

EXAMINING SIBLING COMMUNICATION DURING PARENTAL HEALTH CRISES  
USING SOCIAL SUPPORT, RELATIONAL MAINTENANCE  
BEHAVIORS, FAMILY COMMUNICATION PATTERN,  
AND RELATIONAL OUTCOMES

by

AMY MUCKLEROY CARWILE

A DISSERTATION

Submitted in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy in the College of Communication and  
Information Sciences in the Graduate School of  
The University of Alabama

TUSCALOOSA, ALABAMA

2009

Copyright Amy Muckleroy Carwile 2009  
ALL RIGHTS RESERVED

## LIST OF ABBREVIATIONS AND SYMBOLS

ANOVA	Analysis of variance: tests statistical differences among the mean scores of two or more groups on one or more variables or factors
Cronbach's $\alpha$	Determines the internal consistency or average correlation of items in a survey instrument to gauge reliability
$df$	Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data
F	Fisher's Ratio
$M$	Mean: the sum of a set of measurements divided by the number of measurements in the set
Max	Maximum: the maximum score on a set of measurements
Min	Minimum: the minimum score on a set of measurements
$N$	Size of overall data set
$p$	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value; significance level
$SD$	Standard deviation
SPSS	Statistical Package for the Social Sciences
<	Less than
=	Equal to
%	Percentage

## ACKNOWLEDGEMENTS

It is my pleasure to be able to acknowledge those individuals that have helped guide me to this point. I appreciate Kim Bissell's willingness to take on a project as the chair of this committee. Her knowledge and expertise in negotiating the difficult paths of this process was invaluable. She held my hand and kept me focused on the goal of completing this project. She was truly the epitome of a mentor and without her guidance I would still be working on this dissertation. Tom Harris had a talent for coaxing original thought from me when all I really wanted was for him to answer my question. This talent helped me to learn how to truly engage my own students and his extensive knowledge contributed greatly to this dissertation. To Johnny Sparks who joined the committee late in the game; you helped me get through the perils of this and I will be forever grateful for your wise contributions and help. Maybe the next time you give me advice, I will actually take it! Bill Evans helped me take a germ of an idea into an actual project worthy of a dissertation. Jamie DeCoster, as my outside member, provided much needed help with statistical analyses and my methods section. Carol Mills initially encouraged me to pursue this dream even when I was not sure I could, and I appreciate her time and input.

From the very first semester in this program until I finished this project, Jennings Bryant was always available and willing to help me sort out whatever crisis had befallen me on that particular day. My cheerleader, protector, and general all around go-to person was Diane Shaddix. She told me that I could finish this program on time and I relied on her expertise and help to do just that. To my "peeps" (you know who you are) I could never have made it without your support!

I've heard it said that if you have one great friend in your life you are truly blessed. I am fortunate to have three. Sherry and Ruth, thank you for your help in this project and your unwavering support of me for so many years. Alexa, what an adventure we have shared over three years. You held me up when I thought I couldn't do any more and you kept me focused when I really wanted to quit. Thank you. From now until forever, BMA will be our phrase!

Last but certainly not least, I thank my family members for the support they provided. My sisters helped with this project by supporting me throughout and by helping recruit participants. To all of my boys, thank you for always asking how it was going and encouraging me. Specifically to Trey and Jamie: thank you for always listening to me ramble on about things you really didn't care about, helping me get through the pre-test phase, and in general just being a solid shoulder to lean on. I could not have been blessed with greater children. Alice Ann, I appreciate your listening to my whining and your belief in me when I was down. You gave me strength and a push when I needed it most. Daddy, I wish you were here in person to see the finished project, but I trust that you are still wearing the sandwich-board! Mom, I am grateful to have had you and Daddy as parents. You kept me buffered against the world as I grew up and you helped me rebuild my world through some very difficult times. Thanks for always believing in my dream. To my husband Dennis, for all the long drives between your office and Tuscaloosa during this program, for all the stressful days, for all the care and love you gave me, I struggle to find the words worthy of the sacrifices you made for me. Thank you. You are truly my greatest champion. (10-4+1...)

## CONTENTS

LIST OF ABBREVIATIONS AND SYMBOLS .....	ii
ACKNOWLEDGEMENTS .....	iii
LIST OF TABLES .....	viii
LIST OF FIGURES .....	ix
ABSTRACT .....	x
1. INTRODUCTION .....	1
2. LITERATURE REVIEW .....	6
a. Social Support - Overview and Benefits .....	6
b. Social Support and Sibling Relationships .....	9
c. Sibling Relationships .....	11
d. Social Exchange Theory .....	13
1. Theory of Interdependence .....	14
e. Revised Family Communication Patterns Index .....	16
f. Sibling Relational Maintenance Behaviors Scale .....	18
g. Social Network Scale .....	20
h. Investment Model .....	20
3. METHODOLOGY .....	23
a. Instrument design and construction .....	23
b. Sample and recruitment of participants .....	27
c. Procedures .....	29

d. Measures .....	30
4. RESULTS .....	35
a. Data analysis .....	35
b. Data set description.....	35
c. Research Question 1.....	37
d. Research Question 2 .....	40
e. Research Question 3.....	43
f. Research Question 4.....	44
g. Research Question 5 .....	48
h. Post hoc tests.....	51
5. DISCUSSION.....	61
a. Implications.....	64
b. Limitations .....	73
c. Future Directions.....	74
d. Conclusion .....	79
REFERENCES .....	81

## LIST OF TABLES

1. Valid Number, Mean, and Standard Deviation for Sibling Relational Maintenance Behaviors in Crisis and Normal Situations .....	32
2. Valid Number, Mean, and Standard Deviation for Sibling Reliance Variables in Crisis and Normal Situations.....	35
3. Valid Number, Mean, Standard Deviation and Range for Sibling Relational Maintenance Behaviors and Family Social Support scores in a Parental Health Crisis.....	38
4. Correlations for Family Social Support scores in a Parental Health Crisis .....	40
5. One-way Analysis of Variance for Sibling Reliance Variables by Family Communication Pattern .....	42
6. Valid Number, Mean and Standard Deviation for Sibling Relational Maintenance Behaviors Difference scores.....	44
7. Valid Number, Mean, Standard Deviation and Range for Sibling Relational Maintenance Behaviors and Non-family Social Support scores in a Parental Health Crisis.....	46
8. Correlations for Non-family Social Support scores with Sibling Relational Maintenance Behaviors.....	47
9. One-way Analysis of Variance for Sibling Reliance Variables (crisis mode) by Parental Health Crisis-Revised .....	50
10. Correlations for Sibling Relational Maintenance Behaviors and Sibling	

Reliance Variables during a Parental Health Crisis .....	53
11. Correlations for Sibling Relational Maintenance Behaviors and Sibling Reliance Variables during a normal time period .....	56
12. Correlations for Sibling Relational Maintenance Behaviors during a Parental Health Crisis and a normal time period .....	58
13. Correlations for Sibling Reliance Variables during a Parental Health Crisis and a normal time period .....	60

## LIST OF FIGURES

1. Family Communication Patterns Grid .....	18
---	----

## ABSTRACT

The huge demographic cohort of Baby Boomers is aging, and life expectancy rates are increasing. Even as adults deal with age-related health concerns of their own, they must also deal with health-related crises that may befall their siblings, their parents, their significant others, or their children. The research proposed here examines the ways in which family health crises are managed communicatively by siblings, paying special attention to social support as siblings communicate in response to a family health crisis involving their parents. Further, this project seeks to identify the relational maintenance behaviors necessary for fortifying the sibling bond. In doing so, this research will provide a rare empirical assessment of self-reported sibling communication as he/she endured a past family health crisis involving a parent. Indeed, the study of sibling communication in general has only recently emerged as an area of focus among communication scholars. Moreover, there has been little attention paid to the role of sibling communication in the contexts of family health crises. This project is designed to explicate any difficulties in negotiating the particularly intriguing sibling relationship at a crisis point using interdependence theory and social support as a theoretical starting point. This project will utilize various quantitative methodologies and a participant pool comprised of baby boomers.

## Introduction

Susan is a 45-year-old, happily divorced financial analyst whose children are living their own lives in other states. Her father must be moved into an assisted living center because he can no longer care for himself. Her mother is deceased, and her siblings are hours away. She is the only child nearby and finds herself in the position of choosing the place her father should live and deciding if the cost is remotely feasible for her budget. If the cost is prohibitive, she will have to reach her brother and sister so that they can make choices about her father's care and living arrangements. Susan is stressed out and tired. She has no one to turn to for help. Susan has no close friends nearby because she just returned to this region to care for her father. It seems odd that both her brother and sister made the assumption that her lack of marriage partner made it easier for her to uproot her life to live near her father after her mother's death from cancer. In truth, the last five months have not been too difficult, but with the recent decline in her father's health, choices must be made. Unfortunately for many individuals, this scenario is painfully familiar. A nearby social support network of family or friends can be a necessity lacking in many people's lives, especially in today's mobile society. Not having access to these important support resources can be amplified if an individual is dealing with a parental health issue much like Susan's. For many baby boomer's this may be commonplace.

Society is aging. While this is not a novel concept, it is interesting when one considers that baby boomers like Susan are becoming the *aged*. Moreover, a recent study found that greater than thirteen million baby boomers are caregivers to their parents and are intimately involved in their parent's day-to-day health decisions (Campbell-Ewald, 2005). Sweet, Bumpass, and Call

(1988) found that most adults over the age of 55 have at least one sibling, and that the average number of siblings for adults over age 55 was 2.39. More recent research by Dunn (2000) confirmed this statistic. History has shown that during the height of the Depression of the 1930's US families had 2.5 children, and the baby boomer generation exceeded the Depression era family size by having an average of three to four children (Russell, 1997). Therefore, baby boomers should have plenty of sibling support to help each other through family health crises.

This project will investigate if siblings actually provide this type of support to each other, and how they provide it. Further, an investigation into the kind of support, either emotional or instrumental, is provided by siblings. Siblings may choose to supply neither instrumental nor emotional support during these family health crises, and this study seeks to determine if a lack of relational maintenance behaviors during a parental health crisis may contribute to a deterioration of the sibling bond. Finally, this research will attempt to discover the ways in which the sibling relationship may change as a parental health crisis enters the relationship.

Baby boomers are defined as individuals born between 1946 and 1964. The United States Census Bureau estimated the overall US population was made up of 78.2 million baby boomers as of July 1, 2005 (<http://www.census.gov/popest/national/>). The oldest of the baby boomers are expected to retire in the next 10 years, which economists predict may have a disastrous effect on our nation's workforce (Gallagher, 2005). Retired baby boomers are not expected to invest as heavily as they did during their working years, and this means that even Wall Street is beginning to be affected by this age cohort as Wall Street deals with the fallout of baby boomer retirements (Neuman, 2006). Additionally, there has been speculation about the impact of these retirements on the Social Security and Medicare programs. At issue is whether or not these programs have

the funds available to continue disbursements to baby boomer retirees who typically live longer, healthier lives than their own parents (Lee & Skinner, 1999).

Planning for retirement is not the only life-style change baby boomers are facing. Health care costs for the average baby boomer are expected to be about \$2,695 in average annual expenditures, and baby boomers can anticipate that health-care spending will increase with age. According to the Bureau of Labor Statistics, baby boomers aged 55 to 64 spent \$3,556 on health care in 2006, with the figure increasing to approximately \$4,331 for those aged 65 and over (<http://www.bls.gov/cex>) during the same year. If retirement income and health care costs are not enough for baby boomers to worry about, they sometimes find themselves dealing with another health related issue: a family health crisis involving their parent or parents.

Because of the larger size of their family of origin, baby boomers should ideally have multiple siblings to help form a support network to deal with a parental health crisis. Additionally, baby boomers may find themselves caught between the demands of being a child and meeting obligations to their parents while simultaneously meeting obligations to their own children. In particular, baby boomer siblings may need to help each other meet rising health care costs especially if the costs are associated with aging parents who cannot meet them alone. These costs may come about at the same time that baby boomer parents incur the expenses of a college education for their children. In addition, as they age they may be juggling the costs of a health crisis related to their own health or the health of their partner. As baby boomers find themselves caught in the intersection of roles as a child, parent, and/or spouse, deciding how to prioritize the demands and responsibilities of these relationships, it is possible that the sibling relationship may be relegated to the bottom of the priority list. This study seeks to investigate the bonds of the sibling relationship as the pressures of a parental health crisis affect it.

Further, this study delves into the amount and availability of social support networks available to a sibling, and if the presence or absence of these networks affect an individual's reliance on his/her sibling. As well, an investigation to determine which specific relational maintenance behaviors siblings use to help fortify their own relationships during a parental health crisis are analyzed.

As a starting point for this project, discovering what participants perceive as a parental health crisis is necessary because what may be a crisis for one family may not be a crisis for another. Understanding what constitutes a parental health crisis is an important goal of this study. A health crisis can be many things and probably varies with the individual and the family. By definition, a crisis is "a dramatic emotional or circumstantial upheaval in a person's life" (dictionary.com). However, a crisis is idiosyncratic for everyone. Due to the potential for misunderstanding, this project will utilize the above referenced definition with a few additions. For instance, the crisis event must be health related and must involve a parent or parents. Further limitations on this important construct might eliminate the uniqueness of each family situation.

Thus, some examples of a parental health crisis are: cancer or other debilitating disease diagnosis and treatment; the need to leave the hospital earlier than recommended due to financial difficulties or lack of health insurance; a disease such as diabetes that requires constant medical care; a fall or a motor vehicle accident that requires possible surgery and extended rehabilitation; or the circumstances of deciding that a parent must be moved to an assisted living facility. This study hopes to draw out the specific parental health issues that baby boomer siblings perceive to be crises in their own family.

Scholarly endeavors using the sibling relationship as a primary focus has been increasing in the realm of family communication in recent years, but siblings are still far from being the

most studied family relationship. Possibly because of the aging of society, health communication research has increased in recent years as well. However, no research has been found thus far that evaluates the dynamics of the sibling relationship as it ebbs and flows through a parental health crisis. This project will contribute to the literature both on family communication and health communication by examining the world of siblings as they negotiate the potentially difficult terrain of a health crisis as family members. Further, the results of this project will enable health care practitioners in all areas to assist siblings in working through future parental health crises by understanding the unique dynamics of this important family relationship.

This project seeks to answer questions like these: To what extent and how do siblings support one another during parental health crises? Do siblings consistently rely on each other during crises, or do they rely on other support networks when a health crisis impacts their family? What role does communication play in this process? In an aging and mobile society, it is crucial to understand the role of sibling communication during family health crises. In order to investigate these myriad issues, the lens of social support and the theory of interdependence offer the underpinnings necessary to perform a systematic evaluation of the sibling connection. Using these theoretical beginnings enables this project to expand previous communication scholars' studies of interpersonal relationships.

## Literature Review

### *Social Support*

#### 1. Overview and Benefits

Social support has been defined by Gardner and Cutrona, (2004), 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). Communication of social support should alleviate another’s fears or anxiety about a particular situation. Duck (1986) corroborates this by highlighting research indicating that social support can help prevent anxiety, low self-esteem, sleep disorders, depression, and headaches. Thus, communication of social support ameliorates uncertainties and helps the recipient’s “perception of personal control” in their own lives (Albrecht & Adelman, 1987).

Social support research has run the gamut from a student’s school outcomes to in-depth analyses of online support groups. For instance, Rosenfeld, Richman, Bowen and Wynns (2006), found that high school students who had personally experienced neighborhood violence or those who perceive their neighborhood to be violent were more likely to have better grades if they were able to rely on a supportive network of family and friends. Additionally, these same students were less likely to have attendance issues because of the social support network available to them. Younger children were the subjects in a study about mood management and the Internet (Leung, 2006). He found that children from ages 8 to 15 use their internet

interactions with friends to manage their moods and alleviate stress. Rosenfeld, et al. and Leung's findings support the argument that an active social support network can serve as a buffer for an individual's mental and physical stresses. As siblings come to grips with a parent's health crisis, a solid social support network should help siblings better manage the stresses that may accompany these situations.

