is the relationship between caregiver and parent. Of course, these outcomes are not deterministic, as the equifinality principle suggests. However, there are patterns that have been identified regarding how commitment and support shape the sibling system in middle age, the typical season of life of family caregivers.

**Commitment and support.** Siblings in middle age typically seek communication for intimacy and closeness (Fowler, 2009). Cicirelli (1991) hypothesizes that the “baby boom” generation may be an especially intimate sibling group, as members of that generation have more siblings than prior cohorts as well as less stable marriages and fewer children of their own. In addition to the possible enhanced effects of being a baby

boomer, the majority of all adults feel close or very close to their siblings and increasingly so into old age. While the examination of closeness dominates adult sibling relationship research, rivalry and conflict also make significant cameos. Most studies find both rivalry and conflict to be relatively low but not absent in adulthood (Cicirelli; Gold, 1989), though caregiving may exacerbate these tensions. But above all, middle age seems to mark a relatively stable period for siblings as a group.

Patterns of stability emerged in an examination of sibling commitment across the lifespan (Rittenour, Myers, & Brann, 2007). Canary and Stafford (1994) conceptualized commitment as a psychological attachment through which an individual intends to continue a relationship; it is considered essential to the success of close relationships and is known to relate strongly to relational satisfaction, liking and loving, trust, closeness, and investment in romantic and platonic relationships. For siblings, commitment is positively linked to the use of relational maintenance behaviors (Myers & Weber, 2004), confirming the idea that siblings desire to uphold their relationships across the lifespan. Rittenour et al. found no significant difference in mean scores of commitment across three age groups spanning 18 to 92 years. Communication-based emotional support, a supportive communication dimension of affectionate communication, and sibling age (reporting on a younger sibling) explained nearly 30% of the variance in sibling commitment, suggesting that sibling intimacy is the underlying factor associated with sibling commitment. To continue an exploration of this premise, Myers and Bryant (2008) explored manifestations of commitment in emerging adult relationships, finding

that 11 behaviors—all communicative in nature—predict commitment: tangible support, emotional support, informational support, esteem support, network support, everyday talk, shared activities, verbal expressions, nonverbal expressions, protection, and intimate play. Protection was the most frequently used indicator of commitment, and all indicators were directly related to relational satisfaction. Emotional support, network support, and shared activities were specific predictors of relational and communication satisfaction.

The apparent relationship between commitment and support highlights the essential and protective function of support in the sibling relationship. Social support is one of the most widely recognized modifiers of caregiver stress (Zarit & Edwards, 2008). It manifests as instrumental support—actual assistance in performing tasks—or as emotional support, the degree to which others express positive feelings to the caregiver (Zarit & Edwards). Sibling social support in particular emerged as a form of relational maintenance in a study by Myers and Weber (2004).

Gardner and Cutrona (2004) define social support as “verbal communication or behavior that is responsive to another’s needs and serves the functions of comfort, encouragement, reassurance of caring, and/or the promotion of effective problem solving through information or tangible assistance” (p. 495). Voorpostel (2007) argues that social support may also be linked to solidarity, essential glue for close relationships. In general, social support is connected to greater well-being for both its recipients and its providers, though sibling social support is less studied than marital or parental social support. Sibling support has been linked to higher self-esteem, positive psychosocial development

(Dailey, 2009), and social competence (see Gardner & Cutrona for a review). Sibling social support has the capacity to be protective against a variety of risks and to enhance well-being on several levels. Milevsky (2005) explored the concept of compensatory social support, finding that young adults who received support from their siblings when they lacked support from parents or peers scored higher on well-being measures (depression, loneliness, self-esteem, life satisfaction) than did people who lacked support from siblings as well as parents or peers. Sibling support in general was associated with less depression and loneliness, higher self-esteem, and higher life satisfaction. Given that sibling commitment does not appear to vary over age groups, compensatory social support is likely to retain relevance for the middle-aged sibling dyad.

For caregivers, support behaviors may shift within the context. Malone-Beach, and Zarit (1995) investigated the daily interactions of the caregiver and other family members and found that giving advice and information to an elder or other family member was perceived as stressful. Providing information, however, is typically viewed as a type of support, suggesting that family members may be giving advice but not listening to the caregiver or finding out what is the real need in a given situation (Zarit & Edwards). Brody et al. (1989) found that sisters of caregiving daughters may experience significant guilt for not offering enough support to the caregiver, who is also more likely to feel support from her husband or from friends than from a sibling (Brody et al., 1992).

However, siblings may be one of the best providers of social support for each other, and for caregivers in particular. Siblings can offer potential protective mechanisms

against risks such as depression or anxiety (Gass et al., 2007), and they can provide this protection throughout the lifespan. But the relationship can be troublesome also, placing one or both siblings in a position of vulnerability, enhancing risk for lower well-being when the relationship is less than ideal (Waldinger, Vaillant, & Orav, 2007). But committed siblings can offer powerful support to improve well-being, a clear point of intervention for individuals struggling with life circumstances. Currently, caregivers are most likely to feel support from non-sibling family members. But siblings can contribute. They can make positive change in the family with simple and strategic communication choices such as positive communication, and, in particular, gratitude (Wood et al., 2008a). The following section addresses positive communication, starting first with a general vision of individual well-being and transitioning to a consideration of gratitude as a specific mechanism for positive change.

### **Positive Communication**

Researchers in the social sciences have seen a recent surge in attention to positive experiences in human life. The mission of this branch of research is to identify, understand, and encourage the development of factors that allow individuals, families, and communities to thrive (Seligman & Csikszentmihalyi, 2000). A specific focus in the study of positive psychology is the role of positive emotions in building and broadening well-being (Frederickson, 2001). The following section focuses on two major elements of positive psychology—subjective well-being and gratitude—specifically focusing on how the communication of gratitude might transform well-being.



## **Subjective Well-being**

It is important to understand how the potential negative health outcomes of caregiving (e.g., burden or relational strain) contribute to overall well-being for the caregiver and the larger family system. When most people consider components of a good life, they include happiness, health, and longevity. Recent research indicates that happiness directly and causally affects health and longevity (Diener & Chan, 2011). One measure of happiness is subjective well-being (SWB), a concept that refers to people's evaluations of their lives. These evaluations are perhaps a composite of the moment-to-moment affect that a person experiences in an hour, a day, a week, and so forth (Lucas & Diener, 2008). When people consider their well-being, affect is especially salient due to its valenced nature (Lucas & Diener). However, people do not simply live from feeling to feeling, but also have the ability to think abstractly about their lives. Cognitive evaluations of one's life and well-being may differ from experienced affect, which provides one source for consideration. For instance, a spouse may be angry with his partner, but probably can also consider that his marriage is generally stable and his partner is a good person; as such, he may conclude that his well-being is relatively high, despite his current negative affect. Importantly, research shows that positive and negative affect are not polar opposites, but are empirically separable; a person can experience one in tandem with the other (Lucas & Diener; Watson, Clark, & Tellegen, 1988).

**Correlates.** SWB researchers have found many known correlates with the construct (Diener et al., 1999) For instance, personality plays a dominant role in the

prediction of SWB. The body of research exploring personality and well-being consistently reveals that extraversion, neuroticism, optimism, and self-esteem correlate with emotional well-being (Lucas & Diener, 2008). Income, marriage, and religion all associate positively with SWB. However, the common idea that SWB declines with age appears to be false. Instead, Diener and Suh (1998) found that while pleasant affect declined with age, no significant trends emerged in life satisfaction or unpleasant affect. However, the relationship between age and SWB may be more complex than declining or not declining. Mroczek and Spiro (2005) found that life satisfaction increased in middle age (from 40 to 65) and then declined as the person reached old age, and most dramatically as he or she approached death.

**Links to health.** Many think of happiness as an end state with accomplished desires and goals—the right house, the perfect children, the ample salary for the prestigious career—but researchers in psychology and related areas posit that happiness itself contributes to the attainment of such goals (Lucas & Diener, 2008). Frederickson (2001) argues that positive emotions better human life because they broaden momentary thought-action repertoires, thereby allowing a person to build enduring personal resources. These personal resources may include physical, intellectual, social, or psychological factors. According to this theory, positive emotions, such as gratitude, may permit a person to communicate with more intentionality or to engage in better decision-making processes. These behaviors then build relationships or assist with physical health. Indeed, research suggests that stable positive feelings predict longevity and health beyond

negative feelings (Diener & Chan, 2011). Hemingway and Marmot (1999) found in a review of literature that 11 of 11 studies demonstrated that anxiety and depression predicted coronary heart disease in healthy people. Limited evidence also suggests that SWB predicted cancer incidence and survival (Williams & Schneiderman, 2002). In terms of longevity, one study examined photographs of 196 professional baseball players taken in 1952 and rated them for the intensity and authenticity of smiling. Smiling predicted delayed mortality (Abel & Kruger, 2010), suggesting that people who use smiles more naturally experience higher subjective well-being and may experience longer life. Ostir et al. (2000) found that Mexican American participants aged 65 to 99 who reported high positive affect were half as likely to die before the 2 year follow up of the study. Positive affect also seemed to protect participants against physical decline.

**Caregiver well-being.** SWB has powerful implications for caregivers and their families. In an intervention study by Mittelman, Haley, Clay, and Roth (2007), improving well-being for spousal caregivers through access to counseling, support groups, and ad hoc telephone counseling resulted in a 28.3% reduction in the rate of nursing home placements for elders with Alzheimer's disease. The difference in median time to placement was 557 days. The intervention improved the caregivers' satisfaction with social support, responses to their spouses' behavior problems, and the caregivers' symptoms of depression. Those improvements collectively accounted for 61.2% of the intervention's positive impact on placement. Thus, the caregiver's well-being is essential to the care and well-being of the elder and to society at large.

Though it is not surprising that caregiving is often linked to stress, caregiving can also offer a boost to well-being. Caregivers with greater interdependence with a spousal care recipient experienced positive affect with helping behaviors. When, however, caregivers perceived low interdependence, helping and “on-call” time predicted greater negative affect (Poulin et al., 2010). Similarly, quality of the relationship between the caregiver and the care recipient mediated the relationship between caregiving stressors and depression (Yates et al., 1999). When caregiving is central to identity, the service can provide significant meaning for the caregiver, which can also contribute to well-being (Martire, Parris Stephens, & Townsend, 2000; Noonan & Tennstedt, 1997). Noonan and Tennstedt found that having clear meaning in one’s experience as a caregiver explained a significant portion of differences in depression and self-esteem, when controlling for demographic variables and stressor variables.

SWB provides one measure of happiness and examines one area of health, but it is at the very core of the human condition. We are, by nature, evaluators of our own lives. We spend our energy striving for conditions and feelings that provide a better evaluation. We long for well-being. But we often miss the paths to take us toward improved SWB, which are often the same paths that bring us to improved health and relationships. One known path toward well-being includes the experience and expression of gratitude. The following sections examine the philosophy, experience, and practice of gratitude in the caregiving context, emphasizing it as an essential contributor to caregiver well-being.

### **Gratitude**

Gratitude is the positive emotion that occurs from the perception that one has benefited from the costly, intentional, voluntary act of another person (McCullough, Kimeldorf, & Cohen, 2008). The study of gratitude finds root in multiple disciplines, including theology and philosophy.

### **Philosophical Underpinnings**

Gratitude depends on the human capacity to empathize with others (Lazarus & Lazarus, 1994). That empathy, communicated through the experience and expression of gratitude, helps individuals develop and maintain healthy relationships (Lambert & Fincham, 2011). As those relationships grow, Emmons and Shelton (2002) argue that feeling grateful may correlate with feeling loved and cared for by others. As a person responds with gratitude to this care from loved ones, he or she may communicate in such a way as to induce gratitude in others (McCullough, Kilpatrick, Emmons, & Larson, 2001). Gratitude is, in this way, is a moral affect (McCullough et al., 2001). It is both a response to moral behavior and a motivator of the same. Beneficiaries of gratitude act in ways that promote the well-being of others when they themselves have been made grateful. Therefore, expressing gratitude to one's benefactor encourages the benefactor to behave prosocially in the future.

Emmons and Shelton (2002) reference Thomas Aquinas's thinking that gratitude is a secondary virtue associated with the primary virtue of justice. Aquinas saw justice as rendering to others their right or due. Gratitude, then, is a motivator of altruistic action because it entails thanking one's benefactors and generating a fitting and appropriate

response (Aquinas, 1981). Ingratitude is equally viewed as a vice, an injustice, and connects to narcissism (Emmons & Shelton). On the other hand, people high in gratitude are likely to be high in agreeableness, empathy, and perspective taking (Lazarus & Lazarus). Certainly, these virtues resonate with a theological recognition of gratitude that views all good things as gifts from God or a higher power. A more ethereal perspective on gratitude demands a spiritual core of gratefulness if gratitude is to be more than “simply a tool for narcissistic self-improvement” (Emmons, 2012, p. 50). Instead, true gratefulness “rejoices in the other. It has as its ultimate goal reflecting back the goodness that one has received by creatively seeking opportunities for giving. The motivation for doing so resides in the grateful appreciation that one has lived by the grace of others” (Emmons, pp. 50-51).

### **Theoretical Underpinnings**

Other explanations of the existence of gratitude attend to the instinct of gratitude as an evolutionary adaptation. Trivers (1971) argues that the emotion of gratitude was selected among other human characteristics to regulate human response to altruistic acts and that the emotion is responsive to a cost/benefit analysis of such acts. Indeed, researchers have noted that gratitude seems to be cross-culturally and linguistically universal (McCullough et al., 2001). Hertenstein and colleagues (2006) argue that gratitude may have evolved independent of language, as certain nonverbal communication behaviors (e.g., a handshake or hug) can be used to communicate gratitude. Gratitude also increases trust in third parties, but only when a person lacks a

high degree of familiarity with the third party, indicating that gratitude can expand a social circle (Dunn & Schweitzer, 2005). Social exchanges, or the trading of concrete or abstract benefits, provide a basis for human interaction, but these exchanges must be reciprocal over time, and advantageous or equitable. Gratitude encourages these exchanges by making them both more pleasant and more likely to happen again. The neo-Darwinian conclusion of this approach is that gratitude evolved to assist social exchange, bonding, and attachment, thereby keeping the human race alive and prosperous.

