PARENTAL CAREGIVING AND SIBLING TOPIC AVOIDANCE: AN APPLICATION OF COMMUNICATION PRIVACY MANAGEMENT THEORY

by

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For my parents.

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ABSTRACT

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The current study empirically tested a model of sibling caregiving topic avoidance, including privacy rule criteria as predictors of topic avoidance and both relationship satisfaction and depression as outcomes of topic avoidance. Associations between topic avoidance and its predictors and outcomes were compared for primary and non-primary caregivers. Additionally, the study tested privacy expectations, including information ownership and caregiving talk preference, as moderators of the associations between topic avoidance and both relationship satisfaction and depression. The current study is grounded in communication privacy management theory, conceptualizing topic avoidance as a strategy for maintaining privacy (CPM; Petronio, 2002). Findings validate CPM propositions related to privacy rule development and privacy turbulence. Findings also further understanding of informal caregiving, sibling communication, and topic avoidance.

Over 75% of all eldercare in the United States is provided by unpaid, non-professionals (Family Caregiver Alliance, n.d.). Providing unpaid care has been linked to diminished well-being, including negative physical and mental health effects (Cooper, Balamurali, & Livingston, 2007). However, some scholars argue that caregiving is only detrimental in particular circumstances with some caregivers experiencing more benefits than burdens (Roth, Fredman, & Haley, 2015). The current study proposes that sibling communication is a key factor in determining when caregiving is harmful.

Specifically, the current study examines topic avoidance about parent well-being and sibling's contributions to parental care, including predictors of topic avoidance and the association of topic avoidance with sibling relationship satisfaction and depression. The current study includes a pilot study of 207 participants to develop CPM measures of caregiving topic avoidance, benefit-risk analysis, and information ownership as well as a measure of caregiving involvement (including personal care, routine tasks, and emotional support). The resulting measures are utilizing in a main study of 415 participants, testing models of middle-aged siblings' topic avoidance.

Findings contribute to understanding of informal care, sibling communication, and CPM. Privacy rule criteria, including context, motivation, and risk-benefit analysis, were associated with topic avoidance. Surprisingly, gender and family culture were not strongly associated with topic avoidance. Topic avoidance resulted in relationship dissatisfaction and greater depression when topic avoidance did not align with privacy expectations, resulting in privacy turbulence. Differences emerged for primary caregivers compared with non-primary caregivers, including predictors of topic avoidance and direct effects of caregiving involvement on relationship satisfaction and depression. For primary caregivers, involvement in personal care was associated with greater depression, and involvement in emotional support was associated with less depression. Overall, findings further understanding of privacy management, caregiving, and sibling communication and provide interesting avenues for future research.

CHAPTER 1. INTRODUCTION AND OVERVIEW

Overview and Importance

The Family Caregiver Alliance estimates that over 75% of all eldercare in the United States is provided by unpaid, non-professionals with over 40 million US Americans serving as unpaid caregivers. Caregiving can include a variety of tasks like driving the older adult, providing personal care such as dressing or bathing, running errands, contributing and organizing finances, administering medication, providing emotional support, and making decisions (Hequembourg & Brallier, 2005). Care that is provided by an unpaid, non-professional is termed "informal care" (Roth, Fredman, & Haley, 2015). Middle-aged adult children are the most likely group to serve as informal caregivers of older adults (Connidis, 2001). Nearly half of the informal care in the United States is performed by adults aged 45-64 (Bureau of Labor Statistics, 2017). According to the PEW Research Center, informal care is most commonly provided by a child (40%), another relative (22%), or a friend/neighbor (18%) (Stepler, 2015).

Care for older parents is typically shared among middle-aged adult siblings (Keith 1995; Matthews, 1987; Szinovacz & Davey, 2007). This does not mean that care is divided equally. One sibling often serves as the primary caregiver, contributing the bulk of care, while other siblings provide some form of assistance (Leopold, Raab, & Engelhardt, 2014). However, in families with a greater number of siblings, it is common for at least one sibling to refrain from helping with care (Cicirelli, 1991; Globerman, 1995). Caregiving for parents is considered an important step in the life course for siblings (Goetting, 1986). Yet, little is known about siblings' communication related to parental caregiving (Amaro & Miller, 2016). Researchers have identified that caregiving can both increase closeness and increase conflict or strain among

siblings, but more work is needed (Connidis, 1992; Ingersoll-Dayton, Neal, Ha, & Hammer, 2003b).

The current study adds to the literature on sibling caregiving communication by examining caregiving topic avoidance among siblings. Topic avoidance serves as a privacy management strategy, allowing siblings to keep information about caregiving private from one another (Caughlin & Golish, 2002). Studying caregiving topic avoidance among siblings has value because of 1) the context, 2) the relationship addressed, and 3) the implications for privacy theorizing. Each of these aspects of the proposed study will be addressed in the following sections.

The Caregiving Context

Examining communication in the caregiving context is important because of the growing number of familial caregivers in the United States, the complicated relationship between caregiving and negative health effects, and the dearth of studies including non-primary caregivers. The proposed study will add to knowledge of communication in this context and include non-primary caregivers.

The population of older adults in the United States is growing, and with it, the number of individuals providing informal care. In 2000, 12.4% of the U.S. population was aged 65 and older (U.S. Census Bureau, 2017). By 2016, that percentage had grown to 15.2% with a 14.2 million person increase in the older adult population. This increase is largely attributed to the baby boomers who began to reach retirement age in 2011 (U.S. Census Bureau, 2017). The population of older adults in the United States is projected to continue increasing, possibly doubling by the year 2050 (Ortman, Velkoff, & Hogan, 2014). The number of informal caregivers is expected to grow along with the older adult population, making informal care an

important context to examine. Caregiving is particularly important to research because of the complex association between informal care and negative outcomes like depression, life strain, and relationship dissatisfaction.

Numerous studies link informal caregiving to negative outcomes, including depression, anxiety, reduced quality of life, and life strain (Cichy, Stawski, & Almeida, 2014; Cooper, Balamurali, & Livingston, 2007). Caregiving responsibilities can be draining and interfere with the caregiver's everyday life (Vitaliano, Zhang, & Scanlan, 2003). Adult children in particular are at risk for the negative effects of caregiving. In their study of approximately 1,500 familial caregivers, Lin, Fee, and Wu (2012) found that caregivers who were the adult children of the care receivers were more likely than spousal caregivers to have negative caregiving experiences.

Yet, the association between informal care and reduced well-being is not as clear cut as it seems. Distress may stem from having an ill parent, not the actual act of caregiving. Parental ill health has been associated with negative outcomes for adult children such as depression and relationship strain, regardless of caregiving involvement (e.g. Boyer et al., 2002; Zapka, Fisher, Lemo, Clemow, & Fletcher, 2006). In one study, caregivers actually experienced less distress than non-caregivers who had a family member receiving informal care from others (Amirkhanyan & Wolf, 2003). In their review of five population-based studies of informal care, Roth et al. (2015) cautioned that the assumption that informal caregiving is usually damaging to psychological and physical health is inaccurate. Roth and colleagues (2015) conclude that "[i]f anything, caregiving is associated with reduced mortality and increased longevity, possibly due to many underappreciated positive aspects of providing care to a loved one" (p. 318).

Informal caregiving may not be an innately damaging activity, but rather be damaging under specific circumstances. Caregiving can be more distressing when the older adult's health

problems are more severe (Liebermann & Fisher, 1995) and when the caregiver is living in the same home as the care receiver (Caputo, Pavalko, & Hardy, 2016; Robison, Fortinsky, Kleppinger, Shugrue, & Porter, 2009). When caregiving produces marital strain, informal caregivers experience poorer physical health (Kang & Marks, 2016). Lack of social support and limited availability of other caregivers can serve to exacerbate caregiving distress (Lin et al., 2012).

The literature discussed above provides important insight into the circumstances under which caregiving negatively affects health. However, the communicative mechanisms through which these circumstances result in poorer physical, psychological, and relationship health has yet to be examined (Bevan & Sparks, 2011). The current study proposes that sibling's engagement in topic avoidance, resulting from familial, caregiving, and interpersonal factors, is a key predictor of caregiving-related depression and relationship dissatisfaction.

Additionally, the current study is interested in differences between primary and non-primary caregivers. Most of the current research about caregiving focuses only on primary caregivers (Hequembourg & Brallier, 2005) or does not distinguish level of caregiving involvement (Roth et al., 2015). This provides an incomplete view of the caregiving experience, particularly in families where more than one person provides care (Keith, 1995), and does not account for siblings who are not caregivers but are still affected by concerns about their parents' health. The proposed study seeks to address this gap by recruiting participants at all levels of parental care. Analyses compare the relationships between topic avoidance, its predictors, and its outcomes for primary and non-primary caregivers.

It is important to understand how caregiving topic avoidance among siblings affects depression and relationship satisfaction. The number of informal caregivers in the United States

continues to grow. Communication with siblings may serve as a buffer or facilitator of distress for caregivers. Beyond the practical value for families with an older adult receiving informal care, the current study also has value because it addresses an understudied, but important relationship. The value of research on this relationship, the sibling tie, will be detailed next.

The Sibling Relationship

Scholars have argued that the sibling tie is an important and unique relationship for communication research (Myers, 2011; Volkom, 2006). First, the sibling relationship has the potential to be the longest relationship in a person's life, assuming siblings are not born with too great an age gap (Cicirelli, 1991). As a result, siblings share experiences throughout the life course, giving siblings the potential to understand one another more completely than others do. Second, siblings often share early experiences, culture, and upbringing (Folwell, Chung, Nussbaum, Bethea, & Grant, 1997). Unlike a parent-child or other familial relationship, siblings not only share a family and broader culture, but they typically develop and progress through life in the same eras. This means that they share perspectives and experiences in a way that is unique from other familial relationships. Finally, sibling relationships tend to be more equal, unlike familial relationships with stronger power differences, like parent-child or grandparent-grandchild (Cicirelli, 1991). Siblings often characterize their relationships with one another as friendships, and individuals refer to close friendships as being similar to sibling relationships, demonstrating the peer or equal nature of this relationship (Volkom, 2006). Yet, sibling ties are often based on biological origin and are non-voluntary in nature. The combination of these two characteristics, peer and non-voluntary, makes the sibling tie unique from most other close ties (Cicirelli, 1991).

Yet, despite the clear importance of the sibling relationship throughout the life course and its unique features, it has received limited scholarly attention compared to other relationships (Bevan, Stetzenbach, Batson, & Bullo, 2006; Fowler, 2009). The majority of studies that do exist are one or two decades old, and therefore do not take into account current societal conditions and technological advances that allow for better long-distance communication among siblings (Volkom, 2006). Some scholars have contributed to filling these gaps, but further work is needed (Dorrance Hall, & McNallie, 2016; Myers, Byrnes, Frisby, & Mansson, 2011). The current study will add to this work by examining communication among siblings during a time that is considered a critical developmental stage in the life course, caring for an older parent (Goetting, 1986). Specifically, the study will examine siblings' topic avoidance about caregiving.

Although topic avoidance has been explored extensively in health contexts, little research has examined topic avoidance among siblings (Bevan et al., 2006). Topic avoidance may function uniquely within sibling relationships compared with other relationships. One study comparing sibling topic avoidance with parent-child topic avoidance demonstrated that types of topics avoided and motivations for avoidance differed for siblings and parent-child relationships (Guerrero & Afifi, 1995). Another study found that relationship satisfaction and closeness are differently affected by topic avoidance strategies for romantic, mother-child, and father-child relationships, suggesting that topic avoidance varies based on the relational context (Dailey & Palomares, 2004).

The limited research on the sibling relationship, and the possible unique effects of topic avoidance in sibling relationships compared with other relationships, warrants further study. Additionally, the study of topic avoidance has the potential to contribute to privacy theorizing. A

brief overview of the specific ways in which the proposed study will address theory is explored in the next section, with greater detail provided in chapter two.

Communication Privacy Management Theory

The proposed study is situated in communication privacy management theory (CPM; Petronio, 2002) which details the ways in which individuals manage private information both individually and collectively. In accordance with CPM, topic avoidance is conceptualized as a strategy for maintaining privacy around particular topics (Caughlin & Golish, 2002), in this case parental health and care.

The proposed study will contribute to theorizing about privacy management by testing theoretically-driven, hypothesized relationships among CPM constructs in a large sample, quantitative study. Much of the CPM research has focused on achieving deep understandings of privacy management in contexts like coming out, stepfamilies, and infertility, through in-depth interviews (Afifi, 2003; Bute & Vik, 2010; Lannutti, 2013). CPM axioms, however, provide testable hypotheses which scholars have begun to examine in large sample quantitative studies (Child, Pearson, & Petronio, 2009). Yet, most of these studies focus on privacy management online (Child & Agyeman-Budu, 2010; Frampton & Child, 2013; Jin, 2013) with a few notable exceptions (e.g. Hammonds, 2015; Morr, 2002). The proposed study seeks to validate CPM propositions by testing a model of theoretically derived predictors of topic avoidance and moderators of the relationships between topic avoidance and both relationship satisfaction and depression.

Study Objectives

In sum, this study proposes and tests a model derived from CPM, predicting criteria for topic avoidance and the influence of topic avoidance on relationship satisfaction and depression for middle-aged siblings with an older adult parent who is currently receiving informal care. This study has three primary objectives: 1) identify the criteria that predict siblings' use of topic avoidance with one another, 2) test moderators of the relationships between topic avoidance and outcomes including relationship satisfaction and depression, and 3) identify differences in topic avoidance predictors and outcomes for primary caregivers and non-primary caregivers. Findings have practical and theoretical implications. Specifically, study results provide a foundation for developing interventions that can improve siblings relational and mental health as their parents age. The study validates CPM propositions and demonstrates how the importance of privacy rule criteria differs based on the specific privacy rule. Findings further understanding of the factors that influence topic avoidance within families as well as add to empirical knowledge of sibling communication.

Overview of Chapters

The following chapters will detail the study's theoretical foundation, methodology, results, and discussion. Chapter two proposes and justifies a model of caregiving topic avoidance and moderators of the association between topic avoidance and its outcomes. The chapter examines additional research on caregiving, topic avoidance, and communication among siblings and provides an overview of CPM. Chapter three details the methods for both a pilot and main study, including participants, procedures, and measures. Chapter four details the analyses and results of the main study, including structural equation modeling and moderation analyses. Chapter five includes a discussion of the theoretical and practical implications of the results of

the main study. Appendix A includes all study measures. Appendix B included additional

analyses referenced in chapter five.

CHAPTER 2. LITERATURE REVIEW

The first chapter discussed the practical and theoretical importance of research on middle aged siblings' topic avoidance about parental caregiving. This chapter argues for the association between topic avoidance and both relationship satisfaction and depression, moderators of these associations, and predictors of topic avoidance based on communication privacy management theory (CPM; Petronio, 2002). Before discussing the theory, further detail of the caregiving context and sibling relationship are provided.

Caregiving Context

The present research is focused on informal, unpaid, non-professional caregiving. Caregiving is defined broadly to include any activity aimed at assisting a close other who has physical or psychological limitations due to illness or aging (Bevan & Sparks, 2011). It does not include paid services from care facilities, hospitals, or other health and care professionals. However, it does include arranging and paying for these services. Caregiving includes tangible support, such as cleaning, helping to shower, driving to the doctor, and providing finances, but also emotional support, such as listening to concerns and comforting (Roff, Martin, Jennings, Parker, & Harmon, 2007). Of specific interest in the current study is care provided to older adults by their adult children.

Caregiving for older adults is most commonly performed by adult children (Connidis, 2001) who engage in varied patterns of caregiving involvement. In a study of 31 caregiving families, Keith (1995) identified three types of caregiving systems including the primary caregiver, the partnership, and the team. In the primary caregiver system, one adult child performed most or all of the caregiving tasks. In the partnership, two siblings take on equitable

roles in terms of effort, responsibility, and decision-making. Finally, in the team, all siblings view their roles in caregiving as important and equitable. Similarly, in interviews with 20 Finnish caregivers, Leinonen (2011) identified three sibling participation patterns, all of which involved one sibling serving as the primary caregiver, including absence, back-up, and togetherness. The absence pattern is similar to Keith's (1995) primary caregiver system, and the togetherness pattern is similar to Keith's (1995) team system. In the back-up pattern, one sibling performed most of the caregiving tasks, but other siblings helped with specific tasks. Although multiple caregiving models exist, siblings are typically able to identify the sibling that serves as the "primary caregiver," meaning the one who coordinates care and has the final say in decisions (Ingersoll-Dayton, Neal, Ha, & Hammer, 2003a).

The initial division of caregiving roles may not be discussed among siblings, but rather happen based on the action or inaction of family members when the need for care arises (Gentry, 2001). For example, in a qualitative study of eight brother and sister pairs, the sisters took initiative in assuming the primary caregiver role without discussing caregiving responsibility with their brothers (Hequembourg & Brallier, 2005). Parents were often reticent to ask for help, resulting in brothers only providing minimal care if they were asked to or if the task was considered traditionally masculine, such as mowing the lawn.

Numerous studies have identified the demographic and contextual factors that predict being a primary caregiver. Overwhelmingly, the primary caregiver is the sibling who lives closest to the parent compared to their other siblings (Leopold et al., 2014). Most caregiving tasks, excluding financial and emotional support, require close proximity (Roff et al., 2007). Therefore, the sibling who lives geographically closest to the parent compared to their other siblings is more likely to be the primary caregiver (Leopold et al., 2014). Time availability is

also an important factor. Siblings who are childless and unmarried are more likely to be caregivers because both marriage and parenthood limit the time available for caregiving for a parent (Henretta, Soldo, & Van Voorhis, 2011). Even individuals with adult children living away from home are more likely to prioritize providing care to their children than their parents (Fingerman et al., 2010). Similarly, siblings who do not have a full-time job are more likely to provide care. A full-time job not only limits the time available to the sibling but also increases the cost of caregiving by potentially decreasing income through lost work hours (Leopold et al., 2014). Social and interpersonal factors also influence caregiver selection. Daughters are more likely to provide care than sons are (Hequembourg & Brailler, 2005; Matthews, 1995). Indeed, an ample literature exists parsing out the gender differences in caregiving (Pinquart & Sörensen, 2006). Additionally, parental preference and expectation are associated with caregiver selection (Leopold et al., 2014) as well as sharing values with the parent (Pillemer & Suitor, 2014).

Care is often shared among siblings, and who provides care can change over time. Szinovacz and Davey (2007) conducted analyses on five waves of data from the Health and Retirement Study, consisting of a sample of 1,577 adult child caregivers. They found that over half of the families they studied experienced caregiver change, including dropping and adding caregivers and changing primary caregivers. Szinovacz and Davey (2007) identified factors that predict caregiver change, such as gender, number of siblings, and family socio-economic status. For example, families with a greater number of living siblings were more likely to experience caregiver change because these siblings were able to assume caregiving responsibilities when the original primary caregiver could not or did not want to continue as the primary caregiver.

There is ample evidence supporting the demographic and contextual factors that predict caregiving. Yet, as Bevan and Sparks (2011) state in their review of long-distance family

caregiving "[l]ittle to no detail is provided about exactly how those in the caregiving situation actually interact with one another, or what effect these caregiving messages might have on the quality of the care itself and the relationships among the participants" (p. 28). Ngangana, Davis, Burns, McGee, & Montgomery (2016) echo Bevan and Sparks' (2011) concern, stating that "[l]ittle is known about factors that promote or impede adult sibling relationships while sharing parental caregiving responsibilities" (p. 3172). As discussed in chapter one, there is a complex relationship between involvement in caregiving and outcomes such as depression and relationship satisfaction (Amirkhanyan & Wolf, 2003; Lin et al., 2012; Roth et al., 2015). The research that has examined the effect of caregiving on the sibling relationship suggests that sibling communication is an important factor in determining when caregiving is a distressing experience. The following section will provide an overview of past research on sibling communication.

Sibling Communication

Overview of Sibling Communication

The sibling tie is considered one of the most important relationships throughout the life course (Myers, 2011). As discussed in chapter one, it is the longest lasting familial relationship (Volkom, 2006), involves shared experiences of family and culture (Folwell et al., 1997), and is a meaningful source of support throughout the life course (Cicirelli, 1991). Yet, research on sibling communication, compared to other close relationships, is limited (Bevan et al., 2006). The existing research emphasizes relationship maintenance, change across the life course, and predictors of sibling closeness. Research on sibling relationships during caregiving highlights closeness and conflict.

Myers and colleagues have provided insight into the ways in which siblings maintain their relationships with one another throughout the life course. In his earlier work, Myers found that maintenance behaviors are associated with sibling liking. In a sample of 257 siblings, primarily college students, participants were more likely to engage in positivity, networks, and tasks relational maintenance behaviors with siblings with whom they reported greater liking (Myers et al., 2001). Building on these and similar findings, Myers and Weber (2004) created a sibling relationship maintenance behaviors scale using a two-part study on college students. They created a typology of six relational maintenance behaviors specific to siblings including confirmation (confirming the importance of the sibling), humor, social support, family visits (how influential the sibling was on whether or not a person would attend family functions), escape (from other family members), and verbal aggression. The maintenance behaviors of confirmation, humor, social support, and family visits were positively correlated with liking, commitment, and trust between siblings in a sample of 114 undergraduate students who had at least one sibling (Myers & Weber, 2004). In their study of 499 adult siblings, Myers et al. (2011) found that sibling maintenance behaviors are typically strategic or intentionally enacted to maintain the tie, rather than routinely or unconsciously done. The authors argue that this finding demonstrates that siblings place value on maintaining ties with one another. Considering the lifelong nature of the sibling relationship, maintenance behaviors are highly important.

Other researchers have focused on the development and change of sibling relationships across the life course. Some disagreement exists about whether commitment to siblings remains stable over time. In his review of literature on adult sibling relationships, Cicirelli (1991) concluded that sibling commitment increases with age. In their interviews with 61 older adult siblings, Folwell et al. (1997) found that participants were able to differentiate levels of closeness

among their siblings. Yet, in their study of 448 adult siblings, Rittenour, Myers, and Brann (2007) found that commitment to siblings remained stable across different life stages. In a study of 299 siblings, Fowler (2009) found that motivations for sibling communication and the impact of motivations on relationship satisfaction varied based on age (Fowler, 2009). For example, 18-34 year old participants were more likely to communicate with siblings in order to escape from other activities and to persuade their siblings to do something for them than other age groups were. For 35-49 year old siblings, communicating out of obligation was a negative predictor of relationship satisfaction and communicating for mutuality, or achieving mutual goals, was a positive predictor of relationship satisfaction (Fowler, 2009). It is possible that relational commitment remains the same (Rittenour et al., 2007) even if sibling communication and relationship satisfaction changes over time (Fowler, 2009). Myers and Goodboy (2006) found that, in a sample of 272 siblings, verbal aggressiveness decreases throughout the life course, with younger adults being more likely to be verbally aggressive with siblings than older adults are. However, the findings in these studies (Fowler, 2009, Myers & Goodboy, 2006; Rittenour et al., 2007) are based on cross-sectional data and therefore can only speak to the similarity of commitment and communication across generations, not fluctuation throughout the course of a sibling relationship.