Not surprisingly, social support has also been the focus of examinations regarding the positive effects of participation in health related support groups. Specifically, investigative studies of online support groups have found that individuals suffering with alcoholism can benefit from a social support group, even if it meets online rather than face to face (Cunningham, van Mierlo, & Rournier, 2008). These scholars found that members of the group posted encouraging messages about coping with the disease and specific success tactics that helped them cope. Further, they suggest that health care professionals working with alcoholics might recommend the online support group as an additional source of assistance with an individual's recovery. Family members serving as caregivers of patients with aphasia were the participants in a study by Fox, Poulsen, Clark-Bawden, and Packard (2004). Aphasia is the resulting state from either disease or a brain injury that causes loss of the ability to speak or understand language. This study utilized narratives from spouses, siblings and adult children of the patient to reveal that one of the most important resources these caregivers have is a social support network. Other health related studies about social support found that individuals dealing with the progressive advance of Huntington's disease (Coulson, Buchanan, & Aubeeluck, 2007), and individuals trying to maintain weight loss (Stevens, et al., 2008) were able to reduce their stress level and positively cope with the specific health issue if they had an accessible and available social support network of family and friends.

As these studies have indicated, in a potentially trying situation such as a parental health crisis, social support from siblings could be a necessary component of the sibling bond and could help siblings manage the stress that often accompany a health crisis such as this. Social support should help preserve the sibling relationship and help the relationship function optimally in difficult circumstances. However, much of the scholarly attention directed toward interpersonal relationships and utilizing social support as a foundation has thus far been focused not on sibling relationships, but on the romantic partner or the parent-child dyads. Through these studies communication scholars are provided a window into the intricacies of how social support mechanisms within close relationships operate.

Cohen and Wills' (1985) findings indicate that social support provides well being to recipients through two possible models; the buffering model and the main effects model. The buffering model was found to be supported when the research scenario intended to measure the interpersonal resources provided to another as needed based on a stressful event. The main effects model was found to be supported when the research scenario intended to measure how involved in a social network an individual is. Thus, these scholars' research suggests that in a crisis situation, individuals who are able to provide resources to their romantic partner are able to weather any crisis, possibly a parental health crisis, better than individuals whose romantic partners are not able to provide this kind of support. Their research also provided insight into understanding social support from both the buffering and main effects models.

Research previously conducted by Lictman, Taylor, and Wood (1987) suggested that supportive marriages are more likely to handle a cancer diagnosis in a positive way. Previously, Pistrang and Barker (1995) found that women who received a breast cancer diagnosis experienced increased well being if their partner helped them with tasks. Even if the breast

cancer patient had other individuals to help with tasks, they felt more supported if their significant other adopted a helpful attitude. Findings from a 1989 Manne and Zautra study, maintain that females diagnosed with rheumatoid arthritis who received supportive, positive encouragement from their significant other were more likely to select adaptive coping responses to the debilitating disease. A husband that was critical of his spouse and/or her illness impacted the patient's coping response negatively. Concurrent with Manne and Zautra's findings, patients recovering from heart surgery reported less stress and depression when they had a supportive spouse (Waltz, Badura, Pfaff & Schott, 1988).

To demonstrate the importance of social support between parents and children, Wickrama, Lorenz, and Conger (1997) discovered that increased physical health in a sample of 310 adolescents directly correlated with the perceived parental support related to a child's physical health. Also, improved school performance can be attributed to social support provided by parents (Cauce, Hannan, & Sargeant, 1992). In another study, Barnes and Farrell (1992) found that children receiving consistent social support and control from parents were less likely to use alcohol and drugs. According to these studies, social support provided by parents to children results in mentally and physically healthier children and better school productivity.

These studies reveal that social support has significant benefits. As siblings communicatively deal with a parental health crisis, the likelihood of stress and conflict increases and social support from siblings may help ameliorate the situation. These studies have provided a framework for examining interpersonal relationships that can be utilized with sibling research.

## 2. Social Support and the Sibling Relationship

Social support has been found to be a crucial element of sibling relationships as well. For instance, higher self esteem and children's quality of friendships among fifth grade students was

found to be linked to the type of family social support provided (Franco & Levitt, 1998). Similarly Caya and Leim (1998) discovered that self esteem and social competence in college aged adults was positively impacted by sibling social support. Findings support that learning how to manage conflict and cooperate with others helps adolescents become part of a social support network as friends later in life (Amato, 1989).

In a study of elementary school aged children from single parent families, Huntley and Phelps (1990) found that a supportive sibling relationship correlated to less depression. This finding also suggested that children in single parent families need quality relationships other than with just the residential parent and that a sibling's presence in the household moderated the child's depression.

More recently, Voorpostel and van der Lippe (2007) examined the differences between friends and siblings in providing social support. These scholars investigated the importance of both gender and geographic distance in these relationships. They found that siblings and friends are similar in providing practical support, but emotional support among siblings is dependent upon relationship quality and frequency of contact. This finding seems to support Furman and Buhrmester's (1985) research that the provision of emotional support from a sibling is more likely to be performed if that sibling is closer in age and of the same gender. Tucker, McHale and Crouter (2001) examined adolescent sibling pairs to discover how much younger siblings relied on an older sibling for support in familial and non-familial issues. This project found that indeed younger siblings do ask and receive support from their older sibling about school work and social interactions. Though these scholars have demonstrated the importance of social support in the sibling relationship, there remains a dearth of scholarship in this area. This project endeavors to draw attention to an understudied relationship in the communication discipline. The

studies previously described herein stress the importance of a social support network for lasting and communicatively valuable relationships, and the sibling relationship should also benefit from a vital social support structure. Thus, examining sibling relationships from this theoretical stance should prove illuminating and valuable to the literature on family and health related communication. Additionally, Floyd and Morman (2006) maintain that “there is much to be learned about the family --- and about family communication --- by broadening our perspective to include relationships outside of those traditionally studied by family scholars” (p. xvi). Recognizing these scholars’ admonition about exploring less studied familial relationships, this research intends to examine the sibling relationship.

### *Sibling Relationships*

In order to learn more about sibling social support and relational satisfaction of these relationships, we must examine what we know about sibling relationships. Bochner (1976) suggested that a basic foundation of family life is communication. It is in our families that we learn about ourselves, others, and society. In addition, the relationships in our family can be constructed and realized as communication within the family occurs (Wood, 1995). Thus, from a communication standpoint, all family relationships have a great influence on individuals, and sibling relationships are no exception. Since our sibling relationships are co-constructed in our family of origin, individuals’ expectations regarding the sibling relationships are what individuals were socialized to anticipate based on this co-construction.

Accepting this premise, Folwell, Chung, Nussbaum, Bethea and Grant (1997) suggest that a sibling relationship is of particular importance because of the length of time these relationships last. In general, sibling relationships outlast relationships with parents; often sibling relationships outlast even spousal or significant other relationships. Another unique component

of a sibling relationship is that they are forced relationships (Fitzpatrick & Badzinski, 1994). This means that sibling relationships are not optional. In other words, individuals have the ability to choose their friends, but have no choice about who their sibling happens to be.

Moreover, siblings are siblings for life. This means that even if an active relationship between siblings falters, the relationship continues to exist. For example, you may not have a close personal relationship with your sibling, but he or she is still your sibling (Cicirelli, 1995). Allan (1977) posits that although a sibling relationship may be strained to the point of no contact, siblings continue to be informed about each other's lives through communication with parents.

Mikkelson (2004) ascertained that siblings have a shared family history that influences the relationship. He suggests that the sibling relationship also has an ironic twist. Mikkelson proposed that while a person may love his/her sibling, they may not like him/her very much. Some of this irony may actually be a by-product of the shared family history and sibling rivalry as children. He further suggests that this irony can result in family conflict, competition, and rivalry as adults.

Sibling relationships have other important characteristics. These relationships tend to be more egalitarian than other family relationships, particularly parent-child relationships (Cicirelli, 1982). In reality, particularly in adulthood, siblings are peers. The fact that siblings are peers introduces an interesting dynamic to the sibling relationship. Cicirelli also suggests that because siblings view themselves as peers, they may try to negotiate power in the relationship in order to obtain the greatest benefits from the relationship for themselves. Further, Hochschild (1973) found that sibling relationships are predicated on reciprocity, which means that siblings have the expectation that services rendered will be repaid in kind. From a theory of interdependence viewpoint, this is quite telling. Therefore, the sibling relationship is only deemed satisfactory if

each sibling performs to expectations, particularly when providing instrumental social support (e.g.: babysitting each other's child). Additionally, female sibling pairs are likely to have more frequent contact than brother-brother, or brother-sister siblings (Lee, Mancini, & Maxwell, 1990) which introduces gender as a potential mediator for differences in sibling relationships.

Siblings are socialized to be responsive to each other's needs throughout their lifetimes. Previous scholarly inquiry regarding the sibling relationship points to the fact that as siblings leave the family home and become independent of their family of origin from a financial standpoint, they become less reliant on each other and more reliant on friends and romantic partners (Connidis, 1989). As adulthood progresses, siblings may become more and more distant in each other's lives because they are busy raising families of their own and/or building careers. However, when a family health crisis arises, particularly a crisis involving a parent such as dealing with a cancer diagnosis and treatment plan options, or how best to help a parent move into an assisted living facility, siblings are socialized to work together based on "shared norms that govern thoughts, actions" (Parkinson, Fischer, & Manstead, 2005). Understanding how siblings accomplish this task is the focus of this research. Recognizing the import of sibling relationships, scholarly attention must begin to move them from the periphery to the focal point. This project seeks to accomplish that goal.

### *Social Exchange Theory*

An optimal avenue for investigating siblings and social support is Social Exchange Theory. Social exchange theory comes from a blending of sociology and psychology and likens personal relationships to economic trades (Thibaut & Kelley, 1959). While this analogy may appear reductionist (and perhaps harsh), individuals are generally more likely to put extra effort into a relationship that might benefit them in some way, and less effort into a relationship when

they do not realize a return on their *investment*. Social exchange theory posits that individuals have resources, personal and emotional, that are exchanged with others during interpersonal interactions. These can be things such as time, caring, support, intimacy, and yes, even money. Recall that Hochschild (1973) found that siblings expect to receive benefits from the resources they put into relationships, thus social exchange theory lends itself well to the study of sibling communicative interactions.

A common characterization of social exchange theory is that it is similar to the utilitarian perspective. The utilitarian perspective upholds the argument that individuals rationally act to minimize their costs and maximize their rewards, even in interpersonal relationships. Another common characterization of the theory is that it is structural. This concept means that as individuals interact with each other, norms are developed within the relationship in relation to social interaction. Thus, social exchange theory asserts that individuals are economic in their disbursement of their resources to increase their rewards and that these rewards are norms negotiated during interactions.

#### 1. Theory of Interdependence

Dainton and Zelle (2006) note two common theoretical planes previously used in communication scholarship utilizing social exchange theory: theory of interdependence (Thibaut & Kelley, 1959), and equity theory (Walster, Walster, & Berscheid, 1978). Equity theory hypothesizes that individuals will measure their own inputs and outcomes with their partner's inputs and outcomes to seek a balance. According to equity theory, if the scale balances, then the individuals in the relationships feel more emotionally rewarded (Sprecher, 1986). Rusbult and Buunk (1993) using Kelley and Thibaut's (1978) theory of interdependence, forecast that individuals do not compare their own inputs versus outcomes with their partners inputs versus

outcomes, but that individuals compare their own inputs and outcomes to their expectations of their inputs and outcomes. This means that a person's expectations of a relationship form their comparison level (CL) and that inputs and outcomes in a relationship are measured against their comparison level (CL) to determine relational satisfaction. Satisfaction in a relationship then, is contingent upon an individual's own expectations of inputs and outcomes by themselves and their partner as compared to the reality of inputs and outcomes. As long as an individual's satisfaction and comparison level are equal to or greater than expectations, the relationship is perceived as satisfactory. However, if an individual's satisfaction and comparison level is less than expectations, the relationship is not considered satisfactory.

For example, if Jim is in a new relationship with Amanda and he receives more rewards than costs, and this is what he expected when he entered the relationship, then Jim will be more satisfied with his relationship with Amanda. However, if Jim receives more rewards than costs, and this is not what he expected when he entered the relationship, then Jim will be less satisfied with his relationship with Amanda. Alternatively, if Jim expects more rewards than he is receiving, interdependence theory predicts that he will be dissatisfied with the relationship. Consequently, an individual's satisfaction regarding a relationship is related to a positive outcome that comes closest to expectations of the relationship.

Another variable that impacts relational satisfaction is comparison level of alternatives (CLA). This means a person actually measures intra-personally the comparison of alternatives. If the comparison level of costs continually exceeds the comparison level of rewards, or if the comparison level of rewards tops the amount of costs expected as an investment in the relationship, individuals begin to examine their alternatives (Kelley & Thibaut, 1978). Consequently, individuals measure the comparison level of the current relationship to the

comparison level of an alternative relationship. The comparison level that they decide is most beneficial, determines if they remain in the relationship or choose to terminate it. Thibaut and Kelley (1959) suggest that only when measuring how these three variables: relational outcome, comparison level and comparison level of alternatives interact, impact, and overlap each other, can a researcher reasonably make predictions about satisfaction, dependence, and stability of a relationship.

The social exchange perspective has been linked to the provision of social support in recent research by Iida, Shrout, Seidman, Fujita, and Bolger (2008). They found that individuals receiving social support from their partners were much more likely to provide social support. An earlier study by Gleason, Iida, Bolger, and Shrout (2003) found similar results. These scholars discovered that when someone receives social support and does not reciprocate by providing social support, it results in a negative mood for both relational partners. Despite the fact that these findings are related to social support provisions in couples, I argue that sibling relationships have the same expectations of social support. Conflict in the sibling relationship arises when social support is not reciprocated or when an expectation regarding the amount of social support is different from actual support provided. In the context of a parental health crisis, this may cause the relationship to suffer. Therefore, I put forward the following research question:

RQ1: What is the relationship between sibling interactions in a parental health crisis and the provision of social support?

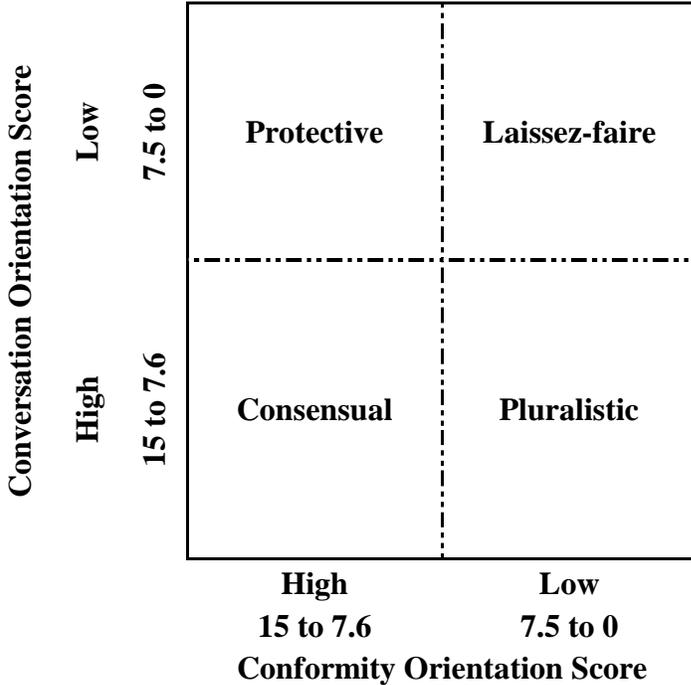
## 2. Revised Family Communication Patterns Index

Each person is imbued with the characteristics of his/her family background and communication style. Because people learn how to communicate with others primarily through

family interactions and siblings are certainly part of this dynamic, Ritchie and Fitzpatrick's (1990) Revised Family Communications Patterns Index offers a measure to use in examining sibling relationships during a family health crisis. These scholars posit two different kinds of orientations in families, and four types of families. *Communication orientation* refers to the importance placed on communication in the family and *conformity orientation* refers to the importance placed on acquiescing to familial rules and expectations. Family type is related to high or low communication or conformity orientations in the family.

The four family types are *consensual*, which has high communication and conformity orientation. This type of family talks about most issues, and when conflict occurs within the family it is important that they all reach an agreement that everyone buys into. *Pluralistic* families have high communication orientation, but low conformity orientation. Families that are considered pluralistic talk about most issues, but when conflict arises, they would rather ignore it than work out a solution that is amenable to everyone. *Protective* families have low communication orientation which means that while they do not value discussion about issues, they do value conformity. When protective families are faced with a conflict, everyone is expected to conform to the values and expectations outlined with virtually no discussion. Finally, the *laissez-faire* family has both low communication and conformity orientation. Family members in laissez-faire families do not value communication or adherence to rules and expectations. This means that when conflict arises, they do not discuss it, nor do they expect it to be resolved according to any specific guidelines. Figure 1 shows this concept in visual format.