Social exchanges are affected by the value of individual offerings or exchanges set by the norms of a society. Hochschild (1989) argues that interactions are conditioned by socially constructed norms. She contends that in relationships, individuals offer “gifts,” which are interpreted by another person as a degree beyond the norm, or what was initially expected. An economy of gratitude is the “summary of all felt gifts” (p. 96). Hochschild applies the economy of gratitude to the marital context, but its premises stand for any close relationship, including the sibling relationship. She writes, “Crucial to a healthy economy of gratitude is a common interpretation of reality, such that what feels like a gift to one, feels like a gift to the other” (p. 96). Sometimes two people can agree on what constitutes a gift, but cultural winds blow men and women in different directions. A traditional economy of gratitude accords honor to men and women in different ways, usually according to gender norms in which the woman is expected to provide nurturing work and a man to provide breadwinning work (and so these types of work are not perceived as a gift). An egalitarian economy affirms rules that pay tribute to

men and women in similar ways. This approach bears significant explanatory power for gender differences in caregiving, such as the ways in which a brother is less likely to contribute than a sister. But Hochschild's theory also predicts that siblings will experience and/or express gratitude when they perceive the other as doing more than his or her fair share of the work. However, they must first be aware that the work occurs and in what form, and then perceive such work as a gift. A recipient of this type of gift may process gratitude in a variety of ways. The following section explores the various experiences of gratitude identified in research.

### **State and Trait Gratitude**

Gratitude can exist on three levels: as an affective trait, an emotion, and as a daily mood (McCullough, Tsang, & Emmons, 2004). At the state level, emotions reflect temporary affects or longer lasting moods. These emotions may have correlated thought and action tendencies, such as the reciprocation of aid (Bartlett & DeSteno, 2006). Some individuals experience the state more frequently, leading to the trait level (Wood et al., 2008b). Trait, or dispositional, gratitude is a causal predictor of well-being (Emmons & McCullough, 2003; Lyubomirsky, Sheldon, & Schkade, 2005). It is also associated with prosocial traits such as forgiveness, empathy, and a willingness to help others (Emmons, 2012; McCullough et al., 2002). Wood et al. demonstrate that people high in trait gratitude experience higher levels of state gratitude due to interpretive biases characteristic to the person. These biases allow the person to appraise a prosocial situation as a personal benefit and to do so more frequently. Positive attributions in



prosocial situations lead to the experience of state gratitude. Wood and colleagues (2008c) also contend that trait gratitude and appreciation are a single-factor personality trait.

Indebtedness and obligation are concepts often connected to state gratitude, but fundamentally unique in nature and outcome. Obligation feels negative and uneasy. Gratitude connects to well-being and contentment (McCullough et al., 2008). Feeling obligated after receiving a favor does not predict obligatory compliance with a request as gratitude does (Goei, Roberto, Meyer, & Carlyle, 2007). However, people expect to feel indebted and obligated, not grateful, when a benefactor helps with an expectation of a return favor, which may lead individuals to detach from the benefactor (Watkins, Scheer, Ovnicek, & Kolts, 2006). Tsang (2006) found that the distinguishing detail between obligation and gratitude is the benefactor's attributed motivation. Perceived unselfishness prompted gratitude. Indebtedness or obligation takes an economic form of exchange, while a debt of gratitude is internally generated (Watkins et al.). However, the attributions required in this scenario may be erroneous. Attributions are prone to fundamental biases, favoring the self and diminishing the other, suggesting that there may be times when a person owes a debt of gratitude but actually feels indebted. For instance, many caregivers contribute to their parents' lives because they deeply desire to do so (Amaro & Miller, 2013), therefore, their care is costly, voluntarily, and intentionally assisting both the parent and, by extension, the sibling. However, a sibling who is unaware of the caregiver's desire to serve, or who would also like to serve and is unable

to due to distance or ability, may feel indebtedness rather than gratitude, or perhaps a mix of both feelings. This is but one example of why gratitude may not occur or be conveyed to a benefactor in the caregiving context. However, the expression of gratitude has salience for the relational context and for the individual communicating it.

### **Expressions of Gratitude and the Lack Thereof**

Research has established that receiving expressions of gratitude increases reciprocal prosocial behavior. One study indicated that people who received expressions of gratitude were motivated by greater feelings of social worth (Grant & Gino, 2010). Equally, people who sent expressions of gratitude through “gratitude visits”—the delivery of a letter of gratitude for an especially kind act that went unthanked—were happier and less depressed than a control group and groups in other positive psychology interventions (Seligman et al., 2005). However, gratitude often goes unexpressed when it ought to be stated, especially in the family context. Indeed, Bar-Tal and colleagues (1977) found that people expect to feel more gratitude to strangers, acquaintances, and friends who benefit them more than toward genetic relatives who provide the same benefit.

When present, grateful thinking enhances the pleasure of positive life experiences and circumstances so that individuals may extract optimal satisfaction and health from life (Sheldon & Lyubomirsky, 2006). However, gratitude is predicted by relational appraisals of a benefit. If a recipient of an act does not like the benefit or perceive it as thoughtful, that person is unlikely to feel grateful (Algoe, Haidt, & Gable, 2008). But

when an individual experiences gratitude, it motivates effortful helping behaviors, not simply acts of reciprocity born of indebtedness (Bartlett & DeSteno, 2006). In a series of studies on gratitude and prosocial behavior, Bartlett and DeSteno found that gratitude mediates prosocial behavior, suggesting that it is a malleable variable and a point for intervention for groups that require sustained prosocial behavior such as caregivers and family members. The relationship between helping behaviors and gratitude may be a key to reducing caregiver stress and preventing some of the negative physical and mental health consequences associated with caregiving. For instance, Emmons and McCullough (2003) found that gratitude mediated a relationship between chronic illness and positive affect, improving well-being across a variety of variables, including amount and quality of sleep, greater optimism, and a sense of connectedness to others. However, the lack of expressed gratitude between siblings could be due to a lack of participation from either sibling. That is, if the sibling does not participate in family caregiving, he or she may fail to feel and express because they are not offering help. A helping sibling may be more likely to feel gratitude and express it.

Amaro and Miller's (2013) study of gratitude in relationships between caregivers and non-participating siblings found that despite immense potential benefit and even desire, expressions of gratitude between siblings in the caregiving context did not occur consistently. Caregivers desired verbal and behavioral expressions of gratitude and frequently received no such expression or received expressions of criticism, which they perceived as antithetical to gratitude. The present study assumes that an adult child who

offers care to a parent may merit gratitude from his or her siblings, as the act of care is costly, intentional, and (typically) voluntary, thereby fitting the definition of gratitude offered by McCullough and colleagues (2008). While caregivers may deserve to receive gratitude from family members, they also may benefit from the expression of it to others. Both siblings in the caregiving context stand to benefit from gratitude, as it contributes to well-being (Emmons & McCullough, 2003). If the perception of gift-giving within the relationship enhances well-being and satisfaction in the relationship, siblings need to cultivate that perception to have higher relational satisfaction and possibly more mutual contribution to caregiving.

However, many factors may block the perception of gift-giving and, therefore, the experience and expression of gratitude for siblings. These behaviors can provide negative feedback to the family system, prohibiting change that may be positive for the whole family system. These factors include levels of intimacy and conflict that affect commitment and support. Research and interventions that address these potential blocks and encourage positive communication practices can contribute to positive change in the family system.

### **Summary**

Family caregivers represent a growing sector of American society. They experience unique risks due to a great number of possible stressors. One of the most significant risks is a lower subjective well-being resulting from perceived burden, financial challenges, poor health, and relational strain. The sibling relationship,

especially, may struggle while one or more siblings are caring for an elderly parent. But the sibling relationship can also be one of the most positively influential relationships of one's life. While siblings can equitably and happily collaborate in the care of a parent, many sibling pairs encounter significant conflict about care-related issues. This conflict, along with the intimacy experienced by siblings, adjusts the complex mechanics of the family system such that social support behaviors (or the lack thereof) can lead to shifts toward or away from health and well-being. For caregivers, sibling support can protect against a variety of risks. In this context, the supportive language of gratitude may be a powerful choice, a strategic means to improve the family system. These considerations of the interworkings of caregiving, gratitude, and the sibling relationship suggest the following hypotheses and research questions.

R<sub>1</sub>: What is the relationship between sibling gratitude and caregiver burden?

R<sub>2</sub>: What variables predict care conflict?

R<sub>3</sub>: How does care conflict affect the expression of gratitude?

But gratitude does not always occur when it is needed. Some people are more inclined toward feeling grateful than others; sometimes the relationship makes feeling and speaking gratitude difficult. Both the sibling and the primary caregiver can see increases in subjective well-being from the experience of gratitude (Emmons & McCullough, 2003). But that is just the feeling. What about the communication of gratitude? This study poses two research questions and hypothesizes the following about predictors of expressed gratitude:

RQ<sub>4</sub>: What is the effect of role on one's own expressed gratitude?

H<sub>1</sub>: More dispositional gratitude predicts more frequently expressed gratitude across the sibling dyad.

H<sub>2</sub>: Greater sibling intimacy predicts more frequently expressed gratitude across the sibling dyad.

H<sub>3</sub>: Greater actor participation predicts more frequently expressed partner gratitude.

H<sub>4</sub>: The role of non-caregiving sibling will interact with participation to predict frequency of expressed gratitude.

RQ<sub>5</sub>: What is the effect of role on one's perception of one's sibling's frequency of gratitude expression?

H<sub>5</sub>: More actor dispositional gratitude predicts more perceived frequency of expressed gratitude from the partner.

H<sub>6</sub>: Greater sibling intimacy predicts more perceived frequency of expressed gratitude from the partner.

H<sub>7</sub>: Greater actor participation predicts more perceived frequency of expressed gratitude from the partner.

H<sub>8</sub>: An individual's own report of frequent gratitude expression associates with frequently received gratitude from the sibling.

H<sub>9</sub>: More dispositional gratitude predicts higher quality gratitude between siblings.

H<sub>10</sub>: Greater sibling intimacy predicts higher quality gratitude across the sibling dyad.

H<sub>11</sub>: Greater sibling participation in caregiving predicts higher quality gratitude between siblings.

What happens when caregivers and siblings speak expressions of gratitude? How might the expression of gratitude—the sharing of the experience—improve well-being for the other person? How might it improve the relationship? This study contends the following about well-being outcomes from experienced and expressed gratitude:

H<sub>12</sub>: Sibling expressed gratitude predicts caregiver life satisfaction.

H<sub>13</sub>: Sibling intimacy predicts more life satisfaction for both siblings.

H<sub>14</sub>: Care conflict negatively predicts life satisfaction.

H<sub>15</sub>: Frequency of expressed gratitude positively predicts positive affect.

H<sub>16</sub>: Quality of expressed gratitude positively predicts positive affect.

H<sub>17</sub>: Frequency of expressed gratitude negatively predicts negative affect.

H<sub>18</sub>: Quality of expressed gratitude negatively predicts negative affect.

The exchange of gratitude can foster an economy of gratitude that connects to increased helping behaviors (operationalized in caregiving participation) and higher relationship satisfaction. For caregivers, this matters. Fewer hours in care can also underwrite improved well-being for the primary caregiver by reducing burden and allowing for more leisure time that also promotes healthier relationships between siblings

and with other family members. The study examines the following hypotheses relating to the quality of the caregiver-sibling relationship, manifested in satisfaction and intimacy:

H<sub>19</sub>: Frequency of expressed gratitude predicts relationship satisfaction.

H<sub>20</sub>: Quality of expressed gratitude predicts relationship satisfaction.

H<sub>21</sub>: More sibling expressed gratitude predicts caregiver and sibling relationship satisfaction.

H<sub>22</sub>: More sibling participation in caregiving predicts relationship satisfaction.

Believing that gratitude will fund greater participation, well-being, and relationship satisfaction for both caregiving siblings, this study explores how elements of the sibling relationship predict the experience and expression of gratitude and how, in turn, that experience and expression predict well-being and relationship quality for adult siblings in mid-life.



## CHAPTER 2

### METHOD

To investigate the relationships between adult siblings' gratitude experience and expression, and caregiver well-being, a quantitative dyadic questionnaire was developed. The quantitative approach was selected to identify the existence and strength of specific relationships between gratitude and well-being across the sibling relationship in the caregiving context. A dyadic study permits the first-person examination of how a caregiver's behavior affects the sibling's communication and vice versa. When participants respond to questionnaires strictly about their own behavior, there is a limit to which the researcher can understand about the nature of the relationship—there is a reliance on one perspective, self-reported with some degree of bias. On the other hand, when using dyadic data, participants report their own feelings, without answering many assumptive questions about how the relational partner feels or acts in the relationship. Instead, the partner is enabled to respond with his or her own unique experience. Dyadic data permits the examination of the partners together without the speculative responses occurring in single-person reports of relationships. Previous studies of sibling interaction in the caregiving context (Amaro & Miller, 2013) utilized qualitative approaches to understand the importance of gratitude. This study enables testing of the effects of that gratitude between both siblings so that known effects may open the door to addressing those effects with the caregiver population. The survey testing these potential effects was

approved by the Institutional Review Board of Arizona State University, Protocol #1309009615.

This chapter presents research procedures such as information about the survey, the sampling criteria and recruitment techniques, and the procedures used to match dyads. Following the research procedures, the chapter presents demographic information for the entire sample and separate demographics for the primary caregivers and their siblings. Sample descriptions also included information on the distribution of care tasks between siblings, sibling communication habits, and the types of parent need in the family. Following sample descriptions, the chapter presents the measures used in the survey with information about factor analysis, scale formation, and reliability. Finally, the chapter closes with an overview of the statistical tools used in analysis.