Also of note are studies examining predictors and outcomes of sibling closeness. In his review of sibling relationship literature, Cicirelli (1991) discussed the pervasiveness of closeness as both an outcome and predictor variable in sibling research. Since this review, closeness has continued be a relevant variable. In earlier work, emotional closeness was found to positively predict contact among siblings regardless of if the contact was desired or obligatory (Lee, Mancini, & Maxwell, 1990). In a sample of 138 undergraduate students, interpersonal solidarity,

or feeling close to the sibling, predicted sibling communication satisfaction (Myers & Knox, 1998). In more recent work, sibling self-disclosure predicted relationship satisfaction and closeness for a sample of 329 emerging adults (Schrodt & Phillips, 2016). Based on a sample of 1,500 adult siblings in 2-child families, most sibling relationships involve frequent contact and positive feelings (Spitze & Trent, 2006).

Siblings, Caregiving, and Communication

When specifically considering siblings and caregiving, caregiving can draw siblings closer together. A family member's poor health has been found to increase emotional closeness among siblings (Connidis, 1992). Siblings who work together to provide care for aging parents have reported feeling closer than before parental care was necessary (Bjasinsky, 1998). Even beginning to consider and discuss parental care before it is needed can increase sibling closeness (Cicirelli, 1991).

However, conflict and ingratitude among siblings related to caregiving can damage the sibling relationship (Amaro & Miller, 2016; Gentry, 2001). In their study of 57 caregiving daughters' social networks, Suitor and Pillemer (1996) found that siblings served as the greatest source of interpersonal stress for caregivers at two timepoints during their first two years of caregiving. Siblings also were the most important source of instrumental support, but friends were the primary source of emotional support (Suitor & Pillemer, 1996). In their study of 84 adult sibling caregivers, Ngangana et al. (2016) found that caregiving burden (including burden related to emotions, family, and finances) was associated with poorer sibling relationship quality. Of the 100 caregivers in Strawbridge and Wallhagen's (1991) study, 40% were currently experiencing what participants considered serious conflict with a family member, most often a sibling. Conflict typically arose from the family member's failure to contribute to caregiving.

Qualitative examinations of sibling communication regarding parental care suggest that siblings engage in topic avoidance as a strategy for minimizing conflict (Keeler, 2014) and distress (Globerman, 1995). Yet, in other relationships, topic avoidance is associated with relationship dissatisfaction and greater distress (Guerrero & Afifi, 1995). Researchers have yet to test how caregiving topic avoidance affects siblings' relationship satisfaction and depression or test what factors predict siblings' caregiving topic avoidance.

Communication privacy management theory (CPM; Petronio, 2002) provides a useful framework for understanding topic avoidance in the caregiving context. The following section will overview CPM, followed by a discussion of topic avoidance, detailing the literature on siblings' caregiving topic avoidance. The remainder of the chapter will utilize CPM to propose a model of caregiving topic avoidance, including the associations between topic avoidance and both depression and relationship satisfaction, predictors of topic avoidance, and moderators of topic avoidance's effect on relationship satisfaction and depression.

Overview of Communication Privacy Management Theory

Communication privacy management theory (CPM; Petronio, 2002) is concerned with the communicative regulation of private information by individuals and groups. The theory details how individuals decide to disclose or conceal private information, negotiate privacy boundaries, and manage the disclosures of others. The following sections will describe the theory's development, its primary propositions, and the conceptualization of topic avoidance within CPM.

Development of Communication Privacy Management Theory

Initial Theory Development

CPM was initially called communication boundary management theory and was applied specifically to marital couples (Petronio, 1991). This earlier form of CPM addressed how couples managed the dialectical tension between privacy and disclosure. It was assumed that while marital partners would desire to disclose information to one another, they would also want to maintain their individual privacy. The theory was developed further to apply to other relational contexts.

CPM departs from past disclosure theorizing in a number of ways. CPM bases disclosure within dialectical tensions, focuses on disclosure of private information rather than self-disclosure, includes confidants, and is a theory of practice (Petronio, 2002; 2007; 2010). Each of these unique features of the theory are detailed below.

First, CPM situated disclosure research within dialectical tensions (Petronio, 2010). As a theory based in dialectics, CPM is concerned with how individuals manage functional opposites, meaning concepts that, while not true opposites, negate each other in practice (Petronio, 2002). CPM is primarily focused on the privacy-disclosure dialectic. However, several related dialectics are also of interest, including public-private, autonomy-connectedness, privacy-deception, and openness-closedness (Petronio, 2002).

Second, CPM is interested in disclosures of "private information" and is not limited to self-disclosure (Petronio, 2002). Private information refers to any information that individuals believe they own and have a right to control and that they perceive could make them vulnerable if revealed (Caughlin & Petronio, 2004). Private information includes not only information about the self, but any information that fits this description (i.e., parental divorce, Mathews, Derlega, &

Morrow, 2006). Petronio (2002) focuses on private information rather than self-disclosure in order to separate privacy management from the concept of intimacy. In previous research, self-disclosure has often been treated as synonymous with intimacy (Petronio, 2004). However, CPM is interested in disclosures that serve a variety of purposes including, but not limited to, increasing intimacy. In fact, CPM posits that disclosure of private information will not always lead to greater intimacy (Petronio, 2002).

Third, CPM was designed to address a gap in disclosure theorizing by including receivers in addition to disclosers in the theory (Petronio, 2010). Petronio (1991) had paid special attention to receivers, detailing how they responded to disclosures by evaluating partner expectations, determining motivations for disclosures, and developing an appropriate response message. The theory delineates various types of confidants, or receivers of disclosures (Petronio, 2002). Generally, these include deliberate confidants who desire or seek out the disclosure, inferential confidants who are expected to be confidants based on their relationship with the discloser, and reluctant confidants who did not desire the disclosure (Petronio, 2002).

Finally, CPM was developed as a theory of practice. This means that a primary goal of CPM is to facilitate translational research for situations involving "privacy dilemmas, violations, and trust mistakes" (Petronio, 2007, p. 218). Moving away from the marital context, CPM can be applied in any situation in which the tension between privacy and disclosure exists. As a theory of practice, CPM research has been conducted in particularly volatile contexts, including child abuse (Petronio, 2007), voluntary childlessness (Durham, 2008), and family response to same-sex marriage (Lannutti, 2013). This makes the theory well-suited for a situation like parental caregiving which is fraught with stress (Roth, Perkins, Wadley, Temple, & Harley, 2009).

Continuing Theory Development

Development of CPM is ongoing, moving from a primarily interpretive approach to disclosure theorizing to include objective approaches (Petronio, 2013). Throughout its development, communication researchers have used a variety of methods to study CPM. Many researchers have sought to understand the development of privacy rules and management of private information through in-depth interviews (e.g. Lewis, Matheson, & Brimacombe, 2011). The goal of these studies has been to develop a rich understanding of rule development and management in specific contexts. For example, Durham (2008) interviewed couples who were voluntarily childless to determine how they developed rules about concealing and revealing their decision to others. Bute and Vik (2010) interviewed women struggling with infertility to assess how their privacy boundaries around infertility shifted over time.

As interest in computer-mediated communication has grown, researchers have developed measures for CPM constructs that can be used to understand privacy management in blogs and on social media. For example, Child et al. (2009) created a blogging privacy management measure, the BPPM. This measure has been used in several studies, including an examination of how personality impacts blogging privacy (Child & Agyeman-Budu, 2010) and motivations for blogging content deletion (Child, Haridakis, & Petronio, 2012). Other blogging specific measures have been developed such as blogging privacy rule orientation (Child et al., 2012) and Twitter disclosure topics (Jin, 2013). Similarly, Facebook usage has garnered great interest from CPM scholars. The decision of whether or not to accept friend requests has been the topic of several studies, assuming that acceptance will result in the disclosure of private information to the new "friend" through the individual's Facebook posts (Child & Westermann, 2013; Frampton & Child, 2013).

Although most quantitative CPM research has focused on disclosers' use of blogs and social media, several studies have included offline contexts. Of note is Morr's (2002) dissertation examining newlyweds' assessments of disclosures made by their in-laws. Utilizing self-report survey data from 107 newlyweds, Morr (2002) found that in-laws' privacy orientation predicted amount of information disclosed, and the newlyweds' family privacy orientation moderated the association between the amount of information in-laws disclosed and newlyweds' family satisfaction. Although some measures utilized in her dissertation were context specific, such as familial status as a reason for disclosure, many are applicable in other privacy management contexts. The family privacy orientation measure, including internal and external family privacy orientations, has been used in other CPM studies (e.g. Morr Serewicz, Dickson, Morrison, & Poole, 2007). Also of note is Hammonds' (2015) study of 851 emerging adults' intentions to reveal private information to their parents. Hammonds (2015) found that emerging adults were more likely to disclose private information to parents if they came from more open families, perceived less relational risk, and had lower relationship quality. Likelihood to reveal the private information positively predicted rumination about the information.

Overall, CPM research has focused primarily on two areas: 1) developing an in-depth understanding of disclosures in particular contexts through in-depth interviews and thematic analysis of open-ended survey questions and 2) developing a broader understanding of privacy management online through quantitative surveys. However, Petronio's (2013) development of testable axioms suggests that the theory will be moving to a more quantitative approach in a variety of privacy management contexts. CPM was created in order to facilitate translational research (Petronio, 2007). As such, it is likely that researchers will utilize scales created by researchers like Morr (2002) to generate evidence for interventions or policy decisions. The in-

depth understanding of privacy rule creation and management formed through past interview studies will enable researchers to continue in the development of quantitative CPM measures to facilitate future research.

The current study will add to these efforts by quantitatively testing a model generated from CPM propositions. This model has practical value for siblings communicating about parental caregiving. An overview of the propositions of CPM are detailed below, followed by an in-depth discussion of the specific features of the theory relevant to the current study.

Communication Privacy Management Theory Propositions

CPM was originally based on five primary principles which describe beliefs and behaviors related to the management of private information (Petronio, 2002). Although Petronio (2013) streamlined CPM to instead focus on three main elements of the CPM system, the five original principles provide a more detailed description of the theory's foundational propositions. Therefore, those five principles will be overviewed below.

First, CPM posits that individuals believe that they own their private information (Petronio, 2010). Second, because people believe they own their private information, they also believe that they have the right to control the spread of that information (Petronio, 2002). CPM relies on a boundary metaphor to explain individuals' beliefs about privacy ownership (Petronio, 2002; 2013). "[B]oundaries mark ownership lines for individuals" with private information being kept within the boundary (Petronio, 2002, p. 6). Boundaries can be more or less permeable. Third, individuals attempt to control the flow of information across the boundary by developing privacy rules. Privacy rules are standards used to determine whether or not to disclose information, how much to disclose or conceal, who to disclose to, and when to disclose (Petronio, 2002). The fourth principle states that when information is shared, receivers become

co-owners, meaning they are considered responsible for management of the private information. Co-owners are often expected to follow the original owner's privacy rules or negotiate new rules (Petronio, 2007). Rules may be explicit or may be implied based on the relationship (Petronio, 2004; Venetis et al., 2012). For example, families may socialize members into general privacy rules for all private family information, forgoing the need for explicit rule negotiation with each new disclosure (Petronio, 2010). Fifth, the management of private information may result in turbulence (Petronio, 2007; Steuber & McLaren, 2015). Turbulence is a disruption in privacy management often caused by misunderstandings about privacy boundaries or by intentional breaches in privacy (Petronio, 2010).

In sum, CPM is interested in the ways individuals decide to disclose or withhold private information from one another, how they manage information once disclosed, and the outcomes of mismanagement. The current study focuses on siblings' use of topic avoidance to withhold caregiving information. Specifically, the study assesses the associations between topic avoidance and both relationship satisfaction and depression, predictors of topic avoidance, and possible moderators of topic avoidance's effect on relationship satisfaction and depression.

Communication Privacy Management Theory in the Current Study

The streamlined CPM includes three main elements: 1) privacy ownership, 2) privacy control, and 3) privacy turbulence. The current study is particularly interested in privacy control and privacy turbulence. The following sections will detail these two elements, emphasizing privacy rules, privacy rule criteria, and privacy turbulence, situating topic avoidance as enactment of a privacy rule. (See Table 1 for conceptual definitions of CPM constructs specific to the context of sibling communication about parent health and caregiving).

Topic Avoidance as Privacy Control

Privacy control, "symboliz[es] the engine that regulates conditions of granting and denying access to private information" (Petronio, 2013, p. 9). People exert control over private information through the creation and use of privacy rules. Topic avoidance serves a communicative strategy for enacting a privacy rule (Caughlin & Golish, 2002). When individuals desire to withhold private information, they may avoid discussing topics related to that private information. This allows individuals to maintain their privacy while avoiding deceit or uncomfortable conversations with others who desire the private information (Petronio, 2002). Siblings may engage in topic avoidance to enact privacy rules that restrict sharing information about their parent's health or caregiving with a particular sibling.

Topic avoidance is primarily characterized by its active nature. Avoidance does not mean that individuals simply failed to discuss particular topics, but that they intentionally chose not to discuss or terminated discussions about those topics (Donovan-Kicken & Caughlin, 2010; 2011). Avoidance can also take the form of withholding certain details about a topic while still being willing to discuss other aspects of that topic (Goldsmith, Miller, & Caughlin, 2007). Within dyads, topic avoidance can be mutual where both members of the dyad engage in avoidance or can be part of a demand-withdraw pattern in which one member of the dyad tries to be open and the other engages in avoidance (Hilton & Koop, 1994).

Much of the topic avoidance literature has focused on spousal relationships (e.g., Venetis, Magsamen-Conrad, Checton, & Greene, 2014), with some studies examining parent-child avoidance and avoidance among families as a whole (e.g. Caughlin, Mikucki-Enyart, Middleton, Stone, & Brown, 2011). Few studies have examined avoidance specifically among siblings (Bevan et al., 2006). As discussed in the introduction, examining topic avoidance among siblings

is important because there is evidence that moderators of the associations between topic avoidance and outcomes like relationship satisfaction and depression vary with the relationship context (Guerrero & Afifi, 1995).

Past research provides support for the supposition that siblings engage in topic avoidance related to their parents' health and care. The strongest support comes from Keeler's (2014) doctoral dissertation on problematic integration and siblings' communication during elder care. Keeler (2014) performed both a qualitative and a quantitative study on sibling communication during parent care. Although her dissertation did not focus exclusively on talk about caregiving, several findings from the study are of note. In interviews with 22 adult children currently engaged in parent care, Keeler (2014) found that topic avoidance was a strategy that caregivers used to avoid conflict with their siblings. Participants avoided a range of topics, such as events in their personal lives, politics, and parent health. Participants felt certain about how their siblings would react to particular topics and used this information to determine how risky talk would be. They engaged in three strategies to avoid talk: 1) limiting any communication with the sibling, 2) avoiding specific topics during conversations, and 3) suppressing their thoughts about the topic when it was being discussed. Several participants discussed how they suppressed their thoughts about their siblings' contributions to their parents' care. They were worried siblings would react by being angry, hurt, or less involved in future care. Others refrained from talking about caregiving because it upset them or because they were too caught up in actually performing care to take the time to inform less involved siblings. In sum, Keeler's (2014) work provides evidence that siblings do engage in topic avoidance about parent health and caregiving. Topic avoidance serves a number of functions, including minimizing conflict and distress.

Table 1. Relevant CPM Terms and Definitions in the Current Study.

CPM Term	Study Definition
Private Information	Any information related to the parent's health or caregiving that the sibling believes s/he owns and has a right to control and that s/he perceives could make him/her vulnerable if revealed to a specific sibling.
Discloser	The sibling who either reveals to another sibling information about the parent's health or caregiving.
Confidant	The sibling who receives a disclosure from another sibling about their parent's health and caregiving.
Ownership	The belief that information about the parent's health and caregiving belongs to the siblings and that they therefore have a right to both know all relevant information about the parent's health and caregiving and control the flow of that information to others.
Co-Owners	Individuals who share ownership of specific private information. Siblings who share knowledge of parent's health and caregiving are co-owners of that information. Co-owners must manage boundaries around private information together.
Privacy Boundary	Marks what information is considered private and regulates the flow of that information to others. Boundaries vary in terms of permeability.
Boundary Permeability	Indicates how freely information flows out of the privacy boundary; information in a more permeable boundary is more easily shared with others. Families develop patterns of permeability such that they are typically more or less open about information in general. However, families will also adapt to new circumstances resulting in differing levels of permeability based on the new information, such as parent's health and caregiving.
Topic Avoidance	The act of deliberately circumventing conversation with a sibling about the parent's health or caregiving in order to keep that information privacy.
Privacy Turbulence	When at least one person is not satisfied with the way in which private information has been managed (i.e., concealed or further revealed as requested by the discloser); siblings reveal information about the parent's health and care that should be concealed or conceal information that should be revealed.
Privacy Rules	Standards used to determine whether or not to disclose information, how much to disclose or conceal, who to disclose to, and when to disclose. For example, as a rule, siblings may avoid discussing parent health and caregiving with specific other siblings in order to maintain privacy around that information.

Table 1 continued

Privacy Rule Criteria	Factors siblings use to determine what privacy rules to develop regarding information about the parent's health and caregiving. Privacy rule criteria include culture, gender, context, benefit-risk ratio, and motivation. Privacy rule criteria are considered either core or catalyst.
Core Criteria	Factors that remain fairly stable across the life course such as culture, gender, or personality, that influence the development of privacy rules.
Catalyst Criteria	Unique factors that arise from the specific privacy context and may change typical patterns of revealing/concealing, such as sibling involvement in caregiving and severity of parent's health problems.
Culture	The family's typical pattern of revealing/concealing information with one another (i.e. how open or secretive family members typically are with one another).
Gender	The discloser and the confidant's sex influences privacy rules based on societal gender expectations for concealing/revealing particular types of information.
Context	Factors related to the parent's health and caregiving will influence decisions to conceal/reveal information, such as care length, parent health, and the level of caregiving involvement of both discloser and confidant.
Benefit-Risk Analysis	Whether talking about parent's health and caregiving with a specific sibling is more beneficial (e.g. provides social support, gets help with caregiving) or riskier (e.g. upsets siblings, creates conflict) will influence decisions to conceal/reveal information.
Motivation	Sibling relationship factors, such as trust and liking, will motivate concealing or revealing of information about the parent's health and caregiving.

Other qualitative studies similarly find that caregivers use topic avoidance to limit distress. Globerman (1995) conducted interviews with 18 caregiving families, including 54 individual participants, utilizing a grounded theory approach. She found that some siblings were excused from caregiving by other family members because they were viewed as undependable, spoiled, too emotional, or absent-minded. Globerman (1995) refers to these as "unencumbered" siblings. Unlike others in the family group, they were not expected to perform any caregiving tasks. In fact, other family members preferred that they did not. Unencumbered siblings avoided

facing the reality of their parents' health problems and expressed that they did not want to know about the parents' health. Siblings who were involved in caregiving were concerned for unencumbered siblings and wanted to shield them from the emotional burden related to their parents' deteriorating health. It is likely that topic avoidance is employed during conversations with unencumbered siblings to protect them.

In another study, Roff et al. (2007) interviewed 22 adult children providing care for a parent who lived at least an hour away from them. In their study, participants explained that they had avoided discussing a formal care plan with family members. They felt an open conversation was "imminent, but they did not appear to be psychologically ready…" (p. 320). Many seemed to think things would just work out, without a need for open conversation. Conversations about caregiving happened when the parent's health worsened significantly.

Less involved or geographically distant siblings often feel that the primary caregiver is withholding or misrepresenting information. In their qualitative study including in-depth interviews with three sibling groups and analysis of six legal disputes among caregiving siblings in Canada, Lashewicz and Keating (2009) found that some siblings believed the primary caregiver caused them to be separated from the parent and had prevented them from being involved in decisions. Bevan and Sparks (2011) integrated review of long-distance caregiving communication indicated that geographically distant caregivers believed that those living closer to the parent were withholding information about the parent's health. They attempted to read other caregivers nonverbals (such as voice tone and pauses) to determine if the parent's health was worse than it was being represented (Bevan & Sparks, 2011).

Family members also limit conversations about parent health and care. Willyard, Miller, Shoemaker, and Addison (2008) interviewed 25 family caregivers, most of whom indicated that

little or no discussion of the division of caregiving responsibilities had occurred. The participants described how often their parent or a sibling resisted engaging in a conversation about caregiving. Ngangana et al. (2016) collected self-report data from 84 adult sibling caregivers, including qualitative responses to open-ended questions. Participants discussed difficulties they faced in their sibling relationships, including siblings communicatively distancing themselves from the participant. Miller, Shoemaker, Willyard, and Addison (2008) conducted in-depth interviews with 11 caregivers of older adult parents. They found that many primary caregivers believed they were the most competent family member at providing care, and therefore shut others out from involvement in caregiving and care decisions. Although Miller et al. (2008) did not explicitly discuss topic avoidance, it is probable that topic avoidance is a strategy that caregivers use to close off other family members from involvement in care.

Caregivers may avoid discussing parent care with siblings if they do not believe such conversations would be productive. Ingersoll-Dayton et al. (2003b) conducted focus groups with 40 caregivers about their relationships with their siblings. Several participants believed that the division of caregiving labor was inequitable. Some discussed these feelings with their siblings. Requests for siblings to be more involved at times were successful, but some siblings did not change their behavior or only helped out for a short time. Some caregivers avoided discussing caregiving inequity with their siblings, instead trying to re-evaluate what they considered a fair division of caregiving labor. Several of those participants were concerned that discussing caregiving responsibilities with their siblings would not result in actual behavior change.

Overall, the literature on sibling communication during parental care provides support for the claim that siblings engage in topic avoidance regarding parents' health and care. Yet, it is still unclear how siblings' caregiving topic avoidance impacts their relationship satisfaction and their

depression. Past research on topic avoidance in various relationships and contexts suggests that topic avoidance would lead to dissatisfaction in the sibling relationship and greater depression.

Topic Avoidance and Relationship Satisfaction

Communication scholars have linked topic avoidance with relationship dissatisfaction in a range of relationship types, including romantic partners, parent-child, and friends. Dailey and Palomares (2004) surveyed 346 undergraduate students regarding their topic avoidance with a significant other, mother, or father. They found that overall topic avoidance negatively predicted relationship satisfaction for all three relationship types. In a sample of 122 undergraduates, greater general topic avoidance was associated with diminished relationship satisfaction in romantic relationships (Sargent, 2002). In a study of 115 adolescents and young adults in step-families, Golish (2000) found that general topic avoidance was negatively correlated with satisfaction with mothers, fathers, step-mothers, step-fathers, and the family overall. Mikucki-Enyart (2011) found that, in a sample of 104 mothers-in-law and fathers-in-law, general topic avoidance was negatively associated with relationship satisfaction. In a study of 212 undergraduate and graduate students reporting on relational uncertainty and topic avoidance with a sibling, Bevan et al. (2006) found that relationship satisfaction predicted general topic avoidance among siblings. For both 114 parent–child dyads and 100 heterosexual dating couples, general topic avoidance was associated with relationship dissatisfaction (Caughlin & Afifi, 2004).