Figure 1 Family Communication Patterns Grid



By understanding the type of family a sibling perceives as his/her family type might provide a predictor for relational outcome, comparison level and comparison level of alternatives during a family health crisis. Additionally, since the family type indicates how family members handle conflict, this finding could be particularly important because often a health crisis places demands on siblings to reach agreement. Therefore, I ask:

RQ2: How is a sibling's Family Communication Pattern associated with relational outcome, comparison level and comparison level of alternatives during a parental health crisis?

### 3. Sibling Relational Maintenance Behaviors Scale

Floyd and Voloudakis (1999) argue that affectionate communication is paramount to developing, defining, and maintaining interpersonal relationships. Surely, affectionate communication would be an expectation of the sibling relationship, and meeting or failing to

meet this expectation could be particularly important as siblings negotiate their roles during a family health crisis. Also, a sibling's family communication pattern as defined above should indicate the kind of relational maintenance behaviors performed to solidify and maintain the sibling bond because the family communication pattern indicates the value placed on communication by the family of origin.

To understand these important behaviors, Myers and Weber (2004) developed the Sibling Relational Maintenance Behaviors Scale. These scholars found that siblings perform four specific behaviors: confirmation, humor, social support, and family visits to maintain their sibling relationships and that these behaviors correlate directly to sibling liking, commitment, and trust. Myers and Weber note that the behaviors uncovered in their study are very similar to the relational maintenance behaviors used by individuals in romantic and platonic relationship. Since evaluating romantic partner relationships is common in much of the extant literature about social support in the communication discipline, I offer that like a romantic partner relationship, a sibling relationship is one that thrives or deteriorates based on communicative interactions. It is in the communicative interactions that siblings perform relational maintenance behaviors.

A valuable contribution can be made to the literature in the area of health communication and family communication by identifying specific behaviors siblings use to maintain the sibling relationship both as a *normal* point in time, and during a parental health *crisis*. Since relational outcome is a focus of this project and Voorpostel and van der Lippe's (2007) research indicates that a sibling's provision of emotional support is directly related to their frequency of contact, Myers and Weber's (2004) instrument would supply additional variables for analysis and would also offer a picture of how siblings maintain their relationships in both normal and crisis modes. Sibling commitment and determining if siblings choose to rely on each other in a family health

crisis situation should be directly related to the three constructs of Thibaut and Kelley's (1959) theory of interdependence. Based on these ideas, I ask:

RQ3: Which relational maintenance behaviors are most prominent in both the crisis and normal modes of the sibling relationship?

#### 4. Social Network Scale

Since social support is a significant contributor to satisfaction in a relationship and provides both physical and psychological benefits to an individual, this study offers the opportunity to explicate an individual's social network using Lubben's Social Network Scale (Lubben, et al., 2006). It is crucial to understand the extent of an individual's social network scale before making any determinations regarding an individual's reliance on his/her sibling during a family health crisis. Therefore, I pose the following:

RQ4: Does a sibling's availability of a non-family social support network impact the sibling relationship during a parental health crisis?

#### 5. Investment Model

Thibaut and Kelley's (1959) theory of interdependence has indeed been applied to relational contexts. Rusbult (1980), in a departure from the previous interpersonal literature dealing with attraction (Aronson & Linder, 1965); physical attributes (Walster, Aronson, Abrahams, & Rottman, 1966); and reinforcement affect (Clore & Byrne, 1974), set out to examine interpersonal relationships as a dynamic and ever changing interaction between individuals. She developed the Investment Model, which is solidly tied to the theory of interdependence.

Rusbult's Investment Model was tested in 1980 in romantic relationships, and further used in a longitudinal study in 1983. Rusbult's findings supported validation of the model to

predict commitment in relation to rewards and costs, alternative comparison values, and investment size. Further, Rusbult (1983) utilized the Investment Model to ascertain how the process of satisfaction and commitment in a relationship develops. In addition, findings from her study point out that commitment is a mediator during an individual's determination to remain in a relationship or leave a relationship. This means for individuals that remained in the relationship, rewards and costs increased, at the same time that satisfaction and level of commitment increased, and alternatives decreased. Using Rusbult's model in the context of a parental health crisis should provide more information regarding siblings' reliance on each other rather than reliance on non-family members.

Health communication scholars have examined the dynamics of physician patient interactions (Avtgis & Polack, 2007; Dutta-Bergman, 2005; Eggly & Tzelepis, 2001; Tate, Foulkes, Neighbor, Champion, & Field, 1999; Cegala, 1997; Cegala, McNeilis, Socha-McGee, & Jonas, 1995). Family communication scholars have delved into the field of health communication as well. Pecchioni and Sparks (2007) examined how families obtain information when dealing with a cancer diagnosis. Caregivers of family members with Alzheimer's Dementia were studied by Polk (2005), and Rose, Peters, Shea and Armstrong (2005) assessed the family history in relation to genetic testing for cancer risk. Another research inquiry by Beach (2002) examined the dynamics between fathers and sons when discussing a family member's cancer diagnosis. Of course, because I intend to understand sibling communication in the context of a parental health crisis, I must consider the ways in which this context influences the processes documented in pursuit of answers to Research Questions 1 through 4. Accordingly, I ask:

RQ5: Does the context of a parental health crisis influence sibling communication

processes and relational outcomes?

This project is important to the study of family communication not only because sibling relationships have been understudied in our discipline, but because as baby boomers age, these relationships become can more important (Noller, 2005; & Lee, et al., 1990). Additionally, the particular focus on the sibling relationship from the perspective of social support and the theory of interdependence can inform health care providers how best to assist siblings during a family health crisis by understanding more about these important relationships.

## Methodology

### *Instrument Design and Construction*

In order to examine the sibling relationship as defined previously, a survey instrument was constructed for use in this project. The instrument was designed to draw attention to any relationships between a participant's perception of his/her family communication pattern, the type of maintenance behaviors a sibling performs with his/her sibling, a participant's perceived social support network, and how each of these may influence a sibling's commitment level to the sibling relationship during a self-defined parental health crisis and at a non-crisis point. The instrument used self-report measures and was administered either online or manually. The goal was to contribute a survey instrument and perhaps an index that could be usefully applied across a variety of populations to expand the understanding of sibling communication in health-related contexts.

To accomplish this goal, multiple instruments and scales were combined to create a cohesive survey instrument for use in this particular project. The first of which was the Revised Family Communication Patterns Instrument, or RFCP (Ritchie & Fitzpatrick, 1990). Since the RFCP was not specifically designed to measure a particular relationship within the family, there was no adaption necessary for use by siblings who self-reported about their family of origin during this project. The RFCP consisted of 25 items which was used to determine the conversation orientation and conformity orientation of a family of origin.

The Conversation Orientation subscale was meant to assess a perceived value a participant's family of origin placed on communication within the family. For this particular project, it was expected that a participant with a high conversation orientation score would be more likely to demonstrate a larger number of sibling relational maintenance behaviors because communication and conversation were highly valued in their family of origin. Conformity Orientation was measured using the RFCP as well. The Conformity Orientation subscale assessed the importance of acquiescing to familial rules and expectations for each participant's family of origin. An individual with a high conformity orientation was not expected to exhibit as many sibling relational maintenance behaviors as an individual with a lower conformity orientation score. A high or low value of conversation and conformity orientations determined each participant's family communication pattern. Each orientation score was categorized as high (5 to 9 statements selected) or low (0 to 4 statements selected) and based on these scores, the family communication pattern of consensual, protective, laissez-faire, or pluralistic was established. This project relied on the High and Low values created by Ritchie and Fitzpatrick (1990) as they developed the RFCP.

For instance, a statement from the RFCP which indicated high conformity orientation was "When I was at home, I was expected to obey my parent's rules," and a statement indicating high conversation orientation was "In our family, we often talked about our feelings and emotions." These statements are indicative of the kind of statements used in the RFCP portion of this project's survey instrument. A participant was asked to select a statement that was reflective of his/her family experience. The statements were divided into the two orientations and each participant received a score for conversation orientation and conformity orientation.

This project relied on a participant's family communication pattern as an indicator of sibling relational maintenance behaviors and reliance on a sibling during a parental health crisis. Additionally, the family communication pattern was useful in this project because the family communication pattern is related to the way siblings deal with conflict. As siblings become embroiled in a parental health crisis, conflict resolution strategies may become paramount. This project utilized a participant's family communication pattern as an indicator of differences between the normal relationship time period and the crisis relationship time period with regard to sibling relational maintenance behaviors and reliance on a sibling during a parental health crisis.

The second portion of the survey instrument designed for this project was the Sibling Relational Maintenance Behaviors Scale (Myers & Weber, 2004), which is a 22-item scale that examines the maintenance behaviors used by siblings to maintain their relationship. This scale allowed identification of specific behaviors needed to maintain the sibling relationship both as a *normal* point in time, and at a *crisis* point. Recall that the *crisis* point was a point in time defined by the participant as a health crisis. By understanding each of these time periods in the sibling relationship, a comparison of the most likely behavior to be performed, most increased or most decreased behavior to be performed during a health crisis and during a normal situation was carried out and should provide fruitful results. Since the scale was developed for use specifically in sibling relationships, it required no adaption for use in this particular project assessing a sibling relationship.

Some of the statements for this portion of the survey were: "I make my sibling feel needed," "I laugh with my sibling," and "I attend family functions I know my sibling will be attending." These statements were designed to measure the four relational maintenance behaviors of confirmation, humor, social support, and family visits. An additional behavior that was

measured was verbal aggression. An example of a statement designed to measure verbal aggression was “I yell at my sibling in order to get my way.” The confirmation, humor, social support, and family visits behaviors were positive while the verbal aggression behavior was not. The reason each of these were measured were to establish which behaviors correlated positively to the family communication pattern established in the previous section of the survey.

A third scale included as part of the resulting survey for this project was Lubben’s Social Network Scale (Lubben, et al., 2006). This is a 6-item scale which provided necessary information about a participant’s social network comprised of family members, and a participant’s social network comprised of friends and neighbors. This was particularly important because understanding a participant’s available social networks may influence his/her reliance on a sibling in both circumstances set out in this project.

This particular scale was the smallest section included in the survey. However, the information obtained was important to have because the ultimate goal of this project was to determine how, when, and why siblings rely on each other during times of crisis. Lubben, et al.’s (2006) scale allowed each participant to make a selection about how many family members (either related by birth or marriage) he/she perceived as social support. Examples of this scale are as follows: “How many relatives do you feel close to such that you could call on them for help?” Each statement that initially addressed the social support of a family member was rephrased as follows: “How many friends do you feel close to such that you could call on them for help?” The answers for each statement remained the same. The friend/neighbor support and the family support scores were used as variables in statistical analyses to determine if a relationship between family communication patterns and other variables correlated to a participant’s perceived social support available to them from family member or friends/neighbors.

Finally, despite the fact that the Investment Model (Rusbult, 1980) was designed to uncover the intricacies of romantic relationships and the satisfaction of remaining in them, the model required little adaption for use in sibling relationships and in this project. The Investment Model statements comprising the global items for commitment level, investment size, quality of alternatives, and satisfaction levels were used for this survey. It was necessary to reword some statements to accommodate the sibling relationship rather than the romantic relationship. For instance, the original statement of “I love my partner” was reworded and used as “I love my sibling.” Another statement was originally used as part of the Investment Model read “My relationship is much better than other’s relationships.” This statement was structured to gather the same information, but required the following revision: “My relationship with my sibling is much better than others’ sibling relationships. Other similar alterations of Rusbult’s original Investment Model were made for this project.

Recall that each of the statements from this portion of the survey developed for this project requested the participant to indicate his/her agreement or disagreement with the statement at each of the two points in time (crisis and normal). This allowed measurement of an individual’s perception of his/her relationship with a sibling and his/her commitment level, investment size, quality of alternatives, and satisfaction level with the relationship to see if there were differences between the two time periods.

#### *Sample and Recruitment of Participants*

This research project was conducted with a purposive, rather than random sample in an attempt to achieve a relatively homogeneous participant population. The focus of this project was deliberately narrow. This was done to answer the research questions set forth which could only be conducted with a sample of baby boomers (those born between 1946 and 1964, inclusive). A

convenience sample was used in order to recruit participants within the specific age range who met the requirements described above. The goal was to select a sample that would be representative of baby boomers with siblings who have experienced a parental health crisis because the ultimate goal for this project was to identify means to help siblings best manage situations like these. However, anytime a sample is used that was not randomly sampled from a larger population, generalizability is limited.

Participants were recruited on a voluntary basis among adults from in the appropriate age range listed above and those meeting the other requirements. To be more specific, for a person to be eligible for participation, individuals were required to meet the following criteria:

- 1) Have at least 1 sibling
- 2) Have experienced a parental health crisis that can be recalled and described
- 3) Must have been born between 1946 and 1964, inclusive

Participants were recruited from multiple employment sites. The researcher used personal contacts at each of these sites to recruit participants. Each employer was contacted before any recruiting began in order to ensure their agreement for recruiting and to ensure their employee's privacy. Employers could choose how the survey would be administered to their workers. Some chose to allow participation via an online version of the survey, and some chose to have participants complete the survey on paper. Consent was obtained from all participants and all participants were free to discontinue their participation at any time.

If the participant completed the survey online, a consent statement was presented to them and their acceptance of participation was indicated by clicking the box marked yes. The same consent statement was used as the first page of the paper survey. Additional participants were recruited through the snowball technique. This means that as individuals agree to participate,

they were given the opportunity to recommend other individuals that fit the criteria established for participation. If they participated via the online version, they were free to forward the link to the survey to their own siblings or friends. If they participated using the paper version of the survey, an additional copy was provided for other individuals to complete. The survey required approximately a minimum of 10 minutes to a maximum of 15 minutes to complete. Participants received no incentives for participation. The final dataset comprised of 157 participants was used for this project. Of the final sample, 104 participants completed the survey online and 53 participants completed the survey in paper format.

### *Procedures*

#### *Pretest Phase*

Once the survey instrument was developed, a pre-test was conducted with 20 participants meeting the criteria defined previously. Each volunteer was asked to complete the survey at the online site. The researcher was available to answer inquiries about specific problems a respondent may have had with wording, fixed alternative choices, and the like. The pre-test phase allowed the researcher to locate any problems with ambiguous question wording or question order effects and test the reliability of the scales used. To combat any question order effects, multiple copies of the instrument were created to reduce any issues about question order. Since substantial issues did not arise from the pre-test, the researcher was able to make limited changes, such as misspelled words. No statements were deleted from analysis and no statements required rewording.

Reliability testing was conducted on the pre-test instrument. Reliability of each portion of the survey produced Cronbach's alpha ( $\alpha$ ) scores ranging from a low of .90 to a high of .96. Once the pre-test had been conducted and the instrument had proven reliable, it was approved for

use by the University of Alabama's Institutional Review Board for Protection of Human Subjects and the survey was administered to the targeted participants using the recruiting procedures outlined above.

#### *Data Collection Phase*

Participants completed a survey, either online or hard copy.

#### *Measures*

##### *Independent and Dependent Variables*

Each of the scales described above contributed variables for analysis. This section will be divided into sub-sections arranged by each scale discussed above to detail the variables used in this project.

- 1) Family Communication Pattern was used as an independent variable during the analysis phase. To compute a participant's Family Communication Pattern (FCP), two additional variables were created: Conversation Orientation score and Conformity Orientation score. Recall that a high or a low score for each orientation determines a participant's FCP. To create the orientation scores for Conversation and Conformity, participants were presented with statements and were asked to select the ones that applied to their family of origin. Conversation Orientation score ranged from a minimum of 0 to a maximum of 15, with a mean score of 6.04 ( $SD = 4.40$ ). Conformity Orientation score ranged from a minimum of 0 to a maximum of 11, with a mean score of 5.00 ( $SD = 2.65$ ). To ensure continued reliability of this portion of the instrument, Cronbach's alpha ( $\alpha$ ) scores were calculated and the reliability analysis indicated a Cronbach's alpha ( $\alpha$ ) score of .87 for Conversation orientation, and .75 for Conformity Orientation.