### **Research Procedures**

The online survey was compiled and disseminated using Qualtrics Research Software. The final iteration of the survey required approximately 20-25 minutes for completion by the caregiver and 15-20 minutes for the sibling. A preliminary version of the survey was distributed for pilot testing to two caregiver-sibling dyads in the researcher's immediate network, but who had little knowledge of the study. These dyads provided detailed feedback via telephone conversation or email about the survey's content and ease of use. These dyads were not provided incentives for their contributions, as their relationship to the researcher and the dissertation advisor represented a potential conflict of interest. Feedback addressed emotional reactions to the survey, errors in

typography or question order, poorly worded questions, length of survey, and the ability to report one's accurate experience. Changes to the survey included rewording problematic items, omitting questions about the parent's care requirements from the non-primary caregiving sibling, and reordering questions so that participants did not answer a long series of emotionally intense questions. Other adjustments included omitting scales to shorten the survey. One such scale was a state gratitude scale that required participants to imagine a hypothetical or recently occurring scenario about a time in which they felt gratitude. Questions evaluated the motivation for the emotion, but were speculative in nature and were deemed weaker than other items for this reason and were therefore dropped from the final survey. Once the researcher adjusted these issues and received approval from the project advisor, the survey was disseminated with a unique web link provided by the Qualtrics program using a variety of recruitment techniques addressed in the following section.

### **Participants**

This study required the recruitment of a sibling pair that included one primary caregiver for an aging parent. Siblings were to be over 18 years of age and the caregiver was to be involved with *active* caregiving, meaning that the parent must be alive and in need of current care. While these criteria apply to a large number of Americans, many challenges were anticipated in recruitment, including discrepancies in definitions of caregiving and a lack of available time for participation in research. Even if a caregiver was interested in the study and had time for participation, additional problems were

anticipated with recruiting the other half of the sibling dyad. For example, many siblings in this situation are not in close contact or do not have a relationship quality that would ensure mutual completion of a task. And even for sibling pairs with good relationships, issues of available time could still limit the recruitment of full sibling pairs.

### **Recruitment**

Participants were recruited with incentives funded by the Graduate and Professional Students Association and the Hugh Downs School of Human Communication (HDSHC) of Arizona State University (ASU). A \$2,500 pool of funds paid for recruitment advertisement and participant incentives. Sibling dyads that completed the survey were together entered into a raffle for one of 10 \$200 cash awards. The \$200 awards were shared equally between siblings and were distributed via check from the HDSHC.

Nonprobability convenience sampling techniques began with snowball sampling through group emails to the HDSHC faculty and graduate students and to the National Communication Association's listserv ("CRTnet"). Snowball sampling continued with social media blasts on Facebook, Twitter, and LinkedIn groups for caregivers. Extra credit was offered to students in communication courses at ASU for the successful recruitment of a caregiver and a sibling. Participants in previous studies conducted by the author on caregiving were emailed and encouraged to complete the survey. All of those participants had previously consented to be contacted for additional research.

Targeted social media advertising reached middle aged users of Facebook who indicated interest in terms relevant to caregiving, elder care, Alzheimer's or Parkinson's disease. Four advertisements included four stock images of middle aged children with an aging parent in various postures of support. Next to the image was the title, "Caregiver Sibling Relationship Study" and a brief description of incentives, along with the Qualtrics survey link. The four ads ran for 14 days and generated 588 clicks on the survey link. The researcher also developed a Facebook page to promote the study along with information on caregiver well-being. The page, The Caregiver Communication Challenge, encouraged group members to practice gratitude in their family relationships through regular posts about caregiving and positive communication practices. The researcher posted the survey several times and paid for the post to be "promoted," meaning that it appeared at the top of newsfeeds of people with appropriate demographic and interest indicators. These page and the promotions gained 333 clicks. Despite the activity on the site, the study only gained a few complete dyads during the Facebook advertising campaign.

In addition to these recruiting efforts through personal and local contacts and through social media, the researcher also approached local, regional, and national elder care agencies. Requests to send the survey out over listservs of caregivers were generally denied due to listserv infrastructure or concerns about caregiver privacy. However, the Arizona Caregiver Alliance (ACA) and the American Association for Retired Persons (AARP) both agreed to post the study and its recruitment script to their websites. AARP

hosted a blog and issued a social media blast about the study in an attempt to recruit participants. Because the survey did not request information about how the participant found the survey, and AARP did not provide analytic information, it is not known how many participants AARP helped to recruit.

### **Participant Matching**

The dyadic design of the research required the caregiver sibling to identify a sibling for participation in the study. However, it was important that this sibling not be the brother or sister who was “closest” to the caregiver or who the caregiver saw as most likely to participate in the research. Thus, participants who had more than one sibling were asked to think of the sibling whose first name began with the letter closest to A and respond to the survey with that sibling in mind unless that sibling was unable to respond to a questionnaire, in which case the participant would move to the second alphabetically ordered sibling. Participants were asked to write the name of that sibling to help ensure focus on that sibling relationship. The last page of the survey requested that siblings enter their names and email address, then their sibling’s name and email address. Participants then were asked to open their personal email account and copy and paste the following email, with any personal adjustments to a sibling who is at least 18 years of age.

Hi (sibling’s name),

I’m writing to let you know that I’m participating in a research study on caregivers and their siblings. I’m hoping that you’ll fill out this survey (linked here) to give us a chance to win one of 10 raffle prizes of \$200 cash (\$100 each). To enter the raffle, we both have to fill out the survey. When you fill it out, please be sure to include my first and last name so that the researchers can match our

surveys. Just click on the link, write in my name, and answer the questions. It should take you about 25 minutes.

Thanks,  
Your Name

The data set was downloaded from the Qualtrics server a number of times during the data collection period. Incomplete dyads were noted and contacted via email with encouragement for a prompt reply. In approximately 70% of cases, the missing dyad member would respond to the survey within 3 days of receiving the email.

### **All Sample Demographics**

Participants included 143 adults (18 and over) who were either a caregiver of an elderly parent ( $N=81$ ) or the caregiver's adult sibling ( $N=62$ ). Fifty-four (108 participants) matched sibling pairs responded to the survey, with an additional 35 people responding without sibling completion. Participant age ranged from 19 to 72, with a mean of 49.73 ( $SD=12.65$ ). The sample included 103 women (73%) and 40 men (28%). The majority of participants (86.7%) were European American, with no minority group representing more than 8% of the total. While these numbers are fairly consistent with other caregiver demographic reports (NAC), they are likely not reflective of the actual national population of family caregivers, many of whom do not define their work as caregiving, especially in more collectivistic cultures. However, the sample is likely skewed due to its reliance on the researcher's contacts and social networking sites.

The sample represented a diverse range of educational attainment. Approximately 11% of participants had a high school education. The majority had attended some college

(32.2%, national 25%; NAC, 2009) or had earned a baccalaureate degree (23.1%, national 25%; NAC). A smaller group had completed some graduate work (9.1%) or earned a graduate degree (24.5%, national 18%). Annual income levels ranged from participants who did not work to participants who earned \$100,000 or greater. The majority of participants (60.2%) earned less than \$60,000 per year. A national study indicated that the median household income for caregivers is \$57,200 (NAC). Thus, in terms of educational attainment and income, it appears that the sample was a relatively good match to national caregiver characteristics.

### **Caregiver and Sibling Demographics**

Of the 81 participants identifying as primary caregivers, 62 were women, reflecting a percentage rate (76%) that is higher than the national population of caregivers, 67% of which are female (NAC, 2009). Twenty-one caregivers worked full time (40 hours per week), while another 20 worked 20 to 35 hours per week. Thirty-eight caregivers worked 20 hours or less in a professional context.

Of the 62 participants identifying their sibling as the primary caregiver, 41 were female and 21 male. Slightly more siblings than caregivers worked full time (30.6%), while another 20 (32%) worked 20 to 35 hours per week. Another third of the siblings (non-primary caregivers) worked less than 20 hours per week.

The number of siblings in a family ranged from one to 10, with a mode of one and a mean of 2.56. Only five participants reported about a step-sibling, and 132 reported



about a genetically related sibling. Of the matched dyads, five were brothers, 24 were brother-sister, and 27 were sisters.

### **Distribution of Care**

To gain a sense of the caregiving participation within the sibling dyad, the questionnaire included items related to time spent in caregiving. Both siblings responded to a question about how many weekly hours he or she contributed and a second, speculative question about how many weekly hours his or her sibling contributed to the parent's care. Each sibling was asked to designate a primary caregiver within the dyad. Individuals reported a range from zero to 168 hours (24 hours each day in a week) of caregiving each week. No significant outliers emerged, as there were multiple participants who reported contributing zero hours and multiple participants who reported contributing 168 hours; therefore an average is an appropriate report for sibling participation. Individuals self-identifying as the primary caregiver reported spending an average of 26.27 ( $SD=36.20$ ) hours per week caring for an aging parent. Primary caregivers reported that their sibling offered an average of 5.0 ( $SD=9.18$ ) hours per week in helping the parent. Individuals identifying their sibling as the primary caregiver reported that they contributed approximately 5.13 hours ( $SD=9.81$ ) per week, while their sibling (the primary caregiver) contributed 26.49 ( $SD=37.49$ ) hours. While these numbers reflect agreement between sibling pairs on the level of contribution, it should be noted that these means reflect the aggregate data, not individual sibling reports.

### **Sibling Communication Habits**

Many siblings (44.1%) lived within a 1 hour drive of one another. Other siblings lived within one to four hours (12.1%) or four to eight hours (11.2%) by car. Others who lived farther apart reported needing a short flight (one to four hours; 14.7%) or long flight (four or more hours; 16.1%). Given that the majority of siblings required travel to see one another, they were asked to respond to questions about the frequency and channel of their communication. Frequency was assessed on a five point scale that ranged from “less than once per year” to “every day.” Most siblings communicated on a monthly (18.9%), weekly (45.5%), or daily (24.5%) basis. Participants also reported how frequently (not at all, occasionally, frequently) they used each of the following channels of communication with their sibling: email, videochat, telephone, text, social media outlets such as Facebook, or face-to-face. The most frequently used channels of communication were: telephone calls ( $M=2.63$ ,  $SD=.53$ ), text ( $M=2.37$ ,  $SD=.75$ ), face-to-face communication ( $M=2.27$ ,  $SD=.58$ ), email ( $M=2.04$ ,  $SD=.72$ ), social media ( $M=1.85$ ,  $SD=.84$ ), and videochat (e.g., Skype or Facetime;  $M=1.25$ ,  $SD=.55$ ).

### **Parent Need**

Participants who self-identified as the primary caregiver received a set of questions about parental need, including parental living situation, health needs, and the types of tasks required to support them. More than a quarter of parents lived independently in their own home or apartment (25.9%). Fourteen percent of parents lived with the primary caregiver. Other living situations included living with another family

member (such as the elder's sibling; 2.8%), living in an independent living facility (4.2%), an assisted living facility (6.3%), a nursing care facility (5.6%), or a memory care facility (.7%).

All of the most common health conditions for aging adults were represented by the elders receiving care: cancer (9.8%), dementia/Alzheimer's disease (28%), diabetes (10.5%), eye problems/blindness (12.6%), frequent falls (16.1%), hearing difficulties (17.5%), heart conditions (20.3%), incontinence (15.4%), mental health (18.9%), mental illness (2.8%), chronic pain (23.1%), and Parkinson's disease (4.9%). These conditions required common task completion on the part of the caregiver. These tasks included: using the toilet (15.4%), eating (16.8%), getting in and out of bed (16.8%), bathing (23.1%), dressing (21.7%), walking (31.5%), driving (37.1%), taking medication (33.6%), making phone calls (24.5%), preparing meals (37.1%), managing money (40.6%), grocery shopping (48.3%), and making and attending medical appointments (50.3%).

## **Measures**

### **Caregiving Burden**

The Caregiving Burden Inventory (CBI; Novak & Guest, 1989) is a 24 item scale with 5 point Likert-type response options (see Appendix A for all measures). The CBI is commonly used to assess the degree of investment and perceived burden for the caregiver across 5 subscales for time-dependent, developmental, physical, social, and emotional burden. The scale has been validated in multiple types of care provision (Caserta, Lund,

& Wright, 1996; Marvadi et al., 2005). Responses ranged from 0 “not at all” to 4 “very much.” The scale was administered only to individuals who self-identified as a primary caregiver; siblings who identified as secondary caregivers were moved with embedded skip logic to another section of the survey.

The 24 items in the inventory were factor analyzed with maximum likelihood extraction and varimax rotation to reveal a 3 factor solution (see Table 1 for item loadings). Criteria for determining factors included: (1) Kaiser’s criterion of an eigenvalue of 1 or greater, (2) at least 2 items per factor, (3) primary loadings of .55 or greater and secondary loadings less than .45, and (4) conceptual coherence among items forming each factor. Eight items that did not meet these criteria were dropped from the final factor solution. The first factor included 8 items, collectively titled “Demand” and reflected the demands of caregiving (“I have to watch my parent constantly”) as well as related areas of loss (“I am not getting enough sleep”). These items were summated into a single scale, with Cronbach’s alpha of .91. The second factor was “Emotion” and included 4 items relating to negative emotions about the parent, such as “I feel embarrassed by my parent’s behavior” and “I resent my parent.” Cronbach’s alpha for this subscale was .85. The third factor also included 4 items and was titled “Family” and reflected struggles in family relationships such as, “I’ve had problems with my marriage” and “I feel resentful of others who could but do not help.” Cronbach’s alpha for the Family subscale was .88.

## **Sibling Intimacy**

The intimacy measure was originally developed by Blyth and colleagues (Blyth & Foster-Clark, 1987; Blyth, Hill, & Thiel, 1982). The measure aims to assess and compare individuals' perceptions of emotional closeness in various interpersonal relationships. In this study, the intimacy scale was applied to siblings, but the measure is also appropriate for parents, other family members, friends, and other adults. Blyth and Foster-Clark (1987) and other researchers (Updegraff, Hale, & Crouter, 2002) have suggested that this measure validly differentiates between relationships that should show variation in levels of intimacy. The 8-item measure used a 5 point Likert scale ranging from "not at all" to "very much" on questions such as, "How much do you go to (sibling's name) for advice or support?" and "How much do you and (sibling's name) get on each other's nerves?" Cronbach's alpha was .89.