Topic avoidance has also been associated with relationship satisfaction and relational burden in health contexts, particularly cancer. Donovan-Kicken and Caughlin (2010) surveyed 140 female breast cancer survivors about their cancer-related topic avoidance with romantic partners, along with their motivations for that avoidance. Greater topic avoidance was associated

with lower relationship satisfaction. The association between cancer survivors' own topic avoidance and relationship satisfaction was moderated by three avoidance motivations: protect self, talk is futile, and social constraints by the partner. Topic avoidance was only associated with greater relationship satisfaction at low levels of social constraints, meaning topic avoidance resulted in greater relationship satisfaction if the partner was not discouraging the participant from talking about cancer. In their study of 95 romantic couples in which one member of the dyad had cancer, Venetis et al. (2014) found that, for both patients and partners, topic avoidance predicted greater partner burden, including negative feelings, guilt, caregiver efficacy, and role conflict.

It is expected that for siblings with a parent receiving informal care, topic avoidance related to caregiving will be negatively associated with relationship satisfaction. Research on sibling topic avoidance is limited (Bevan et al., 2006), but the above research illustrates that topic avoidance has been associated with relationship dissatisfaction in a variety of relationship types.

H1: Topic avoidance is negatively associated with relationship satisfaction.

In addition to relationship satisfaction, topic avoidance has also been associated with poorer health and well-being. Due to the complexity of the association between caregiving and depression (Lin et al., 2012; Roth et al., 2015), it is of interest to assess if sibling topic avoidance about caregiving could contribute to caregivers' experiences of depression.

Topic Avoidance and Depression

Topic avoidance has been linked to experiencing greater symptoms of depression, particularly topic avoidance in the context of illness. In a study of 230 breast cancer survivors, Mallinger, Griggs, and Shields (2006) found that family topic avoidance about cancer was

positively associated with depression, anxiety, and loss of emotional control. Figueiredo, Fries, and Ingram (2004) found that, in a sample of 66 breast cancer patients, avoiding disclosing cancer-related concerns was associated with diminished emotional well-being, including greater symptoms of depression and overall negative mood. In a sample of 296 cancer patient-caregiver dyads, family topic avoidance was associated with greater patient depression (Jeong, Shin, Kim, Yang, & Park, 2016).

The relationship between topic avoidance and depression may be mediated coping behaviors. In their study of 140 married cancer survivors, Donovan-Kicken and Caughlin (2011) found that greater levels of topic avoidance regarding cancer predicted greater depression and anxiety. The relationship between topic avoidance and depression was mediated by two coping behaviors including emotional support and self-blame. Cancer survivors who engaged in greater topic avoidance utilized less emotional support and more self-blame which predicted higher levels of depression (Donovan-Kicken & Caughlin, 2011). Yu and Sherman (2015) surveyed 338 breast cancer survivors about their cancer-related topic avoidance with their spouse. Topic avoidance was positively correlated with depression. The relationship between topic avoidance and depression was mediated by disengagement coping and engagement coping, such that topic avoidance led to more disengagement and less engagement coping and therefore greater depression.

It is expected that siblings' topic avoidance about parent's health and caregiving will be associated with greater symptoms of depression. Topic avoidance with care receivers has been linked to diminished physical well-being in caregivers. Bevan, Rogers, Andrews, and Sparks (2012) found that, in their sample of 130 geographically distant caregivers, caregivers engaged in topic avoidance with care receivers. Greater topic avoidance was associated with higher levels of

physical health problems for caregivers, particularly when topic avoidance was motivated by self-protection or partner unresponsiveness. Given the connection between topic avoidance and depression in other health contexts, and the negative effects of topic avoidance in the caregiver-care receiver relationship, it is likely that siblings' caregiving topic avoidance will result in greater depression.

H2: Topic avoidance is positively associated with depression.

If using topic avoidance as a privacy management strategy produces negative outcomes for siblings, it is important to understand what factors lead to topic avoidance. The following section will discuss predictors of topic avoidance based on CPM privacy rule criteria, building a case for a model of siblings' caregiving topic avoidance. (For full model, see Figure 1).

Privacy Rule Criteria as Predictors of Topic Avoidance

Privacy control is achieved through the enactment of privacy rules (Petronio, 2013). Privacy rules are created based on a range of privacy rule criteria. In the current study, privacy rule criteria are the factors siblings use to determine what privacy rules to develop regarding information about the parent's health and caregiving. Privacy rule criteria influence decisions to share or conceal information at both a conscious and an unconscious level (Petronio, 2002). For example, a caregiver may consciously decide not to share information with a sibling because they do not trust the sibling. At the same time, family or gender norms about what to share and who to share with may influence the caregiver's decisions to share at a sub-conscious level. The importance of particular privacy rule criteria will vary depending on the private information (Petronio, 2002; 2010).

Privacy rule criteria are broadly categorized into one of two categories: core criteria and catalyst criteria (Petronio, 2013). Core criteria remain fairly stable across the life course,

including expectations about disclosure based on culture and gender as well as elements of personality related to openness and privacy. For example, in open-ended surveys of 103 employees, Smith and Brunner (2017) found that people used core criteria such as the organizational culture and relationship factors like trust to decide whether or not to disclose personal information at work. Employees also used catalyst criteria, such as risk-benefit analysis (Smith & Brunner, 2017). Catalyst criteria arise from new circumstances and change established patterns of disclosure, such as a marriage or divorce (Petronio, 2013). For example, Romo, Thompson, and Donovan (2017) interviewed 48 college students about privacy management regarding alcohol-related social media posts. Some participants indicated changing circumstances as catalysts for new privacy rules, such as learning about employers looking at prospective employees' social media profiles.

In the original conceptualization of CPM, Petronio (2002) proposed that five criteria are used to develop privacy rules including culture, gender, context, risk-benefit ratio, and motivation. The current study will examine these five criteria. Culture will be explored at a family, rather than at a national, level. Additionally, the conceptualization of motivation as a criterion, including its varying definitions throughout the literature, will be given special attention. The following sections will discuss each of the five privacy rule criteria and their associations with topic avoidance among siblings.

Family Culture

Cultural values and expectations about privacy can influence privacy rule creation (Petronio, 2002). This privacy rule criterion can be conceptualized in terms of national culture. For example, citizens of the United States tend to value openness in private relationships but also value privacy in public relationships (Caughlin, Petronio, & Middleton, 2013; Goldsmith et al.,

2007). However, the current study will not include large enough samples from various countries to warrant inclusion of national culture as a variable. Instead, family privacy orientations will be examined. Cultural privacy values often serve as the foundation for family's privacy orientations (Caughlin et al., 2013). Unlike national culture, it is expected that family culture will vary across participants (Morr, 2002). Hammonds (2015) similarly conceptualized the culture privacy rule criterion as family culture when studying disclosures within families.

Families develop privacy orientations, or patterns of privacy rules (Petronio, 2010). Families create both internal and external privacy orientations. The current study will focus exclusively on internal family privacy orientations (FPO). The internal FPO indicates how boundaries around individual family member's private information, and those of family sub-groups, are managed within the family (Morr Serewicz et al., 2007). Family members are habitually open or closed with one another based on their internal FPO. More open families have more permeable boundaries with one another.

Boundary permeability refers to how easy it is for information to flow through the boundary surrounding private information. Information within a more permeable boundary is easily shared with others. Siblings' decisions of whether or not to disclose to one another is a question of boundary management. Boundaries can either be personal or collective (Petronio, 2002). Personal boundaries are maintained by individuals whereas collective boundaries are shared with more than one person, such as a family or a sub-group within a family (Petronio, 2010).

Internal FPO will influence siblings' decisions to engage in topic avoidance. In a qualitative study of topic avoidance among adult children of lung cancer patients, participants reported that a primary reason for avoiding talk about cancer was because their family was not

typically open with one another (Caughlin et al., 2011). For college students, the relational maintenance behavior of openness, including disclosure, was positively associated with internal FPO, such that students in families with more permeable privacy boundaries were more likely to be open (Morr Serewicz et al., 2007). In an online context, adolescents were more likely to accept Facebook friend requests from their mothers if their family had a more permeable privacy boundary (Child & Westermann, 2013). In his study of 851 emerging adults, Hammonds (2015) found that family privacy culture, including internal FPO, predicted emerging adults' intentions to disclose private information to a parent. Not only do individuals make privacy decisions based on family privacy orientations, but they also evaluate others' privacy management choices based on those orientations. Newlyweds' satisfaction with their in-laws' disclosures to them was based on the newlyweds' own internal FPO such that newlyweds who came from less open families were more satisfied with in-laws who disclosed less (Morr, 2002). It is expected that individuals from families with more permeable boundaries, meaning more open families, will be less likely to engage in topic avoidance.

> H3: Internal family privacy orientation (the family's internal boundary permeability) is negatively associated with topic avoidance.

Gender

CPM proposes that individuals are socialized into gender roles with accompanying expectations of what is or is not appropriate for women and men to disclose and who they should disclose to, influencing the creation of privacy rules based on these gendered expectations (Petronio, 2002). From a more traditional perspective, masculinity is defined by appearing "tough, objective...unsentimental, and emotionally inexpressive" (Jourard, 1971, p. 35). This could result in men being less likely to disclose than are women (Petronio, 2002). There is some

evidence to support this idea. In a study of 257 adult siblings' use of relational maintenance behaviors, women used the openness relational maintenance strategy, which involves self-disclosure, more than men did (Myers et al., 2001). Floyd and Parks (1995) surveyed 233 individuals about relational maintenance with either friends or siblings. They found that women placed higher value on verbal behaviors, including self-disclosure, for maintaining relational closeness than men did. Beyond self-disclosures, in a sample of 252 college students, Petronio and Martin (1986) found that men expected more negative ramifications would result from disclosures about a range of topics, including disclosures about parents, than women did, potentially inhibiting men from disclosing. In a study of 520 cancer patients, Harrison, Maguire, and Pitceathly (1995) found that men and women were equally as likely to have disclosed to someone about their greatest cancer-related concerns, but that women disclosed to more people than men did. These studies, along with many others (Petronio, 2002), support the idea that women are more likely to disclose, and therefore less likely to engage in topic avoidance, than are men.

Yet, despite the evidence suggesting that women disclose more than men do, there are also numerous studies that contradict these findings. Petronio (2002) acknowledges that in some contexts, men disclose equally to or more than women do. In the context of blogging, Child and colleagues (2012) found that, among 318 bloggers, women were less public in their disclosures of private information than men were. In a study of 235 undergraduate students' closeness with siblings, no gender difference existed for the importance of disclosures in maintaining relational closeness (Floyd, 1996). It is possible that the gender of the discloser does not serve as a relevant privacy rule criterion in every privacy management situation. However, as noted by Petronio (2002), the importance of gender expectations matters in particular contexts. For example, in a

study of 32 participants in voluntarily childless heterosexual couples, couples often considered it

the woman's choice to disclose or withhold information about their decision to be childless

because of societal expectations about motherhood (Durham, 2008).
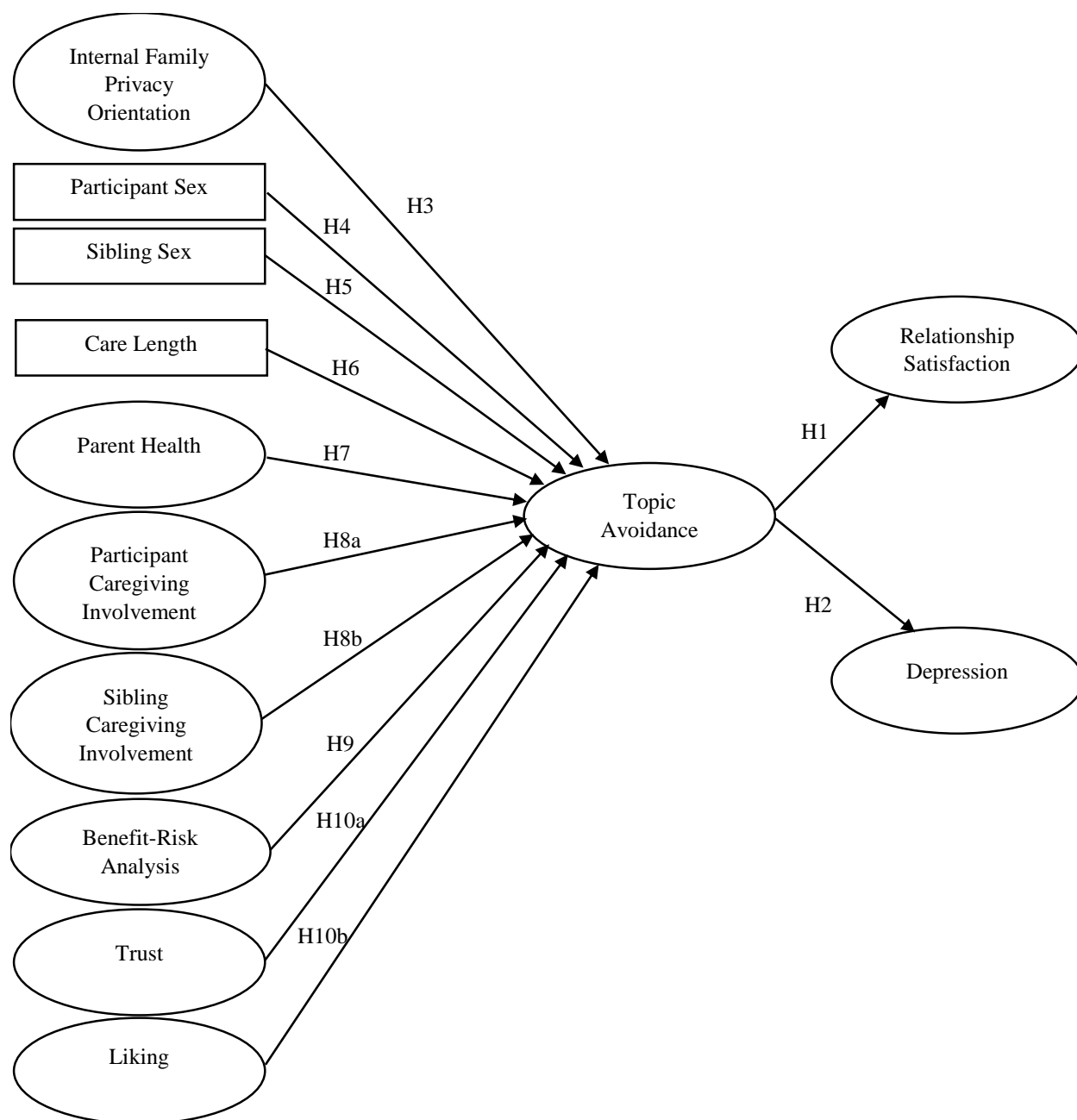
Figure 1. Proposed Model of Caregiving Topic Avoidance

Gender of the discloser will likely influence topic avoidance decisions in the caregiving context because women are overwhelmingly more likely to serve as primary caregivers, or as the coordinators of parental care, than men are (Leopold et al., 2014; Pillemer & Suitor, 2013). In one study of eight brother-sister sibling pairs, the sister always served as the coordinator of care, and although brothers provided varying levels of help, brothers always differed to the sister for care-related decisions (Hequembourg & Brallier, 2005). In another study of 50 sibling groups with only one sister, again the sister was typically in charge of care and care decisions (Matthews, 1995). The role of care coordinator or primary caregiver will necessitate communication with siblings about parental caregiving, making topic avoidance difficult even if desired. Therefore, it is hypothesized that men will be more likely to engage in topic avoidance than women.

H4: Men are more likely to engage in topic avoidance than women are.

Similarly, it is likely that siblings will be more likely to engage in topic avoidance with brothers than with sisters. The disclosure and topic avoidance literature support the supposition that women are disclosed to more than men are. In a meta-analysis of 205 studies, Dindia and Allen (1992) found that people are less likely to disclose to men than they are to women. Guerrero and Afifi (1995) surveyed 169 high school and university students about their topic avoidance with either a sibling or a parent. Female participants were significantly more likely to topic avoid with brothers or fathers than sisters or mothers. Male participants were more likely to topic avoid with brothers or fathers than sisters or mothers on specific topics, such as friendships. In only one instance was topic avoidance more likely with female targets. Men were more likely to avoid talking to sisters and mothers about sexual experiences than they were with fathers and brothers. In a study of 172 college students' disclosures to midling-level friends, women were

more likely to disclose to women, whereas men were equally likely to disclose to men or women (Dolgin, Meyer, & Schwartz, 1991).

As discussed above, women are more likely to be involved in caregiving. In a meta-analysis of 229 studies on gender differences in caregiving, Pinquart and Sörensen (2006) found that women worked more caregiving hours and accomplished more caregiving tasks than men did. Women's involvement in caregiving may make talk about caregiving with sisters more beneficial or necessary than talk with brothers. Even if talk is not desired, siblings will be less likely to topic avoid with sisters because of their role in caregiving.

H5: Topic avoidance will be more likely to occur when the target sibling is male than

when the target sibling is female.

Caregiving as a context makes gender an important factor in privacy rule decisions. Specific features of the caregiving context are also important for decisions regarding topic avoidance among siblings. Those features are discussed in the following section.

Context

Privacy management decisions are influenced by the context of private information (Petronio, 2002). Context can influence privacy management decisions by altering who is privy to private information (Plander, 2013) and by creating a need to disclose or avoid due to the nature of the context (Petronio, 2007). Both of these influences are evidenced in previous CPM research. For example, deciding to get married served as a catalyst for rule change in 48 same-sex couples who had previously kept their sexuality secret from certain family members (Lannutti, 2013). For some of these couples, their decision to disclose resulted in rule changes for their whole family (Lannutti, 2013). In interviews with 23 women experiencing infertility, Bute and Vik (2010) found that being diagnosed as infertile increased the permeability of some

women's privacy boundaries about topics related to sexuality and reproduction. For adult children of lesbian/gay parents, context drove privacy rule creation surrounding parents' sexual orientation (Breshears & DiVerniero, 2015). Specifically, for the 20 adult children interviewed, having an affirming environment and believing the information was relevant to others mattered when deciding to reveal or conceal their parents' sexual orientation to specific others. Participants in that study indicated that these context criteria were important for any disclosure related to their family, not just about the parent's sexual orientation.

When explaining how context influences privacy management, Petronio (2002) referenced Stiles's (1987) fever model which describes how highly distressing contexts, such as sexual abuse and severe illness, can create a need to disclose in order to achieve catharsis or gain social support. There is evidence that contextual features will influence privacy management decisions for siblings with a parent needing care. Specifically, care length, parent's health, and caregiving involvement will influence sibling topic avoidance.

It is likely that topic avoidance will increase the longer informal care has occurred. Hricik and colleagues (2011) conducted in-depth interviews with 10 familial caregivers about how their experience changed over time. Caregivers discussed how there was a honeymoon phase when care began, such that family members pulled together, provided more support to one another, and communicated more. As time moved forward, this closeness and support diminished (Hricik et al., 2011). In a study of 134 couples managing prostate cancer, communication about the cancer decreased over time, regardless of other contextual factors (Song et al., 2012). As families transition into informal care, talk may be more necessary than after patterns of care have been established. In Amaro and Miller's (2016) interviews with 20 caregiving siblings, they found that many siblings had discussed caregiving in more depth at the beginning of care in order to best

divide caregiving tasks. Conversations about where the parent would live, with one of the siblings or in a professional care facility, was an important topic (Amaro & Miller, 2016). Although the likelihood of topic avoidance or frequency of talk over time in the caregiving experience has not been tested in previous work, it is expected that topic avoidance will be more likely the longer informal care has occurred.

H6: Topic avoidance is positively associated with length of care.

In addition to care length, severity of parents' health problems will influence sibling topic avoidance. In interviews with 20 distance-caregivers of older parents, Roff and colleagues (2007) found that communication about parental care was limited. However, familial communication about the parent's health and care became necessary when parents' health problems became severe. Although caregivers seem to prefer avoiding talking about it, parent's poor health made the conversation necessary (Roff et al., 2007). As discussed above, CPM posits that distressing circumstances can trigger changes in privacy rules so that individuals can disclose information about the stressor to a close other (Petronio, 2002). Severity of ill parents' physical and psychological symptoms have been associated with adult children's distress (Kramer, Kavanaugh, Trentham-Dietz, Walsh, & Yonker, 2009; Lieberman & Fisher, 1995). Therefore, siblings managing parent care may feel more motivated to discuss the parent's health and care with one another when the parent's health is poor. Avoiding communication about parent care will be more likely when siblings believe the parent is in better health.

H7: Topic avoidance is positively associated with parent health, such that topic avoidance is more likely when parents are in better health.

Siblings who are more involved in caregiving will experience a greater need to share information and therefore will be less likely to engage in topic avoidance. In their meta-analysis

of 228 studies examining caregiving stressors, Pinquart and Sörensen (2003b) found that hours

of care provision was significantly correlated with caregiver burden and depression. The more

involved in care a sibling is, the more stressful the situation becomes. Similarly, in a study of

1,552 caregivers, being more involved in care resulted in greater negative caregiving experiences

for adult children providing care to parents (Lin et al., 2012). In focus groups of 40 caregivers,

some caregivers who were experiencing caregiving strain discussed requesting greater assistance

from their siblings (Ingersoll-Dayton et al., 2003b), suggesting that individuals experiencing

greater strain in caregiving will not engage in topic avoidance with their siblings but rather

discuss caregiving in order to gain tangible and emotional assistance.

The level of caregiving involvement of the confidant sibling will also influence

engagement in topic avoidance. Information about the parent's health and care may be

considered a more relevant topic of conversation for siblings who are more involved in care. For

20 adult children of lesbian/gay parents, believing the information was relevant to others

mattered when deciding to reveal or conceal their parent's sexuality (Breshears & DiVerniero,

2015). Participants indicated that this criterion was important for any disclosure related to their

family, not just about the parent's sexual identity. In a study of 362 undergraduate students'

perceptions of college instructors' personal disclosures, relevance of the information was a

criterion that students used for evaluating if the disclosure was appropriate or not (Schrodt,

2013). When discussing privacy rule creation among family members, Petronio (2010)

references relevance as an important variable for determining if information is shared.

Although it may be argued that information about the parents' health and care is relevant

to all siblings, caregivers who are more involved may withhold information from those who are

less involved to protect parent private information. In interviews with 27 adult child caregivers

about privacy management with aging parents, Wenzel, Egan, and Hesse (2018) found that

parents were highly protective of information about their health and would conceal this

information from their adult children. Adult child caregivers recognize their parents' concerns

about keeping their information private, even from their children, and may therefore limit the

provision of information about the parent's health and care only to siblings who need the

information. Based on interviews with 20 familial caregivers, adult children felt like

"information guardians" for their parents' financial information and strove to honor their parents'

privacy wishes about disclosing that information to both family and non-family members

(Plander, 2013). It is expected that, in order to protect parent private information, caregivers will

be more likely to engage in topic avoidance with siblings who are not greatly involved in

caregiving.

> H8: Topic avoidance is negatively associated with a) participant caregiving involvement
>
> and b) sibling caregiving involvement.