- 2) Family and Non-family Social Support scores were calculated using Lubben, et al.'s (2006) scale as referenced above. Each participant was presented with three questions to be summed to compute the Family Social Support score, and three questions to be summed to compute the Non-family Social Support score. Each subscale had a minimum of 0 and a maximum of 15. The Family Social Support subscale had a mean score of 11.20 ( $SD = 3.19$ ), and the Non-family Social Support subscale had mean score of 12.03 ( $SD = 3.27$ ). Reliability statistics conducted on both the Family Social Support subscale and the Non-family Social Support subscale produced a .83 Cronbach's alpha ( $\alpha$ ) score for Family Social Support, and a .88 Cronbach's alpha ( $\alpha$ ) for Non-family Social Support.
- 3) Sibling Relational Maintenance Behaviors were calculated using statements in normal and crisis mode to calculate five specific behaviors or subscales: Confirmation, Family Visits, Social Support, Humor, and Verbal Aggression. Table 1 presents the following for each subscale: the minimum and maximum scores, Cronbach's alpha ( $\alpha$ ), mean and standard deviation for both crisis and non-crisis modes.

Table 1

Valid Number, Mean, and Standard Deviation for Sibling Relational Maintenance Behaviors in Crisis and Normal Situations

Measure	<i>N</i>	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>	<i>Cronbach's α</i>
Confirmation – Crisis	135	0	40	35.05	5.61	0.89
Confirmation – Normal	138	0	40	33.11	6.34	0.89
Humor – Crisis	135	0	20	16.12	3.69	0.80
Humor – Normal	140	0	20	16.79	3.33	0.78
Social Support – Crisis	134	0	15	10.66	3.13	0.68
Social Support – Normal	140	0	15	10.38	3.26	0.78
Family Visits – Crisis	138	0	10	8.78	1.73	0.64
Family Visits – Normal	142	0	10	8.65	1.75	0.68
Verbal Aggression – Crisis	135	0	10	3.13	1.94	0.78
Verbal Aggression – Normal	141	0	10	3.20	1.91	0.77

*Note:* Each sibling relational maintenance behavior was measured on a 5-point Likert scale.

- 4) A participant's reliance on a sibling relationship during a parental health crisis was measured using Rusbult's (1980) Investment Model which has four subscales: Satisfaction Level, Quality of Alternatives, Investment Size, and Commitment Level.. Each subscale was calculated in both normal and crisis modes. To facilitate

understanding of the subscale, Table 2 is presented below with minimum and maximum scores, *M*, *SD*, and Cronbach's alpha ( $\alpha$ ) for all subscales in both modes.

Table 2

Valid Number, Mean, and Standard Deviation for Sibling Reliance Variables in Crisis and Normal Situations

Measure	<i>N</i>	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>	<i>Cronbach's</i> $\alpha$
Satisfaction Level – Crisis	137	0	25	19.07	5.14	0.90
Satisfaction Level – Normal	141	0	25	18.99	4.97	0.90
Quality of Alternatives – Crisis	137	0	25	16.82	4.72	0.77
Quality of Alternatives – Normal	141	0	25	21.25	4.61	0.78
Commitment Level – Crisis*	131	0	35	29.36	5.25	0.84
Commitment Level – Normal*	138	0	35	29.39	5.07	0.83
Investment Size – Crisis	136	0	25	17.95	4.82	0.81
Investment Size – Normal	139	0	25	17.71	4.81	0.81

*Note:* Each Sibling Reliance subscale was measured on a 5-point Likert scale. \* Commitment level subscale had 2 items reverse scored.

- 5) Additional variables used in analysis were demographic in nature and did not require calculations. For instance, the parent status variable provided information about the living or deceased status of a participant's parents. Other variables provided as demographic information were drive-time and marital status. Additional demographic variables were

gender, birth year, parent affected by the health crisis, specifics about the health crisis, sibling birth year, and sibling gender.

In the final analysis phase of the project, I relied on uni- and multivariate statistical techniques for assessing survey data defined above in the independent and dependent variable section. Specifically, Pearson Correlation Coefficients, One-way Analysis of Variance (ANOVA), and descriptive statistics were used to analyze the dataset.

## Results

### *Data Analysis*

This research yielded quantitative results from a self-report survey instrument administered as previously discussed. These results were analyzed using SPSS. Pearson Correlation coefficients, One-way ANOVA, descriptive, and difference scores were used to answer the research questions posed and to analyze the dataset.

### *Dataset Description*

Because this project was singularly focused on a specific demographic, descriptive statistics are provided here. Of the 157 participants, 65% ( $N=102$ ) were female, and 49.7% ( $N=78$ ) of participant's siblings were female. The largest decade of baby boomers completing the survey was the 50s (39.5%,  $N=62$ ), followed by the 40s (34.4%,  $N=54$ ). Specifically, the most common birth year for participants was 1960, with the largest number of participants born during the range from 1955 to 1964 ( $N=80$ ). Very similar results were found for the participant's sibling ages with the 50s at 39.5% ( $N=62$ ), and the 40s at 24.2% ( $N=38$ ) revealed as the dominant decades. The most common birth years for sibling participants were 1954 and 1956 ( $N=10$ , 6.4%), and the largest number of participant's siblings' birth years falling between 1952 and 1964 ( $N=76$ ). Also, the largest number of participants ( $N=56$ ) lived within a one hour drive of their sibling. The next largest number of participants ( $N=30$ ) were greater than a nine hour drive from their sibling's home.

The gender of the sibling pairs was generally same sex (45.2%,  $N=71$ ), with just a few more females with male siblings (30.6%,  $N=48$ ) participating, than males with female siblings

(15.3%,  $N=24$ ) completing the survey. This is likely due to the fact that a larger percentage of females completed the survey instrument. Additionally, the largest percentage of participants were “first-borns” ( $N = 59$ ). Overwhelmingly, both participants and participant’s siblings were married. Results showed that 65.6% ( $N =103$ ) were married, and 35% ( $N =55$ ) had two siblings. First-born children made up the largest percentage of respondents at 37.6% ( $N =59$ ), and the most reported age gap between siblings was three years (10.2%,  $N =16$ ). Two children was the most reported number of children for both participants (40.8%,  $N =64$ ), and participant’s siblings (38.9%,  $N =61$ ).

The parent most frequently reported as the one experiencing the health crisis was the mother at 52.9% ( $N =83$ ), followed closely by father at 33.8% ( $N =53$ ). Stepparents made up only 6.3% ( $N =10$ ) of the total. Of the most reported health crisis, cancer had the most responses with 30.6% ( $N =48$ ) participants reporting that their parent had had to deal with cancer in some form. This was followed by heart disease at 15.3% ( $N =24$ ), then Alzheimer’s disease and Other with equal percentages at 8.3% ( $N =13$ ). An almost equal percentage reported that both parents were deceased (27.4%,  $N =43$ ), than were living (25.5%,  $N =40$ ), and more fathers predeceased mothers (27.4%,  $N =43$ ), than mothers predeceased fathers (12.1%,  $N =19$ ).

One of the variables used frequently in these statistical analyses was Family Communication Pattern. The largest number of participants identified themselves as Laissez-faire Family Communication Pattern (35.7%,  $N = 56$ ). Very close to the Laissez-faire pattern was the Protective Family Communication Pattern (33.1%,  $N = 52$ ). The smallest number of participants identified with the Consensual Family Communication Pattern (8.3%,  $N = 13$ ), and the Pluralistic Family Communication Pattern fell in between (22.9%,  $N = 36$ ).

## *Results*

More detailed and specific results and findings from this research are presented in the following six sections, each of which individually focuses on a specific research question with the final section presenting results of post hoc tests conducted on the dataset.

### *Research Question 1*

The first research question focused on the relation between sibling interactions in a parental health crisis and the provision of family social support. Sibling interactions were measured using the five Sibling Relational Maintenance Behaviors (Myers & Weber, 2004): Confirmation, Family Visits, Humor, Social Support, and Verbal Aggression during a previously experienced parental health crisis. Family social support was calculated using Lubben, et al.'s scale (2006).

Descriptive statistics for Sibling Relational Maintenance Behaviors (SRMB) show that the most prevalent relational maintenance behavior for siblings during a parental health crisis was Confirmation ( $M = 35.05$ ,  $SD = 3.69$ ) and Verbal Aggression was the least prevalent ( $M = 3.13$ ,  $SD = 1.94$ ). Family Social Support scores (FSSC) during a parental health crisis produced a mean of 11.20 ( $SD = 3.18$ ). See Table 3 for descriptive statistics of each Sibling Relational Maintenance Behavior and Family Social Support scores during a parental health crisis.

Table 3

Valid Number, Mean, Standard Deviation, and Range for Sibling Relational Maintenance Behaviors and Family Social Support Scores in Parental Health Crisis

Measure	<i>N</i>	<i>M</i>	<i>SD</i>	Range
<b>Sibling Relational Maintenance Behaviors</b>				
Confirmation (8 statements)	135	35.05	5.60	0 to 40
Humor (4 statements)	135	16.11	3.69	0 to 20
Social Support (3 statements)	134	10.65	3.13	0 to 15
Family Visits (2 statements)	138	8.77	1.73	0 to 10
Verbal Aggression (2 statements)	135	3.13	1.94	0 to 10
Family Social Support Score (3 statements)	153	11.20	3.18	0 to 15

*Note:* Sibling Relational Maintenance Behaviors were measured on an equally weighted 5-point Likert scale, and Family Social Support Score was measured on an equally weighted 6-point Likert scale.

Pearson Correlation Coefficients for each of the Sibling Relational Maintenance Behavior components and Family Social Support Score were calculated using SPSS to determine if a statistically significant relation existed during a parental health crisis. This research supports a relation between sibling's relational maintenance behaviors during a parental health crisis and their perceived amount of family social support, and is significant at the 0.01 level for all behaviors with the exception of Verbal Aggression. Results showed positive correlation coefficients for the Sibling Relational Maintenance Behaviors of Confirmation, Humor, Social

Support, and Family Visits. A negative correlation coefficient (-.12) was calculated for the Sibling Relational Maintenance Behavior of Verbal Aggression. The negative correlation coefficient suggests that during times of parental health crises, Verbal Aggression was lower than during non-crisis times. Additionally, these results potentially indicate that a verbal aggression component might be viewed by these participants as a communicatively productive behavior during a parental health crisis.

The positive correlation coefficients ranged from a high of .34 for Humor, and a low of .28 for Confirmation. Positive correlation coefficients for the Sibling Relational Maintenance Behaviors of Confirmation, Humor, Social Support, and Family Visits suggest that the baby boomer siblings completing this survey perceive these behaviors as viable components of Family Social Support during a parental health crisis. Table 4 presents these statistical results.

Table 4

Correlations for Family Social Support Scores and Sibling Relational Maintenance Behaviors in Parental Health Crisis

	Confirmation	Humor	Social Support	Family Visits	Verbal Aggression
Family Social Support Score ( <i>M</i> =11.20, <i>SD</i> =3.18, Range=0 to 15)					
<i>N</i>	135	135	134	138	135
<i>Correlation</i>	.29	.34	.31	.29	-0.12
<i>Sig. (2-tailed)</i>	<i>p</i> <.001	<i>p</i> <.001	<i>p</i> <.001	<i>p</i> <.001	n.s.

*Note:* Confirmation (*M*=35.05, *SD*=5.60, Range=0-40), Humor (*M*=16.11, *SD*=3.69, Range=0-20), Social Support (*M*=10.65, *SD*=3.13, Range=0-15), Family Visits (*M*=8.77, *SD*=1.73, Range=0-15), Verbal Aggression (*M*=3.13, *SD*=1.94, Range=0-10)

*Research Question 2*

Research Question 2 concentrated on the participant's Family Communication Pattern (FCP) and the participant's commitment to the sibling relationship during a parental health crisis. FCP was computed using the Conversation Orientation Subscale score and the Conformity Orientation Subscale score for each participant. The scale for the Conversation Orientation subscale ranged from 0 to 15. A score of 0 to 7.5 was considered Low, and a score of 7.6 to 15 was considered High. The Conformity Orientation subscale ranged from 0 to 10. A Low score for the Conformity Orientation subscale was from 0 to 5, and a High score was from 6 to 10. High and Low scores for the Conversation Orientation subscale, and the Conformity Orientation subscale were based on Ritchie and Fitzpatrick 's (1990) recommendations from their original

research, “Family types have traditionally been identified by splitting the sample at the median on both FCP scales” (p. 530). Based on the combined high and low score for each orientation, each participant’s FCP was classified as Consensual (1), Pluralistic (2), Protective (3), or Laissez-Faire (4).

To determine a participant’s reliance on his/her sibling during a parental health crisis, measurements of the participant’s Commitment Level (CL), Investment Size (IS), Quality of Alternatives (QA) and Satisfaction Level (SL) were taken. To determine if a statistically significant relation existed between a participant’s FCP and his/her reliance on a sibling during a parental health crisis, a One-way ANOVA was performed. Results indicate a statistically significant difference between a participant’s Satisfaction Level (SL) and his/her FCP,  $F(3,133) = 4.17, p < .05$ . A participant’s Commitment Level (CL), Investment Size (IS), and Quality of Alternatives (QA) were not shown to have a statistically significant difference using the One-way ANOVA test, so post hoc tests were conducted, but the Tukey HSD test did not produce new findings. Table 5 summarizes the results from the One-way ANOVA test.

Table 5

One-Way ANOVA for Sibling Reliance Variables by Family Communication Pattern

	Consensual	Pluralistic	Protective	Laissez-Faire			
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>			
	<i>SD</i>	<i>SD</i>	<i>SD</i>	<i>SD</i>			
	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	F	<i>df</i>	Sig.
Satisfaction Level	21.33	21.12	17.7	18.38			
	3.62	4.56	5.32	5.17			
	12	33	47	45	4.17	3, 133	<i>p</i> <.01
Quality of Alternatives	17	16	17.37	16.77			
	4.19	3.9	5.14	4.98			
	11	33	48	45	0.55	3, 133	n.s.
Investment Size	19.9	18.78	17.63	17.17			
	6.34	3.61	4.89	5.06			
	11	33	47	45	1.39	3, 132	n.s.
Commitment Level	30	30.76	28.32	29.32			
	3.24	3.54	6.42	5.2			
	12	30	46	43	1.38	3, 127	n.s.

### *Research Question 3*

Research question 3 investigated the most prominent Sibling Relational Maintenance Behaviors (SRMB) during a parental health crisis and during a normal time period. To determine which SRMB was most prominent, a difference score was calculated for each behavior. A negative number indicated that the behavior was dominant in a crisis mode, and a positive number indicated that the behavior was dominant in a normal mode, and zero indicated no difference between crisis and normal modes. Examining these difference scores reveals that Confirmation ( $M = -2.00$ ,  $SD = 3.29$ ) was the most prevalent behavior during a parental health crisis, and Humor ( $M = .61$ ,  $SD = 1.74$ ) was the least prevalent behavior during a parental health crisis.

The resulting difference scores indicate that as siblings work through a parental health crisis together, the Sibling Relational Maintenance Behaviors of Confirmation, Social Support and Family Visits are performed more often during the crisis than during non-crisis times. Conversely, the Sibling Relational Maintenance Behaviors of Humor and Verbal Aggression are more prevalent during non-crisis time periods of the sibling relationship than during a parental health crisis. The affirmative relational behaviors of baby boomer siblings imply that (consciously or not) siblings make the effort to communicate with each other in what can be considered encouraging ways during a parental health crisis. The relational maintenance behaviors of Humor and Verbal Aggression accompany sibling interactions in less stressful times. Despite the fact that these findings may be intuitive, sibling relationships do not always follow the expected patterns and these results highlight the need for more study in this area in order to more deeply understand siblings' communicative relationships. Please see Table 6 for statistical results.

Table 6

Valid Number, Mean, and Standard Deviation for Sibling Relational Maintenance Behaviors  
Difference Scores

Relational Maintenance Behavior	<i>N</i>	<i>M</i>	<i>SD</i>
Confirmation	135	-2.00	3.29
Humor	135	0.61	1.74
Social Support	134	-0.28	1.30
Family Visits	138	-0.12	0.80
Verbal Aggression	135	0.11	0.45

*Note:* Difference scores were calculated by subtracting the Crisis score from the Normal score.

#### *Research Question 4*

Research question 4 investigated the potential relation between sibling interactions in a parental health crisis and the provision of social support outside of the family. Sibling interactions were measured using the five Sibling Relational Maintenance Behaviors (Myers & Weber, 2004): Confirmation, Family Visits, Humor, Social Support, and Verbal Aggression during a previously experienced parental health crisis. Non-family Social Support scores measuring a participant's perceived amount of social support from outside of the family (FRSSC) was calculated using Lubben, et al.'s scale (2006).