## **Relationship Satisfaction**

Hendrick's (1988) generic measure of relationship satisfaction, the Relationship Assessment Scale, provides a 7 item Likert measure of satisfaction within an intimate relationship. Hendrick and colleagues have repeatedly found good test-retest reliability and consistent measurement properties across multiple and diverse samples (Hendrick, Dicke, & Hendrick, 1998; Vaughn & Matyastik Baier, 1999). Originally validated for romantic partners, the scale has been used many times for other relationships, including siblings (Lin, Chen, & Li, 2013; Myers, Goodboy, & Members of COMM201, 2013; Robertson, Shepherd, & Goedeke, 2012). Language was adjusted for the sibling

relationship for items such as, “How well does your partner meet your needs?” and “How good is your relationship compared to most siblings?” Cronbach’s alpha was .90.

### **Care Conflict**

The degree to which caregiving is a subject of contention between siblings was assessed using 8 items developed for this study. Participants answered a five point Likert scale with four items pertaining to agreement in the relationship and four items that pertain to disagreement. Disagreement items were reverse coded in the final scale. Items were developed based on qualitative data from Amaro and Miller’s (2013) study of caregiver-sibling relationships. The data reflected conflict about decision-making and value-laden ideas regarding care. Example items include, “I often agree with my sibling on decisions regarding my parents’ care” and “I like how my sibling thinks about my parents’ care.” A principal components analysis with no rotation found a strong single factor solution. The criteria for determining components included: (1) Kaiser’s criterion of an eigenvalue of 1 or greater, (2) at least 2 items per component, (3) primary loadings of .55 or greater and secondary loadings less than .45, and (4) conceptual connection between component items. Component loadings are included in Table 2. Cronbach’s alpha was .81.

### **Trait Gratitude**

The GQ6 (McCullough, Emmons, & Tsang, 2002) was used to assess trait gratitude. This measure asks participants to rate 6 statements on a 7 point Likert scale to assess how frequently and intensely participants experience gratitude. Items include, “I

have so much in life to be thankful for” and “I am grateful to a wide variety of people.” Previous use of the measure has demonstrated sound psychometrics, specifically determining that the items in the questionnaire load on a single factor and the scale has obtained a Cronbach’s alpha estimate of internal reliability of .80 and higher (Chen, Chen, Kee, & Tsai, 2009). Cronbach’s alpha for the present study sample was .84.

### **Expression of Gratitude**

There is no currently published scale to test the expression of gratitude. As such, 6 items were developed to test the occurrence of the behavior. Items addressed the frequency of caregiver gratitude expression for physical, administrative, financial, and emotional tasks. An example of the self-report of frequency of gratitude expression includes, “How often do you **say** something to thank your sibling for their participation with your parent’s general care?” Six similar questions addressed frequency of sibling gratitude expression for the same dimensions. A final set of six questions asked about the authenticity and effect of those expressions. These questions included items such as, “How often does your sibling show appreciation for your emotional support of your parent?” These items were measured on a 1-6 scale, ranging from 1=never, 2=about once a year, 3=a few times a year, 4=about once a month, 5=weekly, 6=daily. Open ended qualitative questions allowed respondents to write about typical and extraordinary ways that they show gratitude to their siblings. Qualitative questions included, “What’s a typical way that you show appreciation to your sibling for their help with your parent?”

A principal components analysis with varimax extraction was used to determine the number of factors in the expression of gratitude scale. The analysis demonstrated a 2 component solution that explained 72.12% of the variance in the original items (see Table 3). The criteria for determining components included: (1) Kaiser's criterion of an eigenvalue of 1 or greater, (2) at least 2 items per component, (3) primary loadings of .55 or greater and secondary loadings less than .45, and (4) conceptual connection between component items. One item ("I have said thank you to my sibling to encourage them to help more in the future") failed to load on either factor and was subsequently dropped from the scales. The first factor was titled "Frequency of Expression" and included 6 items about one's own expressions of gratitude, and 6 identical items on one's sibling's frequency of expression for specific types of care (physical, administrative, financial, emotional). This factor was split into 2 subscales "My Frequency" ( $\alpha = .93$ ) and "My Sibling's Frequency" ( $\alpha = .95$ ) for conceptual clarity. The second factor, "Quality of Expression" included 5 items about the sincerity of the gratitude exchanged between siblings. A sample item for the "Quality of Expression" is, "I try to make my sibling feel valued by saying, 'thank you' for something they have done." Cronbach's alpha for "Quality of Expression" was .94.

### **Well-being**

This study used two measures of well-being for a dependent variable. First, the satisfaction with life scale (SWLS) is one of the most commonly used measures of subjective well-being (Diener, Emmons, Larsen, & Griffin, 1985). This five-item Likert



scale focuses on the cognitive judgment of SWB (Diener, Suh, Lucas, & Smith, 1999), with items such as “The conditions in my life are excellent” and “In most ways, my life is close to ideal.” Cronbach’s alpha for this scale was .92.

Second, the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a highly used measure due to its brevity and ease of use. Two 10 item scales use words to describe different feelings and emotions (e.g., interested, distressed, sad, happy). Participants indicated the extent to which they have felt those experiences in a given year. An exploratory factor analysis using principal axis factoring and varimax rotation and found a 2 factor structure, clearly divided by negative and positive affect (see Table 4). Cronbach’s alpha for negative affect was .91. Cronbach’s alpha for positive affect was .90.

### **Analysis**

The analysis centered on the exploration of statistical relationships between variables of behavior, perception, and outcome variables. Caregiver-sibling communication behavior variables included the expressions of gratitude and care conflict; relationship perception variables were caregiver burden and sibling intimacy. These were tested for the outcome variables of well-being and relationship satisfaction. To examine these relationships adequately, data were analyzed using a sequence of actor partner interdependence models (APIM; Cook & Kenny, 2005) with multilevel modeling (MLM) techniques in SPSS.

APIM examines main effects and interaction effects within and between dyads. Knight (2012) discusses APIM as an optimal tool for analysis for two central reasons. First, it allows for the concurrent estimation of actor, partner, role (e.g., caregiver and sibling), and actor-partner interaction effects. Conducting this test using MLM also permits the researcher to control for non-independence in the material, as the dyads will report related scores. Second, the APIM allows for the analysis of mixed variables, where most MLM techniques allows for between-dyad analysis and within-dyad analysis. Between-dyad analysis occurs when both members of the dyad have the same score on a variable, such as the length of a relationship. Within-dyad analysis occurs when scores on a variable vary across dyad members but create composite score for each dyad, such as in the case of a sibling dyad with unique roles. The APIM, however, allows for the analysis of a mixed variable that occurs when scores vary on both levels—between- and within-dyads (Kenny et al., 2006; Knight, 2012). This study included scores that varied between partners (e.g., scores for relationship satisfaction) but the tests of non-independence (detailed in the following chapter) indicated that composite scores of the dyad were more alike than the scores of two unrelated and randomly matched participants (Kenny et al., 2006). The APIM therefore permitted a rich analysis for the complex data of this project.

The APIM allows for only one dependent variable per test, requiring a sequence of tests for some hypotheses or research questions. The results of MLM are similar to regression for the independent variables, though no overall fit statistics are utilized in

interpreting the results. Individual effects were calculated using  $\eta^2$  in an Microsoft Excel program that included the following formula:  $\eta^2 = t^2 / (t^2 + df)$ .

To prepare the dataset for APIM, each dyad was placed together on two lines of data. The actor's (caregiver) responses began the first line, followed by the partner (sibling) in the same line. The partner's responses (the sibling, who became the actor) will begin the second line, followed by the partner's (caregiver's) responses. Therefore, each participant's data was entered in the set in both the actor and the partner role. Each covariate was centered prior to the analysis.

Using these criteria for analysis, the following chapter presents the results of the nonindependence tests and the related dyadic analyses. The chapter also includes some independent regressions for only caregivers. The results of each test of research questions or hypotheses are recorded and evaluated for significance and magnitude.

## CHAPTER 3

### RESULTS

The present chapter details the results of tests designed to examine the relationship between gratitude, well-being, and relationship quality. These tests utilize both independent and nonindependent tests to evaluate hypotheses, depending on the variables under examination. The largely dyadic approach uniquely allows for an examination of the interrelationships of variables between siblings: how the caregiver influences the sibling's behavior and vice versa. The chapter addresses tests of nonindependence first, providing justification for the use of dyadic tests. Independent regressions tests of caregiver burden receive brief but complete report before the body of dyadic tests on care conflict, frequency and quality of gratitude expression, well-being, and relationship satisfaction move sequentially through each research question and hypothesis proffered in chapter one.

#### **Tests of Nonindependence**

Because the sibling dyad was the primary focus of this study, the first step in analysis was to determine whether the data should be analyzed dyadically or independently. Dyadic treatment uses the pair as the unit of analysis, while independent treatment uses the individual as the unit of analysis. When respondents are linked by relationship, the data they provide is nonindependent and requires a separate analytical approach than independent data. Analyzing nonindependent dyadic data as independent

data runs the risk of inflating Type I and Type II error rates and violates the assumptions of traditional statistical procedures such as multiple regression (Kenny et al., 2006).

In a case such as the caregiver and sibling, when the roles within the dyad are distinguishable roles, Kenny et al. (2006) advise assessing nonindependence by evaluating Pearson product-moment correlations among dyad members' scores on the dependent variable(s). Kenny and colleagues also recommend the use of a liberal test for nonindependence by employing a two-tailed alpha value of .20 to detect effects. Without this allowance, a test of nonindependence would require a sample of 783 dyads to detect a small effect using a traditional alpha level (two-tailed alpha = .05). Because of the challenging nature of collecting similar data from a matched dyad, Kenny and colleagues recommend using a liberal test of nonindependence for a smaller sample.

Because the variables in this study correlated at a significance level of .20, the dyad was treated as the unit of analysis. Table 9 indicates the Pearson correlations of actors' and partners' dependent variables in the present study, along with means and standard deviations.

This study employed actor-partner-interdependence models using multilevel modeling to evaluate the majority of hypotheses, though standard correlation analysis was used to explore variables related only to caregivers, such as burden. These analyses assume independence of data between caregivers.

### **Caregiver Burden**

Research question 1 queried the relationships between caregiver burden and gratitude. Accordingly, the subscales of burden were correlated with trait gratitude, self-report of frequency of gratitude, report of sibling's frequency of gratitude, and gratitude quality. Data from all participants who identified as caregivers—whether or not they were matched with a sibling for later analyses—were used in this analysis. Table 10 reflects the correlation matrix. The moderate negative relationship between burden's negative affect and quality of gratitude expression ( $r=-.36, p<.01$ ), indicated that as quality of gratitude expression increases, negative affect decreases. Trait gratitude had a moderate negative relationship to family struggles associated with burden ( $r=-.36, p<.01$ ); in other words, as a person's experience of gratitude increases, struggles in relationships decrease. The perception of difficulty in relationships also negatively relates to the perception that one's sibling communicates gratitude frequently ( $r=-.28, p<.05$ ) and to the quality of gratitude expression ( $r=-.49, p<.01$ ).

### **Care Conflict**

Research question 2 asked what variables predict care conflict. First, a descriptive analysis was completed to gauge the amount of care conflict in the relationships. All participants were entered into the analysis, and the recorded mean was 3.24 ( $SD=.34$ ), indicating that participants collectively experienced a moderate amount of conflict in the relationship. Consistent with this, a descriptive analysis of participant scores on sibling intimacy revealed a mean of 3.61 ( $SD=.74$ ), indicating that siblings are relatively close to one another in this sample.

An exploratory APIM was estimated with the care scale as the dependent variable. Higher scores on the care conflict scale indicate more agreement in the relationship; positive  $t$  values on each effect indicate that these variables predict less conflict in the caregiver-sibling relationship. Two-tailed alpha levels were set for all effects, due to the exploratory nature of the analysis. A significant actor effect emerged for sibling intimacy [ $\beta = .12, t(69.9) = 2.83, p < .05, \eta^2 = .069$ ], meaning that the more intimate an individual reported the relationship to the sibling, the more likely they were to report lower levels of conflict. A second significant actor effect appeared for the quality of gratitude expression [ $\beta = .17, t(68.195) = 2.90, p < .01, \eta^2 = .109$ ], indicating that higher quality (more authentic, more meaningful) gratitude, the less care conflict that individual experienced. A significant partner effect also existed for participation in caregiving [ $\beta = .003, t(63.89) = 2.09, p < .05, \eta^2 = .064$ ], meaning that the more participation the individual put forth in the care process, the less care conflict that person's sibling experienced. Table 11 includes all significant and non-significant statistics for the model.

Research question 3 inquired about how care conflict might affect the expression of gratitude. To answer this question, four APIMs were estimated with the gratitude scales (the experience of gratitude, one's own report of frequency of expression, one's report of one's sibling's frequency of expression, and the quality of exchange) as dependent variables. The first APIM used the experience of gratitude in the trait form as the dependent variable. Actor conflict significantly associated with the experience of

gratitude [ $\beta = 1.33, t(105.30) = 1.96, p < .05, \eta^2 = .035$ ], meaning that the less conflict the individual experiences, the more likely that person was to experience gratitude on a regular basis. Partner conflict was non-significant,  $\beta = .05, t(101.97) = .30, p = .39$ .

The second APIM examined the effects of care conflict on the participant's own frequency of expressed gratitude. No significant effects were found for actor [ $\beta = -.18, t(86.32) = -.30, p = .384$ ] or partner care conflict [ $\beta = .93, t(86.17) = 1.57, p = .06$ ]. The third APIM examined the effects of care conflict on the participant's reports of their sibling's frequency of expressed gratitude. A significant actor effect for conflict emerged,  $\beta = 1.33, t(105.30) = 1.96, p < .05, \eta^2 = .025$ , indicating that the less an individual experiences conflict about care, the more likely they are to report receiving frequent expressions of gratitude from their sibling. No significant partner effect emerged in the model,  $\beta = .66, t(105.24) = .98, p = .17$ .

The fourth APIM evaluated the effects of actor and partner care conflict on quality of gratitude exchange, reversing the predictor and outcome variables from the first APIM. The model revealed significant actor and partner effects. The actor effect [ $\beta = 1.22, t(102.06) = 8.148, p < .001, \eta^2 = .394$ ] indicated that less care conflict associated with higher quality (authenticity and meaningful) gratitude for the individual. The partner effect [ $\beta = .28, t(102.29) = 1.89, p < .05, \eta^2 = .034$ ] indicated that when an individual experienced less care conflict that their sibling was more likely to report giving higher quality gratitude.