Additionally, it is of interest in the current to understand if topic avoidance differs based

on primary caregiver status. Several qualitative studies have examined the experience of long-

distance caregivers compared with geographically close caregivers. In interviews with 22 long-

distance caregivers, Roff et al. (2007) found that hometown siblings performed more daily

routine care. Long-distance caregivers often felt that hometown siblings were providing

inadequate care for the parent and felt frustrated that they could not do more to help (Roff et al.,

2007). These are unique problems for non-primary caregivers that live at a distance. Schoonover,

Brody, Hoffman, and Kleban (1988) examined gender differences in 55 long-distance caregivers

of widowed mothers. Most participants, regardless of gender, felt helpless or nervous about their

mother's care. This likely stems from not being able to help as much from a distance as closer

siblings can. In terms of sibling communication, 15% reported that their sibling had tried to make them feel guilty about not helping enough, and 20% had been criticized by their sibling for what help they had provided. On the positive side, 70% of long-distance caregivers indicated that their sibling made them feel like they could talk openly with them about their feelings (Schoonover et al., 1988). Overall, the literature on siblings' caregiving communication suggests that the experiences of primary caregivers differ from other siblings. It is of interest in the current study to determine what difference related to topic avoidance exist for primary and non-primary caregivers.

RQ1: How do the relationships between privacy rule criteria, topic avoidance, relationship satisfaction, and depression differ for primary caregivers compared with non-primary caregivers?

In more stressful caregiving contexts, siblings will be more likely to discuss caregiving with one another. However, their privacy management decisions will also be influenced by the risks and benefits of disclosing. The risk-benefit ratio criterion is discussed in the following section.

Risk-Benefit Ratio

An important criterion for determining privacy rules is the risk-benefit ratio (Petronio, 2002). A strong body of qualitative research on privacy management supports the supposition that privacy rules are made in part by weighing the benefits of disclosure against the risks. Topic avoidance is more likely when the risks of talk outweigh the potential benefits. In Breshears and DiVerniero's (2015) study of 20 adult children of lesbian/gay parents, participants decided whether to disclose their parents' sexuality to others by weighing the benefits of disclosing, such as educating others or validating a friendship, against the risks, such as judgment or job loss.

Kaufmann and Lane's (2014) interviews with 10 middle school teachers demonstrated that teachers weighed the benefits against the risks of disclosing personal information in the classroom. Similarly, Hosek and Thompson (2009) interviewed 41 college instructors about revealing private information to students. The college instructors focused on concerns about risks, specifically role, face, and stigma risks as factors influencing decisions to disclose, weighing these risks against the benefits of reciprocity and connection with students.

Quantitative analyses of privacy management behavior have tested the effects of specific risks on intention to disclose. For example, Westerman, Currie-Mueller, Motto, and Curti (2017) examined the effects of stigma and overall risk on willingness to disclose health information at work. Similarly, Hammonds (2015) tested the effects of stigma risk and relational risk on emerging adults' intentions to disclose information to a parent. Numerous studies have tested the effects of risk on disclosure-related outcomes (e.g. Afifi & Steuber, 2009; Kennedy-Lightsey, Martin, Thompson, Himes, & Clingerman, 2012). Yet, there has been limited assessment of the effect of perceived benefits on disclosure or topic avoidance. In a study of 244 Facebook members, Wilson, Proudfoot, and Valacich (2014) did find that perceived social benefits predicted intentions to use Facebook in the near future. Use of Facebook was conceptualized as a form of disclosure because of the personal information presented on the site (Wilson et al., 2014).

It is expected that when risks outweigh the benefits of caregiving talk, siblings will be more likely to engage in topic avoidance. Health topic avoidance and caregiving research support this claim. Family members of lung cancer patients in general, and their adult children specifically, engaged in topic avoidance when they believed that talk would be too distressing, indicating that the risk of distress outweighed the benefits of talk (Caughlin et al., 2011; Zhang &

Siminoff, 2003). For women struggling with infertility, decisions to reveal or conceal their experiences changed over time based on the presence of benefits, such as educating others, weighed against the presence of risks, such as unsupportive responses (Bute & Vik, 2010). In her interviews with 22 caregivers, Keeler (2014) found that avoiding the risk of conflict or the risk of having information used against them motivated participants to engage in topic avoidance with their siblings about politics, personal achievements, and their parent's health, among other topics. When the benefits of talk, such as receiving emotional or tangible support, outweigh the risks, such as creating conflict or increasing distress, siblings will be less likely to engage in topic avoidance with one another.

> H9: Topic avoidance is negatively associated with benefit-risk analysis, meaning topic
>
> avoidance will be lower when talk is perceived as more beneficial than risky.

Topic avoidance is less likely when the benefits of talk outweigh the risks. In addition to benefit-risk analysis, relationship motivations can influence privacy management decisions. The motivation privacy rule criterion, including clarification of its conceptualization, is discussed in the following section.

Motivation

CPM posits that motivations for disclosure or avoidance are primary drivers of privacy rule creation (Petronio, 2002). In the initial conceptualization of the theory, Petronio (2002) focused on relationship and interpersonal factors that motivated an individual to be more or less open with another. Specifically, reciprocity, liking, and attraction were discussed. However, the exact meaning of "motivation" has varied across the CPM literature. For example, in Caughlin and colleagues' (2013) discussion of family privacy management, motivations to maintain privacy included avoiding negative evaluation, protecting against relationship strain, and

protecting against others using the private information against them. In Petronio's (2010) piece on family privacy management, she used avoiding embarrassment as an example of a motivation. Although these are all motivations in the sense that a motivation is generally defined as a reason for acting in a particular way, they do not fit in a privacy rule criteria category that is distinct from the other privacy rule criteria previously discussed. For example, embarrassment and negative evaluation are risks associated with disclosure. Therefore, they also fit as risk-benefit ratio criteria. Following gender norms could be considered a motivation in this broad sense, but also fits in the gender privacy rule criteria category. Similarly, wanting social support because parental illness is highly distressing would also be a motivation, even though it is based on the context privacy rule criteria.

For the sake of clarity and maintaining distinct privacy rule criteria categories, in this manuscript "motivation" will refer to relationship factors that influence individuals' decisions to disclose or withhold information from another person. Relationship factors of interest for the current study are liking and trust. In her initial discussion of motivation, Petronio (2002) detailed how individuals are more likely to disclose to those that they like. Multiple studies have linked sibling relationship maintenance behaviors, including those related to disclosure such as openness and confirmation, with liking (Myers & Weber, 2004). For example, in a study of 262 individuals, liking predicted openness with siblings (Myers et al., 2001). Siblings will be less likely to engage in topic avoidance with siblings with whom they have greater liking.

Trust is also an important motivation for disclosing or withholding information (Howe, Aquan-Assee, Bukowski, Lehoux, & Rinaldi, 2001). In a study of 114 undergraduate students, sibling relationship maintenance behaviors, including disclosure, were associated with sibling trust (Myers & Weber, 2004). In a CPM study of 235 young adult Facebook users, acceptance of

mothers' Facebook friend requests, which would result in disclosure of private information to mothers, varied by trust in the mother (Child & Westermann, 2013). Individuals will likely engage in topic avoidance when they do not trust their siblings.

H10: Topic avoidance is negatively associated with a) liking and b) trust.

Overall, it is assumed that topic avoidance will be predicted by all five privacy rule criteria: family culture, gender, context, benefit-risk analysis, and motivation. Topic avoidance has usually been associated with negative outcomes, although this is not always the case (Donovan-Kicken & Caughlin, 2010). The following section will detail how topic avoidance could have varied effects on relationship satisfaction and depression based on its relationship to privacy turbulence.

Topic Avoidance as a Driver of Privacy Turbulence

The third main element of CPM includes privacy turbulence. Petronio (2013) acknowledges that individuals' management of private information can be unpredictable, resulting in break-downs in coordination of private information. Privacy turbulence is defined as a disruption in boundary coordination (Petronio, 2002). This means that at least one person is not satisfied with the way in which private information has been managed (i.e., concealed or further revealed contrary to expectations). Turbulence can occur during boundary creation, but also in well-established boundaries, such as family boundaries, particularly when these boundaries are being reformulated (Petronio, 2010). Privacy turbulence is not limited to situations in which someone shares another person's private information without their permission. It also includes instances when the confidant does not desire the disclosure, when confidants shut down attempts at disclosure, and when desired information is not shared (Petronio, 2002).

Much of the work on privacy turbulence has focused on ways individuals respond when a confidant discloses the original owner's private information to someone else, against the original owner's wishes. For example, in a study of 273 adults, Steuber and McLaren (2015) focused on ways individuals engaged in boundary coordination following an instance of privacy turbulence. Their study demonstrated that individuals who actually discussed explicit rules for future handling of the private information with the offending confidant were those who had higher confrontation efficacy and felt closer to the confidant (Steuber & McLaren, 2015). Other studies have investigated how privacy turbulence is addressed in cases of parent infidelity, "feeling caught" in stepfamilies, and workplace surveillance, among other contexts (Afifi, 2003; Allen, Walker, Coopman, & Hart, 2007; Thorson, 2015).

Of interest in the current study are the ways in which topic avoidance can constitute privacy turbulence. As discussed above, topic avoidance is typically associated with negative outcomes such as psychological distress and relationship dissatisfaction (e.g. Jeong et al., 2016; Pasipanodya et al., 2012). However, this is not always the case (Donovan-Kicken & Caughlin, 2010). In their review of openness and avoidance in cancer communication, Goldsmith et al. (2007, p. 68) asserted that:

> Variations in perceptions influence the impact of openness and avoidance. For example, people hold different standards for communication (i.e., beliefs about what counts as good communication). Although individuals generally view avoidance as dissatisfying, avoidance does not bother others because their beliefs about and expectations for relationships do not require disclosure.

The outcomes of topic avoidance may vary based on whether or not topic avoidance is a result of privacy turbulence. If topic avoidance is desired by both parties, it will not cause

turbulence, but rather be the result of successful boundary coordination and therefore be associated with greater satisfaction with the relationship and less distress. Conversely, being unable to share information with a desired confidant would result in privacy turbulence and negative outcomes (Petronio, 2002). Evidence for these claims exist in the CPM and topic avoidance literature.

Unwanted topic avoidance can result in privacy turbulence. In interviews with 48 same-sex couples, Lanutti (2013) found that couples experienced turbulence when their family members did not want to engage in conversations about the couples' marriage and sexuality. This caused the couples to avoid future conversations with those relatives even though they had wanted to be more open with them originally (Lannutti, 2013). Women experiencing infertility made the boundaries around their private information less permeable overtime after realizing that their infertility disclosures had violated others privacy boundaries (Bute & Vik, 2010). These women had wanted to be more open with others, but avoided conversations related to infertility because their desired confidants did not want to hear their disclosures. In a study of 140 breast cancer patients' topic avoidance with their romantic partners, topic avoidance resulted in lower relationship satisfaction when topic avoidance was caused by the partner limiting the patient's ability to talk about cancer (Donovan-Kicken & Caughlin, 2010). Taken together, these findings suggest that topic avoidance is dissatisfying when it is caused by another person constraining communication about the topic.

However, desired topic avoidance can have positive outcomes. In the study of breast cancer patients' topic avoidance, if the romantic partner was not constraining the patient's cancer talk, topic avoidance resulted in higher relationship satisfaction (Donovan-Kicken & Caughlin, 2010). This suggests that topic avoidance is desirable when the choice to avoid is made by the

individual, not forced on them by the person to whom they wish to disclose. In a study of 107

newlyweds, the relationship between amount of in-laws' disclosures and family satisfaction was

moderated by their internal family privacy orientation (Morr, 2002). Newlyweds who came from

less open families were more satisfied when in-laws disclosed less, suggesting again that topic

avoidance has positive outcomes when it is desired or expected.

> H11: Caregiving talk preference moderates the relationships between topic avoidance and
>
> a) relationship satisfaction and b) depression.

Beyond the desire to discuss private information about caregiving with siblings,

perceptions of ownership of the private information can influence whether or not topic avoidance

constitutes privacy turbulence. As discussed in the theory overview, a key proposition of CPM is

that people believe they own and therefore have a right to control their private information

(Petronio, 2007). However, private information does not refer only to information about the self.

This can make ownership of private information less clear, resulting in varied views about who

has the right to control what information (Petronio, 2002).

Siblings' perceptions of who owns the private information related to caregiving could

influence whether topic avoidance has positive or negative outcomes. Much of the family

privacy management literature discusses how families often perceive that information about their

family belongs not to specific individuals, but to the family as a whole (Caughlin et al., 2013).

For example, some family members of same-sex couples perceived that the information about

the couple's marriage and sexuality belonged to the family, not just the couple, and that the

family had the right to decide how the information was managed (Lannutti, 2013). Some adult

children of lung cancer patients were dissatisfied with other family members' topic avoidance,

because it kept them from participating in decision-making related to the cancer, which they believed they had a right to be involved in and know about (Caughlin et al., 2011).

If siblings believe that the information belongs to the family as a whole, topic avoidance could result in more negative outcomes. Siblings may feel guilty about withholding information that their siblings have a right to know. Keeping secrets from other family members has been associated with negative outcomes (Vangelisti, 1994). In general, individuals who perceive that their family members keep secrets from one another have lower family satisfaction (Caughlin et al., 2000).

However, siblings may not believe that caregiving private information belongs to the family as a whole. Much of the caregiving private information pertains directly to the parents, including parents' health, finances, and daily life. Siblings may perceive that the information belongs just to the parents, not the family as a whole. The CPM literature offers support for this supposition. As discussed above, adult children who became co-owners of older adult parents' financial information believed that they had a responsibility to protect their parents' financial information, viewing themselves as "information guardians" (Plander, 2013). Similarly, in a semi-structured survey study of 123 undergraduate students, family members who attended medical visits with older adults discussed how it was their responsibility to manage the private health information in a way that protects the older adults' privacy (Petronio, Sargent, Andea, Reganis, & Cichocki, 2004). Rather than viewing older adults' information as theirs to control, these individuals defer to the older adult in the management of their private information. If siblings believe that the information does not belong to the family as a whole, topic avoidance would not constitute privacy turbulence.

H12: Caregiving information ownership moderates the relationships between topic

avoidance and a) relationship satisfaction and b) depression.

Conclusion

This chapter argued for a model of sibling topic avoidance regarding parental health and

care. Specifically, Petronio's (2002) five privacy rule criteria, including family culture, gender,

context, risk-benefit analysis, and motivation, predict topic avoidance. Topic avoidance is

associated with siblings' relationship satisfaction and depression. This chapter also proposed two

moderators of the relationships between topic avoidance and both relationship satisfaction and

depression. Moderators include caregiving talk preference and caregiving information

ownership. The next chapter will overview a pilot and main study used to develop measures for

and test the model and moderators.

CHAPTER 3. METHOD

This chapter details the methods used to test the model of privacy criteria, topic avoidance, depression, and relationship satisfaction (see Figure 1). This includes descriptions of two separate studies. The first is a pilot study designed to develop five measures: caregiving involvement, caregiving topic avoidance, caregiving talk preference, benefit-risk analysis of caregiving talk, and caregiving information ownership. The second is the main study which tests the hypotheses forwarded in chapter two. This chapter describes participant recruitment, participant demographics, and survey protocol for both the main study and the pilot study. Measures are also detailed, including exploratory principle components analysis and confirmatory factor analysis for the five new measures.

Recruitment Procedures

Participants for both the pilot and main study were recruited through Amazon Mechanical Turk (MTurk). Both studies took approximately 30 minutes to complete. Participants were compensated $1.50 for completing one of the surveys. This amount of compensation is common practice for MTurk surveys (Casler, Bickel, & Hackett, 2013). Additionally, MTurk received $0.60 per participant as payment for using the platform. Data collection for the pilot study was conducted first, followed by the main study. Individuals who had participated in the pilot study were unable to participate in the main study.

MTurk was selected as the data collection platform because it allows access to a broader range of possible participants compared with other data collection methods (Buhrmester, Kwang, & Gosling, 2011; Paolacci & Chandler, 2014). It was important that participants represented a range of involvement in parental care, rather than recruiting samples composed of only primary

caregivers. Additionally, MTurk can be used to recruit participants rapidly and inexpensively while still producing good quality data (Buhrmester et al., 2011). Although some researchers express concern about MTurk data, steps can be taken to ensure data quality including the use of MTurk qualification criteria, attention checks, and rigorous data cleaning.

Individuals who participate in surveys and complete other tasks on MTurk are called "workers." Workers view descriptions of potential tasks (such as the pilot or main survey) that they can complete and determine if they wish to participate. In order to view either the pilot or the main study, workers had to meet the following MTurk qualification criteria: 1) have successfully completed at least 1,000 tasks on MTurk and 2) have a 96% approval rating for past tasks. These criteria protect against scamming by only accepting participants who have an established record of completing tasks to researchers' satisfaction. Workers who met these criteria could view the study description. Additionally, the survey was limited to individuals in the United States and participants were restricted from attempting to take the survey multiple times by the 'prevent ballot stuffing' feature on Qualtrics.

Both study descriptions said that participants would take a survey about family communication regarding health and that additional screening criteria would be included at the beginning of the survey. Workers who were interested followed a link to the survey on Qualtrics. After completing the survey, participants were given a unique code generated by Qualtrics. Participants entered this code into MTurk. Participants received compensation within three days of entering a valid code.

Screener questions were included at the beginning of both surveys. For the pilot study, participants were included if they: had at least one parent receiving unpaid care, had at least one sibling, were at least 18 years old, and were fluent in English. For the main study, participants

were included if they: had at least one parent receiving unpaid care, had at least one sibling, were 41-65 years old, and were fluent in English. Screening questions at the beginning of the survey removed individuals who did not meet these criteria.

In addition to the MTurk qualification criteria and screener questions, two other questions were included in the surveys to address data quality. First, an attention check was included. An item stating "For this question select neutral as your answer for an attention check" was added among other survey items. Participants who did not select "neutral" as their answer for this question were directed out of the survey. Second, participants were asked at the end of the survey if they had paid attention and provided honest answers. Specifically, participants were asked:

Realistically, I know some MTurk respondents do not pay close attention to the questions they are answering. This affects the quality of my data. Please select one of the following honestly. Your answer is confidential. It will NOT affect whether or not you receive payment and will not affect any rating given to you for your work. Did you pay attention and answer honestly?

Participants then indicated whether their data should be kept or deleted. Rouse (2015) had originally developed this item as a means for checking data quality in MTurk studies. The next section will detail the data cleaning procedures used to further ensure data quality and provide demographic information for participants in both the pilot and main study.

Participants

Data Cleaning

Pilot Study

A total of 784 individuals began taking the pilot survey. Of those 784, 490 did not meet qualification criteria, 26 failed the attention check, seven indicated that their data should not be kept, and eight stopped before completing the survey. The researcher assessed the 253 remaining participants in the following ways to determine if their data should be kept: non-differentiation, rushing, and parent age.

Non-differentiation, or straightlining, refers to participants selecting the same answer across a set of items, indicating the participant is not providing unique answers based on individual items (Barge & Gehlbach, 2012). Recommendations for cut-offs related to non-differentiation vary and are often dependent on survey size, number of scales, and expectations for bad data (Leiner, 2013). Several participants indicated in open-ended responses that they had answered similarly across items in specific scales because these answers did represent how they talked to their siblings about caregiving. In an attempt to remove participants who were not differentiating between items without removing those who were, the researcher removed participants who straightlined on more than half of the scales. The researcher assessed if participants engaged in non-differentiation across nine scales. If non-differentiation occurred in five or more scales, the participant's data were not used. The researcher removed data for 33 participants because of non-differentiation.

Participants rushing to complete a survey can compromise data quality. If participants rush through a survey "thoughtful answers to each question [are] highly unlikely" (Barge & Gehlbach, 2012). However, no clear criteria for determining what speed constitutes rushing exist.

Although Barge and Gehlbach (2012) detail a method for determining level of rushing relative to the rest of a given sample, they do not indicate at what level rushing becomes problematic. In order to avoid deleting meaningful data, the researcher only removed the data for participants who completed the survey in five minutes or less. This time cut-off was selected based on the amount of time taken to read through survey questions. A total of eight participants were cut based on this rushing criterion.

The researcher also removed data from participants who indicated that their parent was 18-24 years old or that their parent was the same age as themselves. Participants who reported these parent ages may not have been reading questions thoroughly or answering questions truthfully. The researcher removed six participants for reporting implausible parent ages.

Main Study

A total of 2,475 individuals began taking the main survey. Of those 2,475, 1,965 did not meet qualification criteria, 36 failed the attention check, three indicated that their data should not be kept, and 10 stopped before completing the survey. The researcher assessed the 461 remaining participants in the following ways to determine if their data should be kept: non-differentiation, rushing, and parent age. The researcher removed data for 41 participants because of non-differentiation. A total of three participants were cut based on the rushing criterion. The researcher removed two participants for reporting a parent age of 18-24.

Participant Demographics

Pilot Study

In total, data from 207 participants remained following data cleaning. Pilot study participants were evenly split between male (48.7%) and female (52.2%). Most participants were

25-40 (66.2%) or 41-60 (25.1%) years of age. The majority of participants were Caucasian (70%), heterosexual (87.4%), employed full-time (85%), and had a college degree (76.3%). Participants were split between those who were single (33.5%) and those who were married (45.1%) as well as between those who had no children (47.8%) and those who had children living at home (44%). Most participants reported having only one parent currently receiving informal care (50.7%), but many had two parents receiving care (39.1%). For complete participant demographics, see Table 2.

Main Study

In total, data from 415 participants remained following data cleaning. Main study participants were slightly more female (59.0%) than male (39.5%). The majority of participants were Caucasian (79.8%), married (63.1%), heterosexual (88.7%), employed full-time (75.9%), and had a college degree (73.5%). Most commonly, participants had children living in the home (46.3%). Most participants reported having only one parent currently receiving informal care (76.1%). For complete participant demographics, see Table 2.

Measures

The following section will detail the survey order, the established measures, and the new measures developed in the study.

Survey Order

Survey questions for both the pilot and the main study were organized into five primary blocks. The first block included participant demographics. The second block consisted of questions related to the participants' health and family of origin. This included depression, self-rated health, and internal family privacy orientation. The third block asked participants about

their parent that required the most care. This included demographic information about the parent, parent health, ownership of parent's health information, and the participant's involvement in the parent's care. Demographic information about participants' parents can be found in Table 3. The fourth block asked participants about their communication with one sibling. To avoid bias, participants entered the initials of each of their siblings into Qualtrics, and Qualtrics randomly selected one of their siblings. Participants were instructed to answer questions related to that sibling. Participants reported sibling's demographics and their topic avoidance with that sibling about caregiving, along with related communication variables. In the main study, participants also reported how involved their siblings were in caregiving. Demographic information about participants' siblings can be found in Table 4. The fifth block included questions about participants' relationship with their sibling, specifically relationship satisfaction. In the main study, participants also responded to questions about their trust and liking for their sibling.

Established Measures

The following variables were measured using established scales in both the pilot and the main study: parent health, depression, relationship satisfaction, and internal family privacy orientation. Additionally, the pilot study measured perceived riskiness of disclosure, and the main study measured sibling liking, sibling trust, and length of parent care. Each of these measures are detailed below. Summary information about the measures in the pilot study and main study can be found in Tables 5 and 6, respectively. The results of the confirmatory factor analysis measurement model can be found in chapter four. Any adjustments made to the measurement of individual variables based on the measurement model, discussed in chapter four, are reflected in the information presented below.