Descriptive statistics for Sibling Relational Maintenance Behaviors (SRMB) show that the most prevalent relational maintenance behavior for siblings during a parental health crisis

was Confirmation ( $M = 35.05$ ,  $SD = 5.60$ ) and Verbal Aggression was the least prevalent ( $M = 3.13$ ,  $SD = 1.94$ ). Non-family Social Support scores (FRSSC) during a parental health crisis produced a mean of 12.03 ( $SD = 3.27$ ). See Table 7 for descriptive statistics of each Sibling Relational Maintenance Behavior and Non-family Social Support Score (FRSSC) during a parental health crisis.

Table 7

Valid Number, Mean, Standard Deviation, and Range for Sibling Relational Maintenance

Behaviors and Non-family Social Support Score in Parental Health Crisis

Measure	<i>N</i>	<i>M</i>	<i>SD</i>	Range
<b>Sibling Relational Maintenance Behavior</b>				
Confirmation (8 statements)	135	35.05	5.60	0 to 40
Humor (4 statements)	135	16.11	3.69	0 to 20
Social Support (3 statements)	134	10.65	3.13	0 to 15
Family Visits (2 statements)	138	8.77	1.73	0 to 10
Verbal Aggression (2 statements)	135	3.13	1.94	0 to 10
Non-family Social Support (3 statements)	148	12.03	3.27	0 to 15

*Note:* Sibling Relational Maintenance Behaviors were measured on an equally weighted 5-point Likert scale, and Non-family Social Support was measured on an equally weighted 6-point Likert scale.

Pearson Correlation Coefficients for each of the Sibling Relational Maintenance Behavior components and Non-Family Social Support (FRSSC) were calculated using SPSS to determine if a statistically significant relation existed during a parental health crisis. This research supports a relation between sibling's relational maintenance behaviors during a parental health crisis and their perceived amount of non-family social support, and is significant at the 0.01 level for all behaviors with the exception of Verbal Aggression. Results showed positive correlation coefficients for the Sibling Relational Maintenance Behaviors of Confirmation, Humor, Social Support, and Family Visits. A negative correlation coefficient (-.06) was calculated for the

Sibling Relational Maintenance Behavior of Verbal Aggression. It is likely that participants in this study perceived that a verbal aggression component would not be communicatively productive during a parental health crisis, thus this finding is not surprising.

The positive correlation coefficients ranged from a high of .27 for Family Visits, and a low of .24 for Humor. Positive correlation coefficients for the Sibling Relational Maintenance Behaviors of Confirmation, Humor, Social Support, and Family Visits suggest that the baby boomer siblings who completed this survey perceived these behaviors as viable components of the sibling relationship during a parental health crisis regardless of their available non-family social support structures. As was the case with Family Social Support scores, Verbal Aggression appeared to be a maintenance behavior unnecessary to the sibling relationship during this time. Please see Table 8 below for the statistical results of these tests.

Table 8

Correlations for Non-family Social Support with Sibling Relational Maintenance Behaviors

	Confirmation	Humor	Social Support	Family Visits	Verbal Aggression
Non-family Social Support Score ( $M = 12.03$ , $SD = 3.27$ , Range = 0-15)					
<i>N</i>	135	134	133	137	135
<i>Correlation</i>	.27	.24	.26	.27	-0.06
<i>Sig. (2-tailed)</i>	$p < .001$	$p < .01$	$p < .01$	$p < .001$	n.s.

### *Research Question 5*

Research question 5 focused on the Parental Health Crisis (PHC) and Sibling Relational Maintenance Behaviors (Confirmation, Humor, Social Support, Family Visits, and Verbal Aggression), as well as Sibling Reliance variables (Commitment level, Investment size, Satisfaction Level, and Quality of Alternatives) during the parental health crisis. The Parental Health Crisis (PHC) was defined by each participant within the parameters of the constructed survey instrument. This required each participant to make one selection from a choice of 19 options. To determine a participant's reliance on his/her sibling during a parental health crisis, measurements of the participant's Commitment Level (CL), Investment Size (IS), Quality of Alternatives (QA) and Satisfaction Level (SL) were taken. To determine if a statistically significant relation existed between the Parental Health Crisis selected by a participant and his/her reliance on a sibling during a parental health crisis, a One-way ANOVA was performed. Only one of the Sibling Reliance measures, Quality of Alternatives (QA), was significant,  $F(16, 135) = 1.87, p < .05$ .

Because some of the parental health crisis options were not selected by any participant, or because an option was selected only once or twice, Parental Health Crisis was reduced to categories and the One-way ANOVA was performed with the reduced categories. The researcher combined the 19 categories and reduced it to the following eight categories: 1) cancer, 2) heart or circulatory issues, 3) health issues manageable with medications, 4) surgery or accident, 5) home or facility moves, 6) general age related, 7) mental health, and 8) other. The purpose of reducing categories was to determine if significance might be obtained with logical groupings of the categories. Even with the reduction of the 19 categories to 8 categories, only Quality of Alternatives proved statistically significant,  $F(7, 135) = 2.42, p < .05$ , which was consistent with

previous findings. Since a participant's Satisfaction Level, Investment Size, and Commitment Level were not shown to have a statistically significant difference using the One-way ANOVA, post hoc tests were conducted to determine if smaller differences between groups might be found. Using the Tukey HSD test did not produce new findings. Table 9 summarizes the results from the One-way ANOVA using Parental Health Crisis-Revised (PHC-R) and Sibling Reliance measures (Quality of Alternatives, Satisfaction Level, Investment Size, and Commitment Level).

Table 9

One-Way ANOVA for Sibling Reliance Variables (crisis) by Parental Health Crisis-Revised

	1	2	3	4	5	6	7	8			
	<i>M</i>										
	<i>SD</i>										
	N	N	N	N	N	N	N	N	F	<i>df</i>	<i>Sig.</i>
<b>Satisfaction Level</b>											
	19.27	19.82	22.60	17.60	17.80	17.67	21.00	18.77			
	4.83	4.91	2.60	7.35	5.83	3.72	5.23	4.64			
	44	34	5	10	20	6	4	13	.89	7,128	n.s.
<b>Quality of Alternatives</b>											
	17.98	15.53	12.40	17.30	18.45	18.67	13.75	15.38			
	4.91	4.93	2.79	4.35	4.30	2.66	4.92	3.84			
	44	34	5	10	20	6	4	13	2.42	7,128	<i>p</i> <.05
<b>Investment Size</b>											
	17.93	18.14	21.60	17.60	17.90	16.33	20.00	17.54			
	4.82	5.25	4.16	4.43	4.84	3.27	5.03	3.78			
	43	34	5	10	20	6	4	13	.65	7,127	n.s.
<b>Commitment Level</b>											
	29.86	30.52	33.40	28.00	27.58	24.80	31.75	29.23			
	4.98	4.00	1.82	6.65	6.16	3.83	5.19	4.40			
	42	33	5	9	19	5	4	13	1.99	7,122	n.s.

*Note:* Parental Health Crisis-Revised Categories: 1=Cancer, 2=Heart or Circulatory Issues, 3=Health Issues Manageable with Medication, 4=Surgery or Accident, 5=Home or Facility Moves, 6=General Age Related, 7=Mental Health, 8=Other

### *Post Hoc Tests*

In an effort to understand and discover any additional relations between Sibling Relational Maintenance Behaviors (Confirmation, Humor, Social Support, Family Visits, Verbal Aggression), and Sibling Reliance variables (Commitment Level, Investment Size, Satisfaction Level, Quality of Alternatives) during the parental health crisis and during a normal time period, Pearson Correlation Coefficients for each Sibling Relational Maintenance Behaviors and Sibling Reliance variables were calculated using SPSS to determine if a statistically significant relation existed during a crisis mode and a non-crisis mode. This analysis supports a relation between a sibling's relational maintenance behaviors during a parental health crisis and their reliance on a sibling during times of parental health crises and during times of normal interactions.

For example, Commitment level (CL) is positively correlated with four Sibling Relational Maintenance Behaviors (Confirmation, Humor, Social Support, and Family Visits), and negatively correlated with Verbal Aggression as siblings work through a parental health crisis. All are statistically significant at the .01 level. Investment Size (IS), and Satisfaction Level (SL) both show similar positive correlations with Confirmation, Humor, Social Support and Family Visits, and a similar negative correlation with Verbal Aggression. Quality of Alternatives (QA) shows no statistical significance in correlation with any of the five Sibling Relational Maintenance Behaviors during a parental health crisis time with the exception of a negative correlation with Humor. The negative correlation between Quality of Alternatives and Humor suggest that if Humor is used as a Relational Maintenance Behavior, then the siblings in this study were less likely to seek an alternative relationship during the parental health crisis they described. Additionally, these results imply that the baby boomer siblings who completed this survey relied on their sibling during times of parental health crises and that all Sibling Relational

Maintenance Behaviors, with the exception of Verbal Aggression, increase the likelihood of the reliance on each other. This is evidenced by the positive correlations for Investment Size, Satisfaction Level, and Commitment Level and the negative correlation for Quality of Alternatives. Please refer to Table 10 which presents the results of these statistical tests.

Table 10

Correlations for Sibling Relational Maintenance Behaviors and Sibling Reliance variables during a Parental Health Crisis

	Confirmation	Humor	Social Support	Family Visits	Verbal Aggr.
<b>Sibling Reliance Variable</b>					
<b>Commitment Level</b>					
<i>N</i>	128	129	128	131	128
<i>Correlation</i>	.65	.60	.44	.58	-.32
<i>Sig. (2-tailed)</i>	$p < .001$	$p < .001$	$p < .001$	$p < .001$	$p < .001$
<b>Investment Size</b>					
<i>N</i>	133	134	132	136	134
<i>Correlation</i>	.38	.33	.32	.26	-.17
<i>Sig. (2-tailed)</i>	$p < .001$	$p < .001$	$p < .001$	$p < .01$	$p < .05$
<b>Satisfaction Level</b>					
<i>N</i>	134	135	133	137	134
<i>Correlation</i>	.71	.73	.54	.50	-.24
<i>Sig. (2-tailed)</i>	$p < .001$	$p < .001$	$p < .001$	$p < .001$	$p < .01$
<b>Quality of Alternatives</b>					
<i>N</i>	134	134	133	137	134
<i>Correlation</i>	-.14	-.21	-.15	-.12	.10
<i>Sig. (2-tailed)</i>	n.s.	$p < .01$	n.s.	n.s.	n.s.

The correlation coefficients produced from examining the Sibling Relational Maintenance Behaviors and Sibling Reliance variables during a normal time period produced different results. For instance, Commitment Level, and Satisfaction Level were both positively correlated with the Sibling Relational Maintenance Behaviors of Confirmation, Humor, Social Support and Family Visits, and negatively correlated with Verbal Aggression as siblings communicated during normal situations. Again, this finding may be due to the fact that Verbal Aggression may not be viewed as a positive relational component. Commitment Level, Investment Size, and Satisfaction Level produced positive correlation coefficients for Confirmation, Humor, Social Support and Family Visits. All showed statistically significant correlations at the .01 level. Commitment Level and Satisfaction Level produced negative correlation coefficients for Verbal Aggression. The negative correlation coefficient for Commitment Level and Verbal Aggression was statistically significant at the .01 level and at the .05 level for Satisfaction Level and Verbal Aggression. Investment Size and Verbal Aggression did not produce a statistically significant correlation coefficient. As in the crisis mode, Quality of Alternatives was only statistically significant with Humor. Other Sibling Relational Maintenance Behaviors did not produce a statistically significant correlation coefficient. Table 11 displays the results of these statistical tests.

For the participants in this survey, in both the parental health crisis mode and in a normal relationship mode, the statistical tests produced high correlation coefficients. Results such as this offer the possibility that a sibling relationship during a normal circumstance has the components of Confirmation, Humor, Social Support and Family Visits and to a lesser degree the component of Verbal Aggression. Specifically, Humor and Confirmation proved to be more highly correlated with reliance on a sibling during a normal circumstance. It is possible that as siblings

communicatively manage their relationship, humor and confirmation performed as Sibling Relational Maintenance Behaviors assist in this negotiation. However, when a parental health crisis arises, siblings are socialized to work together based on “shared norms that govern thoughts, actions” (Parkinson, Fischer, & Manstead, 2005). In addition, gender may play a part in this relation because females may be more apt to display these relational maintenance behaviors and may expect these behaviors in return from their sibling. As Lee, et al. (1990) found, female sibling pairs are likely to have more frequent contact than brother-brother, or brother-sister siblings, which introduces gender as a potential mediator for differences in sibling relational maintenance behaviors.

Table 11

Correlations for Sibling Relational Maintenance Behaviors and Sibling Reliance Variables during a normal relationship time

	Confirmation	Humor	Social Support	Family Visits	Verbal Aggr.
<b>Commitment Level</b>					
<i>N</i>	134	137	136	138	137
<i>Correlation</i>	.64	.64	.49	.54	-.27
<i>Sig. (2-tailed)</i>	$p<.001$	$p<.001$	$p<.001$	$p<.001$	$p<.001$
<b>Investment Size</b>					
<i>N</i>	135	138	137	139	138
<i>Correlation</i>	.52	.35	.39	.32	-.14
<i>Sig. (2-tailed)</i>	$p<.001$	$p<.001$	$p<.001$	$p<.001$	n.s.
<b>Satisfaction Level</b>					
<i>N</i>	137	140	139	141	140
<i>Correlation</i>	.76	.69	.56	.42	-.19
<i>Sig. (2-tailed)</i>	$p<.001$	$p<.001$	$p<.001$	$p<.001$	$p<.05$
<b>Quality of Alternatives</b>					
<i>N</i>	137	139	139	137	141
<i>Correlation</i>	-.07	-.18	-.16	-.12	.12
<i>Sig. (2-tailed)</i>	.39	$p<.05$	$p<.05$	n.s.	n.s.

Since this project focused on the sibling relationship during a parental health crisis and at a normal point of sibling interaction, Pearson Correlation Coefficients were calculated using each of the Sibling Relational Maintenance Behaviors (Confirmation, Humor, Social Support, Family Visits, and Verbal Aggression), and each of the Sibling Reliance variables (Commitment Level, Satisfaction Level, Investment Size, and Quality of Alternatives) at both crisis and non-crisis points to ascertain if a relation existed between the two points in time. Following is a breakdown of the findings (see Table 12). All sibling relational maintenance behaviors show a statistical significance at the .01 level (2-tailed) between normal and crisis modes, and all are positively correlated.

Table 12

Correlations for Sibling Relational Maintenance Behaviors during crisis and normal time periods

CRISIS	Confirm.	Humor	Soc. Supt.	Fam. Vis.	Ver. Agg.
<hr/>					
NONCRISIS-Confirmation					
<i>N</i>	135				
<i>Correlation</i>	.86				
<i>Sig. (2-tailed)</i>	$p < .001$				
NONCRISIS-Humor					
<i>N</i>		135			
<i>Correlation</i>		.88			
<i>Sig. (2-tailed)</i>		$p < .001$			
NONCRISIS-Social Support					
<i>N</i>			134		
<i>Correlation</i>			.92		
<i>Sig. (2-tailed)</i>			$p < .001$		
NONCRISIS-Family Visits					
<i>N</i>				138	
<i>Correlation</i>				.89	
<i>Sig. (2-tailed)</i>				$p < .001$	
NONCRISIS-Verbal Aggression					
<i>N</i>					135
<i>Correlation</i>					.97
<i>Sig. (2-tailed)</i>					$p < .001$

---

In addition to understanding Sibling Relational Maintenance Behaviors and any potential differences between a normal and crisis mode in a sibling relationship, this project sought to understand any possible differences between a participant's reliance on a sibling during times of crisis and in normal situations as well. To determine if a relation exists between a participant's reliance on his/her sibling in a crisis and a non-crisis mode, Pearson correlation coefficients were produced using the Sibling Reliance variables of Satisfaction Level, Quality of Alternatives, Investment Size and Commitment Level at both points in time. Table 13 highlights the results of the Pearson Correlation Coefficients of these constructs. All reliance variables correlate positively between crisis and non-crisis modes and all are statistically significant at the .01 level (2-tailed).