## Frequency of Expressed Gratitude

### Individuals' Reports

Research question 4 and hypotheses 1 through 4 were tested with an APIM that examined the participant's reported frequency of gratitude. The results of the first APIM, testing the participant's reported frequency of gratitude are recorded in Table 12 (significant results will be repeated in text). Research question 4 queried the importance of role to the expression of gratitude. The APIM revealed a large main effect for role [ $\beta = .3.49, t(58.97) = 20.45, p < .001, \eta^2 = .876$ ]. Non-primary caregiver siblings reported expressing gratitude more frequently ( $M=3.45, SD=1.12$ ) than did their primary caregiver siblings ( $M=2.90, SD=1.26$ ).

Hypothesis 1 predicted that greater dispositional gratitude associated with more frequent expressed gratitude across the sibling dyad. No significant effects were found for the effects of trait gratitude on the participant's frequency of expressed gratitude; the hypothesis was not supported.

Hypothesis 2 predicted that greater sibling intimacy associates with more frequently expressed gratitude across the sibling dyad (actor and partner effects). A significant actor effect emerged [ $\beta = .59, t(94.85) = 4.076, p < .001, \eta^2 = .149$ ], demonstrating that the more intimate a relationship an individual perceives with their sibling, the more frequently that person will express gratitude to the sibling. The partner effect for sibling intimacy was not significant.

Hypothesis 3 predicted that greater actor participation associates with more frequently expressed gratitude for the partner. This prediction was supported. A significant partner effect occurred [ $\beta = .01$ ,  $t(67.94) = 2.34$ ,  $p < .05$ ,  $\eta^2 = .075$ ], indicating that an individual's amount of contribution to caregiving positively associated with the sibling's report of frequency of expressed gratitude to that individual.

Hypothesis 4 predicted that the role of the non-caregiving sibling will interact with participation in caregiving activities to predict frequency of expressed gratitude. The APIM revealed a significant interaction effect for caregiving participation by role [ $\beta = .02$ ,  $t(52.43) = 1.68$ ,  $p < .05$ ,  $\eta^2 = .051$ ]. Figure 1 demonstrates that as participation increases, non-primary caregiver siblings offer more frequent gratitude than their primary caregiver siblings. Rather, as primary caregivers participate more, their frequency of gratitude to their sibling increases at a slower rate than their sibling.

### **Reports on Siblings' Gratitude**

Research question 5 and hypotheses 5 through 8 examined the effects of role, dispositional gratitude, sibling intimacy, participation, and the individual's report of gratitude frequency on the outcome variable of the individual's perception of the sibling's gratitude frequency. An APIM was conducted to evaluate actor, partner, and role relationships, as well as one higher order relationship. The results of the model are reported in Table 13.

Research question 5 probed the effect of role on one's perception of one's sibling's frequency of gratitude expression. The APIM again revealed a significant role

effect [ $\beta = -.60$ ,  $t(55.85) = -3.267$ ,  $p < .01$ ,  $\eta^2 = .16$ ], in which caregivers ( $M=3.22$ ,  $SD=1.26$ ) perceived slightly more gratitude from their sibling than did the non-primary caregiver ( $M=3.02$ ,  $SD=1.33$ ).

Hypothesis 5 predicted a partner effect for dispositional gratitude, in which dispositional gratitude associated with more perceived frequency of expressed gratitude from the partner. No significant effect was found; the hypothesis remained unsupported. Hypothesis 6 predicted that greater sibling intimacy associated with more perceived frequency of expressed gratitude. A significant actor effect appeared [ $\beta = .23$ ,  $t(76.14) = 2$ ,  $p < .05$ ,  $\eta^2 = .05$ ], indicating that the individual perceived more gratitude from their sibling when they were closer to their sibling.

Hypothesis 7 proposed that greater actor participation positively associated with perceived frequency of expressed gratitude from the sibling. No significant effects occurred for actor or partner participation; the hypothesis was unsupported. However, hypothesis 8 projected that an individual's own report of frequent gratitude expression positively associated with frequently received gratitude from the sibling. A significant and strong actor effect occurred [ $\beta = .80$ ,  $t(70.56) = 10.45$ ,  $p < .001$ ,  $\eta^2 = .607$ ], indicating that one's perception of a sibling's expressed gratitude increases with one's own practice of expressing gratitude, thereby supporting hypothesis 8.

### **Quality of Expressed Gratitude**

Hypotheses 9 through 11 were tested with an APIM examining the quality of gratitude as the dependent variables for the model (see Table 14). In the exploratory

phase of the model, an unhypothesized, significant interaction effect emerged for trait gratitude by role on the quality of gratitude [ $\beta = .45, t(71.52) = 2.95, p < .01, \eta^2 = .108$ ]. Figure 2 represents the interaction plot, which indicates that non-primary caregiver siblings who are high in trait gratitude are more likely to offer high quality gratitude to their sibling than are caregivers who are high in gratitude.

Hypothesis 9 predicted that trait gratitude would positively associate with quality of gratitude for both siblings. However, no significant effects emerged in the model, causing the hypothesis to remain unsupported. Hypothesis 10 predicted that sibling intimacy would be associated with higher quality gratitude across the sibling dyad (an actor and partner effect). A significant moderate actor effect appeared [ $\beta = .43, t(87.99) = 5.58, p < .001, \eta^2 = .26$ ], demonstrating that an individual who has a more intimate relationship to the sibling was more likely to report higher quality gratitude exchange in the relationship.

Hypothesis 11 predicted that sibling participation would positively associate with gratitude quality across the sibling dyad. No significant effect emerged for this, though a partner effect was approaching significance [ $\beta = .004, t(57.63) = 1.92, p = .06, \eta^2 = .06$ ] and may be verified with a larger sample. Such an effect would indicate that when the individual's sibling participates more toward caregiving that the individual's quality of gratitude would increase.

## Well-being

The first measure of well-being, life satisfaction, was the outcome variable in an APIM to test hypotheses 12 through 14. The results of the model are represented in Table 15. Hypothesis 12 predicted that frequency of expressed gratitude positively associated with life satisfaction. No significant effects emerged and the hypothesis was rejected. Hypothesis 13 posited that sibling intimacy positively associated with more life satisfaction for both siblings. No significant effects were found; this hypothesis was also rejected. Hypothesis 14 contended that care conflict negatively predicted life satisfaction. Again, no significant effects were found and the hypothesis was not supported.

The other measures of well-being were the positive and negative affect scales derived from PANAS. Two APIMs were conducted with the positive and negative affect scales as outcome variables. Table 16 reports the results of the APIM on positive affect used to test hypotheses 15 and 16. A significant, negative role effect emerged [ $\beta = -.29$ ,  $t(50.55) = -2.25$ ,  $p < .05$ ,  $\eta^2 = .091$ ]; primary caregivers reported more positive affect ( $M=3.48$ ,  $SD=.74$ ) than non-primary caregiver siblings ( $M=3.35$ ,  $SD=.71$ ).

Hypothesis 15 predicted that frequency of expressed gratitude would positively associate with positive affect. An actor effect under examination was approaching significance [ $\beta = .13$ ,  $t(91.36) = 1.85$ ,  $p = .067$ ,  $\eta^2 = .036$ ], suggesting that the individual's expressed gratitude predicted positive feelings. Greater statistical power would likely support this hypothesis. Hypothesis 16 predicted that the quality of

expressed gratitude positively associated with positive affect. However, no significant effect occurred and the hypothesis was unsupported.

The second APIM utilized negative affect as a dependent variable to test hypotheses 17 and 18 (see Table 17 for results). Hypothesis 17 predicted that frequency of expressed gratitude negatively associated with negative affect. No significant actor or partner effect appeared, and the hypothesis was rejected. Hypothesis 18 stated that quality of expressed gratitude negatively predicted negative affect. This hypothesis was supported by a significant negative actor effect [ $\beta = -.45$ ,  $t(95.29) = -3.29$ ,  $p < .001$ ,  $\eta^2 = .102$ ], indicating that an individual who offers higher quality gratitude is likely to also experience less negative affect.

### **Relationship Satisfaction**

A final APIM was run to examine hypotheses 19 to 22, using relationship satisfaction as an outcome variable. Results for the model are revealed in Table 18. Hypothesis 19 posited that the frequency of expressed gratitude positively associated with relationship satisfaction. No significant actor or partner effects occurred for the individual's self-report of frequency of gratitude expression, so the hypothesis was unsupported. Hypothesis 20 projected that the quality of expressed gratitude positively associated with relationship satisfaction. A significant actor effect occurred [ $\beta = .33$ ,  $t(92.30) = 4.24$ ,  $p < .001$ ,  $\eta^2 = .163$ ], suggesting that an individual reporting high quality gratitude expression is more likely to also report high satisfaction in the relationship. No significant partner effect emerged.

Hypothesis 21 contended that more frequently perceived gratitude expressions from one's sibling would positively associate with relationship satisfaction. The hypothesis was supported, as a significant actor effect occurred [ $\beta = .16$ ,  $t(83.33) = 2.15$ ,  $p < .05$ ,  $\eta^2 = .053$ ], indicating that an individual who reported frequent expressions of gratitude from their sibling was more likely to experience higher relationship satisfaction. No significant partner effect emerged.

Hypothesis 22 predicted that participation in caregiving associated with relationship satisfaction. Significant actor and partner effects emerged, supporting the hypothesis. The actor effect [ $\beta = -.006$ ,  $t(59.49) = -2.15$ ,  $p < .05$ ,  $\eta^2 = .072$ ] revealed that the more participation an actor put forth toward caregiving, the less satisfied they were in the relationship. The partner effect [ $\beta = -.004$ ,  $t(54.59) = -1.91$ ,  $p < .05$ ,  $\eta^2 = .062$ ] indicated that the more participation the partner put forth toward caregiving, the less satisfaction the actor reported. A marginally significant role effect also emerged, [ $\beta = .18$ ,  $t(48.98) = 1.60$ ,  $p = .57$ ,  $\eta^2 = .05$ ] showing higher rates of relationship satisfaction for non-primary caregiving siblings ( $M=4.25$ ,  $SD=.53$ ) than primary caregivers ( $M=4.02$ ,  $SD=.64$ ).

Table 19 reviews the results for each of the 22 hypotheses tested. The following chapter addresses these results along with all findings from research question exploration. Synthesis and application of the findings draw on theory to move forward the study of gratitude, especially in support of family caregivers and their family members.

## CHAPTER 4

### DISCUSSION

The results detailed in the previous chapter bear many implications for the family caregiving context as well as for future research in the specific topic and the broader topic of gratitude. The findings support the importance of gratitude, of sibling intimacy, and of participation in the caregiving context, though they do not necessarily have dramatic impact on well-being, as measured in this study. The findings also point to significant need for the caregiver that may or may not be addressed with a gratitude-specific intervention. Both significant and non-significant effects require explanation and interpretation, which this chapter attempts to provide. This chapter will address each finding independently and as part of the whole, synthesizing the results into a nuanced picture of gratitude in the caregiver-sibling relationship. This synthesis includes multiple components, beginning with a review and an interpretation of the major findings in the study. Following the interpretation is an application and extension of theory to the findings, providing a root system to ground and strengthen the growth of the ideas present in this work. A discussion of limitations in the study design and sampling approaches provide insight into areas of improvement for future research. Finally, recommendations for practical application and future research conclude the chapter and the dissertation.



## **Interpretations and Implications**

The results chapter revealed some statistical relationships that were consistent with extant literature on caregiving and gratitude, while other relationships befuddled or required additional thought or testing. The proceeding section interprets these findings in terms of consistency or inconsistency with current understandings of theory and research, while narrating the story of caregivers and siblings within this sample.

### **Intimacy and Conflict**

Caregivers generally got along well with their siblings in this sample—they reported moderate levels of intimacy and moderate levels of conflict. The more intimate a sibling pair was, the more likely the siblings were to report lower levels of conflict or more agreement on issues of care. Intimacy did not predict participation, though greater participation did promote more harmony (less conflict) within the relationship. Intimacy did consistently influence gratitude exchange. Namely, the more intimate the relationship, the more frequently a person expressed gratitude, the more likely they were to perceive gratitude from the sibling, and the more likely they were to think that gratitude was of high quality—that is, was meaningful, authentic, and a sign of value. The relationship between intimacy and gratitude is intuitive—to perceive an act as a gift, one’s perceptions are likely to be more accurate if a closer relationship and greater context with the benefactor exists (Lambert & Fincham, 2011). Gratitude also has a bonding nature that helps the relationship to grow in closeness, likely creating a circular

effect in which more gratitude encourages intimacy, which encourages gratitude (Emmons & Shelton, 2002).

Gratitude also had an important relationship to care conflict. Higher quality gratitude predicted less care conflict in the relationship and vice versa, suggesting that participants were able to develop a more like-minded approach to caring for parents when they perceived expressions of gratitude that made them feel valued as a person. When sibling pairs had a more like-minded perspective on care issues, they were also more likely to use frequent expressions of gratitude. Together, these findings suggest that in cases of higher conflict, gratitude may assist in lessening the amount of conflict and improving intimacy. Other findings from the study will demonstrate, however, that gratitude is not a fix-it-all mechanism. It is one step toward improving a relationship. Given that authentic gratitude predicted less care conflict, it would seem that a caregiver or sibling frustrated with conflict about care might begin to address this issue with efforts to develop authentic feelings of gratitude toward the other person, to then express them with the modest goal of finding a small piece of common ground.

### **Gratitude and Well-being**

Gratitude is not always the easiest practice to develop. Many variables contribute to its feeling and expression. In this study, the most important variable was role. The largest effect of the study ( $\eta^2=.867$ ) was the impact of role on how frequently participants reported expressing gratitude to their sibling. Specifically, non-primary caregiver siblings reported expressing gratitude more frequently than did their primary caregiver siblings.