Table 2. Participant Demographics

	Pilot Study ($n = 207$) Total (%)	Main Study ($n = 415$) Total (%)
Sex		
Female	108 (52.2)	245 (59.0)
Male	99 (47.8)	164 (39.5)
Age		
18-24 years old	15 (7.2)	0 (0)
25-40 years old	137 (66.2)	0 (0)
41-65 years old	52 (25.1)	415 (100)
65-75 years old	3 (1.4)	0 (0)
Race/Ethnicity		
Black or African American	22 (10.6)	35 (8.4)
East Asian or Asian American	15 (7.2)	19 (4.6)
Latinx or Hispanic American	17 (8.2)	15 (3.6)
Middle Eastern or Arab American	1 (.05)	6 (1.4)
Native American or Alaskan Native	1 (.05)	1 (0.2)
South Asian or Indian American	5 (2.4)	3 (0.7)
White or Caucasian American	145 (70.0)	331 (79.8)
Other	0 (0)	5 (1.2)
Relationship Status		
Single	69 (33.5)	76 (18.3)
Married	93 (45.1)	262 (63.1)
Committed Partnership	31 (15.0)	32 (7.7)
Separated	2 (1.0)	6 (1.4)
Divorced	10 (4.9)	33 (8.0)
Widowed	1 (0.5)	4 (1.0)
Education		
Less than high school degree	1 (0.5)	0 (0)
High school graduate (including GED)	11 (5.3)	34 (8.2)
Some college, but no degree	37 (17.9)	76 (18.3)
Associate's degree in college	30 (14.5)	57 (13.7)
Bachelor's degree in college	95 (45.9)	183 (44.1)
Master's degree	29 (14.0)	53 (12.8)
Doctoral degree	1 (0.5)	7 (1.7)
Professional degree (JD, MD)	3 (1.4)	5 (1.2)
Sexual Orientation		
Heterosexual (straight)	181 (87.4)	368 (88.7)
Homosexual (gay)	10 (4.8)	15 (3.6)
Bisexual	15 (7.2)	30 (7.2)
Asexual	1 (0.5)	0 (0)
Employment		
Full-Time	176 (85.0)	315 (75.9)
Part-Time	19 (9.2)	69 (16.6)
Unemployed	12 (5.8)	31 (7.5)

Table 2 Continued

Parent Status		
No children	99 (47.8)	95 (22.9)
Children living at home	91 (44.0)	192 (46.3)
Children living in a different home (such as with another parent or relative)	1 (0.5)	3 (0.7)
Adult children living away from home	11 (5.3)	87 (21.0)
A mix of both children living at and away from home	5 (2.4)	38 (9.2)
Number of Siblings		
1	38 (18.4)	128 (30.8)
2	80 (38.6)	128 (30.8)
3	50 (24.2)	75 (18.1)
4	21 (10.1)	35 (8.4)
5+	18 (8.7)	49 (11.8)
Number of Living Parents		
1	32 (15.5)	174 (41.9)
2	126 (60.9)	221 (53.3)
3	42 (20.3)	11 (2.7)
4	7 (3.4)	8 (1.9)
5	0 (0)	1 (0.2)
Number of Parents Receiving Informal Care		
1	105 (50.7)	316 (76.1)
2	81 (39.1)	83 (20.0)
3	17 (8.2)	7 (1.7)
4	3 (1.4)	9 (2.2)
Primary Caregiver	Total (%)	
Yes	122 (58.9)	242 (58.3)
No	85 (41.1)	173 (41.7)
Power of Attorney		
Yes	74 (35.7)	177 (42.7)
No	133 (64.3)	237 (57.1)
Distance from Parent		
Lives in the same home	60 (29.0)	100 (24.1)
Lives less than 10 miles away	80 (38.6)	138 (33.3)
Lives 10-100 miles away	38 (18.4)	105 (25.3)
Lives more than 100 miles away	29 (14.0)	71 (17.1)

Table 3. Parent Demographics

	Pilot Study ($n = 207$) Total (%)	Main Study ($n = 415$) Total (%)
Parent Type		
Father	80 (38.6)	143 (34.5)
Mother	122 (58.9)	265 (63.9)
Step-Father	2 (1.0)	3 (0.7)
Step-Mother	2 (1.0)	4 (1.0)
Parent Age		
41-60 years old	48 (23.2)	12 (2.9)
61-70 years old	85 (41.1)	89 (21.4)
71-80 years old	49 (23.7)	202 (48.7)
81-90 years old	20 (9.7)	98 (23.6)
90+ years old	5 (2.4)	14 (3.4)
Parent's Living Situation		
Independent	96 (46.4)	216 (52.0)
Living with participant or other relative	94 (45.4)	149 (35.9)
In-home professional care	9 (4.3)	30 (7.2)
Assisted living facility	8 (3.9)	20 (4.8)
Hospice Care		
Yes	28 (13.6)	54 (13.0)
No	178 (86.0)	360 (86.7)
Parent Health Status		
Severely frail – completely dependent on others for the activities of daily living and/or is terminally ill	3 (1.4)	16 (3.9)
Moderately frail – needs help with both instrumental and non-instrumental activities of daily living	22 (10.6)	63 (15.2)
Mildly frail – has some dependence on others for instrumental activities and daily living	51 (24.6)	100 (24.1)
Apparently vulnerable – although not completely dependent, commonly complains of being "slowed up"	59 (28.5)	114 (27.5)
Well, with treated disease – is experiencing disease/illness, but symptoms are well-controlled	34 (16.4)	53 (12.8)
Well – without active disease, but less fit than possible	30 (14.5)	54 (13.0)
Very fit – robust, active, energetic…is in the most fit group for his/her age	8 (3.9)	15 (3.6)

Table 4. Sibling Demographics

	Pilot Study ($n = 207$) Total (%)	Main Study ($n = 415$) Total (%)
Sex		
Female	100 (48.3)	206 (49.6)
Male	107 (51.7)	208 (50.1)
Race/Ethnicity		
Black or African American	22 (10.6)	35 (8.4)
East Asian or Asian American	13 (6.3)	19 (4.6)
Latinx or Hispanic American	19 (9.2)	14 (3.4)
Middle Eastern or Arab American	1 (.05)	1 (0.2)
Native American or Alaskan Native	1 (.05)	8 (1.9)
Native Hawaiian or Other Pacific Islander	0 (0)	1 (0.2)
South Asian or Indian American	5 (2.4)	3 (0.7)
White or Caucasian American	145 (70.0)	325 (78.3)
Other	0 (0)	5 (1.2)
Relationship Status		
Single	77 (37.4)	93 (22.4)
Married	95 (46.1)	267 (64.3)
Committed Partnership	22 (10.7)	28 (6.7)
Separated	2 (1.0)	2 (0.5)
Divorced	6 (2.9)	22 (5.3)
Widowed	4 (1.9)	3 (0.7)
Education		
Less than high school degree	12 (5.8)	3 (0.7)
High school graduate (including GED)	25 (12.1)	67 (16.1)
Some college, but no degree	48 (23.2)	62 (14.9)
Associate's degree in college	22 (10.6)	64 (15.4)
Bachelor's degree in college	72 (34.8)	148 (35.7)
Master's degree	18 (8.7)	56 (13.5)
Doctoral degree	1 (0.5)	8 (1.9)
Professional degree (JD, MD)	9 (4.3)	6 (1.4)
Employment		
Full-Time	148 (71.5)	341 (82.2)
Part-Time	28 (13.5)	31 (7.5)
Unemployed	31 (15.0)	43 (10.4)
Parent Status		
No children	96 (46.8)	117 (28.2)
Children living at home	74 (36.1)	176 (42.4)
Children living in a different home (such as with another parent or relative)	9 (4.4)	15 (3.6)
Adult children living away from home	20 (9.8)	80 (19.3)
A mix of both children living at and away from home	6 (2.9)	27 (6.5)

Parent Health

Parent health was measured using the single item Clinical Frailty Scale (Rockwood et al., 2005). Rockwood and colleagues (2005) found that the scale was highly correlated with more extensive tests of physical impairment. Participants are presented with descriptions of seven levels of frailty from 1 (*severely frail*) to 7 (*very fit*) and asked which description best fits their parent who requires the most care (see Appendix A). For example, the description for 7 (*very fit*) includes the text "robust, active, energetic, well-motivated and fit; commonly exercise regularly and are in the most fit group for their age." On the opposite end of the scale, 1 (*severely frail*) includes the text "completely dependent on others for the activities of daily living and/or is terminally ill." In the pilot study, participants reported that their parents' health was not yet frail, but vulnerable ($M = 4.09$, $SD = 1.38$). Participants in the main study reported somewhat poorer parent health ($M = 3.84$, $SD = 1.47$).

Depression

Psychological distress was measured using the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). Participants indicated on a four-point scale how often they experienced 20 different depressive symptoms in the last week. Scale options include 1 (*rarely or none of the time (less than 1 day)*), 2 (*some or a little of the time (1-2 days)*), 3 (*occasionally or a moderate amount of time (3-4 days)*), and 4 (*most or all of the time (5-7 days)*). Higher scores indicate greater distress. Example items include: "I felt that everything I did was an effort," and "I did not feel like eating; my appetite was poor" (see Appendix A). During analysis of the measurement model utilizing the main study data, seven depression items were removed from analysis. (For further details, see chapter four). The scale was reliable (pilot study: $\alpha = .94$, $M = 1.80$, $SD = .66$; main study: $\alpha = .95$, $M = 1.69$, $SD = .70$).

Relationship Satisfaction

Relationship satisfaction was assessed using an adapted version of the Marital Opinion Questionnaire (Huston, McHale, & Crouter, 1986), basing modification from Caughlin, Huston, and Houts's (2000) measure of family satisfaction. This measure of relationship satisfaction has been used in a variety of topic avoidance studies (e.g. Caughlin et al., 2000; Donovan-Kicken & Caughlin, 2010) and has demonstrated acceptable reliability ($\alpha = .94$) (Caughlin et al., 2000). Participants were asked to think about their relationship with their sibling over the last two weeks. Participants responded to eight seven-point semantic differential items describing their relationship with their sibling. Participants then responded to one general item that asked: "All things considered, how satisfied have you been with your relationship with your sibling over the last two weeks?" Relationship satisfaction is calculated by adding the average of the first eight items to the score on the general satisfaction item and dividing by two. Higher scores indicate greater satisfaction with the relationship. The scale was reliable (pilot study: $\alpha = .94$, $M = 4.82$, $SD = 1.60$; main study: $\alpha = .95$, $M = 5.24$, $SD = 1.51$).

Internal Family Privacy Orientation

Morr's (2002) internal family privacy orientation (FPO) scale was used to assess families' internal boundary permeability. The scale achieved acceptable reliability in Morr's (2002) study ($\alpha = .83$ for family of origin). Families with more permeable internal boundaries commonly share private information with one another. Participants responded to six items on a seven-point Likert type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher values indicate greater boundary permeability, or more openness, among family members. Items ask participants how open family members are with one another. Example items include "Within the family, everybody knows everything" and the reverse-coded item "Family members keep secrets

from one another" (see Appendix A). During analysis of the measurement model utilizing the main study data, one internal FPO item was removed from analysis. (For further details, see chapter four). The scale was reliable (pilot study: $\alpha = .86$, $M = 4.31$, $SD = 1.34$; main study: $\alpha = .89$, $M = 4.24$, $SD = 1.43$).

Riskiness of Disclosure

Riskiness of disclosure was assessed in the pilot study, but not the main study. In the pilot study, participants completed an adapted version of Afifi and Steuber's (2009) measure of risk assessment. This scale was included in the pilot study to validate the benefit-risk analysis scale detailed later in this chapter. Afifi and Steuber's (2009) measure achieved acceptable reliability in their study ($\alpha = .91$). The measure includes three subscales: self protection (eight items), other protection (six items), and relationship protection (five items). Participants were prompted to think about concerns they might have related to talking to their sibling about their parents' health and care. They were asked to indicate the degree of concern that they felt about the possible results of talking with their sibling about their parents' health and caregiving. Sample items include: "My sibling would react to the conversation by blaming me" (self protection), "Talking to my sibling about it could hurt his/her feelings" (other protection), and "Talking about it with my sibling would do nothing but harm the relationship we have" (relationship protection) (see Appendix A). Participants responded to items on a seven-point scale ranging from 1 (*very unlikely*) to 7 (*very likely*). In the pilot study, the scale achieved acceptable reliability ($\alpha = .97$). Participants perceived moderate to low risk on average for caregiving talk (risk to self: $M = 3.19$, $SD = 1.65$; risk to other: $M = 3.34$, $SD = 1.68$; risk to relationship: $M = 2.97$, $SD = 1.63$).

Table 5. Pilot Study Variable Means, Standard Deviations, Skew, and Kurtosis

	α	*M*	*SD*	Skew	Kurtosis
Caregiving Involvement					
Personal Care	.88	2.30	1.16	.66	-.62
Routine Tasks	.88	3.83	0.99	-.99	.50
Financial Support	.73	3.67	1.34	-.41	-1.10
Emotional Support	.80	4.22	0.81	-1.02	.55
Information Ownership	.94	4.05	0.83	-.86	.58
Caregiving Topic Avoidance					
Parent Well-Being	.96	2.44	1.26	.33	-1.18
Caregiving Contribution	.88	2.78	1.25	.07	-1.09
Caregiving Talk Preference					
Parent Well-Being	.97	2.53	1.33	.35	-1.15
Caregiving Contribution	.90	2.97	1.30	-.14	-1.13
Risk-Benefit Analysis					
Parent Well-Being	.96	4.98	1.55	-.55	-.41
Caregiving Contribution	.92	4.29	1.74	-.16	-.78
Family Internal Privacy Orientation	.86	4.31	1.34	-.19	-.26
Riskiness of Disclosure					
Risk to Self	.96	3.19	1.65	.23	-1.09
Risk to Other	.92	3.35	1.68	.12	-1.03
Risk to Relationship	.93	2.97	1.63	.42	-.85
Relationship Satisfaction	.95	4.82	1.60	-.69	-.30
Depression	.94	1.80	0.66	.60	-.66
Parent Health	N/A	4.06	1.38		

Liking

Sibling liking was assessed in the main study, but not the pilot study. Sibling liking was measured using Rubin's (1970) Liking Scale. Item responses are on a nine-point scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). This scale has been used in past sibling research and achieved acceptable reliability (α = .91) (Myers & Weber, 2004). Example items include "My sibling is the most likeable person I know," and "My sibling is the sort of person whom I myself would like to be" (see Appendix A). In the present study, the scale was reliable (α = .96; *M* = 6.33, *SD* = 1.76).

Trust

Sibling trust was assessed in the main study, but not the pilot study. Sibling trust was measured using the Dyadic Trust Scale (Larzelere & Huston, 1980). Item responses are on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). This scale has been used in past sibling literature and achieved acceptable reliability ($\alpha = .89$) (Myers & Weber, 2004). Example items include: "There are times when my sibling cannot be trusted," and "My sibling treats me fairly and justly" (see Appendix A). In the present study, the scale was reliable ($\alpha = .94$; $M = 5.03$, $SD = 1.56$).

Table 6. Main Study Variable Means, Standard Deviations, Skew, and Kurtosis

	α	*M*	*SD*	Skew	Kurtosis
Participant Caregiving Involvement					
Personal Care	.93	2.10	1.37	.86	-.78
Routine Tasks	.87	3.92	1.15	-1.23	.70
Financial Support	.63	3.92	1.14	-.48	-.96
Emotional Support	.83	4.50	.76	-2.24	6.08
Sibling Caregiving Involvement					
Personal Care	.96	1.91	1.35	1.15	-.21
Routine Tasks	.89	3.00	1.36	-.15	-1.27
Financial Support	.74	2.85	1.43	.02	-1.38
Emotional Support	.93	4.07	1.14	-1.41	1.21
Information Ownership	.93	4.22	.86	-1.18	.87
Caregiving Topic Avoidance					
Parent Well-Being	.97	2.03	1.28	.95	-.50
Sibling Caregiving	.91	2.48	1.40	.46	-1.19
Caregiving Talk Preference					
Parent Well-Being	.98	2.08	1.36	.90	-.69
Sibling Caregiving	.92	2.59	1.45	.34	-1.34
Benefit-Risk Analysis					
Parent Well-Being	.96	5.59	1.52	-1.21	.99
Sibling Caregiving	.92	4.75	1.88	-.56	-.76
Family Internal Privacy Orientation	.89	4.24	1.43	-.42	-.61
Liking	.96	6.33	1.76	-.81	.18
Trust	.94	5.03	1.56	-.66	-.20
Relationship Satisfaction	.95	5.24	1.51	-.91	.17
Depression	.95	1.69	.70	.91	-.18
Parent Health	N/A	3.84	1.47	.23	-.59

Length of Parent Care

In the main study, participants indicated how long their parent had been receiving informal care. Participants selected one of the following six options: less than 1 year, 1-2 years, 3-5 years, 6-10 years, 11-20 years, and 21+ years. Most commonly, parents had been receiving care for 3-5 years ($n = 181$; 43.6%) or 1-2 years ($n = 134$; 32.3%). A small percentage of participants had parents whose care length was less than a year ($n = 46$; 11.1%), 6-10 years ($n = 32$; 7.7%), 11-20 years ($n = 13$; 3.1%), or 21+ years ($n = 9$; 2.2%).

New Measures

In order to test the model and proposed in chapter two, five new measures were developed including: caregiving involvement, caregiving topic avoidance, caregiving talk preference, benefit-risk analysis of caregiving talk, and caregiving information ownership. The following will detail the development and validation of each of these measures. Specifically, each section will discuss 1) the measure's conceptual development, 2) the use of the pilot study data to conduct exploratory principle components analysis, 3) the use of the pilot study data to validate the measure through correlations with existing scales, and 4) the use of the main study data to conduct confirmatory factor analyses.

Scale development for the new measures was guided by DeVellis (2017), Clark and Watson (1995), and Morgado, Meireles, Neves, Amaral, and Ferreira (2018). Following Morgado et al.'s (2018) guidelines, the researcher used both a deductive and an inductive approach to item creation. The deductive approach involves creating items based on a thorough literature review and definition of the construct to be measured (Hinkin, 1998). The literature reviewed in chapter two provides the foundation for deductive item creation. The inductive approach utilizes data from a sample of the measure's target population. The inductive approach

can also ensure content validity. Content validity assesses item sampling adequacy, meaning that the item pool encompasses the important aspects of the domain it intends to measure (DeVellis, 2017). Scales were pre-tested with a small sample of individuals ($n = 5$) who were currently or had recently been engaged in parental caregiving. The researcher interviewed each caregiver individually. The caregivers indicated if scale items made sense and if additional items should be included.

Using the pilot study data, Exploratory Principal Components Analyses (PCA) were conducted in SPSS 25 using a direct oblimin rotation to determine the component structure of the scales. PCA is considered "most appropriate when the purpose is to reduce the number of items to a smaller number of representative components" (Beavers et al., 2013 p. 6). An oblique rotation was used because it accounts for correlations between factors (DeVellis, 2017). Various recommendations for adequate sample size can be found throughout the literature including a minimum sample size of 150 (Beavers et al, 2013), a subjects to variables ratio of no less than 5 (Bryant & Yarnold, 1995; Hutcheson & Sofroniou, 1999), and 5-10 subjects per item with a maximum of 300 participants needed (Tinsley & Tinsley, 1987). The current study utilized a sample of 207 participants for scales that included a maximum initial item pool of 22 items, meeting all but the most stringent sample size criteria (e.g. Comrey's (1973) 200 cases considered only "fair").

Both Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were assessed to confirm that PCA was appropriate for each scale. Bartlett's test of sphericity must be significant for the scale to be considered factorable (Pett, Lackey, & Sullivan, 2003). The KMO measures the scale items' shared variance, with a value of .70 to .79

considered middling, .80 to .89 considered meritorious, and .90 to 1.00 considered marvelous (Beavers et al., 2013).

The researcher utilized four criteria for determining the components for each scale: 1) the Kaiser Criterion of eigenvalues greater than 1, 2) examination of the scree plot utilizing Cattell's criterion of retaining factors above the elbow of the plot, 3) amount of variance explained, and 4) qualitative assessment of the meaningfulness of the variables. Items were retained if they had a primary factor loading of .6 or higher and a secondary factor loading below .4 (Hinkin, 1998).

Using the main study data, confirmatory factor analyses were conducted in AMOS 25. Analyses employed full information maximum likelihood (FIML) estimation due to the presence of missing data (less than 5%). Hu and Bentler (1999) recommend that researchers not rely on just one measure of model fit. Cut-offs for model fit are rules of thumb, not definite rules. Numerous cut-offs for fit criteria exist. In the current study, model fit was assessed using the comparative fit index (CFI) and root mean square error of approximation (RMSEA). For good fit, the model must have $CFI \geq .95$ and $RMSEA \leq .05$ (Hu & Bentler, 1999). However, RMSEA between .05 and .08 and $CFI \geq .90$ is considered adequate (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Chi-square is also reported, with significant chi-square values ($p < .05$) indicating poor model fit (Kline, 2016). If chi-square is significant, model fit is still considered acceptable if CMIN/DF < 3.

Caregiving Involvement

The caregiving involvement measure was adapted from Tolkacheva, van Groenou, and van Tilburg's (2010) caregiving measure. In Tolkacheva and colleagues' (2010) study, participants indicated on a four-point scale how frequently they performed 10 different caregiving activities. These activities included cooking, shopping for groceries, cleaning,

transportation, seeing to financial matters, washing, taking a bath or shower, getting dressed, going to the toilet, and getting up or sitting down.

For the current study, caregiving has been defined more broadly to include providing emotional and financial support (Hequembourg & Brallier, 2005). Items, created by the author, were added to the original 10 from Tolkacheva and colleagues' (2010) measure to include these aspects of caregiving. The researcher then discussed the modified measure with individuals who were currently giving or have given informal care to their parents (*n* = 5). These individuals discussed additional caregiving tasks that they had performed, such as monitoring medications and hiring professional help. These tasks were added to the measure, resulting in a total of 22 items (see Appendix A). In addition to adding items to the original scale (Tolkacheva et al., 2013), a five-point scale was used, rather than a four-point scale, ranging from 1 (*never*) to 5 (*often*) because five-point scales have been found to provide greater meaningful variability in responses (DeVellis, 2017).

A principle components analysis (PCA) was conducted using the pilot study data for the caregiving involvement scale. The caregiving involvement items generated a significant test of sphericity and a KMO of .90 (considered marvelous), indicating that PCA was appropriate for the measure. The PCA yielded a 20-item scale with a four-factor solution. The factors accounted for 64% of the total variance. The retention of all four factors was supported by the Kaiser Criterion, stating that factors with an eigenvalue greater than one should be retained, but a two-factor solution was supported by Cattell's criterion involving assessment of the scree plot (DeVellis, 2017). The researcher decided to retain all four factors because the two additional factors were conceptually relevant. The four factors included: 1) personal care (such as bathing and going to the toilet), 2) routine tasks (such as grocery shopping and cleaning), 3) emotional

support (such as comforting and listening to concerns), and financial support (such as

contributing money and seeing to financial matters). Factor loadings can be seen in Table 7. All

four factors achieved acceptable reliability (personal care: $\alpha = .88$, $M = 2.30$, $SD = 1.16$; routine

tasks: $\alpha = .88$, $M = 3.83$, $SD = .99$; emotional support: $\alpha = .80$, $M = 4.22$, $SD = .81$; financial

support: $\alpha = .73$, $M = 3.37$, $SD = 1.34$).