Table 13

Correlations for Sibling Reliance Variables during crisis and normal time periods

CRISIS	Satisfaction Level	Quality of Alternatives	Investment Size	Commitment Level
NONCRISIS- Satisfaction Level				
<i>N</i>	137			
<i>Correlation</i>	.89			
<i>Sig. (2-tailed)</i>	<i>p</i> <.001			
NONCRISIS-Quality of Alternatives				
<i>N</i>		137		
<i>Correlation</i>		.98		
<i>Sig. (2-tailed)</i>		<i>p</i> <.001		
NONCRISIS-Investment Size				
<i>N</i>			134	
<i>Correlation</i>			.97	
<i>Sig. (2-tailed)</i>			<i>p</i> <.001	
NONCRISIS-Commitment Level				
<i>N</i>				131
<i>Correlation</i>				.99
<i>Sig. (2-tailed)</i>				<i>p</i> <.001

Overall, the multiple statistical results indicate significant relations between many of the constructs of this study. Chapter 5 details discussion and implications based on these results.

## Discussion

Recent research has examined sibling violence (Eriksen & Jensen, 2009; Khan & Cooke, 2008), how marital relationships and parenting styles have affected sibling relationship quality (Yu & Gamble, 2008), sibling relationships in blended families (Balsam, 2007), and how depression can be predicted based on childhood sibling relationships (Waldinger, Vaillant, & Orav, 2007). Other sibling relationship research has focused on how parents and siblings confirmation behaviors assist adolescents with psychosocial adjustment and development of their sense of self (Dailey, 2007), and how jealousy-related emotion is expressed in young adult sibling relationships (Bevan & Hale, 2006). Research related to health contexts and sibling relationships has focused on the inequities often present as siblings care for their parents (Ingersoll-Dayton, Neal, Ha, & Hammer, 2003), and Willyard, Miller, Shoemaker, and Addison's (2007) project focused on the narratives siblings use to make sense of siblings that do not help with parental care-giving.

While these recent additions have contributed much to the knowledge about sibling relationships, this project investigated adult sibling relationships as they navigated the perils of a parental health crisis. Specifically, this project focused on one of the largest cohorts of adults in this country; the Baby Boomer generation. Several goals were set forth at the beginning of this project: 1) to understand how siblings of this age range communicate with each other both in a parental crisis situation, and during a normal time; 2) to understand what specific relational maintenance behaviors are used most in each of these situations; 3) to assess if a participant's

Family Communication Pattern impacted these relationships; 4) to examine the role that social support, family and non-family, plays in these interactions; and 5) to determine whether or not a baby boomer is likely to rely on his/her sibling in a parental health crisis or another situation in the future.

Theoretically, the project was grounded in the Theory of Interdependence. The theory of Interdependence comes under the umbrella of Social Exchange Theories. Social Exchange Theories propose that interpersonal relationships can be described using cost-benefit ratios. More simply, the theory suggests that under some circumstances, interpersonal relationships are managed based on a model of cost-benefit ratios and an individual's expectation of the costs and benefits associated with a particular relationship. Further, Social Exchange Theories posit that individuals in relationships make these comparisons, consciously or unconsciously, as individuals interact. Other scholars, such as Wood (2000), argue that Social Exchange Theory may shed some light on the workings of interpersonal relationships, but in the family in particular, Social Exchange Theory may be lacking because of the complexities inherent in these relationships. She further suggests that multiple theories and constructs must be used to truly understand and comprehend the nuances and multiple meanings as individuals communicatively negotiate relationships within their family.

This project was theoretically grounded at an intersection of theories that help explain and predict interpersonal behaviors among individuals. Since each theory has been tested in previous studies, this blending of theoretical approaches allowed for a deeper understanding of specific relational behaviors as it related to specific individuals in normal circumstances and during a parental health crisis. Because no other study has been found thus far that has examined this type of relationship under these circumstances, the findings from this research allow for

better understanding of the ways in which these theoretical models can be understood and applied in different contexts.

Specifically, this project sought to examine the sibling relationship from the Social Exchange Theory perspective and Theory of Interdependence using Rusbult's (1980) Investment Model as a measure of sibling reliance during a parental health crisis. Specifically, Commitment Level, Satisfaction Level, Investment Size, and Quality of Alternatives were measured using the Investment Model. Other constructs of the project were measured using Ritchie and Fitzpatrick's (1990) Revised Family Communications Patterns Index, which produced a Family Communication Pattern for each participant. These patterns were Consensual, Pluralistic, Protective, and Laissez-faire. Myers and Weber's (2004) Sibling Relational Maintenance Behaviors Scale was used to measure behaviors such as Confirmation, Humor, Social Support, Family Visits, and Verbal Aggression. Finally, Lubben's Social Network Scale (Lubben, et. al, 2006) contributed a score for Family Social Support, and Non-family Social Support. To meet the above described goals, a self-report survey instrument was created using the scales listed here.

To ensure the reliability of the instrument a pretest was conducted. Each portion of the survey resulted in satisfactory reliability coefficients and the survey was then administered to the targeted population in two ways, online or hard copy. In order to participate, a participant must have been born between 1946 and 1964 (the age range of a baby boomer), the participant had to have at least one sibling, and the participant had to have experienced some type of parental health crisis that he/she could easily recall. A total of 157 participants completed the survey and their responses comprised the dataset used for this project.

In general, the results indicated that baby boomer siblings perform the Sibling Relational Maintenance Behaviors identified by Myers and Weber (2004) in both a parental health crisis time period and in a normal time period. Of these behaviors, verbal aggression appears to be viewed by many of the participants as an unnecessary component of sibling relationships during crisis and non-crisis times, even when participant's reported having access to family and non-family social support networks. Verbal aggression has been shown to be negatively correlated with many other constructs of this study throughout the course of this project. Additionally, the type of parental health crisis did not appear to affect the baby boomer sibling relationships reported in this research. Whether a parent was diagnosed with cancer, was dealing with a mental health disease, or was moving to an assisted living facility for general age related issues, the results indicate that the siblings in this study may have made an effort to keep the sibling bond viable and strong by using the maintenance behaviors identified by Myers and Weber. Each of these general findings will be discussed in more detail in the following section.

### *Implications*

More specifically, this project's results indicated that the source of social support received by an individual, whether family support or non-family support, affects which Sibling Relational Maintenance Behavior (Confirmation, Humor, Social Support, Family Visits, Verbal Aggression) is more likely to be performed during a parental health crisis. For example, Humor, as a Sibling Relational Maintenance Behavior was found to have a high positive correlation with Family Social Support during a parental health crisis. This finding corroborates previous findings suggesting that satisfied couples engage in humor as a regular relational maintenance behavior (Alberts, Yoshimura, Rabby, & Loschiavo, 2005). Humor has been shown to be an indicator of relational closeness (Haas & Stafford, 2005), and greater relational satisfaction (Driver &

Gottman, 2004) in romantic relationships. In addition, humor can be used as a diffuser in conflict situations (Bippus, 2003). These studies have examined the use of humor in a romantic relationship, however, Myers and Weber (2004) found that the relational maintenance behaviors of siblings and romantic partners are remarkably similar. Thus, this finding regarding humor and family social support indicate that siblings in this study valued humor as a relational maintenance behavior if they had a solid family social support network. This finding is particularly intriguing because humor was found to be a relational maintenance behavior used by the siblings in this study during a parental health crisis which suggests that humor among siblings may be used as a tension releaser.

Among the participants in this study, Non-family Social Support was found to be highly correlated with the Sibling Relational Maintenance Behavior of Family Visits. These findings corroborate previous research which has shown that social support networks have a positive impact on relationships (Albrecht & Adelman, 1987; Duck, 1986). This is consistent with White and Reidmann's (1992) research which found that sister-sister dyads reported a stronger social support network than brother-brother or brother-sister dyads. In addition, the all female dyads were more likely to remain in contact with one another. Further, this research confirms that sibling relationships benefit from having both family and non-family support networks as a parental health crisis presents itself as part of the sibling relationship.

Additionally, this research has shown that if siblings have access to these extended support networks, they are more likely to perform the behaviors necessary to maintain the sibling bond. Previous research has shown that changes in social support networks impact sibling involvement (Campbell, Connidis, & Davies, 1999), and Avtgis, Martin, and Rocca, (2000) attributes social support to be positively related to the perceived understanding of the

relationship. Sibling Relational Maintenance Behaviors are performed more often if the sibling perceives his/her sibling relationship as positive (Myers & Weber, 2004). According to the results presented here, confirmation is the most likely Sibling Relational Maintenance Behavior to be performed and verbal aggression is the least likely Sibling Relational Maintenance Behavior to be performed during a parental health crisis. These results remain constant during a parental health crisis regardless of the source of social support received by the individual.

For example, for individuals participating in this study, if he/she has a solid family social support network, he/she is more likely to provide confirmation behaviors to his/her sibling during a parental health crisis, and less likely to engage in verbal aggression at these times. Consider this scenario: a parent is diagnosed with a debilitating disease and needs assistance from all of his/her children. If the siblings in the family feel secure in their perception of a family social support network, this research argues that the siblings will be more likely to provide confirmation behaviors to each other. Confirmation behaviors are those that “confirm, reinforce, and/or validate the importance of the sibling” (Myers & Weber, 2004) in a participant’s life. For instance, telling a sibling he/she is loved, or telling a sibling that he/she is appreciated are behaviors that would be classified as confirmation behaviors. In a parental health crisis such as described above, showing appreciation for a sibling’s actions indicates that a sibling is more satisfied with his/her relationship and perceives it in a positive light. The Theory of Interdependence suggests that if individuals measure the input and outcome of their relationships positively, they are more satisfied and thus more likely to exhibit the necessary behaviors to maintain and solidify the relationship.

The theoretical basis for this project suggests that siblings will measure the input and outcome of their relationship to determine satisfaction and commitment to it. Martin, Anderson,

and Rocca (2005), suggest that a sibling exhibiting a high degree of verbal aggressiveness is viewed in a less positive way as a relational partner. If verbal aggression is considered to be an unnecessary component of the sibling relationship, based on the Theory of Interdependence, siblings should be less satisfied and less committed to their relationship. The results of this study appear to confirm that the participants in this study found Verbal Aggression to be an unnecessary component to their relationship. This finding is statistically shown through the negative correlation coefficients for Verbal Aggression with other constructs of this research.

For instance, Verbal aggression, as a Sibling Relational Maintenance Behavior, negatively correlated with family and non-family social support during a parental health crisis and verbal aggression has been shown to be the least likely maintenance behavior to be performed by siblings involved in a parental health crisis. If both siblings feel connected by a social support network, as they deal with the complex issues surrounding the parental health crisis, this research supports the notion that the siblings will be less likely to engage in verbal aggressive behaviors during this crisis time. Verbal aggression was characterized by Myers and Weber (2004) as “yelling or ridicule.” Results from this study support that if an individual has a solid non-family social support network available during a parental health crisis, performance of these same maintenance behaviors (confirmation and verbal aggression) hold true.

Other extant research by Myers, Brann, and Rittenour (2008) offers that if siblings feel motivated to communicate with each other because they perceive the relationship positively, they may be reluctant to engage in verbally aggressive statements. Siblings who are verbally aggressive are characterized as less credible, less trustworthy, and less committed to the relationship (Martin, et al., 2005). The Theory of Interdependence posits that as individuals measure the input and outcome of their relationships, if these are found to be negatively skewed

will be less likely to be satisfied or committed to the relationship. Accepting Martin, et al.'s findings suggests that if a sibling is involved in a relationship with a high degree of verbal aggressiveness, the relationship may be strained to the point of dissolution because he/she may be less committed to it. Based on the results from this research and from Myers', et.al, it is possible that the participants in this project viewed their sibling relationships as positive because verbal aggression was consistently negatively correlated with other constructs.

However, since the data was produced using a self-report survey, it is possible that siblings in this study were reluctant to admit that verbal aggression may be a component of their relationship. This could be because verbal aggression may be viewed by society as a whole as a negative or potentially damaging characteristic. Another possible explanation for this finding is that the baby-boomer generation may be less likely to exhibit this type of behavior because of their age. A younger aged sample might produce different results regarding verbal aggression.

Verbal aggression has been shown to decrease in sibling relationships as the siblings advance in age (Myers & Goodboy, 2006). The findings from their study indicate that verbal aggressiveness is used most often among young adult siblings and that verbal aggressiveness lessens as siblings move from young adulthood to middle adulthood and decreases even more as they enter older adulthood. Concurrent with their findings, this study did not uncover any positive correlations between the Sibling Relational Maintenance Behavior of Verbal Aggression and any other constructs. Because this project was focused on the baby boomer cohort and most of the study participants were born between 1964 and 1955 (ages 45-54) these participants certainly can be classified as at least middle adulthood, if not early older adulthood. Thus, it is not unexpected that no positive correlations between Verbal Aggression were found using this particular age range of participants.

This finding may also be linked to the gender distribution of the sample because the sample was comprised of more females than males and typically gender roles do not provide females the freedom to express verbal aggression without violating social expectations (Wood, 2005). The gender distribution of the sample may be indicative of the lack of positive correlations between verbal aggression and other constructs of this study. Recall that there were 15% more females than males in this study. According to Wood, as females are socialized in feminine speech practices, they are taught that “feminine speech tends to foster connections, support, closeness, and understanding” (p. 119). Wood further suggests that feminine speech seeks to establish equality between relational participants, demonstrate support, and focuses on feelings between participants. Asking others to speak or offer insight, being responsive to another, and giving personal details are also characteristics of feminine speech. The final characteristic Wood attributes to feminine speech is tentativeness. Certainly, verbal aggressiveness and tentativeness do not go hand in hand. Given that a larger number of study participants identified themselves as female, it is not surprising that verbal aggression was not found to be positively correlated with other constructs in this study.

An interesting and intriguing finding of this research was that the relational maintenance behavior with the highest positive correlation with a strong family social support network was humor. It may appear contradictory to use humor during a parental health crisis. However, previous research involving heterosexual couples indicated that humor is a proactive prosocial behavior used by couples (Haas & Stafford, 2005). In this study, sibling participants indicated they used humor during a parental health crisis when they had a strong family social support network. Despite the inherent differences between romantic partner relationships and sibling relationships, relational maintenance behaviors are remarkably similar (Myers & Weber, 2004).

Since I argue that there are similarities between the marital or romantic relationship and the sibling relationship, a comparison of humor in this fashion seems appropriate.

A study conducted by Wildermuth, Vogl-Bauer, and Rivera (2006) employed social exchange constructs to discover which communication strategies were used by relational partners and humor was found to be one of these strategies. Meyer (2000) found that humor can function in interpersonal relationships as a relief valve. According to Meyer, the relief function of humor allows individuals to laugh as a stress reliever, and Bippus (2000) argues that when used in this manner, humor can help release negative emotions. In the context of this study, siblings involved in a parental health crisis may find themselves stressed over the difficulties surrounding it, and they may find themselves dealing with negative emotions associated with the parental health crisis itself. Thus, as siblings deal with the potential stress and negative emotions as part of a parental health crisis, humor seems to be not only an appropriate behavior, but potentially a necessary behavior in these circumstances, at least for the participants in this study.

If an individual reported a secure non-family social support network, he/she felt a need to have more family visits. This is consistent with Interdependence Theory because the theory suggests that individuals seek to balance their expectations of a relationship with the actual outcomes. Johnson (1999) offers that often commitment may be forced upon an individual due to social pressures to remain active in a relationship. Since sibling relationships are forced relationships (Fitzpatrick & Badzinski, 1994), and enduring relationships (Cicirelli, 1995; Allan, 1977), it is possible that the siblings in this study may have felt this type of pressure in a significant way. In this case, an individual who has a more secure non-family social support network may feel pressure to expand the family support network by participating in more family visits.

Further, Voorpostel and van der Lippe (2007) found that emotional support among siblings is dependent upon relationship quality and frequency of contact. This project highlights that among baby boomer siblings embroiled in a parental health crisis with a solid non-family social support network, siblings in this study found it necessary to increase the time they spent with their families which corroborates Voorpostel and van der Lippe's findings regarding family visits and satisfaction or commitment to the sibling relationship.

When a sibling is amenable to performing Relational Maintenance Behaviors as a way to help solidify the sibling relationship and to help it function optimally in a parental health crisis, the participants in this study imply that they may view their sibling relationship as an important one in their life. If a sibling views the relationship as a valuable one, a sibling's Satisfaction Level should increase, while their Quality of Alternatives decreases, Investment Size increases, and Commitment Level increases (Rusbult, Martz, & Agnew, 1998). This connection between relational maintenance behaviors and Rusbult's (1980) Investment Model constructs prompted further tests to examine whether a relation between Sibling Relational Maintenance Behaviors (Confirmation, Humor, Social Support, Family Visits, Verbal Aggression) and sibling reliance measures (Commitment Level, Satisfaction Level, Investment Size, Quality of Alternatives) existed during crisis and non-crisis time periods.