This fits with the understanding that gratitude should exist when a person has benefitted from a costly, voluntary, and intentional act of another person (McCullough et al., 2003). Siblings who do not do the bulk of the caregiving do receive a benefit. That benefit is costly—the caregiver may give up working hours, time with family, physical health, and take on burden. The benefit is voluntary. Few, if any, circumstances *require* a caregiver to provide care. Though they may feel a sense of obligation, a caregiver still chooses to assume the role. Many do it willingly and with joy. But it is the intentionality of the benefit that may be in question. While many caregivers intentionally bless the elder with their labor, they do not necessarily opt to do so without the support of a sibling. The intention is toward the elder, but the sibling who takes on a secondary load (or no load at all) in caregiving may not view this as an intentional gift to them, but as an indirect gift that comes from the caregiving sibling's generosity toward the parent. Participation seems to be an important component in learning to recognize the contributions as gifts. As non-primary caregiver siblings participated more in their parent's care, they were more likely to offer frequent expressions of gratitude. Again, they were more likely to do so than caregiving siblings with higher levels of participation.

These effects indicate that the non-primary caregiver sibling is feeling gratitude and reporting a frequent expression of it. Sibling reports corroborated this, as caregivers perceived slightly more gratitude from their siblings than did the non-primary caregiver siblings. The salient question here is why caregivers are not expressing gratitude on a regular basis? Many caregivers in the study were receiving significant assistance from

their siblings, so it appears that it is reasonable to expect caregivers to communicate gratitude. As siblings stepped up to participate, they appeared to recognize the gift that the caregiver provided and started to speak to that gift. However, it is possible that caregivers did not greatly perceive their sibling's gratitude. Consistent with gratitude literature (McCullough et al., 2001), one's perception of a sibling's expressed gratitude increased with one's own practice of expressing gratitude. Under this finding, caregivers who were not practicing gratitude were also not as likely to receive it from their sibling as caregivers who were saying, "thank you" often. Even caregivers who were high in trait gratitude were less likely to offer high quality gratitude than non-primary caregiver siblings who were high in trait gratitude. A limitation or hindrance in the experience of gratitude seems to exist for caregivers. This is not entirely surprising, as stress can limit subjective well-being experiences such as gratitude for the caregiver (Mittelman et al., 2007). The negative affect associated with caregiver burden significantly and positively correlated with the quality of gratitude. This finding was also true for the entire sample, not just for caregivers. It suggests that caregivers experiencing more negative emotion in general were actually more likely to give more meaningful expressions of gratitude, perhaps because the need for help was more profound. Caregiver burden is also marked by a greater likelihood of experiencing familial or relational struggles because of caregiving. The more experience of such struggles caregivers perceived in this sample, the less likely they were to express gratitude frequently or with quality. These findings indicate that caregivers encounter a complex emotional response to the caregiving

context and that while negative feelings connect to genuine gratitude, issues like relationship struggles (with the sibling, a spouse, the elder, or another family member) create a confounding roadblock for the free movement of gratitude.

Findings about the relationships between gratitude and subjective well-being variables in the study were troublesome. For instance, no significant effects emerged for life satisfaction. While this could be an issue of measurement, the reliability was strong and the measure is frequently used with impressive validity (Diener et al., 1999). On the other hand, significant results emerged for negative affect and positive affect using the PANAS scale. As discussed, negative affect connected to higher quality gratitude as expected. However, a finding for positive affect indicated that primary caregivers reported more positive affect than non-primary caregiver siblings. This is curious, especially given other findings indicating that caregivers experience burden and express less gratitude, but could be deemed consistent with gratitude literature in that their compassionate work with a parent is a prosocial act that contributes to personal well-being (Bartlett & DeSteno, 2006). However, the mean difference between groups was small, though significant. Caregivers reported a mean of 3.48 ( $SD=.74$ ) on positive affect, while siblings reported a 3.35 ( $SD=.71$ ). While a significant difference did emerge and should not be discounted, it is important to note that caregivers and siblings are both reporting slightly higher than neutral for positive affect—neither group is very high or very low in report of positive affect. Therefore, while the difference may be statistically significant, it is not qualitatively significant.

## **Gratitude and Relationship Satisfaction**

While the influence of gratitude on well-being may be less clear in this population, findings about relationship satisfaction allowed for smooth interpretation. For instance, both one's own quality of gratitude and the perception that one's sibling frequently expresses it contributed to higher relationship satisfaction. But satisfaction does not necessarily mean smooth sailing. Participation predicted relationship satisfaction in an unexpected way. Specifically, the more participation an individual put forth toward caregiving, the less satisfied that person was with the sibling relationship, perhaps suggesting fatigue or stress from the level of participation. In a similar fashion, new parents report less satisfaction in the marital relationship due to fatigue (Mitnick, Heyman, & Smith Slep, 2009). This does not imply that those parents (or, in this case, caregivers and siblings) are not happy with their own lives or the relationship, but simply that the state of the relationship is not as they might wish. Another finding indicated that the more contributions one's sibling made to the caregiving project, the less satisfaction the individual reported. While this is counterintuitive, it seems that siblings who try to row the same boat might be frustrated with the size of the boat, the speed of the rowing, or might struggle to row in synch (Miller, Shoemaker, Willyard, & Addison, 2008). Many caregivers are accustomed to rowing alone. In other cases, help comes inconsistently or in forms that are not perceived as useful to the caregiver (Amaro & Miller, 2013). Conflict and frustration can sneak into such cases, causing gratitude to become salient and potentially transformative to the individual and the relationship.

However, the evidence presented in this dissertation demonstrates that gratitude is useful and important for well-being and the relationship, but it is just one variable. Other factors—some tested here, others not—contribute to the complexity of this context. Managing the sibling relationship during caregiving is an important scene in life’s theater, and there is no script for the actors.

### **Theoretical Applications and Extensions**

The findings detailed above speak to multiple theories and theoretical concepts within communication and other disciplines. Hochschild’s economy of gratitude, equity theory, family systems theory, the broaden-and-build theory of positive psychology, and the principles of risk and resilience all provide frameworks for understanding the findings of the study.

Hochschild’s (1989) economy of gratitude explores relational patterns that find root in relational and social norms (e.g., who washes dishes). This study examines all types of sibling relationships within the caregiving context, so the focus is less on socially constructed norms for such things as gender or age and more on relational norms such as communication patterns. Individuals offer gifts to fund the economy—acts that rise above the expectations. The economy of gratitude is the summary of all felt gifts. Hochschild argues that a healthy economy of gratitude reflects a similar, intimately held reality in which gifts are mutually understood as gifts. However, this reality seems to differ for caregivers and their siblings. Namely, caregivers seem to perceive fewer acts as gifts and therefore express less gratitude. Siblings—especially as they participate more

and recognize the enormity of the gifts offered by the caregiver—express gratitude with frequency and quality. However, when they do, because the parameters of what constitutes a gift are not mutually understood in the relationship, caregivers do not perceive these expressions and may feel dissatisfied. Hochschild's concept would indicate that the relationship and the individual's well-being would be improved with increased gratitude. However, in this study, the effects on well-being were weak. While the sample could be an issue (discussed further in the limitations section), it is also possible that the economy of gratitude applies to standard relational situations. However, the caregiving context can yield remarkable stress. Perhaps in truly stressful situations, fixing the economy is not the only transformation that needs to happen to generate well-being for the individual and the relationship.

Another area in addition to the economy of gratitude that may need adjustment is the perception and actual nature of equity in the relationship. Caregiver gratitude deficiency may also be understood using the principles of equity theory. Equity theory addresses distribution of resources in a relationship, holding up the ideal of fairness for both partners in a dyad (Deutsch, 1985). Scholars measure equity by comparing the ratio of contributions and benefits for each person. Equity and inequity occur at both general and specific levels in a relationship (Henningsen, Serewicz, & Carpenter, 2009). General equity examines the overall assessment of balance—much like the economy of gratitude views the lump sum of gratitude across the relationship. However, specific equity focuses on the balance between people's benefits and contributions in a specific area. For



caregivers and siblings, this might present as explicitly as who takes Mom to the doctor more frequently. If individuals generally try to maximize their outcomes so that relational rewards outweigh costs, caregivers are likely underbenefited as compared to a non-primary caregiver sibling. Caregivers put forth more costs to the work of caregiving and receive fewer practical benefits (e.g., leisure time) than their sibling. As such, the perception of underbenefited inequity—whether justified or not—can lead to increases in distress and feelings of being used, taken for granted, or emotions like anger or sadness (Walster, Walster & Traupmann, 1978).

The transformation of the relationship and well-being for the caregiver is unlikely to occur until the perceived or actual cost to benefit ratio is balanced within the family system. This balance will occur uniquely for each family, given variables of distances, closeness, abilities, and so on. Siblings can take responsibility by assisting with the caregiving, particularly in ways that the caregiver identifies as useful. Caregivers, on the other hand, can work to ensure that they practice perspective taking. Siblings may feel that they are assisting to the best of their abilities, even though those abilities may be limited or not as desired by the caregiver. The caregiver might learn to see small contributions in a new light. If the caregiver can begin to perceive greater equity in the relationship, they may perceive benefits more readily, a key factor in experiencing gratitude. Equity and the economy of gratitude are intimately linked by perception, but both will contribute to the overall subjective well-being of the caregiver and the sibling dyad (Dwyer, Lee, & Jankowski, 1994).

One of the paradoxical elements of gratitude is that one is more likely to feel it if one practices it. Caregivers in need of perspective-taking and changes in perception may benefit from practicing gratitude in order to feel more grateful. Frederickson (2001) contends that positive emotions like gratitude can help with perspective-taking because they broaden momentary thought-action sequences, providing a person with a more diverse range of ideas of understandings of an interaction. That range of ideas helps to build resources; in this case, the resource is the relationship and assistance of the sibling. Intentional communication can occur as a result of the positive emotion structure. Positive affect already felt by caregivers can expand when directed toward reframing the situation.

Reframing does not fix a failing or ailing system, but it can contribute to reducing the potential risk associated with system failure. Tests of moderation and mediation, not conducted in this study, need to occur to support claims that a variable is a protective mechanism. However, the conceptual findings of this study point to gratitude as useful in aiding the sibling relationship, which has a known protective mechanism for multiple kinds of stress throughout the lifespan (Gass et al., 2007). The risks for low well-being are, for caregivers in this study, stronger than gratitude. They do not perceive gratitude, likely due to burden. As a result, addressing some of the core issues of caregiving burden, such as the need for respite and the availability of support and counseling, is more likely to promote resilience in the short term. Gratitude can enhance this, but it cannot create resilience by itself. Instead, gratitude can feed into a system; it both seeks and provides

feedback about need, about desire, about areas of brokenness. That type of feedback can disrupt a negative system cycle or support a positive one.

### **Limitations**

Any examination of the family system has limits. When working with more than one member of the family, the possibility for error or challenge multiplies. The first area of limitation was sampling. The sample size was less than ideal, and some tests were likely not sufficiently powered. While many effects both small and strong emerged in hypothesis testing, some results were “approaching” significance and may have provided important insight with sufficient power. One of the reasons the sample size was problematic was the recruitment approach. The researcher encountered significant difficulty in identifying participants who self-identified as caregivers. In fact, many individuals who qualified for the study did not recognize the criteria as applicable—they perceived their work as just “being a good daughter/son” or “just running a few errands and taking her to the doctor.” Therefore, it is plausible that more effective recruitment tools would have enhanced the possibility of a higher quality sample. Written documents could have provided a more detailed description of what caregiving is, or perhaps could have avoided the term altogether. Dissemination of the survey also could have attended better to issues of ethnic diversity in the caregiving population by pursuing more varied sites of data collection.

Many participants completed the survey but were unsuccessful in recruiting a sibling to begin the survey. This may indicate that the sample and data collection

techniques favored siblings whose relationship already included a baseline level of communication. Qualitative reports of caregiver-sibling relationships include dramatically separated siblings who do not communicate at all nor collaborate in caregiving (Amaro & Miller, 2013), though it is not known what percentage of caregivers experience such relationships. Most sibling dyads within this study indicated some frequency of communication or collaboration and may not be the best representation of the population. This may be an unavoidable error, though a different participant incentive structure could promote the study to more potential participants. The incentive structure in this study was a raffle approach, but in retrospect, a small amount provided to each participant may have been more effective. The raffle approach may allow participants to feel skeptical about their odds of receiving a benefit from participating in the study, while a regular payment to each participant provides a guarantee of benefit.

A large number of individuals began the survey and did not complete it and their data was subsequently not used in analyses. Occasional feedback from participants included comments about the length of the survey as too long, indicating that a more narrow focus could have assisted in gathering a larger sample of caregivers who are, by definition, busy people.

### **Recommendations for Praxis and Future Directions**

The information brought to light in this project applies to a number of parties associated with caregivers, including the caregiver, the sibling, the elder, family health

practitioners, and researchers. This section recommends various communication practices for each group.

Beginning with the main focus of this work, this project recognizes the immense importance of the family caregiver. This is a group of people who contribute invaluable services to society. Caring for an aging parent or loved one does more than just doing due diligence for a family member. While aging in place or with the close attention of a loved one prolongs independence and comfort for an aging person, the collective practice of caregiving assists local and national economies (National Aging in Place Council, 2014), saving communities money and enhancing a culture of care and respect for older generations. Caregivers contribute essential resources and deserve support. However, without personal responsibility for attaining support, many caregivers may not receive necessary help. That can start at home. Caregivers who need help from siblings should consider practicing intentional gratitude toward their sibling for multiple purposes, including the possibility of more assistance from that sibling. Caregivers should step back and consider in what ways their sibling attempts to help and if perhaps their own expectations have hindered the perception of service from that person. If that means digging deep to find even one small act for which they can thank the sibling, a caregiver should do that. Caregivers should also open their ears to expressions of gratitude from their sibling. Perhaps in order to do these things, caregivers need a brief respite to center their thoughts and emotions. While finding respite can be a difficult task, subjective well-being is likely to increase with rest and the ability to process positive affect. Caregivers

need a break. The burden and stress is real. Positive communication can help with this, but not without the practical assistance that a sibling can bring.