Table 7. Caregiving Involvement Pattern Matrix for Principle Components Analysis

Item	1	2	3	4
Routine Tasks				
Shopping for groceries	.86			
Transportation	.81			
Cooking	.74			
Assisted at medical visits	.73			
Cleaning	.68			
Had over in your homes	.55			
Monitored medications	.53	.37		
Visited with	.52			.35
Personal Care				
Going to the toilet		.93		
Taking a bath or shower		.93		
Getting dressed		.91		
Washing		.67		
Getting up or sitting down	.32	.61		
Hired/managed professional help for		.61		
Financial Support				
Contributed money/finances			.80	
Seeing to financial matters			.68	
Emotional Support				
Listened to concerns				.96
Provided encouragement				.75
Comforted				.74
Helped make decisions				.56

To establish the scale's validity, all four subscales were correlated with parent health and

depression. As discussed in chapter two, past research connects caregiving with greater

psychological distress (e.g. Vitaliano et al., 2003). Additionally, parents would require more help

as their health declines. Both the routine tasks ($r = -.17$, $p \le .05$) and the social support ($r = -.20$,

$p \leq .01$) subscales were negatively correlated with parent health, as was expected, but were negatively correlated with depression (routine tasks: $r = -.15$, $p \leq .05$; social support: $r = -.26$, $p \leq .01$) counter to predictions. Personal care and financial support were not significantly correlated with either parent health or depression.

Although the caregiving involvement subscales did not all correlate with parent health and depression as expected, the scale may still be valid. Multiple studies do report that caregiving is associated with higher levels of depression, but these studies typically compare caregivers to individuals who do not have a parent receiving informal care, unlike the current study (Pinquart & Sörensen, 2003a). Several studies suggest that there is a more complicated relationship between depression and caregiving. Roth and colleagues (2009) found that caregiving was only distressing under particular conditions, and that caregivers who did not experience caregiving strain actually reported better quality of life than non-caregivers. Further, Amirkhanyan and Wolf (2003) found that those involved in care had less depression than those who had a parent receiving care but were themselves not providing support. Regarding the lack of association between parent health and personal care, poorer parent health may prompt families to utilize professional help. This would mean that the family members themselves do not need to engage in more personal care. This supposition is supported by the data. For participants whose parents were receiving hospice or other professional care, there is not a significant association between parent health and any of the caregiving involvement subscales. Due to these considerations, the inclusion of the caregiving involvement scale in further analyses was warranted.

A confirmatory factor analysis (CFA) was conducted on the four-factor caregiving involvement scale using the main study data. The CFA for caregiving involvement did not

initially produce a model that met the criteria for good fit (including CFI ≥ .95, RMSEA ≤ .05,

and non-significant ☐²). Items with low factor loadings were removed systematically until good

model fit was achieved. The following items were removed during this process: "had over in

your home," "visited with," "hired/managed professional help for," "monitored medications,"

"helped make decisions," "washing," and "getting up or sitting down." The final model exhibited

good fit (χ^2 (34, 415) = 44.95, p > .05, CMIN/DF = 1.32, CFI = .99, RMSEA = .03). For the

factor loadings of the retained items, see Table 8. The following subscales achieved acceptable

reliability: personal care (α = .93), routine tasks (α = .87), and emotional support (α = .83). The

financial support subscale achieved inadequate reliability (α = .63) and was not significantly

correlated with relevant study variables. Therefore, it was not included in subsequent analyses.

Table 8. CFA Factor Loadings for Caregiving Involvement

Item	Participant	Sibling
Routine Tasks		
Shopping for groceries	.69	.74
Transportation	.71	.76
Cooking	.68	.66
Assisted at medical visits	.76	.80
Cleaning	.65	.68
Personal Care		
Going to the toilet	.84	.94
Taking a bath or shower	.89	.98
Getting dressed	.94	.95
Financial Support		
Contributed money/finances	.57	.69
Seeing to financial matters	.80	.85
Emotional Support		
Listened to concerns	.70	.83
Provided encouragement	.61	.86
Comforted	.90	.92

In addition to reporting on their own caregiving involvement, participants also reported

on how involved they perceived their sibling was in caregiving. A separate CFA was conducted

to determine if the factor structure for sibling caregiving involvement matched that of participant

caregiving involvement. The model demonstrated good fit with the data (χ^2 (34, 415) = 39.73, p > .05, CMIN/DF = 1.17, CFI = .99, RMSEA = .02). For the factor loadings of the retained items, see Table 8. The following subscales achieved acceptable reliability: personal care (α = .96), routine tasks (α = .89), and emotional support (α = .93). The sibling financial support scale achieved better reliability than the participant financial support scale had (α = .74), but the scale was not sufficiently reliable to warrant inclusion in further analyses.

Caregiving Topic Avoidance

Past studies have developed topic avoidance measures, but to the researcher's knowledge no caregiving topic avoidance measure has been created. In her dissertation, Keeler (2014) created a topic avoidance scale used in the context of parental care. However, the items focused on a range of topics beyond caregiving (such as politics and personal milestones). The caregiving topic avoidance scale developed here seeks to focus solely and completely on talk related to caregiving. Talk topics were developed deductively from the caregiving literature discussed in chapter two (e.g. Edwards & Forster, 1999; Ingersoll-Dayton et al., 2004b; Pecchioni, 2001). The caregiving topic avoidance scale was pre-tested with a small sample of individuals (n = 5) who were currently or had recently been engaged in parental caregiving. A final pool of 19 items resulted from these interviews (see Appendix A). Items included topics such as "our parent's physical health," "my sibling's efforts in caring for our parent," and "the details of what is said in our parent's medical appointments/doctor visits." Participants indicated for the 19 different caregiving talk topics whether they usually avoid talking to their sibling about the topic. Participants responded on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

A principle components analysis (PCA) was conducted using the pilot study data for the caregiving topic avoidance scale. The caregiving topic avoidance items generated a significant

test of sphericity and a KMO of .95 (considered marvelous), indicating that PCA was appropriate

for the measure. The PCA yielded a 13-item scale with a two-factor solution. The factors

accounted for 76.8% of the total variance. The two factors represented unique areas of caregiving

topic avoidance including topic avoidance (TA) about: 1) parent well-being and 2) sibling

caregiving. Factor loadings can be seen in Table 9. The factors both achieved acceptable

reliability (parent well-being: $\alpha = .96$, $M = 2.44$, $SD = 1.26$; sibling caregiving: $\alpha = .88$, $M =$

2.78, $SD = 1.25$).

Table 9. Caregiving Topic Avoidance Pattern Matrix for Principle Components Analysis

Item	1	2
Parent Well-Being		
Our parent's emotional state.	.98	-.11
Our parent's mental health.	.96	
If our parent's physical or mental health is getting worse.	.94	
Our parent's physical health.	.93	
The details of what is said in our parent's medical appointments/doctor visits.	.85	
Our parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.).	.85	
Decisions related to our parent's health.	.82	
My feelings about our parent's mental/emotional health.	.73	.15
My feelings about our parent's physical health.	.71	.18
Caregiving Contributions		
My sibling's financial contributions to our parent's care.	-.11	.96
My financial contributions to our parent's care.		.84
How I feel about my sibling's efforts in caring for our parent.		.81
My sibling's efforts in caring for our parent.	.19	.70

To establish the scale's validity, both subscales were correlated with internal FPO,

relationship satisfaction, and depression. Participants' from less open families (indicated by a

low rating on internal FPO) would be more likely to engage in topic avoidance (Caughlin et al.,

2013) As discussed in chapter two, topic avoidance is typically associated less satisfaction in

relationships (Caughlin & Afifi, 2004) and greater psychological distress (Manne & Glassman,

2000; Pasipanodya et al., 2012) The parent well-being TA subscale was correlated with all three

measures (internal FPO: $r = -.36$, $p \leq .001$; relationship satisfaction: $r = -.41$, $p \leq .001$;

depression: $r = .33$, $p \leq .001$). The sibling caregiving TA subscale was correlated with internal

FPO ($r = -.24$, $p \leq .001$) and relationship satisfaction ($r = -.32$, $p \leq .001$), but not depression ($r = .10$, $p = .19$). Siblings from families that were less open with one another were more likely to

engage in topic avoidance. Siblings who reported greater topic avoidance reported reduced

relationship satisfaction, and siblings who reported greater topic avoidance about parent well-

being reported greater depression.

Numerous qualitative studies have found the division of caregiving responsibilities to be

problematic and potentially a source of tension between or among siblings. For example,

Ingersoll-Dayton and colleagues (2004b) conducted focus groups to explore caregivers'

approaches to redressing inequities in caregiving division of labor among siblings. Some

caregivers in their sample communicated their concerns to their siblings which for some made

the matter worse, increasing distress. It is possible that under some conditions, avoidance of talk

about siblings' caregiving efforts is distressing but in other conditions, engaging in talk may be

distressing. This would confound the relationship between avoidance and depression. The

complex association between topic avoidance and depression was detailed in the literature

review, leading to predictions for study two that the relationship between these two variables

would be moderated by other factors.

A confirmatory factor analysis (CFA) was conducted on the two-factor caregiving topic

avoidance scale using the main study data. The CFA for caregiving topic avoidance did not

initially produce a model that met the criteria for good fit. Items with low factor loadings were

removed systematically until good model fit was achieved. The following items were removed

during this process: "the details of what is said in our parent's medical appointments/doctor

visits," "decisions related to our parent's health," "my feelings about our parent's mental/emotional health," "my feelings about our parent's physical health," and "my financial contributions to our parent's care." The final model exhibited good fit (χ^2 (8, 415) = 12.19, $p >$ .05, CMIN/DF = 1.52, CFI = .99, RMSEA = .04). For the factor loadings of the retained items, see Table 10. Both subscales achieved acceptable reliability (parent well-being: $\alpha = .97$; caregiving contributions: $\alpha = .91$).

Table 10. CFA Factor Loadings for Caregiving Topic Avoidance, Caregiving Talk Preferences, and Benefit-Risk Analysis

Item	Avoidance	Preference	Benefit-Risk
Parent Well-Being			
Our parent's emotional state.	.92	.92	.95
Our parent's mental health.	.91	.90	.95
If our parent's physical or mental health is getting worse.	.94	.97	.88
Our parent's physical health.	.90	.93	.89
Our parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.).	.95	.95	.92
Sibling Caregiving			
My sibling's financial contributions to our parent's care.	.81	.82	.77
How I feel about my sibling's efforts in caring for our parent.	.83	.85	.91
My sibling's efforts in caring for our parent.	.91	.91	.96

Caregiving Talk Preference

The purpose of the caregiving talk preference scale was to determine if participants preferred not to discuss caregiving with their siblings. Participants were instructed to indicate on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) if they preferred not to talk to their sibling about each item. Items paralleled those developed for the caregiving topic avoidance scale (see Appendix A).

A principle components analysis (PCA) was conducted using the pilot study data for the caregiving talk preference scale. The caregiving talk preference items generated a significant test of sphericity and a KMO of .93 (considered marvelous), indicating that PCA was appropriate for the measure. A PCA for caregiving talk preference was then conducted using the same 13 items retained from the caregiving topic avoidance PCA. The PCA for caregiving talk preference also yielded a 13-item scale with a two-factor solution accounting for 79.5% of the total variance. The two factors represented the same areas of talk as those retained in the caregiving topic avoidance scale including caregiving talk preference regarding: 1) parent well-being and 2) sibling caregiving. Factor loadings can be seen in Table 11. The factors both achieved acceptable reliability (parent well-being: $\alpha = .97$, $M = 2.53$, $SD = 1.33$; sibling caregiving: $\alpha = .90$, $M = 2.97$, $SD = 1.30$).

Table 11. Caregiving Talk Preference Pattern Matrix for Principle Components Analysis

Item	1	2
Parent Well-Being		
Our parent's emotional state.	.93	
Our parent's mental health.	.93	
If our parent's physical or mental health is getting worse.	.93	
Our parent's physical health.	.93	
The details of what is said in our parent's medical appointments/doctor visits.	.85	
Our parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.).	.93	
Decisions related to our parent's health.	.87	
My feelings about our parent's mental/emotional health.	.85	
My feelings about our parent's physical health.	.83	
Caregiving Contributions		
My sibling's financial contributions to our parent's care.	-.11	.96
My financial contributions to our parent's care.		.87
How I feel about my sibling's efforts in caring for our parent.		.83
My sibling's efforts in caring for our parent.	.13	.78

To establish the scale's validity, both caregiving talk preference subscales were correlated with internal FPO and relationship satisfaction. The parent well-being preference

subscale was correlated with both measures (internal FPO: $r = -.26$, $p \leq .001$; relationship

satisfaction: $r = -.39$, $p \leq .001$) as was the sibling caregiving preference subscale internal FPO: r

$= -.17$, $p \leq .001$; relationship satisfaction: $r = -.31$, $p \leq .001$). Siblings from families that were

less open with one another were more likely to prefer avoiding talk. Siblings who reported lower

relationship satisfaction were also more likely to prefer avoiding talk.

A confirmatory factor analysis (CFA) was conducted on the two-factor caregiving talk

preference scale using the main study data. The eight caregiving talk items retained for the final

caregiving topic avoidance scale were used in the CFA for caregiving talk preference. The model

exhibited good fit ($\chi^2 (8, 415) = 18.72$, $p < .05$, CMIN/DF $= 2.34$, CFI $= .99$, RMSEA $= .06$). For

the factor loadings of the retained items, see Table 10. Both subscales achieved acceptable

reliability (parent well-being: $\alpha = .98$; caregiving contributions: $\alpha = .92$).

Benefit-Risk Analysis of Caregiving Talk

CPM suggests that individuals determine whether or not to disclose private information,

in part, based on weighing the benefits of disclosure against the risks of disclosure (Petronio,

2002). Although measures exist to assess perceived riskiness of disclosure (e.g. Afifi & Steuber,

2009), the researcher is not aware of a scale that measures the perceived benefits against the

perceived risks.

The researcher was specifically interested in participants' benefit-risk analysis of

caregiving talk topics. Therefore, items measuring benefit-risk analysis paralleled those

developed for the caregiving topic avoidance scale (see Appendix A). Before responding to

benefit-risk analysis items, participants read the following text: "Sometimes people believe that

discussing a topic could be risky. It could cause conflict or stress. Other times, people believe

that discussing a topic could be beneficial. It could help them vent or gain support. For each of

the following topics, please indicate if you believe discussing them with your sibling would be
more beneficial or more risky." Participants responded on a seven-point scale: 1 (*completely
risky*), 2 (*much more risky than beneficial*), 3 (*somewhat more risky than beneficial*), 4 (*equally
risky and beneficial*), 5 (*somewhat more beneficial than risky*), 6 (*much more beneficial than
risky*), 7 (*completely beneficial*).

Table 12. Benefit-Risk Analysis Pattern Matrix for Principle Components Analysis

Item	1	2
Parent Well-Being		
Our parent's emotional state.	.93	
Our parent's mental health.	.92	
If our parent's physical or mental health is getting worse.	.93	
Our parent's physical health.	.95	
The details of what is said in our parent's medical appointments/doctor visits.	.79	
Our parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.).	.85	
Decisions related to our parent's health.	.86	
My feelings about our parent's mental/emotional health.	.63	.33
My feelings about our parent's physical health.	.70	.24
Caregiving Contributions		
My sibling's financial contributions to our parent's care.		.95
My financial contributions to our parent's care.		.85
How I feel about my sibling's efforts in caring for our parent.		.88
My sibling's efforts in caring for our parent.		.88

A principle components analysis (PCA) was conducted using the pilot study data for the
benefit-risk analysis scale. The benefit-risk analysis items generated a significant test of
sphericity and a KMO of .93 (considered marvelous), indicating that PCA was appropriate for
the measure. A PCA for benefit-risk analysis was then conducted using the same 13 items
retained from the caregiving topic avoidance PCA. The PCA for benefit-risk analysis also
yielded a 13-item scale with a two-factor solution accounting for 77.3% of the total variance.
The two factors represented the same areas of talk as those retained in the caregiving topic
avoidance scale including benefit-risk analysis about talk regarding: 1) parent well-being and 2)

sibling caregiving. Factor loadings can be seen in Table 12. The factors both achieved acceptable reliability (parent well-being: $\alpha = .96$, $M = 4.98$, $SD = 1.55$; sibling caregiving: $\alpha = .92$, $M = 4.29$, $SD = 1.74$).

The scale's validity was established by correlating both subscales with the three subscales of Afifi and Steuber's (2009) risk assessment measure (risk to self, other, and relationship) and relationship satisfaction. The parent well-being subscale was correlated with all four measures (risk to self: $r = -.49$, $p \leq .001$; risk to other: $r = -.40$, $p \leq .001$; risk to relationship: $r = -.34$, $p \leq .001$; relationship satisfaction: $r = .53$, $p \leq .001$). The sibling caregiving subscale was also correlated with all four measures (risk to self: $r = -.28$, $p \leq .001$; risk to other: $r = -.34$, $p \leq .001$; risk to relationship: $r = -.20$, $p \leq .001$; relationship satisfaction: $r = .47$, $p \leq .001$). Siblings who evaluated caregiving talk as more beneficial than risky perceived less risks to self, other, and relationship and reported greater relationship satisfaction.

The use of the same items for the caregiving topic avoidance, caregiving talk preference, and benefit-risk analysis scales introduces the possibility that the scales will measure the same, rather than distinct, aspects of caregiving talk. To assess this, the caregiving topic avoidance, caregiving talk preference, and benefit-risk analysis subscales were correlated with one another. High correlations would indicate that the scales were measuring the same construct. The correlations were significant (see Table 14). However, the correlations were moderate, indicating that the scales are measuring related but distinct constructs and therefore can be used in analyses.

A confirmatory factor analysis (CFA) was conducted on the two-factor benefit-risk analysis scale using the main study data. The eight caregiving talk items retained for the final caregiving topic avoidance scale were used in the CFA for benefit-risk analysis. The model exhibited good fit ($\chi^2 (8, 415) = 14.18$, $p > .05$, CMIN/DF = 1.77, CFI = .99, RMSEA = .04). For

the factor loadings of the retained items, see Table 10. Both subscales achieved acceptable

reliability (parent well-being: α = .96; caregiving contributions: α = .92).

Caregiving Information Ownership

Items in the caregiving information ownership measure were developed based on the

privacy ownership and caregiving literature (e.g. Caughlin et al., 2011; Lannutti, 2013; Plander

2013). The purpose of the scale is to determine if participants believe that the family as a whole

(specifically they and their siblings) own the private information related to their parents'

caregiving. Participants answered items on a five-point scale with responses ranging from 1

(*strongly disagree*) to 5 (*strongly agree*). All items began with the stem "My sibling(s) and I

have the right to know about." The original list of items developed for this measure were

discussed with individuals who were currently giving or have given informal care to older adult

parents (*n* = 5). The final scale consisted of 12 items such as "if my parent's physical or mental

health is getting worse" and "each other's' opinions about our parent's care" (see Appendix A).

A principle components analysis (PCA) was conducted using the pilot study data for the

caregiving information ownership scale. The caregiving information ownership items generated

a significant test of sphericity and a KMO of .92 (considered marvelous), indicating that PCA

was appropriate for the measure. The PCA yielded a 12-item scale with a single factor solution.

The single factor accounted for 60.9% of the total variance. The scale achieved acceptable

reliability (α = .94, *M* = 4.05, *SD* = .83).

To establish the scale's validity, it was correlated with internal FPO. Families that share

information more openly with one another (demonstrated by a higher score on internal FPO)

would be more likely to agree that caregiving information was owned by the whole family. The

caregiving information ownership scale was positively correlated with internal FPO (*r* = .21, *p* ≤

.01). Siblings in more open families were more likely to perceive greater family ownership over caregiving information.

A confirmatory factor analysis (CFA) was conducted on the single factor caregiving information ownership scale using the main study data. CFA for caregiving information ownership did not initially produce a model that met the criteria for good fit. Items with low factor loadings were removed systematically until good model fit was achieved. The following items were removed during this process: "my parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.)," "if my parent's physical or mental health is getting worse," "each other's opinions about our parent's care," and "each other's feelings about our parent's health." The final model exhibited good fit (χ^2 (11, 415) = 13.89, $p > .01$, CMIN/DF = 1.26, CFI = .99, RMSEA = .03). For the factor loadings of the retained items, see Table 13. The scale achieved acceptable reliability ($\alpha = .93$).

Table 13. CFA Factor Loadings for Information Ownership

Item	
The details of my parent's physical health.	.76
The details of my parent's emotional health.	.75
All decisions related to our parent's care before they are made.	.86
All decisions that have been made about our parent's care.	.86
Our parent's current financial situation.	.74
How our parent's care is paid for.	.78
The details of how each of us is contributing to our parent's care.	.74
The details of what is said in my parent's medical appointments/doctor visits.	.79

Preliminary Relationships

To assess if further analyses were appropriate, the researcher examined correlations among all study variables (see Table 14). Both types of topic avoidance were correlated with predictors (i.e. participant caregiving involvement, benefit-risk analysis, internal FPO, trust, and liking) and outcomes (depression and relationship satisfaction). However, both trust and liking

were highly correlated with relationship satisfaction and each other ($r > .75$). Including variables that are correlated at this level in a model generates issues with multicollinearity (Grewal, Cote, & Baumgartner, 2004). Multicollinearity indicates that the measures may not be accessing separate unique constructs, but rather measuring the same underlying construct (Grewal et al., 2004; Kline, 2016). For the current study, the liking, trust, and relationship satisfaction measures may all be measuring general satisfaction with the sibling relationship, instead of three unique aspects. Therefore, both trust and liking were excluded from subsequent analyses.

Conclusion

This chapter described the methods used to collect data related to caregiving topic avoidance between siblings. It detailed the recruitment procedures, survey protocols, and participant demographics for both the pilot and main study. It also described the development of five measures, including item generation, exploratory principle components analysis, and confirmatory factor analysis. The next chapter will describe the analyses conducted to test the hypotheses forwarded in chapter two and the results of these analyses.