In a crisis, siblings in this study indicated that Commitment Level, Satisfaction Level, and Investment Size regarding the sibling relationship were positively correlated with Confirmation, Humor, Social Support, and Family Visits, and negatively correlated with Verbal Aggression. All were statistically significant. Quality of Alternatives was not statistically significant during a crisis. Put simply, as siblings dealt with a parental health crisis, they became more committed to their sibling relationship, they were more satisfied with it, and they perceived

their investment in the relationship to be appropriate. As indicated by these findings, the baby boomer siblings in this study evaluated their relationship positively and they were more apt to perform the sibling relational maintenance behaviors that would help bolster the sibling relationship. Concurrent with the positive evaluation of the sibling relationship, baby boomers in this study did not view anyone other than their sibling as the most appropriate person to rely on during a parental health crisis which explains why Quality of Alternatives was not a statistically significant result found here.

Therefore, baby boomer siblings in this study indicated that during a parental health crisis, their sibling was their best ally because Quality of Alternatives measures an individual's perception of an alternative relationship. In this case, siblings did not view an alternative relationship as a viable avenue to help them communicatively navigate the parental health crisis at hand. This finding is similar to Goetting's (1986) finding that as sibling move into older adulthood, they begin to resolve any old grievances and rely on each other more. Also, because this particular sample had a larger percentage of same sex sibling participants (45.2%,  $N = 71$ ) and the age gap between siblings was often three years or less, this project seems to support Furman and Buhrmester's (1985) research. Their study showed that siblings of the same gender and who were closer in age were more likely to rely on each other as they aged. Certainly baby boomers can be considered to have entered middle to late adulthood because a large group has recently retired from the workforce, and the most prevalent decade of participants in this study were in their fifties. So, it is not surprising to have found that siblings relied on each other during a parental health crisis strictly based on their age and stage in life.

Socially, the baby boomers contributed to the rise in divorce rates, they lived through the Vietnam War, the Civil Rights Era and they may find themselves stressed from the demands of

dual careers and family responsibilities (Morton, 1999). Often, this places them in the sandwich generation. The sandwich generation finds themselves caught between caring for aging parents and caring for their own children (Wujcik, 2008), and baby boomers may feel the difficulties of being in these roles. As they face a parental health crisis, baby boomer siblings in these situations may use their sibling relationships to help manage their stress levels. The results of this project show that these participants appeared to view their sibling relationship as a vital and important relationship.

Sibling Relational Maintenance Behaviors (Confirmation, Humor, Social Support, Family Visits, and Verbal Aggression) during a crisis mode were correlated with the same behaviors during a non-crisis mode and all were positively correlated, with Verbal Aggression showing this highest correlation coefficient. Again, verbal aggression appears to have been a component that participants in this study did not perceive as communicatively productive in their sibling relationship in either mode. Sibling reliance measures (Commitment Level, Satisfaction Level, Investment Size, and Quality of Alternatives) all correlated positively between a parental health crisis circumstance and a non-crisis circumstance. In this case, Commitment Level showed the highest correlation coefficient.

### *Limitations*

Limitations of this study are that only one cohort was examined, and only one-half of the sibling dyad completed the survey. Future research should include both siblings so that comparisons of each sibling's responses to the survey can be made. The relatively small sample size was also a limitation of this particular study. In addition, using the researcher's contacts at employment sites may have influenced the results of the study. The use of a more deliberate random sampling of the same population might produce different findings. Using a convenience

or snowball sampling technique may have had an effect on the resulting findings of this study and generalizing to other individuals other than those in similar circumstances and geographic areas should be done with caution.

The homogeneity of the sample was both a blessing and a curse. Because the sample was deliberately narrow, there were few chances that age or generation would influence the results which encourages generalizing only to a population of similar attributes. Additionally, no questions about racial heritage were asked in this study. Because of cultural differences between races, this oversight eliminated any possible comparisons between individuals from different cultural backgrounds.

Given the nature of this study, only correlations can be discussed with regard to the relations found among the constructs. Despite the fact that this study was not conceptualized or completed as a longitudinal study which examined these specific behaviors over time, the results presented here offer an adequate understanding of how siblings interact during a parental health crisis and during normal interactions. Additionally, there was no effort to separate the responses from online participants from participants completing the survey in paper format. Examining any potential differences between the two types of survey instrument should be conducted in future projects. Efforts should be made to resolve these limitations in future research endeavors.

#### *Future Directions*

Even though previous research (Ingersoll-Dayton, et al., 2003; & Willyard, et al., 2007) has focused on the sibling role as a parental caregiver, this project did not attempt to investigate these roles. However, future directions for the health care industry in regards to sibling relationships should focus on the care-giver aspect of these relationships because baby boomer

siblings may be pressed into service in these roles. Gender may prove an important factor when examining these care-giver roles.

As girls grow up, they are socialized to play dress-up, put on makeup, and focus on their physical appearance (Franzoi & Koehler, 1998). They are also socialized to be caregivers (Wood, 2005). Additionally, Gilligan and Pollack (1998) found that a female is socialized to value connections with others, communicate responsiveness and care to others, and to preserve relationships. As the dual earner baby boomers continue to feel pressure to expand their caregiver roles to generations older and younger than themselves, males may find themselves in this role on a more regular basis.

Indeed this appears to be the case. For instance, Leland (2008) wrote that men are taking a more active role in care-giving of their parents than in times past. Further, Leland suggests that the baby boomer generation is setting a new standard in care-giving much as the generation has set new standards for mothers in the workforce.

This same article highlights the issues men face in this new role. They are much less likely to have someone to talk to about their responsibilities despite the fact that the Leland (2008) reports an increase from 19% to nearly 40% of men taking on this role. Men are also less likely to become members of a support group for caregivers, which may help alleviate some of the stress they feel. Health care industry professionals may find themselves in a quandary about how to deal with sons rather than daughters in the caregiver role. Additionally, health care providers may find that sons dealing with a parental diagnosis of cancer versus a son dealing with a parental diagnosis of Alzheimer's may actually have different needs. Despite the results from this project which did not show any statistically significant results between siblings' Relational Maintenance Behaviors or sibling Reliance measures and a particular health crisis,

future research may prove that sons as caregivers may have specific support requirements based strictly on the parental health crisis faced. Future research examining gender of siblings providing this critical care to aging or ill parents should prove vitally important to health care providers. Also, Willyard and colleagues (2007) conducted narrative analysis about siblings in care giving roles for ailing parents. They discovered that a participant found a way to communicatively absolve other siblings from participating in the care giving. If a son is the caregiver rather than a daughter, a future research project should investigate any possible differences between how sons and daughters communicatively create this absolution for each other. Future directions in siblings as caregivers should include qualitative investigations into these potentially diverse perspectives.

From an academic perspective, communication scholars should read between the lines of Leland's (2008) article and investigate the possibility of gender roles changing. This opens up a large area of study for cultural and critical analyses. The relatively small sample from this research showed that more respondents were female (65%,  $N = 102$ ) than male (27.4%,  $N = 43$ ). An investigation regarding the gender of sibling pairs should provide interesting results, particularly since female-female sibling pairs are more likely to have more frequent contact than brother-brother or brother-sister pairs (Lee, et al., 1990; Akiyama, Elliott, & Antonucci, 1996). An additional avenue for examining these important relationships is birth order. Pollet and Nettle (2007) found that birth order may influence maintenance of the sibling bond because they discovered that first-born children are more inclined to keep the sibling bond alive regardless of gender.

Another avenue for cultural or critical scholars to analyze would be any differences between ethnicities. A previous study of siblings of Asian-American heritage and European-

American heritage regarding touch apprehension and affective orientation found that Asian-American siblings are more touch apprehensive and are less likely to let emotions guide their actions (Avtgis & Rancer, 2003). These results are likely to be influenced by cultural expectations. According to the United States Census Bureau, the Hispanic population grew to 45.5 million in 2007 (<http://www.census.gov/popest/national/asrh/NEEST 2007-srh.html>). Because of their close-knit family structure, examining sibling bonds during a parental health crisis using ethnicity as a deciding factor might provide interesting results. Further, Reidmann and White (1996) and Taylor, Chatters, and Mays (1998) suggest significant differences between Hispanic, African-American, and Caucasian families in sibling closeness and exchange of resources. Based on the findings from this study regarding reliance on a sibling and sibling relational maintenance behaviors, the Theory of Interdependence could help illuminate any potential differences between siblings based strictly on culture, racial heritage, and expectations of the relationship itself. For instance, cultural expectations may impact the sibling relationship in multiple ways. Because the Asian culture is generally considered a collectivist culture, (Gudykunst, Matsumoto, Ting-Toomey, Nishida, Kim, & Heyman, 1996), siblings from this particular cultural heritage may be more inclined to perform additional maintenance behaviors regardless of what is reciprocated. Do siblings of different cultural backgrounds have different expectations of a sibling relationship in a normal situation and in a parental health crisis situation? If such differences exist between siblings of different cultures and racial heritages, the theory of interdependence could be a vital predictor of sibling relationships.

Since Interdependence Theory suggests that individuals seek to balance their relational input and outcome similar to a cost-benefit ratio in a business situation, determining how culture affects this balancing act in relation to theoretical constructs such as Satisfaction Level,

Commitment Level, Investment Size, and Quality of Alternatives, should produce fruitful results for communication scholars. Understanding the sibling relationship from many cultural perspectives would enhance family communication literature by expanding knowledge of how siblings work through issues together and what keeps the relationship strong and vibrant, and what causes the relationship to deteriorate. Additionally, by understanding the sibling relationship, particularly in a parental health crisis situation, could assist health care providers as they work with a family facing a health crisis by helping them manage any potential conflicts associated with the health crisis and/or care giving responsibilities.

An immediate future project for this researcher will be to examine any age or generational differences as siblings deal with a parental health crisis. The expectations from one generation to another may offer a myriad of exciting discoveries based on the lifespan of the sibling relationship. For instance, siblings in emerging adulthood may display more of a propensity to exhibit verbal aggression than the baby boomer generation, simply because of their age (Myers & Goodboy, 2006). Since this particular project highlighted that verbal aggression was negatively correlated with most constructs of the study, emerging adult siblings may produce differences in this area. Additionally, since siblings in emerging adulthood begin to distance themselves from each other as they develop their career paths and families, (Connidis, 1989) are they less likely to rely on each other in a situation like a parental health crisis? By examining these relationships using the theoretical constructs presented here, and multiple age cohorts, will allow family communication scholars to expand knowledge of the sibling relationship at different life stages.

Because the composition of the family is changing and is likely to have biological, step, adopted, half, or foster children, an investigation into the roles expected from each type of

sibling should be conducted. If the number of stepfamilies continues to grow, intuitively, it would be expected that the dynamics of dealing with a parental health crisis would change if stepsiblings were involved. For instance, would the stepson or stepdaughter be expected to take over if a biological child was unable to help a parent for some reason? Military families have unique attributes because of deployment to foreign countries and a thorough examination of families in this situation might be helpful as well. Does the sibling bond strengthen or weaken as a brother or sister is deployed? Is the bond impacted by a parental health crisis and in what way? Military families have unique characteristics that could be understood using the constructs of this project, and the findings should prove useful to individuals who routinely help military families with the stress associated with their specific situation.

Finally, because geographic distances may separate sibling pairs during a family health crisis, a future project should examine how these distances are bridged by siblings, possibly through mediated communication channels. How do siblings maintain their relationships when separated by large distances? Do they take advantage of email, text messaging, or webcams? Does the distance actually affect the sibling relationship positively or negatively, and what makes the impact positive or negative? Using the constructs of the Theory of Interdependence and Sibling Relational Maintenance Behaviors could elucidate the answers to questions such as these.

### *Conclusion*

This project sought to uncover the nuances of the sibling relationship as it ebbed and flowed through a parental health crisis. Overwhelmingly, the siblings in this study confirmed previous research findings. The siblings reported that they attempted to maintain their relationship using specific behaviors both in a crisis and in normal circumstances. They also

reported that they were committed to their sibling relationship during the parental health crisis and in normal circumstances. This project answered the questions initially set as goals. First, siblings in this study indicated that confirmation was the most performed Sibling Relational Maintenance Behavior in crisis mode and Humor was the most performed Sibling Relational Maintenance Behavior in non-crisis mode. Next, Family Communication Pattern did not have a significant impact on sibling relationships during a parental health crisis. Social support; both non-family and family appear to have a significant positive impact on the sibling relationship. Finally, of the baby boomer siblings participating in this study, they rely on each other in crisis and non-crisis situations, particularly if the Sibling Relational Maintenance Behaviors are performed on a regular basis. Another initial goal of this project was to move sibling communication research into a more prominent position within the discipline. By demonstrating the importance of these relationships and highlighting the potentially fruitful directions in similar research, this goal has been achieved as well. Many more opportunities await family and health communication scholars. Future family communication and health communication scholars now have more insight about this important relationship to build upon. As future scholars take up this avenue of scholarship, I argue that the following statement may help guide us: “Our siblings. They resemble us just enough to make all their differences confusing, and no matter what we choose to make of this, we are cast in relation to them our whole lives long” (Merrell, 1995).

## References

- Akiyama, H., Elliott, K., & Antonucci, T. (1996). Same-sex and cross-sex relationships. *Journal of Gerontology, 51B*, 374-382.
- Alberts, J., Yoshimura, C., Rabby, M., & Loschaivo, R. (2005). Mapping the topography of couples' daily conversation. *Journal of Social and Personal Relationships: 22*, 299-322.
- Albrecht, T. & Adelman, M. (1987). Communicating social support. In T. Albrecht and M. Adelman (Eds.), *Communicating Social Support*, (pp 18-39). Newbury Park, CA: Sage.
- Allan, G. (1977). Sibling solidarity. *Journal of Marriage and the Family, 39*, 177-184.
- Amato, P. R. (1989). Family processes and the competence of adolescents and primary school children. *Journal of Youth and Adolescence, 18*, 39-53.
- Aronson, E., & Linder, D. (1965). Gain and loss of esteem as determinants of interpersonal attractiveness. *Journal of Experimental Social Psychology, 1*, 156-171.
- Avtgis, T., Martin, M., & Rocca, K. (2000). Social support, relational satisfaction and perceived understanding in the brother relationship. *Communication Research Reports, 17*, 407-414.
- Avtgis, T. A., & Polack, E. P. (2007). Predicting physician communication competence by patient perceived information exchange and health locus of control. *Human Communication, 10*, 136-144.
- Avtgis, T.A., & Rancer, A. S. (2003). Comparing touch apprehension and affective orientation between Asian-American and European-American siblings. *Journal of Intercultural*

- Communication Research*, 32, 67-75.
- Balsam, M. (2007). Sibling relationships in remarried families. *Journal of Family Studies*, 13, 252-254.
- Barnes, G. M., & Farrell, M. P. (1992). Parental support and control as predictors of adolescent drinking, delinquency, and related problem behaviors. *Journal of Marriage and the Family*, 54, 763-776.
- Beach, W. A. (2002). Between dad and son: Initiating, delivering, and assimilating bad cancer news. *Health Communication*, 14, 271-298.
- Bevan, J., & Hale, J. (2006). Negative jealousy related emotion rumination as consequences of romantic partner, cross-sex friend, and sibling jealousy expression. *Communication Studies*, 57, 363-379.
- Bippus, A. (2000). Humor usage in comforting episodes: Factors predicting outcomes. *Western Journal of Communication*, 64, 359-384.
- Bippus, A. (2003). Humor motives, qualities, and reactions in recalled conflict episodes. *Western Journal of Communication*, 67, 413-426.
- Bochner, A. P. (1976). Conceptual frontiers in the study of communication in families: An introduction to the literature. *Human Communication Research*, 2, 381-297.
- Bureau of Labor Statistics. (2007). *Consumer Expenditures in 2006*. Retrieved March 7, 2008, from <http://www.bls.gov/cex>
- Campbell, L., Connidis, I., & Davies, L. (1999). Sibling ties in later life: A social network analysis. *Journal of Family Issues*, 20, 114-148.
- Campbell-Ewald, Inc. (2005, December 8). *13 million boomer children are caregivers for their parents*. Retrieved March 1, 2008, from <http://health.campbell-ewald.com>