Therefore, the next recommendation is for siblings to participate as much as possible. Siblings can help to relieve the caregiver's burden and this study indicates that those siblings experience positive affect in the form of gratitude as a result. Siblings should, however, consult with the caregiver about specific types of participation. While one person may define an act of service as a gift, the other may not use the same definition and may miss the quality of the offering. Siblings should communicate with the caregiver to discover what qualifies as a gift and to share their own perspective to help the caregiver perceive intentions. A simple way to have this conversation is to ask, "How can I help you? What would bless you or relieve you?" Amaro and Miller's (2013) study of sibling communication in the caregiving context indicates that asking such caring questions may be perceived as gratitude and would likely be met with a great deal of receptivity. Finally, siblings should say "thank you" as often as possible and with as much authenticity and intention to value as possible. For every detail, for every trip to the doctor's office, the sibling should remember that the caregiver does not *have* to do these things, but made a choice to support a parent and is now dealing with the sometimes or often difficult consequences of that decision. Specific words of thanks are helpful, but so are acts of gratitude such as following through on promises or choosing to encourage when one might criticize (Amaro & Miller).

The elder receiving care is not off the hook from practicing positive communication as well. This person is receiving costly, voluntary, and intentional acts of care, whether that care is unwanted or treasured. Elders who are able can also cultivate and practice gratitude toward their children by recognizing the motivation for the care. This is likely to promote more care and a better quality of care (McCullough et al., 2001). They can also encourage amity between siblings by appropriately withholding criticism or complaints about either adult child in the presence of the other.

Family health practitioners who work with caregivers, siblings, and/or elders can also encourage an economy of gratitude in the family. Elder care mediators can employ techniques in which both parties must express gratitude for specific acts before moving into some of the more difficult issues of a conflict. This study indicates that both the relationship and care conflict can be improved through gratitude. Family counselors can cultivate the practice of gratitude in the office, walking patients through the process of counting blessings. While this may have a positive effect on reducing negative affect, it is more likely to begin to develop a habit that can contribute to relational intimacy and participation in the caregiving process that can bring essential relief. Non-profit organizations that work with issues of elder care can support family caregivers by developing gratitude campaigns like AARP's Thanks Project, a website that allows anyone to thank a caregiver via email or social media (AARP, 2014). Those organizations with more resources and contacts may also reach out to siblings to thank

them for their contribution and to encourage them to communicate using some of the specific techniques addressed above with their sibling.

Research must continue to seek out caregivers and their families, even though they present challenges to sampling. Family members and practitioners alike need evidence to support their projects. Health campaigns require testing and development, and they are desired by multiple grant-funding organizations. Specific future directions include testing for physical health effects of gratitude and other positive emotions such as forgiveness and compassion. Dyadic studies of the caregiver and elder, the non-primary caregiver sibling and the elder, and other family dyads influenced by care (caregiver-spouse, sibling-spouse, in-law relationships) can help to understand the larger economy of gratitude and other communication patterns that influence well-being and health. The campaign research can pursue message development and testing in these groups, seeking to find ways to raise consciousness about the need for caregivers and family members to protect SWB by practicing positive communication. These campaigns should focus on specific caregiver groups, including ethnic groups that are more likely to be caregiving without terming their work as such. These groups are likely to still experience burden but are less likely to gain the communicative or practical support necessary to sustain care (Chakrabarti, 2013).

### **Conclusion**

This study aimed to better understand a subsystem of the family system in the family caregiving context. Recognizing the protective importance and potential risk of



the caregiver-sibling relationship, both dyad members were surveyed to discover their experiences of burden, care conflict, frequency and quality of gratitude exchange, subjective well-being, and relationship satisfaction. Analyses confirmed complex relationships among these variables, some relationships confirming extant research in gratitude and other relationships pointing to the need for intervention for the caregiver or for the relational system. Overall, important findings included the need for caregivers to perceive and communicate gratitude with more intentionality and the need for siblings to continue to participate, which enhances gratitude and assists with improving the experience of negative affect, care conflict, relational closeness, and relationship satisfaction. These findings were discussed in light of multiple theories from communication and other disciplines, including the sociological principle of an economy of gratitude, equity theory, the broaden-and-build theory of positive emotion, family systems theory and the stress process model. Practical recommendations were offered for family members, practitioners, and researchers. These recommendations do not guarantee transformation of what is an important and difficult time for families. But they can help. Gratitude is a controllable area of family life, one that can make a difference, free of charge. It does not fix a broken or malfunctioning machine, but it can grease a squeaky gear that can allow for family mechanics to identify and address bigger issues in the machine.

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APPENDIX  
TABLES AND FIGURES

Table 1

*Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of the CBI*

<i>Indicate the degree to which you agree or disagree with these statements about how you help your parent.</i>	Demand	Emotion	Family
I have to watch my parent constantly.	<b>.783</b>	-.110	
I don't have a minute's break from my caregiving chores.	<b>.782</b>		
I feel I am missing out on life.	<b>.754</b>	.404	.154
I'm physically tired.	<b>.749</b>	.221	.198
My social life has suffered.	<b>.701</b>	.348	.317
I am not getting enough sleep.	<b>.701</b>		.296
I have to help my parent with many basic functions.	<b>.653</b>	-.176	
My parent needs my help to perform many daily tasks.	<b>.629</b>		
I feel emotionally drained, due to caring for my parent.	.615	.498	.242
I wish I could escape from this situation.	.605	.546	.288
My health has suffered.	.547	.301	.403
My parent is dependent on me.	.538	.271	-.191
Caregiving has made me physically ill.	.520	.325	.269
I expected that things would be different at this point in my life.	.450	.373	.421
I don't do as good a job at work as I used to.	.408	.154	.249
I feel embarrassed by my parent's behavior.	.129	<b>.862</b>	-.128



<i>Indicate the degree to which you agree or disagree with these statements about how you help your parent.</i>	Demand	Emotion	Family
I feel ashamed of my parent.		<b>.850</b>	
I resent my parent.		<b>.764</b>	.237
I feel angry about my reactions toward my parent.		<b>.582</b>	.364
I feel uncomfortable when I have friends over.	.310	.425	
I don't get along with other family members as well as I used to.			<b>.832</b>
My caregiving efforts aren't appreciated by others in my family.			<b>.786</b>
I've had problems with my marriage.	.311		<b>.720</b>
I feel resentful of others who could but do not help.		.359	<b>.614</b>

Table 2

*Sibling Intimacy Subscale Items* (Blyth & Foster-Clark, 1987; Blyth, Hill, & Thiel, 1982)

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*Think about how well you have gotten along with your sibling in the past year, then indicate how often these things happened.*

---

How much do you go to (sibling's name) for advice or support?

How much do you want to be like (sibling's name)?

How much does (sibling's name) accept you no matter what you do?

How much does (sibling's name) understand what you are really like?

How much do you share your feelings or secrets with (sibling's name)?

How much does (sibling's name) come to you for advice or support?

How important is (sibling's name) to you?

How satisfied are you with the relationship you have with (sibling's name)?

Table 3

*Relationship Satisfaction Scale (Hendrick, 1988)*

<i>Item</i>	<i>Measure</i>				
How well does your sibling meet your needs?	Not at all			Very well	
	1	2	3	4	5
In general, how satisfied are you with your relationship?	Very unsatisfied			Very satisfied	
	1	2	3	4	5
How good is your relationship compared to most other sibling relationships?	Not very good			Very good	
	1	2	3	4	5
How often do you wish you had a different sibling?	Very often			Not very often	
	1	2	3	4	5
To what extent has your relationship met your expectations for what a sibling relationship should be?	Not at all			Very much so	
	1	2	3	4	5
How much do you love your sibling?	Not very much			Very much	
	1	2	3	4	5
How many problems are there in your relationship?	Very many			Very few	
	1	2	3	4	5

Table 4

*Component Loadings for Principal Components Analysis of Care Conflict Scale*

Please indicate the extent to which you agree or disagree with the following statements.	Care Conflict
I often agree with my sibling on decisions regarding my parent's care.	.773
I often disagree with my sibling on decisions regarding my parent's care.**	-.860
I often argue with my sibling about decisions regarding my parent's care.**	-.797
I rarely argue with my sibling about decisions regarding my parent's care.**	.574
I am frequently happy with my sibling about his/her ideas regarding my parent's care.	.805
I am frequently angry with my sibling about his/her ideas regarding my parent's care.**	-.768
The way my sibling thinks about my parent's care is very similar to how I think.	.735
I like how my sibling thinks about my parent's care.	.779

*Starred items were recoded.*

Table 5

*The Gratitude Questionnaire-6 (McCullough, Emmons, & Tsang, 2002)*

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Items

---

I have so much in life to be thankful for.

If I had to list everything that I felt grateful for, it would be a very long list.

When I look at the world, I don't see much to be grateful for.\*\*

I am grateful to a wide variety of people.

As I get older I find myself more able to appreciate the people, events, and situations that  
have been part of my life history.

Long amounts of time can go by before I feel grateful to something or someone.\*\*

\*\*Starred items received reverse coding.

Table 6

*Component Loadings for Principal Components Analysis with Varimax Rotation of the Expression of Gratitude Scale*

<i>Please indicate the appropriate answer.</i>	Frequency of Expression	Quality of Expression
How often does your sibling show appreciation for your help with administrative tasks (e.g., paying bills, doctors' appointments, household work)?	<b>.886</b>	.116
How often do you show appreciation for your sibling's help with physical tasks (e.g., bathing, physical therapy)?	<b>.861</b>	.137
How often does your sibling show appreciation for your help with financial tasks?	<b>.859</b>	.100
How often does your sibling show appreciation for your help with physical tasks (e.g., bathing, physical therapy)?	<b>.851</b>	
How often does your sibling show appreciation for your emotional support of your parent?	<b>.843</b>	.251
How often does your sibling do something for you to express gratitude?	<b>.825</b>	.112

<i>Please indicate the appropriate answer.</i>	Frequency of Expression	Quality of Expression
How often does your sibling say “thank you” to you for your participation with your parent’s general care?	<b>.801</b>	.177
How often do you show appreciation for your sibling’s help with administrative tasks (e.g., paying bills, doctors’ appointments, household work)?	<b>.779</b>	.267
How often do you do something for your sibling to express gratitude?	<b>.774</b>	.155
How often do you show appreciation for your sibling's emotional support of you parent?	<b>.760</b>	.379
How often do you show appreciation for your sibling's help with financial tasks?	<b>.741</b>	.269
How often do you say something to thank your sibling for their participation with your parent’s general care?	<b>.712</b>	.381
When I express gratitude to my sibling, I always do it with genuine appreciation.	.205	<b>.879</b>
I feel valued when my sibling says, “thank you” for something I have done.	.165	<b>.863</b>

I try to make my sibling feel valued by saying “thank you” for something they have done.	.157	<b>.856</b>
My sibling is always genuine when they express gratitude.	.167	<b>.848</b>
My sibling feels valued when I say “thank you” for something they have done.	.183	<b>.817</b>



Table 7

*Satisfaction with Life Scale (Diener et al., 1985)*

---

*Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item.*

---

In most ways, my life is close to ideal.

The conditions of my life are excellent.

I am satisfied with my life.

So far I have gotten the important things I want in life.

If I could live my life over, I would change almost nothing.

Table 8

*Factor Loadings of Exploratory Factor Analysis with Varimax Rotation of the PANAS*

<i>Indicate to what extent you have felt this way during the past year.</i>	Negative Affect	Positive Affect
afraid	<b>.836</b>	.061
nervous	<b>.827</b>	.004
upset	<b>.794</b>	.114
scared	<b>.755</b>	-.059
distressed	<b>.746</b>	.057
jittery	<b>.743</b>	.185
hostile	<b>.695</b>	.103
irritable	<b>.655</b>	.154
guilty	<b>.555</b>	.173
ashamed	<b>.532</b>	.215
determined	.053	<b>.768</b>
attentive	.009	<b>.749</b>
proud	.187	<b>.739</b>
strong	.063	<b>.735</b>
inspired	.145	<b>.728</b>
enthusiastic	.245	<b>.719</b>
alert	-.042	<b>.673</b>
active	.182	<b>.632</b>

---

<i>Indicate to what extent you have felt this way during the past year.</i>	Negative Affect	Positive Affect
interested	.212	<b>.548</b>
excited	.015	<b>.544</b>
afraid	<b>.836</b>	.061
nervous	<b>.827</b>	.004
upset	<b>.794</b>	.114
scared	<b>.755</b>	-.059

Table 9

*Means, Standard Deviations, and Correlations for Dependent Variables*

Variable	Caregivers		Siblings		<i>r</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Care Participation	21.56	24.47	5.98	12.03	.22***
Sibling Intimacy	3.50	.79	3.71	.68	.48***
Care Conflict	3.15	.34	3.31	.34	.18*
Positive Affect	3.48	.74	3.36	.70	.33**
Negative Affect	2.40	.84	2.22	.85	.31**
Life Satisfaction	4.98	1.50	5.36	1.20	.28**
Relationship Satisfaction	4.02	.64	4.24	.53	.44***
Experience of Gratitude	4.39	.65	4.44	.55	.28**
My Frequency of Gratitude	2.90	1.26	3.43	1.12	.62***
My Sibling's Frequency of Gratitude	3.22	1.26	3.00	1.33	.56***
Quality of Gratitude Exchange	4.07	.71	4.38	.64	.44***

\*\*\* $p < .01$  (2-tailed)\*\* $p < .05$  (2-tailed)\* $p < .20$  (2-tailed)

Table 10

*Pearson Correlations of Burden and Gratitude Subscales*

	Trait	“My” Frequency of Gratitude Expression	“My Sibling’s” Frequency of Gratitude Expression	Quality of Gratitude Expression
Burden: Demand	-.21	.05	.002	-.20
Burden: Negative Affect	-.17	-.20	-.17	-.36**
Burden: Family	-.36**	-.20	-.28*	-.49**