Table 14. Correlation Matrix for Main Study Variables

Variable	1	2	3	4	5	6	7	8	9
1. Personal Care – Participant									
2. Routine Tasks – Participant	.37***								
3. Emotional Support – Participant	.04	.52***							
4. Personal Care – Sibling	.60***	.13**	-.10						
5. Routine Tasks – Sibling	.23***	.08	.01	.59***					
6. Emotional Support – Sibling	.04	.10	.26***	.15**	.45***				
7. Avoidance Parent Well-Being	.22***	-.13**	-.29***	.26***	-.05	-.40***			
8. Avoidance Sibling Caregiving	.15**	-.12*	-.18***	.16***	-.15**	-.34***	.70***		
9. Preference Parent Well-Being	.19***	-.14**	-.21***	.23***	-.04	-.36***	.84***	.65***	
10. Preference Sibling Caregiving	.12*	-.08	-.11*	.11*	-.17***	-.32***	.61***	.80***	.71***
11. Benefit-Risk Parent Well-Being	-.06	.11*	.13**	-.03	.21***	.43***	-.52***	-.44***	-.56***
12. Benefit-Risk Sibling Caregiving	.05	.08	-.01	.17***	.39***	.35***	-.27***	-.49***	-.27***
13. Information Ownership	.07	.23***	.29***	.05	.17***	.23***	-.31***	-.23***	-.26***
14. Family Internal Privacy Orientation	.14**	.22***	.12*	.01	.15**	.23***	-.22***	-.24***	-.19***
15. Liking	.24***	.21***	.09	.24***	.34***	.44***	-.28***	-.34***	-.26***
16. Trust	-.01	.08	.11*	.06	.33***	.53***	-.51***	-.52***	-.48***
17. Relationship Satisfaction	.07	.19***	.12*	.11*	.33***	.43***	-.43***	-.47***	-.38***
18. Depression	.29***	-.03	-.16***	.28***	.08	-.16***	.46***	.40***	.38***

Variable	10	11	12	13	14	15	16	17	18
11. Benefit-Risk Parent Well-Being	-.42***								
12. Benefit-Risk Sibling Caregiving	-.56***	.62***							
13. Information Ownership	-.25***	.30***	.25***						
14. Family Internal Privacy Orientation	-.21***	.28***	.32***	.21***					
15. Liking	-.36***	.48***	.55***	.22***	.39***				
16. Trust	-.52***	.51***	.54***	.19***	.34***	.79***			
17. Relationship Satisfaction	-.46***	.49***	.54***	.21***	.39***	.76***	.78***		
18. Depression	.29***	-.13**	-.07	-.18***	-.21***	-.07	-.28***	-.27***	

$* \ p \leq .05, ** \ p \leq .01, *** \ p \leq .001$

CHAPTER 4. RESULTS

This chapter details the analyses conducted to test the hypotheses and address the research question proposed in chapter two. The analyses described in this chapter are conducted using data from the main study. This chapter describes preliminary analyses, including a test of the measurement model and t-tests, and the results of hypotheses tests, including structural models and moderation.

Data Analysis Procedures

Data analysis consisted of four phases. The first phase tests the measurement model for primary and non-primary caregivers. The second phase compares primary and non-primary caregivers on relevant study variables using t-tests. The third phase tests the structural model proposed in chapter two, comparing the resulting models for primary and non-primary caregivers. The fourth phase tests possible moderators of the relationships between topic avoidance and the study outcomes of depression and relationship satisfaction.

Preliminary Analyses

Measurement Model

To test the measurement model, multi-group structural equation modeling was conducted in AMOS 25, employing full information maximum likelihood (FIML) estimation due to the presence of missing data (less than 5%). Following the same standards detailed in chapter three for confirmatory factor analyses, model fit is considered good if the comparative fit index (CFI) $\geq .95$, root mean square error of approximation (RMSEA) $\leq .05$, and chi square is non-significant

($p > .05$) (Hu & Bentler, 1999; Kline 2016). Model fit is considered acceptable if CFI ≥ .90 and if chi square is significant ($p < .05$) providing CMIN/DF < 3.

The measurement model did not initially meet the standards for good fit. Items were removed systematically based on low factor loadings (< .50). Specifically, seven items on the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) and one item on Morr's internal family privacy orientation (internal FPO) scale were removed due to low loadings (< .50). The final measurement model achieved acceptable fit with the data (χ^2 (3760, 415) = 6501.60, $p < .001$, CMIN/DF = 1.73, CFI = .90, RMSEA = .04). The items removed for depression and internal FPO were also removed for correlation analyses presented in chapter three.

T-tests

Table 15. Independent Samples T-Tests Comparing Primary and Non-Primary Caregivers on Study Variables

	T	DF	Primary M ($n = 242$)	Non-Primary M ($n = 173$)
Depression	2.57**	374	1.76	1.58
Relationship Satisfaction	1.17	406	5.31	5.13
Parent Well-Being TA	2.00*	385	2.14	1.89
Sibling Caregiving TA	.91	413	2.54	2.41
Internal FPO	2.70**	330	4.40	4.01
PCI - Personal Care	6.12***	407	2.43	1.65
PCI - Routine Tasks	8.81***	258	4.33	3.35
PCI - Emotional Support	2.16*	276	4.58	4.40
SCI - Personal Care	1.37	407	1.99	1.80
SCI - Routine Tasks	-1.37	403	2.92	3.11
SCI - Emotional Support	-3.31***	401	3.92	4.28
Parent Well-Being Benefit-Risk	-1.39	412	5.51	5.72
Sibling Caregiving Benefit-Risk	.30	410	4.77	4.72
Parent Well-Being Talk Preference	1.49	368	2.17	1.96
Sibling Caregiving Talk Preference	1.21	407	2.66	2.49
Information Ownership	1.19	411	4.26	4.16

* $p \le .05$, ** $p \le .01$, *** $p \le .001$

To test if primary and non-primary caregivers differed significantly on the study variables, the researcher conducted a series of independent samples t-tests in SPSS 25. Participants differed on seven variables (for means see Table 15). Primary caregivers reported greater depression ($t(374) = 2.62$, $p < .01$), were more involved in personal care ($t(407) = 6.12$, $p < .001$), routine tasks ($t(258) = 8.81$, $p < .001$), and emotional support ($t(276) = 2.16$, $p < .05$), reported greater sibling involvement in emotional support ($t(4001) = -3.31$, $p < .001$), were from more open families ($t(330) = 2.70$, $p < .01$), and were more likely to engage in parent well-being TA ($t(385) = 2.00$, $p < .05$).

Test of Structural Models

To test the structural model, multi-group structural equation modeling was conducted in AMOS 25, employing full information maximum likelihood (FIML) estimation due to the presence of missing data (less than 5%). Model fit was assessed using the comparative fit index (CFI $\geq .95$), root mean square error of approximation (RMSEA $\leq .05$), and a non-significant chi square ($p > .05$) (Hu & Bentler, 1999; Kline 2016). As discussed above, a variety of cut-offs for goodness of fit criteria exist. However, those detailed here are considered the most stringent and therefore most likely to indicate good model fit (Schermelleh-Engel et al., 2003). All associations between variables are reported as significant if $p \leq .05$.

Research question one asked if the associations between study variables differed for participants who indicated they were the primary caregiver ($n = 242$) compared with participants who indicated they were not the primary caregiver ($n = 173$). To answer RQ1, the researcher compared structural models in which the structural coefficients were restricted to be the same for both groups with models in which structural coefficients were not restricted. Restricting the coefficients forces the associations between variables to be the same for both groups whereas the

unrestricted model allows the associations to differ for primary and non-primary caregivers (Schermelleh-Engel et al., 2003). Comparing the fit of models with and without restrictions assesses if the coefficients vary substantially across groups (Kline, 2016). Difference in model fit is calculated by subtracting the chi square value of the unrestricted model from the chi square value of the restricted model. If the resulting chi square value is nonsignificant, the restricted and unrestricted models are considered to have equal fit, and the restricted model should be used (Schermelleh-Engel et al., 2003). If the chi square value is significant, the unrestricted model has significantly better fit and therefore should be used, indicating that there are differences for primary and non-primary caregivers.

Separate models were tested for parent well-being TA and sibling caregiving TA. The proposed structural model (see Figure 1) did not initially exhibit good fit with the data for either parent well-being TA or sibling caregiving TA. To achieve better fitting models for parent well-being TA and sibling caregiving TA, the researcher systematically assessed if there were direct relationships between predictor variables and depression or relationship satisfaction. All changes were assessed based on their soundness in terms of theory as well as fit with the data. In addition to adding pathways between predictor variables and relationship satisfaction and depression, the participant sex variable was removed from the sibling caregiving TA model. The final models exhibited good fit with the data for both types of topic avoidance (see Table 16).

The difference between the chi square values of the unrestricted and restricted models were significant for both parent well-being TA and sibling caregiving TA (see Table 16). This indicates that the associations between variables in the models are different for primary caregivers compared to non-primary caregivers. Findings are reported based on models in which the structural coefficients were not restricted, allowing for differences between primary and non-

primary caregivers. Figures 2-5 represent the final structural models. The parent well-being TA

model for primary caregivers is represented in Figure 2. The parent well-being TA model for

non-primary caregivers is represented in Figure 3. The sibling caregiving TA model for primary

caregivers is represented in Figure 4. The sibling caregiving TA model for non-primary

caregivers is represented in Figure 5. The following section will detail if hypotheses 1-10,

proposed in chapter two were supported.

Table 16. Model Fit for Multi-Group SEM: Comparing Restricted and Unrestricted Models

	χ^2	DF	CMIN/DF	CFI	RMSEA
Parent Well-Being TA					
Restricted Model	146.27***	72	2.03	.96	.05
Unrestricted Model	46.81	42	1.11	.99	.02
Difference	99.46***	30			
Sibling Caregiving TA					
Restricted Model	107.81***	59	1.83	.97	.05
Unrestricted Model	50.63	36	1.41	.99	.03
Difference	57.18***	23			

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Hypothesis 1 predicted that topic avoidance would be negatively associated with

relationship satisfaction. This hypothesis was fully supported (see Figures 2-5). For both primary

and non-primary caregivers, parent well-being TA (primary, Figure 2: β = -.4, $p < .001$; non-

primary, Figure 3: β = -.23, $p < .01$) and sibling caregiving TA (primary, Figure 4: β = -.32, $p <$

.001; non-primary, Figure 5: β = -.27, $p < .001$) were negatively associated with relationship

satisfaction.

Hypothesis 2 predicted that topic avoidance would be positively associated with

depression. This hypothesis was fully supported (see Figures 2-5). For both primary and non-

primary caregivers, parent well-being TA (primary, Figure2: β = .48, $p < .001$; non-primary,

Figure 3: β = .22, $p < .05$) and sibling caregiving TA (primary, Figure 4: β = .35, $p < .001$; non-

primary, Figure 5: β = .25, $p < .01$) were positively associated with depression. Additionally, for
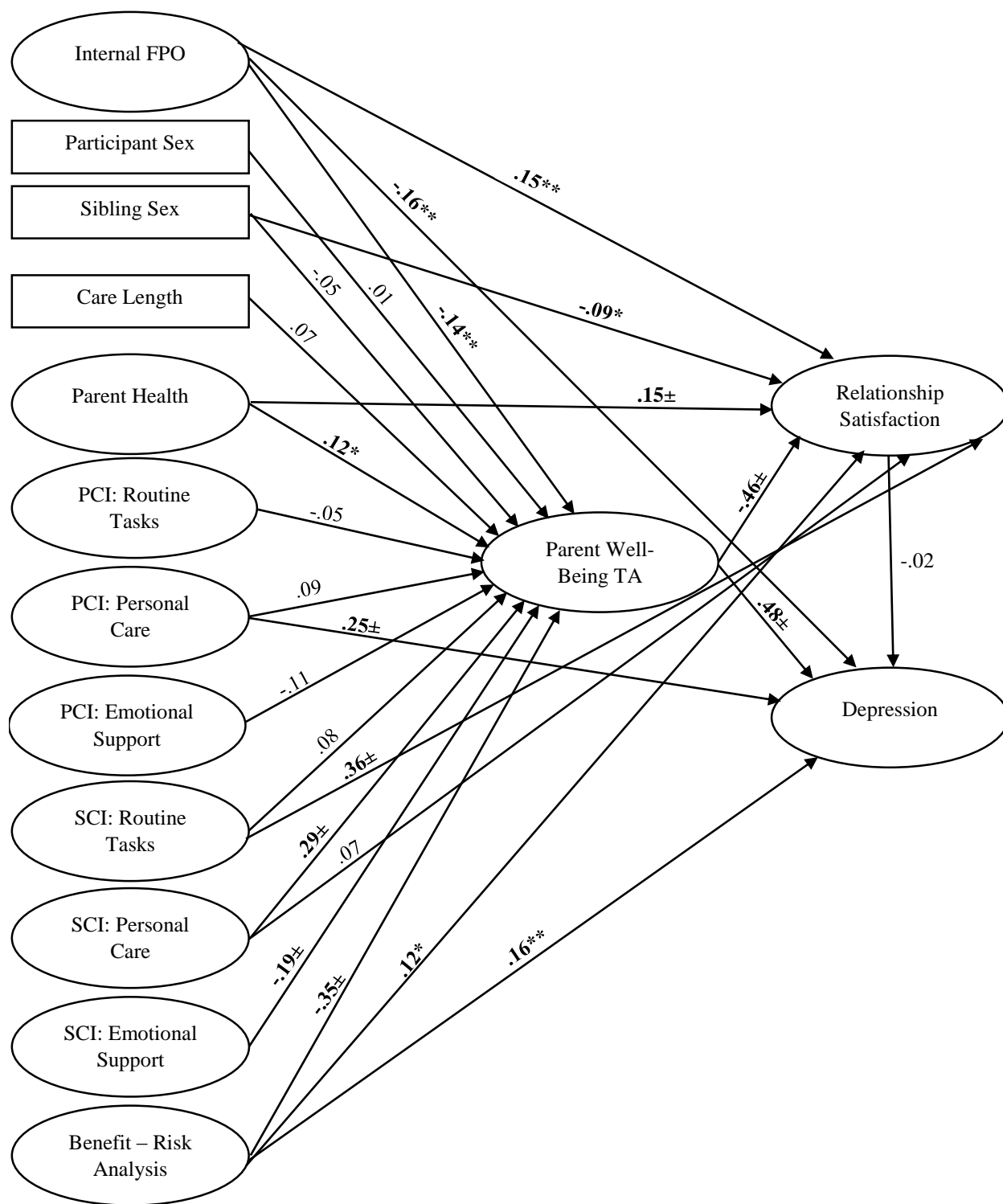
Figure 2. Structural Model for Primary Caregivers' Parent Well-Being TA

Note: * $p \leq .05$, ** $p \leq .01$, ± $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance

Figure 3. Structural Model for Non-Primary Caregivers' Parent Well-Being TA

Note: * $p \leq .05$, ** $p \leq .01$, ± $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance
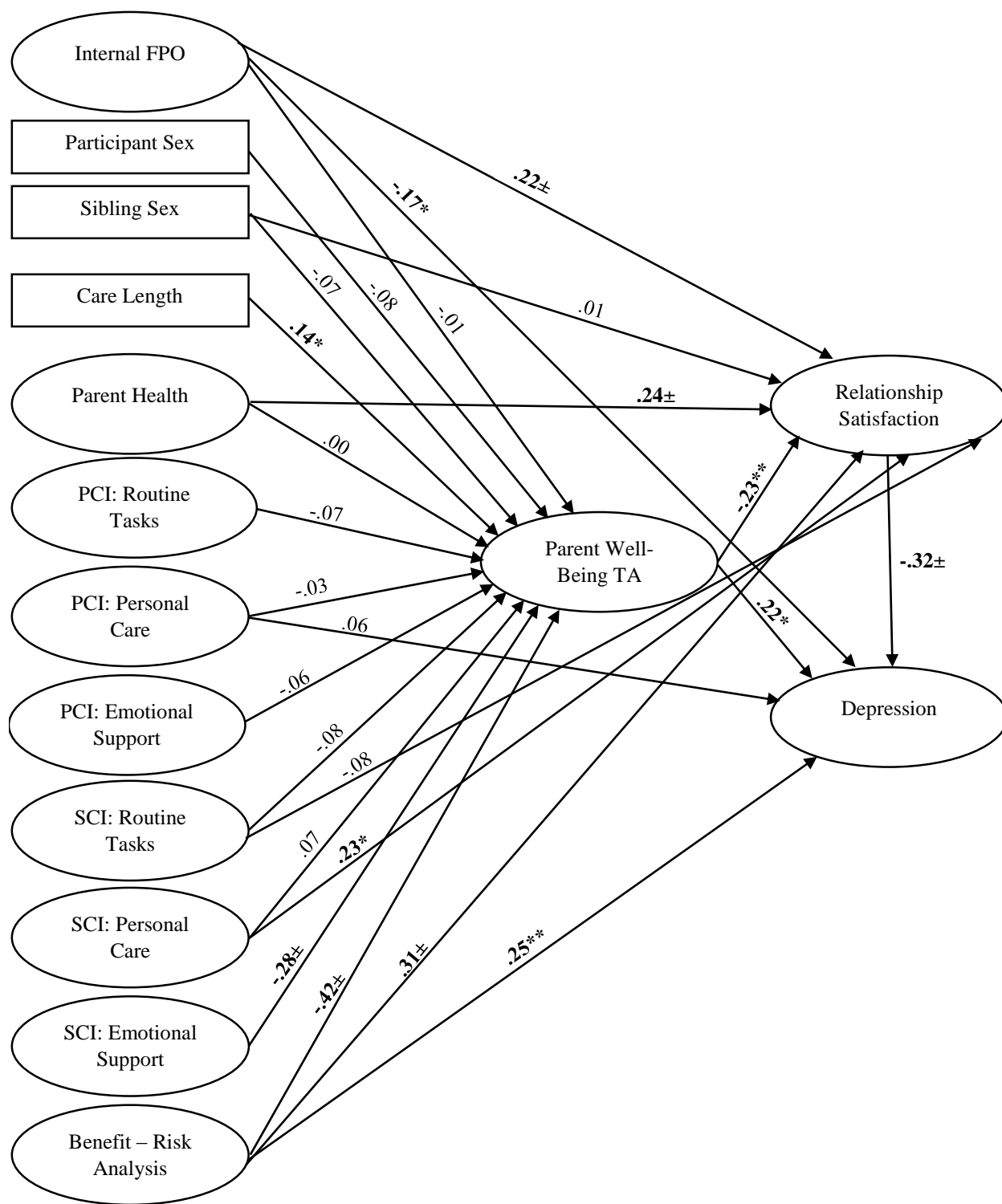
Figure 4. Structural Model for Primary Caregivers' Sibling Caregiving TA

Note: * $p \le .05$, ** $p \le .01$, ± $p \le .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance

Figure 5. Structural Model for Non-Primary Caregivers' Sibling Caregiving TA

Note: * $p \leq .05$, ** $p \leq .01$, ± $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance
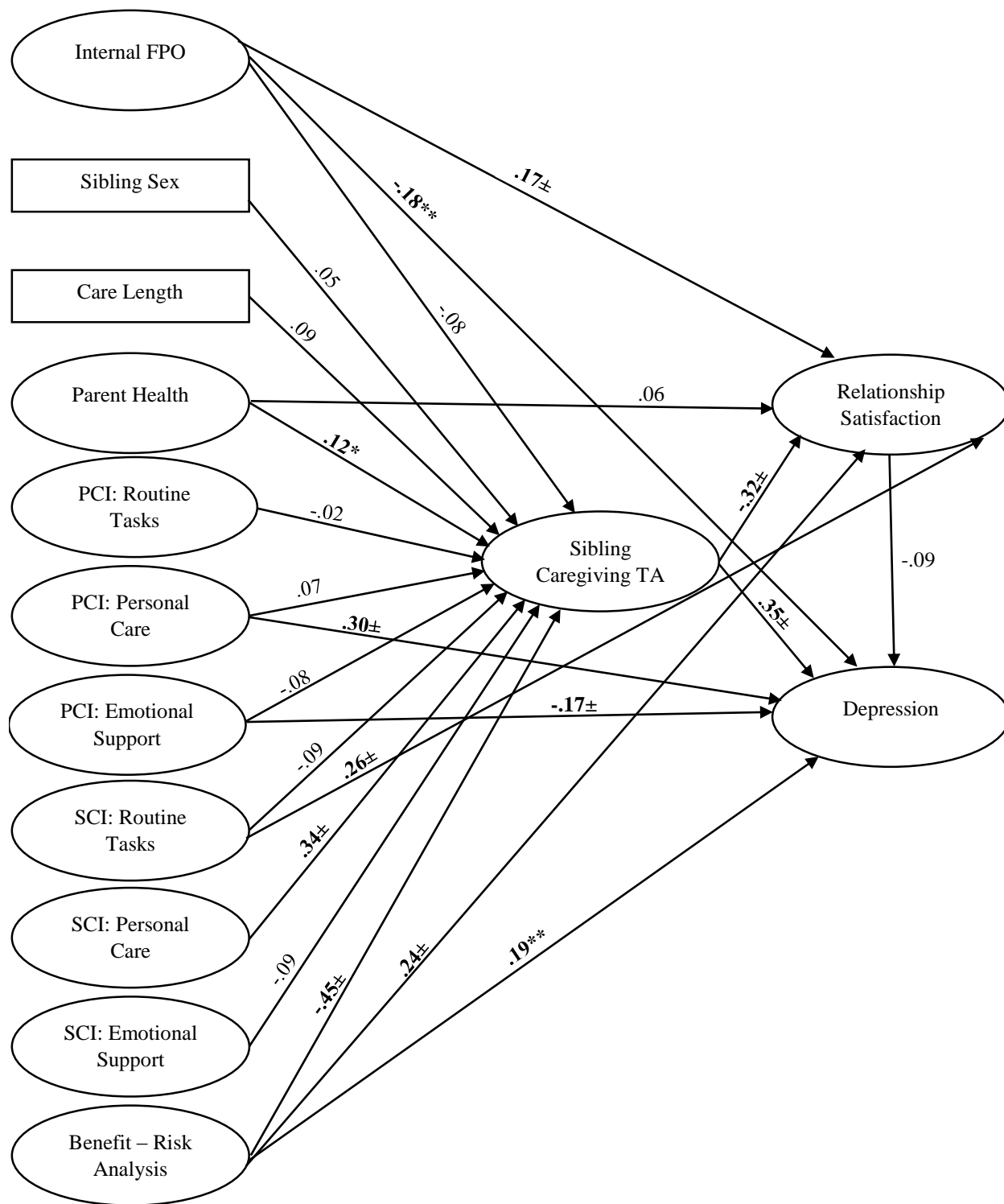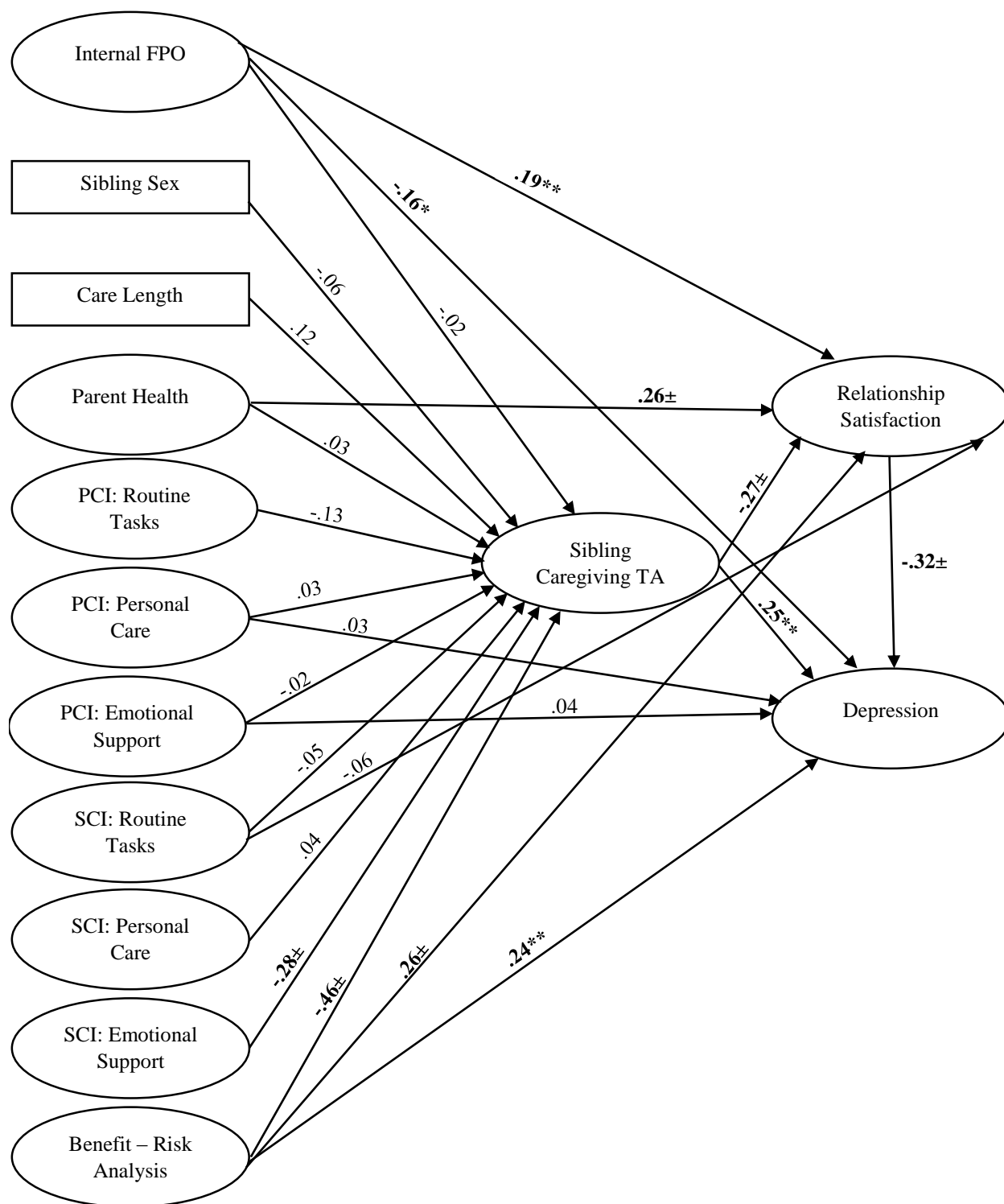
non-primary caregivers, relationship satisfaction had a direct negative association with depression (see Figures 3 and 5) such that non-primary caregivers who were less satisfied with their sibling relationships reported greater symptoms of depression (β = -.32, $p < .001$).