- Cauce, A. M., Hannan, K., & Sargeant, M. (1992). Life stress, social support, and locus of control during early adolescence: Interactive effect. *American Journal of Community Psychology, 20*, 787-798.
- Caya, M. L., & Liem, J. H. (1998). The role of sibling support in high-conflict families. *American Journal of Orthopsychiatry, 68*, 327-333.
- Cegala, D. J. (1997). A study of doctors' and patients' communication during a primary care consultation: Implications for communications training. *Journal of Health Communication, 2*, 169-194.
- Cegala, D. J., McNeilis, K. S., Socha-McGee, D., & Jonas, A. P. (1995). A study of doctors' and patients' perceptions of information processing and communication competence during the medical interview. *Health Communication, 7*, 179-203.
- Cicirelli, V. G. (1982). Sibling influence throughout the lifespan. In M. E. Lamb & B. Sutton-Smith (Eds.), *Sibling relationships: Their nature and significance across the lifespan* (pp. 267-284). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cicirelli, V. G. (1995). *Sibling relationships across the life span*. New York: Plenum Press.
- Clore, G. L., & Byrne, D. (1974). A reinforcement-affect model of attraction. In T. L. Huston (Ed.), *Foundations of interpersonal attraction*. (pp. 143-170) New York, NY: Academic Press.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*, 310-357.
- Connidis, I. AS. (1989). Siblings as friends in later life. *American Behavioral Scientist, 33*, 81-93.
- Coulson, N., Buchanan, H., & Aubeeluck, A. (2007). Social support in cyberspace: A content

- analysis of communication within a Huntington's disease online support group. *Patient Education and Counseling*, 68, 173-178.
- Cunningham, J., van Mierlo, T., & Fournier, R. (2008). An online support group for problem drinkers: AlcoholHelpCenter.net. *Patient Education and Counseling*, 70, 193-198.
- Dailey, R. (2007). Confirmation from family members: Parent and sibling contributions to adolescent psychosocial adjustment. Conference Presentation, International Communication Association Annual Meeting, San Francisco, CA.
- Dainton, M., & Zelle, E. D. (2006). Social exchange theories: Interdependence and equity. In D. O. Braithwaite & L. A. Baxter (Eds.). *Engaging theories in family communication: Multiple perspectives*, (pp. 243-259) Thousand Oaks, CA: Sage.
- dictionary.com. Retrieved May 16, 2008, from <http://dictionary.reference.com/browse/crisis?qsrc=2888>.
- Driver, J., & Gottman, J. (2004). Daily marital interactions and positive affect during marital conflict among newlywed couples. *Family Process*, 43, 301-314.
- Duck, S. (1986). *Human relationships: An introduction to social psychology*. Beverly Hills, CA: Sage.
- Dunn, J. (2000). State of the art: Siblings. *The Psychologist*, 13, 244-248.
- Dutta-Bergman, M. J. (2005). The relation between health-orientation, provider-patient communication, and satisfaction: An individual difference approach. *Health Communication*, 18, 291-303.
- Eggle, S., & Tzelepis, A. (2001). Relational control in difficult physician/patient encounters: Negotiating treatment for pain. *Journal of Health Communication*, 6, 323-333.
- Eriksen, S., & Jensen, V. (2009). A push or a punch: distinguishing the severity of sibling

- violence. *Journal of Interpersonal Violence*, 24, 183-209.
- Fitzpatrick, M. A., & Badzinski, D. (1994). All in the family: Interpersonal communication in kin relationships. In M. L. Knapp and G. R. Miller (Eds.), *Handbook of interpersonal communication*, 2<sup>nd</sup> Ed., (pp. 687-736). Thousand Oaks, CA: Sage.
- Floyd, K., & Morman, M. T., (Eds.). (2006). *Widening the family circle: New research on family communication*. Thousand Oaks, CA: Sage.
- Floyd, K., & Voloudakis, M. (1999). Affectionate behavior in adult platonic friendships. *Human Communication Research*, 25, 341-370.
- Folwell, A. L., Chung, L. C., Nussbaum, J. F., Bethea, L. S., & Grant, J. A. (1997). Differential accounts of closeness in older adult sibling relationships. *Journal of Social and Personal Relationships*, 14, 843-849.
- Fox, L., Poulsen, S., Clark-Bawden, K., & Packard, D. (2004). Critical elements and outcomes of a residential family-based intervention for aphasia caregivers. *Aphasiology*, 18, 1177-1199.
- Franco, N., & Levitt, M. J. (1998). The social ecology of middle childhood: Family support, friendship quality, and self-esteem. *Family Relations*, 47, 315-321.
- Franzoi, S., & Koehler, V. (1988). Age and gender differences in body attitudes: A comparison of young and elderly adults. *International Journal of Aging and Human Development*, 47, 1-10.
- Furman, W., & Buhrmester, D. (1985). Children's perceptions of the qualities of their sibling relationships. *Child Development*, 56, 448-461.
- Gallager, J. (2005). Retirement of baby boomers may reverberate in workplace [Electronic

- version]. The Seattle Times. Retrieved March 2, 2008, from [http://seattletimes.nwsourc.com/html/nationalworld/2002185894\\_boomers21.html](http://seattletimes.nwsourc.com/html/nationalworld/2002185894_boomers21.html)
- Gardner, K. A., & Cutrona, C. E. (2004). Social support communication in families. In A. L. Vangelisti (Ed.), *Handbook of Family Communication*, (pp. 495-512). Mahwah, NJ: Lawrence Erlbaum.
- Gilligan, C., & Pollack, S. (1988). The vulnerable and invulnerable physician. In C. Gilligan, J. Ward, & J. Taylor with B. Bardige (Eds.), *Mapping the moral domain* (pp. 245-262). Cambridge, MA: Harvard University Press.
- Gleason, M. E. J., Iida, M., Bolger, N. & Shrout, P. E. (2003). Daily supportive equity in close relationships. *Personality and Social Psychology Bulletin*, 29, 1036-1045.
- Goetting, A. (1986). The developmental tasks of siblingship over the life cycle. *Journal of Marriage and the Family* 48, 703-714.
- Gudykunst, W. B., Matsumoto, Y., Ting-Toomey, S., Nishida, T., Kim, K., & Heyman, S. (1996). The influence of cultural individualism-collectivism, self construals, and individual values on communication styles across cultures. *Human Communication Research*, 22, 510-543.
- Haas, S., & Stafford, L. (2005). Maintenance behaviors in same-sex and marital relationship: A matched sample comparison. *The Journal of Family Communication*, 5, 43-60.
- Hochschild, A. R. (1973). *The unexpected community*. Englewood Cliffs, NJ: Prentice-Hall.
- Huntley, D. K., & Phelps, R. E. (1990). Depression and social contacts of children from one-parent families. *Journal of Community Psychology*, 18, 66-72.
- Iida, M., Shrout, P., Seidman, G., Fujita, K., & Bolger, N. (2008). Modeling support provision in intimate relationships. *Journal of Personality and Social Psychology*, 94, 460-478.

- Ingersoll-Dayton, B., Neal, M., Ha, J., & Hammer, L. (2003). Redressing inequity in parent care among siblings. *Journal of Marriage and the Family*, 65, 201-212.
- Johnson, M. (1999). Personal, moral, and structural commitment to relationships: Experiences of choice and constraint. In J. M. Adams & W. H. Jones (Eds.), *Handbook of interpersonal commitment and relationship stability* (pp. 73-87). New York: Kluwer Academic/Plenum Publishers.
- Kelley, H. H., & Thibaut, J. E. (1978). *Interpersonal relations: A theory of interdependence*. New York, NY: Wiley.
- Lee, G. R., Mancini, J. A., & Maxwell, J. W. (1990). Sibling relationships in adulthood: Contact patterns and motivations. *Journal of Marriage and the Family*, 52, 431-440.
- Lee, R., & Skinner, J. (1999). Will aging baby boomers bust the federal budget? *Journal of Economic Perspective*, 13, 117-140.
- Leland, J. (2008). More men take lead role in caring for elderly parents. *The New York Times* [electronic edition]. Retrieved December 2, 2008 from <http://www.nytimes.com/2008/11/29/us/29sons.html>.
- Leung, L. (2006). Stressful life events, motives for Internet use, and social support among digital kids. Conference Presentation, International Communication Association, 2006 Annual Meeting, Dresden, Germany
- Lichtman, R. R., Taylor, S. E., & Wood, J. V. (1987). Social support and marital adjustment after breast cancer. *Journal of Psychosocial Oncology*, 5, 47-74.
- Lubben, J., Blozik, E., Gillman, G., Iliffe, S., von Renteln Kruse, W., Beck, J., & Stuck, A. (2006). Performance of an abbreviated version of the Lubben Social Network Scale among three European community-dwelling older adult populations. *The Gerontologist*,

46, 503-513.

- Manne, S. L., & Zautra, A. J. (1989). Spouse criticism and support: Their association with coping and psychological adjustment among women with rheumatoid arthritis. *Journal of Personality and Social Psychology, 56*, 608-617.
- Martin, M., Anderson, C., & Rocca, K. (2005). Perceptions of the adult sibling relationship. *North American Journal of Psychology, 7*, 107-116.
- Merrell, S. (1995). *The accidental bond: How sibling connections influence adult relationships*. New York: Ballantine Books.
- Meyer, J. (2000). Humor as a double-edged sword: Four functions in humor in communication. *Communication Theory, 10*, 310-331.
- Mikkelson, A. C. (2004). *The role of physical separation in the sibling relationship*. Paper presented at the annual meeting of the International Communication Association, New Orleans, LA.
- Morton, L. (1999). Segmenting publics: An introduction. *Public Relations Quarterly, 43*, 47-49.
- Myers, S., Brann, M., & Rittenour, C. (2008). Interpersonal communication motives as a predictor of early and middle adulthood siblings' use of relational maintenance behaviors. *Communication Research Reports, 25*, 155-167.
- Myers, S. & Goodboy, Al. (2006). Perceived sibling use of verbally aggressive messages across the lifespan. *Communication Research Reports, 23*, 1-11.
- Myers, S., & Weber, K. (2004). Preliminary development of a measure of sibling relational maintenance behaviors: Scale development and initial finding. *Communication Quarterly, 52*, 334-346.
- Neuman, S. (2006). *Baby boomers' retirement could threaten Wall Street*. Retrieved March 1,

2008, from Washington University, Olin Business School and Department of Economics

Web site: <http://news-info.wustl.edu/tips/page/normal/7269.html>

Noller, P. (2005). Sibling relationships in adolescence: Learning and growing together. *Personal Relationships, 12*, 1-22.

Parkinson, B., Fischer, A., & Manstead, A. (2005). *Emotion in social relations: Cultural, group, and interpersonal processes*. New York, NY: Psychology Press.

Pecchioni, L. L., & Sparks, L. (2007). Health information sources of individuals with cancer and their family members. *Health Communication, 21*, 143-151.

Pistrang, N., & Barker, C. (1995). The partner relationship in psychological response to breast cancer. *Social Science & Medicine, 40*, 789-799.

Polk, D. M. (2005). Communication and family care giving for Alzheimer's Dementia: Linking attributions and problematic integration. *Health Communication, 18*, 257-273.

Pollet, T., & Nettle, D. (2007). Birth order and face-to-face contact with a sibling: Firstborns have more contact than laterborns. *Personality and Individual Differences, 43*, 1796-1806.

Reidmann, A., & White, L. (1996). Adult sibling relationships: Racial and ethnic comparisons. *Advances in Applied Developmental Psychology, 10*, 105-126.

Ritchie, L., & Fitzpatrick, M. (1990). Family communication patterns: Measuring intrapersonal perceptions of interpersonal relationships. *Communication Research, 17*, 523-544.

Rose, A., Peters, N., Shea, J. A., & Armstrong, K. (2005). The association between knowledge and attitudes about genetic testing for cancer risk in the United States. *Journal of Health Communication, 10*, 309-321.

Rosenfeld, L., Richman, J., Bowen, G., Wynns, S. (2006). In the face of a dangerous community:

- The effects of social support and neighborhood danger on High School students' school outcomes. *Southern Communication Journal*, 71, 273-289.
- Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the Investment Model. *Journal of Experimental Social Psychology*, 16, 172-186.
- Rusbult, C. E. (1983). A longitudinal test of the Investment Model: The development (and Deterioration) of satisfaction and commitment in heterosexual involvements. *Journal of Personality and Social Psychology*, 45, 101-117.
- Rusbult, C. E., & Buunk, B. (1993). Commitment processes in close relationships: An interdependence analysis. *Journal of Social and Personal Relationships*, 10, 175-204.
- Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The Investment Model Scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships*, 5, 357-391.
- Russell, C. (1997). The ungraying of America. *American Demographics*, 25, 12-15.
- Sprecher, S. (1986). The relation between inequity and emotions in close relationships. *Social Psychology Quarterly*, 49, 309-321.
- Stevens, V., Funk, K., Brantley, P., Erlinger, T., Myers, V., Champagne, C., Bauck, A., Samuel-Hodge, C., & Hollis, J. (2008). Design and implementation of an interactive website to support long-term maintenance of weight loss. *Journal of Medical Internet Research*, 10, 2-2.
- Sweet, J., Bumpass, L., & Call, V. (1988). *The design and content of the National survey of families and households*. University of Wisconsin-Madison, Center for Demography Ecology.
- Tate, P., Foulkes, J., Neighbour, R., Champion, P., & Field, S. (1999). Assessing physicians'

- interpersonal skills via videotaped encounters: A new approach for the Royal College of General Practitioners membership examination. *Journal of Health Communication*, 4, 143-152.
- Taylor, R., Chatters, L., & Mays, V. (1988). Parents, children, in-laws and non-kin as sources of emergency assistance to Black Americans. *Family Relations* 37, 298-304.
- Thibaut, J. W., & Kelley, H. K. (1959). *The social psychology of groups*. New York: Wiley.
- Tucker, C. J., McHale, S. M., & Crouter, A. C. (2001). Conditions of sibling support in adolescence. *Journal of Family Psychology*, 15, 254-271.
- United States Census Bureau. (2007). *Annual population estimates 2000-2007*. Retrieved March 7, 2008, from <http://www.census.gov/popest/national.html>
- United States Census Bureau (2007). National population estimates – characteristics. Retrieved May 16, 2008, from <http://www.census.gov/popest/national/asrh/NEEST 2007-srh.html>.
- Voorpostel, M., & van der Lippe, T. (2007). Support between siblings and between friends: Two worlds apart? *Journal of Marriage and Family*, 69, 1271-1282.
- Waldinger, R., Vaillant, G., & Orav, E. (2007). Childhood sibling relationships as a predictor of major depression in adulthood: A 30-year prospective study. *American Journal of Psychiatry*, 164, 949-955.
- Walster, E., Aronson, V., Abrahams, D., & Rottman, L. (1966). Importance of physical attractiveness in dating behavior. *Journal of Personality and Social Psychology*, 4, 508-516.
- Walster, E., Walster, G., & Berscheid, E. (1978). *Equity: Theory and research*. Boston, MA: Allyn & Bacon.
- Waltz, M., Badura, B., Pfaff, H., & Schott, T. (1988) *Marriage and the psychosocial*

- consequences of a heart attack: A longitudinal study of adaption to chronic illness after three years. *Social Science and Medicine*, 27, 149-158.
- White, L., & Reidmann, A. (1992). Ties among adult siblings. *Social Forces*, 71, 85-102.
- Wickrama, K. A. S., Lorenz, F. O., & Conger, R. D. (1997). Parental support and adolescent physical health status: A latent growth-curve analysis. *Journal of Health and Social Behavior*, 38, 149-163.
- Wildermuth, S., Vogl-Bauer, S., & Rivera, J. (2006). Practically perfect in every way: Communication strategies of ideal relational partners. *Communication Studies*, 57, 239-257.
- Willyard, J., Miller, K., Shoemaker, M., & Addison, P. (2007). Making sense of sibling responsibility for family care giving: A narrative analysis. Conference Presentation, National Communication Association Annual Meeting 2007, Chicago: IL.
- Wood, J. T. (1995). *Relational communication: Continuity and change in personal relationships*. Belmont, CA: Wadsworth.
- Wood, J. T. (2000). *Relational communication: Continuity and change in personal relationships*, 2<sup>nd</sup> Ed. Belmont, CA: Wadsworth.
- Wood, J. T. (2005). *Gendered lives: Communication, gender, and culture*, 6<sup>th</sup> Ed. Belmont, CA: Wadsworth.
- Wujcik, D. (2008). Are you part of the sandwich generation? *One Connect*, 7.
- Yu, J., & Gamble, W. (2008). Pathways of influence: Marital relationships and their association with parenting styles and sibling relationship quality. *Journal of Child and Family Studies*, 17, 757-779.