*\*\*Correlation is significant at the .01 level (2-tailed).*

*\*Correlation is significant at the .05 level (2-tailed).*

Table 11

*APIM Examining Multiple Predictors of Care Conflict*

Parameter	$\beta$	<i>SE</i>	<i>df</i>	<i>t</i>	Sig.	$\eta^2$
Intercept	3.240	.045	58.641	72.31	.000	--
[Role=-1.00]	-.021	.082	54.420	-.254	.801	--
p_SibIntimacy_CENT	-.024	.051	67.849	-.470	.640	--
a_SibIntimacy_CENT	.120	.053	69.897	2.283	.025**	.069
a_LifeSat_CENT	.020	.023	81.857	.884	.379	--
p_LifeSat_CENT	.025	.023	83.483	1.076	.285	--
a_MyFreqExpGratCENT	.051	.046	82.457	1.110	.270	--
p_MyFreqExpGratCENT	-.035	.045	83.642	-.776	.440	--
p_SibFreqExpGratCENT	-.009	.040	88.592	-.213	.832	--
a_SibFreqExpGratCENT	.003	.041	88.460	.079	.937	--
p_QualExpGratCENT	.019	.058	68.078	.328	.744	--
a_QualExpGratCENT	.170	.059	68.195	2.896	.005**	.109
a_PosAff_CENT	.025	.037	76.820	.678	.500	--
p_NegAff_CENT	.037	.037	74.427	.999	.321	--
a_Participation_CENT	.001	.002	57.312	.509	.613	--
p_Participation_CENT	.003	.001	63.891	2.093	.040**	.064

*\*\*Significant effects have a two-tailed alpha level of .05.*

*Variables with the preface of a\_ indicate actor variables. Variables with the preface of p\_ indicate partner variables.*

Table 12

*APIM Examining Predictors of a Participant's Report of Her Frequency of Expressed Gratitude*

Parameter	$\beta$	<i>SE</i>	<i>df</i>	<i>t</i>	Sig.	$\eta^2$
Intercept	3.424	.108	60.107	31.724	.000	--
[Role=-1.00]	-.602	.184	55.853	-3.267	.002*	.16
[Role=1.00]	0b	0	.	.	.	
a_TraitGrat_CENT1	-.138	.120	80.045	-1.152	.253	--
p_TraitGrat_CENT	.146	.127	85.104	1.156	.251	--
a_MyFreqExpGratCENT	.800	.077	70.576	10.450	.000*	.607
p_MyFreqExpGratCENT	.062	.077	74.752	.805	.424	--
a_Participation_CENT	.005	.004	69.088	1.378	.173	--
p_Participation_CENT	.003	.004	73.312	.971	.335	--
a_SibIntimacy_CENT	.228	.113	76.140	2.000	.049*	.05
p_SibIntimacy_CENT	-.041	.113	78.322	-.362	.718	--
Role *	.019	.011	52.427	1.683	.098**	
a_Participation_CENT						

\* Significant effects have a one-tailed alpha level of .05.

\*\*Significant effects have a two-tailed alpha level of .05.

*Variables with the preface of a\_ indicate actor variables. Variables with the preface of p\_ indicate partner variables.*

Table 13

*APIM Examining Predictors of a Participant's Report of Her Sibling's Frequency of Expressed Gratitude*

Parameter	$\beta$	SE	df	t	Sig.	$\eta^2$
Intercept	3.424	.108	60.107	31.724	.000	--
[Role=-1.00]	-.602	.18	55.853	-3.267	.002*	.160
a_TraitGrat_CENT1	-.138	.120	80.045	-1.152	.253	--
p_TraitGrat_CENT	.146	.126	85.104	1.156	.251	--
a_MyFreqExpGratCENT	.800	.076	70.576	10.450	.000*	.607
p_MyFreqExpGratCENT	.062	.077	74.752	.805	.424	--
a_Participation_CENT	.005	.003	69.088	1.378	.173	--
p_Participation_CENT	.003	.003	73.312	.971	.335	--
a_SibIntimacy_CENT	.227	.113	76.140	2.000	.049*	.05
p_SibIntimacy_CENT	-.040	.112	78.322	-.362	.718	--

\* Significant effects have a one-tailed alpha level of .05.

\*\*Significant effects have a two-tailed alpha level of .05.

Variables with the preface of a \_ indicate actor variables. Variables with the preface of

p\_ indicate partner variables.

Effects with 2 variables linked with a star indicate an interaction effect.



Table 14

*APIM Examining Predictors of Quality of Gratitude Exchange*

Parameter	$\beta$	<i>SE</i>	<i>df</i>	<i>t</i>	Sig.	$\eta^2$
Intercept	4.14	.086	56.739	47.866	.000	--
[Role=-1.00]	.062	.118	53.547	.528	.599	--
a_TraitGrat_CENT1	.052	.118	48.231	.442	.660	--
p_TraitGrat_CENT	.108	.089	83.778	1.204	.232	--
p_SibIntimacy_CENT	.003	.072	72.176	.052	.958	--
a_SibIntimacy_CENT	.432	.077	87.955	5.584	.000*	
a_Participation_CENT	.001	.003	49.095	.440	.662	--
p_Participation_CENT	.004	.002	57.631	1.920	.060	--
[Role=-1.00] *						
a_Participation_CENT	-.009	.005	52.182	-1.610	.113	
Role * a_TraitGrat_CENT1	.453	.153	71.521	2.952	.004*	.108

\* Significant effects have a one-tailed alpha level of .05.

Variables with the preface of *a\_* indicate actor variables. Variables with the preface of *p\_* indicate partner variables.

Effects with 2 variables linked with a star indicate an interaction effect.

Table 15

*APIM Examining Predictors of Life Satisfaction*

Parameter	$\beta$	<i>SE</i>	<i>df</i>	<i>t</i>	Sig.
Intercept	5.04	.214	55.476	23.529	.000
[Role=-1.00]	.239	.257	51.559	.930	.356
p_SibIntimacy_CENT	-.025	.215	88.542	-.118	.906
a_SibIntimacy_CENT	.339	.216	91.621	1.566	.121
p_Conflict_CENT	.287	.467	96.136	.614	.541
a_Conflict_CENT	.371	.459	89.256	.809	.420
a_MyFreqExpGratCENT	.017	.138	81.520	.129	.897
p_MyFreqExpGratCENT	-.006	.136	78.757	-.046	.964

\* *Significant effects have a one-tailed alpha level of .05.*

\*\**Significant effects have a two-tailed alpha level of .05.*

*Variables with the preface of a\_ indicate actor variables. Variables with the preface of*

*p\_ indicate partner variables.*

*Effects with 2 variables linked with a star indicate an interaction effect.*

Table 16

*APIM Examining Predictors of Positive Affect*

Parameter	$\beta$	<i>SE</i>	<i>df</i>	<i>t</i>	Sig.	$\eta^2$
Intercept	3.543	.111	52.608	31.742	.000	
[Role=-1.00]	-.291	.129	50.553	-2.250	.029	.091
a_MyFreqExpGratCENT	.130	.070	91.355	1.853	.067	.036
p_MyFreqExpGratCENT	-.082	.068	83.534	-1.189	.238	
p_QualExpGratCENT	.040	.115	92.343	.354	.724	
a_QualExpGratCENT	.178	.117	98.128	1.523	.131	

\* Significant effects have a one-tailed alpha level of .05.

\*\*Significant effects have a two-tailed alpha level of .05.

*Variables with the preface of a\_ indicate actor variables. Variables with the preface of p\_ indicate partner variables.*

*Effects with 2 variables linked with a star indicate an interaction effect.*

Table 17

*APIM Examining Predictors of Negative Affect*

Parameter	$\beta$	SE	df	t	Sig.	$\eta^2$
Intercept	2.352	.116	55.483	20.123	.000	
[Role=-1.00]	-.071	.157	50.015	-.454	.652	
a_MyFreqExpGratCENT	.078	.082	83.977	.955	.342	
p_MyFreqExpGratCENT	.056	.082	85.712	.683	.497	
a_QualExpGratCENT	-.447	.136	95.292	-3.286	.001	.102
p_QualExpGratCENT	-.099	.135	95.951	-.737	.463	

\* Significant effects have a one-tailed alpha level of .05.

\*\*Significant effects have a two-tailed alpha level of .05.

Variables with the preface of a\_ indicate actor variables. Variables with the preface of p\_ indicate partner variables.

Effects with 2 variables linked with a star indicate an interaction effect.

Table 18

*APIM Examining Predictors of Relationship Satisfaction*

Parameter	$\beta$	<i>SE</i>	<i>df</i>	<i>t</i>	Sig.	$\eta^2$
Intercept	4.051	.075	59.854	53.800	.000	
[Role=-1.00]	.174	.109	48.976	1.603	.115	
a_MyFreqExpGratCENT	.046	.079	90.169	.583	.561	
p_MyFreqExpGratCENT	.030	.079	87.358	.386	.701	
p_QualExpGratCENT	.047	.077	92.790	.616	.539	
a_QualExpGratCENT	.327	.077	92.304	4.242	.000*	.163
p_SibFreqExpGratCENT	-.028	.072	81.716	-.398	.692	
a_SibFreqExpGratCENT	.155	.072	83.332	2.145	.035*	.053
a_Participation_CENT	-.005	.002	59.491	-2.154	.035*	.072
p_Participation_CENT	-.003	.002	54.593	-1.911	.061**	

\* Significant effects have a one-tailed alpha level of .05.

\*\*Significant effects have a two-tailed alpha level of .05.

*Variables with the preface of a\_ indicate actor variables. Variables with the preface of*

*p\_ indicate partner variables.*

*Effects with 2 variables linked with a star indicate an interaction effect.*

Table 19

*Summary of Findings*

Hypotheses	Significance	Effect Size
H1: More dispositional gratitude predicts more frequently expressed gratitude across the sibling dyad.	Not significant	
H2: Greater sibling intimacy predicts more frequently expressed gratitude across the sibling dyad.	Significant actor	$\eta^2 = .149$
H3: Greater actor participation predicts more frequently expressed partner gratitude.	Significant partner	$\eta^2 = .075$
H4: The role of non-caregiving sibling will interact with participation to predict frequency of expressed gratitude.	Significant	$\eta^2 = .051$
H5: More actor dispositional gratitude predicts more perceived frequency of expressed gratitude from the partner.	Not significant	
H6: Greater sibling intimacy predicts more perceived frequency of expressed gratitude from the partner.	Significant actor	$\eta^2 = .05$
H7: Greater actor participation predicts more perceived frequency of expressed gratitude from the sibling.	Not significant	

Hypotheses	Significance	Effect Size
H8: An individual's own report of frequent gratitude expression associates with frequently received gratitude from the sibling.	Significant actor	$\eta^2 = .607$
H9: More dispositional gratitude predicts higher quality gratitude across the sibling dyad.	Not significant	
H10: Greater sibling intimacy predicts higher quality gratitude across the sibling dyad.	Significant actor	$\eta^2 = .26$
H11: Greater sibling participation predicts higher quality gratitude across the sibling dyad.	Not significant	
H12: Sibling expressed gratitude predicts caregiver life satisfaction.	Not significant	
H13: Sibling intimacy predicts more life satisfaction for both siblings.	Not significant	
H14: Care conflict negatively predicts life satisfaction.	Not significant	
H15: Frequency of expressed gratitude positively predicts positive affect.	Significant actor	$\eta^2 = .036$
H16: Quality of expressed gratitude positively predicts positive affect.	Not significant	
H17: Frequency of expressed gratitude negatively predicts negative affect.	Not significant	

Hypotheses	Significance	Effect Size
H18: Quality of expressed gratitude negatively predicts negative affect.	Significant actor	$\eta^2 = .102$
H19: Frequency of expressed gratitude predicts relationship satisfaction.	Not significant	
H20: Quality of expressed gratitude predicts relationship satisfaction.	Significant actor	$\eta^2 = .163$
H21: More sibling expressed gratitude predicts caregiver and sibling relationship satisfaction.	Significant actor	$\eta^2 = .053$
H22: More sibling participation predicts relationship satisfaction.	Significant actor, partner	$\eta^2 = .072,$ $\eta^2 = .062$



Figure 1

*Interaction Effect for Participation by Role on Frequency of Gratitude Expression*

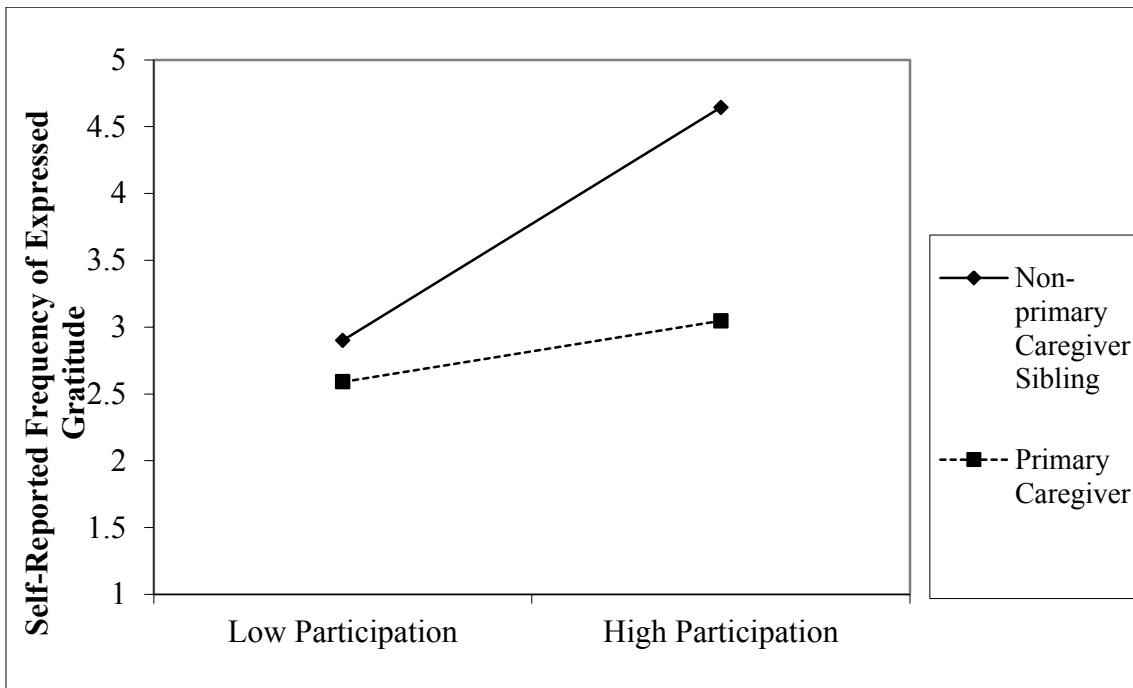


Figure 2

*Interaction of Trait Gratitude by Role on Quality of Gratitude*