Hypothesis 3 predicted that internal family privacy orientation (FPO) would be negatively associated with topic avoidance. This hypothesis was partially supported for primary caregivers, but not for non-primary caregivers. Primary caregivers from families with more permeable internal privacy boundaries (i.e. families in which members were more open in their communication with each other) were less likely to engage in parent well-being TA (Figure 2: β = -.14, $p < .01$). Additionally, internal FPO was directly, positively associated with relationship satisfaction for both primary (parent well-being TA model, Figure 2: β = .15, $p < .01$; sibling caregiving TA model, Figure 4: β = .17, $p < .001$) and non-primary caregivers (parent well-being TA model, Figure 3: β = .22, $p < .001$; sibling caregiving TA model, Figure 5: β = .19, $p < .01$). Internal FPO was also directly, negatively associated with depression for both primary (parent well-being TA model, Figure 2: β = -.16, $p < .001$; sibling caregiving TA model, Figure 4: β = -.18, $p < .001$) and non-primary caregivers (parent well-being TA model, Figure 3: β = -.17, $p < .05$; sibling caregiving TA model, Figure 5: β = -.16, $p < .05$). Participants in families with more permeable internal privacy boundaries were more satisfied with their sibling relationships and reported fewer symptoms of depression (see Figures 2-5).

Hypothesis 4 predicted that men would be more likely to engage in topic avoidance than women. This hypothesis was not supported. Sex of the participant was not associated with either type of topic avoidance for primary or non-primary caregivers.

Hypothesis 5 predicted that topic avoidance would be more likely to occur when the target sibling was male than when the target sibling was female. This hypothesis was also not

supported. However, for primary caregivers, sex of the sibling was associated directly with relationship satisfaction in the parent well-being TA model (Figure 2: $\beta = -.09$, $p < .05$), such that participants were more satisfied with relationships with sisters than they were with relationships with brothers. However, this finding should be interpreted with caution, due to the weakness of the association and the fact that the association was only significant in the parent well-being TA model but not the sibling caregiving TA model.

Hypothesis 6 predicted that length of care would be positively associated with topic avoidance. This hypothesis was partially supported. For non-primary caregivers, care length was positively associated with parent well-being TA (Figure 3: $\beta = .14$, $p < .05$), but not sibling caregiving TA. For primary caregivers, care length was not associated with either type of topic avoidance.

Hypothesis 7 predicted that parent health would be positively associated with topic avoidance. This hypothesis was supported for primary caregivers (Figures 2 and 4: $\beta = .12$, $p < .05$), but not for non-primary caregivers. For non-primary caregivers, parent health was not associated with topic avoidance. Additionally, parent health had a direct, positive association with relationship satisfaction for primary caregivers in the parent well-being TA model (fig 2: $\beta = .15$, $p < .001$) and for non-primary caregivers in both models (parent well-being TA model, Figure 3: $\beta = .24$, $p < .001$; sibling caregiving TA model, Figure 5: $\beta = .26$, $p < .001$) such that caregivers were more satisfied with their sibling relationships when the parent was in better health.

Hypothesis 8a predicted that participants' caregiving involvement, including routine tasks, personal care, and emotional support, would be negatively associated with topic avoidance. This hypothesis was not supported. However, participants' caregiving involvement

did have direct associations with depression for primary caregivers. Specifically, primary caregivers' provision of emotional support was negatively associated with depression in the sibling caregiving TA model (Figure 4: β = -.17, p < .001), and primary caregivers' involvement in personal care was positively associated with depression in both models (parent well-being TA model, Figure 2: β = .25, p < .001; sibling caregiving TA model, Figure 4: β = .30, p < .001).

Hypothesis 8b predicted that siblings' caregiving involvement, including routine tasks, personal care, and emotional support, would be negatively associated with topic avoidance. This hypothesis was partially supported. For both primary and non-primary caregivers, siblings' provision of emotional support was negatively associated with parent well-being TA (primary, Figure 2: β = -.19, p < .001; non-primary, Figure 3: β = -.28, p < .001), meaning that the more emotional support siblings provided to their parents, the less likely participants were to engage in parent well-being TA. Siblings' provision of emotional support was also negatively associated with sibling caregiving TA for non-primary caregivers (Figure 5: β = -.28, p < .001), but not for primary caregivers. For primary caregivers only, sibling involvement in personal care was positively associated with parent well-being TA (Figure 2: β = .29, p < .001) and sibling caregiving TA (Figure 4: β = .34, p < .001), meaning that the more personal care siblings provided to their parents, the more likely primary caregivers were to engage in topic avoidance.

Sibling caregiving involvement had direct associations with relationship satisfaction. For primary caregivers, siblings' involvement in routine tasks was positively associated with relationship satisfaction (parent well-being TA model, Figure 2: β = .36, p < .001; sibling caregiving TA model, Figure 4: β = .26, p < .001), meaning the more routine tasks siblings accomplished for their parent, the more satisfied primary caregivers were with their relationship with their sibling. For non-primary caregivers, sibling involvement in personal care was

positively associated with relationship satisfaction in the parent well-being TA model (Figure 3:

β = .23, $p < .05$), meaning the more personal care siblings provided to their parent, the more

satisfied non-primary caregivers were with their sibling relationship. However, the association

was only significant in the parent well-being TA model but not the sibling caregiving TA model.

Table 17. Summary of Significant Associations Between Privacy Rule Criteria and Topic Avoidance

	Primary Caregiver		Non-Primary Caregiver	
	Parent Well-Being TA (Figure 2)	Sibling Caregiving TA (Figure 4)	Parent Well-Being TA (Figure 3)	Sibling Caregiving TA (Figure 5)
Internal FPO	N			
Participant Sex				
Sibling Sex				
Care Length			P	
Parent Health	P	P		
PCI: Routine Tasks				
PCI: Personal Care				
PCI: Emotional Support				
SCI: Routine Tasks				
SCI: Personal Care	P	P		
SCI: Emotional Support	N		N	N
Benefit-Risk Analysis	N	N	N	N
	Figure 10	Figure 12	Figure 11	Figure 13
Liking	N	N		
	Figure 14	Figure 16	Figure 15	Figure 17
Trust	N	N	N	

Note: P = positive association; N = negative association

Hypothesis 9 predicted that benefit-risk analysis would be negatively associated with

topic avoidance. This hypothesis was fully supported. When talk was perceived as more

beneficial, both primary and non-primary caregivers were less likely to engage in parent well-

being TA (primary, Figure 2: β = -.35, $p < .001$; non-primary, Figure 3: β = -.42, $p < .001$) and

sibling caregiving TA (primary, Figure 4: β = -.45, $p < .001$; non-primary, Figure 5: β = -.46, $p <$

.001). Additionally, benefit-risk analysis about parent well-being talk (primary, Figure 2: β = .12,

$p < .05$; non-primary, Figure 3: β = .31, $p < .001$) and benefit-risk analysis about sibling

caregiving talk (primary, Figure 4: β = .24, $p < .001$; non-primary, Figure 5: β = .26, $p < .001$)

were positively associated with relationship satisfaction, meaning relationship satisfaction was higher when caregiving talk was perceived to be more beneficial. Interestingly, benefit-risk analysis about parent well-being talk (primary, Figure 2: $\beta = .16$, $p < .01$; non-primary, Figure 3: $\beta = .25$, $p < .01$) and benefit-risk analysis about sibling caregiving talk (primary, Figure 4: $\beta = .19$, $p < .01$; non-primary, Figure 5: $\beta = .24$, $p < .01$) were positively associated with depression, meaning that depression was higher when caregiving talk was perceived to be more beneficial.

Table 18. Summary of Significant Associations Between Topic Avoidance and Both Relationship Satisfaction and Depression

	Primary Caregiver		Non-Primary Caregiver	
	Relationship Satisfaction (Figures 2 & 4)	Depression (Figures 2 & 4)	Relationship Satisfaction (Figures 3 & 5)	Depression (Figures 3 & 5)
Parent Well-Being TA	N	P	N	P
Sibling Caregiving TA	N	P	N	P
Internal FPO	P	N	P	N
Participant Sex				
Sibling Sex	N			
Care Length				
Parent Health	P		P	
PCI: Routine Tasks				
PCI: Personal Care		P		
PCI: Emotional Support		N		
SCI: Routine Tasks	P			
SCI: Personal Care			P	
SCI: Emotional Support				
Benefit-Risk Analysis	P	P	P	P
Relationship Satisfaction				N

Note: P = positive association; N = negative association

Hypothesis 10 predicted that topic avoidance would be negatively associated with both liking and trust. This hypothesis could not be tested in the structural models due to issues with multicollinearity between liking, trust, and relationship satisfaction. (For more information, refer to chapter three). However, liking and trust were negatively correlated with parent well-being

TA (liking: $r = -.28$, $p < .001$; trust $r = -.51$, $p < .001$) and sibling caregiving TA (liking: $r = -.34$, $p < .001$; trust $r = -.52$, $p < .001$), lending tentative support to this hypothesis.

Moderation

A primary goal of study two was to test whether privacy expectations (i.e. information ownership and caregiving talk preference) moderate the associations between topic avoidance and both depression and relationship satisfaction. The researcher conducted hierarchical linear regression analyses in SPSS 25 to test if privacy expectations do act as moderators. Moderation was tested for both types of topic avoidance (parent wellbeing and sibling caregiving) and for both outcomes (relationship satisfaction and depression). Due to the differences between primary and non-primary caregivers, separate moderation analyses were conducted for the two groups.

Moderation was tested using two-step linear regression analyses. First, to address concerns with multicollinearity between predictors and interaction terms, all variables were standardized (Aiken & West, 1991). The interaction terms were computed as the product of topic avoidance and the proposed moderators. Topic avoidance and the proposed moderator were entered into Step 1 of the regression, and the interaction term was entered into Step 2. Summary data for regressions can be found in Tables 19-22. Significant results are discussed below with accompanying figures.

For primary caregivers, information ownership moderated the association between sibling caregiving TA and relationship satisfaction (see Table 19). At low levels of sibling caregiving TA, relationship satisfaction was higher for those who perceived a high level of family caregiving information ownership. At high levels of sibling caregiving TA, relationship satisfaction did not differ based on ownership. (See Figure 6). This indicates that sibling caregiving TA had a stronger negative effect on relationship satisfaction for primary caregivers

who perceived that all of their siblings owned the information about the parent's health and care

compared with those who did not.

Table 19. Interactions Between Topic Avoidance and Privacy Expectations on Relationship Satisfaction for Primary Caregivers

		B	SE B	B	R^2	$R^2 \Delta$
Step 1					.20	
	Parent Well-Being TA	-.39***	.06	-.41		
	Information Ownership	.10	.06	.10		
Step 2					.21	.00
	Interaction	-.06	.07	-.06		
Step 1					.27	
	Sibling Caregiving TA	-.45***	.06	-.47		
	Information Ownership	.14*	.06	.14		
Step 2					.28	.02*
	Interaction	-.15*	.06	-.14		
Step 1					.19	
	Parent Well-Being TA	-.39***	.10	-.41		
	Caregiving Talk Preference	-.03	.11	-.03		
Step 2					.20	.00
	Interaction	.08	.07	.09		
Step 1					.29	
	Sibling Caregiving TA	-.23**	.09	-.24		
	Caregiving Talk Preference	-.32***	.09	-.33		
Step 2					.29	.00
	Interaction	.02	.06	.02		

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 20. Interactions Between Topic Avoidance and Privacy Expectations on Depression for Primary Caregivers

	B	SE B	B	R²	R² Δ
Step 1				.32	
Parent Well-Being TA	.56***	.06	.56		
Information Ownership	-.04	.06	-.04		
Step 2				.33	.01
Interaction	.08	.06	.07		
Step 1				.23	
Sibling Caregiving TA	.45***	.06	.44		
Information Ownership	-.14*	.06	-.13		
Step 2				.23	.00
Interaction	.00	.07	.00		
Step 1				.33	
Parent Well-Being TA	.66***	.11	.66		
Caregiving Talk Preference	-.10	.11	-.10		
Step 2				.33	.00
Interaction	.10	.07	.01		
Step 1				.21	
Sibling Caregiving TA	.48***	.10	.47		
Caregiving Talk Preference	-.02	.10	-.02		
Step 2				.23	.02*
Interaction	-.16*	.07	-.15		

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 21. Interactions Between Topic Avoidance and Privacy Expectations on Relationship
Satisfaction for Non-Primary Caregivers

	B	SE B	β	R²	R² Δ
Step 1				.21	
Parent Well-Being TA	-.50***	.08	-.45		
Information Ownership	.02	.07	.02		
Step 2				.21	.00
Interaction	-.07	.07	-.07		
Step 1				.21	
Sibling Caregiving TA	-.48***	.08	-.45		
Information Ownership	.03	.07	.03		
Step 2				.22	.01
Interaction	-.07	.07	-.08		
Step 1				.21	
Parent Well-Being TA	-.41***	.14	-.36		
Caregiving Talk Preference	-.11	.14	-.11		
Step 2				.24	.04***
Interaction	.23***	.08	.26		
Step 1				.21	
Sibling Caregiving TA	-.37**	.13	-.35		
Caregiving Talk Preference	-.14	.13	-.13		
Step 2				.23	.02*
Interaction	.18*	.08	.16		

* $p \le .05$, ** $p \le .01$, *** $p \le .001$

Table 22. Interactions Between Topic Avoidance and Privacy Expectations on Depression for Non-Primary Caregivers

	B	SE B	β	R²	R² Δ
Step 1				.07	
Parent Well-Being TA	.22**	.08	.22		
Information Ownership	-.08	.07	-.08		
Step 2				.07	.00
Interaction	-.05	.06	-.06		
Step 1				.09	
Sibling Caregiving TA	.25***	.08	.27		
Information Ownership	-.07	.07	-.08		
Step 2				.09	.00
Interaction	.05	.06	.06		
Step 1				.06	
Parent Well-Being TA	.22	.15	.23		
Caregiving Talk Preference	.03	.14	.03		
Step 2				.07	.01
Interaction	-.10	.08	-.13		
Step 1				.08	
Sibling Caregiving TA	.36**	.12	.38		
Caregiving Talk Preference	-.12	.12	-.13		
Step 2				.09	.00
Interaction	-.06	.08	-.06		

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Figure 6, presented below, illustrates how information ownership moderates the relationship between sibling caregiving TA and relationship satisfaction for primary caregivers.
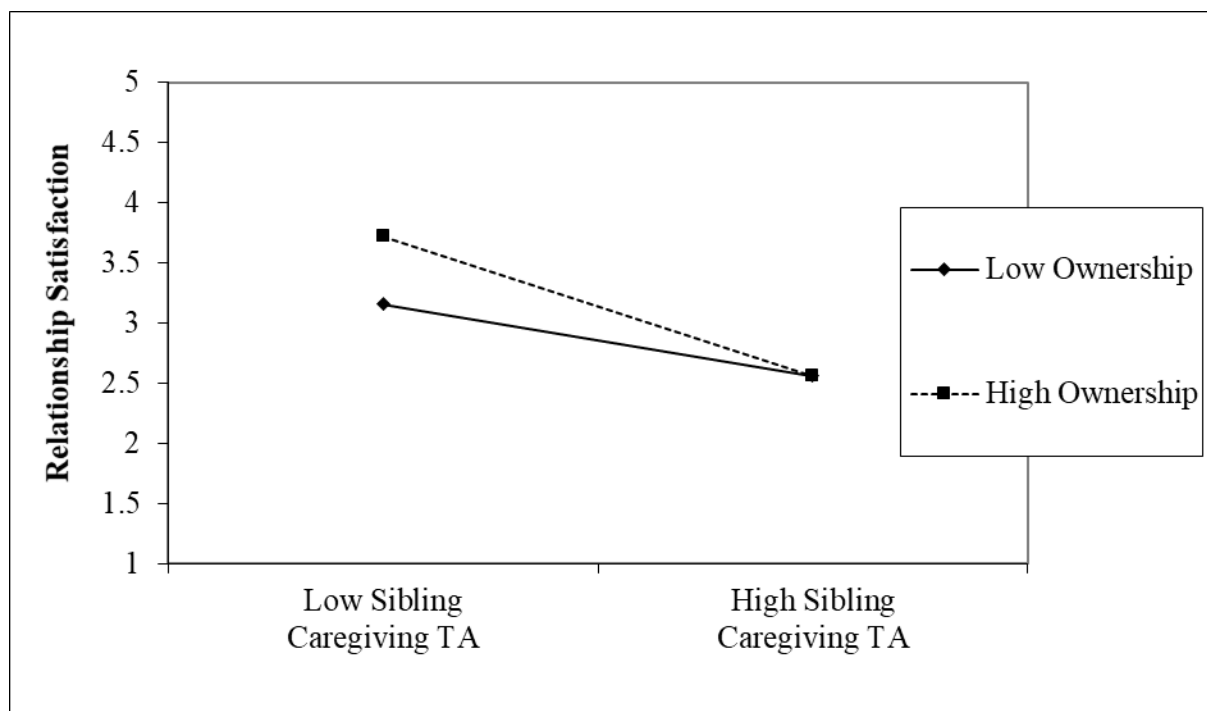

Figure 6. Information Ownership Moderates Primary Caregivers' Sibling Caregiving TA and Relationship Satisfaction.

Also for primary caregivers, caregiving talk preference moderated the association between sibling caregiving TA and depression (see Table 20). Topic avoidance had a stronger effect on depression for those who preferred to talk compared with those who preferred not to talk about caregiving. Figure 7, presented below, illustrates how caregiving talk preference moderates the relationship between sibling caregiving TA and depression for primary caregivers.
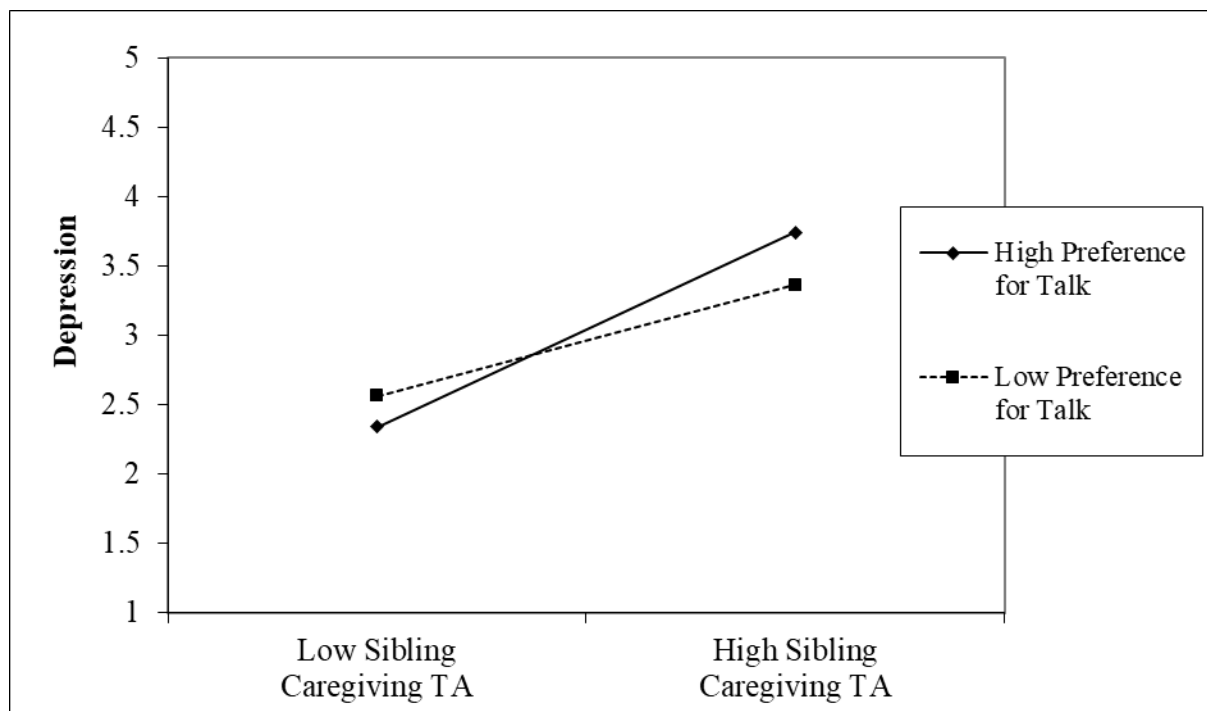
Figure 7. Caregiving Talk Preference Moderates Primary Caregivers' Sibling Caregiving TA and Depression.

For non-primary caregivers, caregiving talk preference moderated the association between both types of topic avoidance and relationship satisfaction (see Table 21). Topic avoidance had little effect on relationship satisfaction for those who preferred not to talk about caregiving, but for those who preferred to talk, topic avoidance resulted in a decrease in relationship satisfaction. Figures 8 and 9, presented below, illustrate how caregiving talk preference moderates the relationships between both parent well-being and sibling caregiving TA (respectively) and relationship satisfaction for non-primary caregivers.
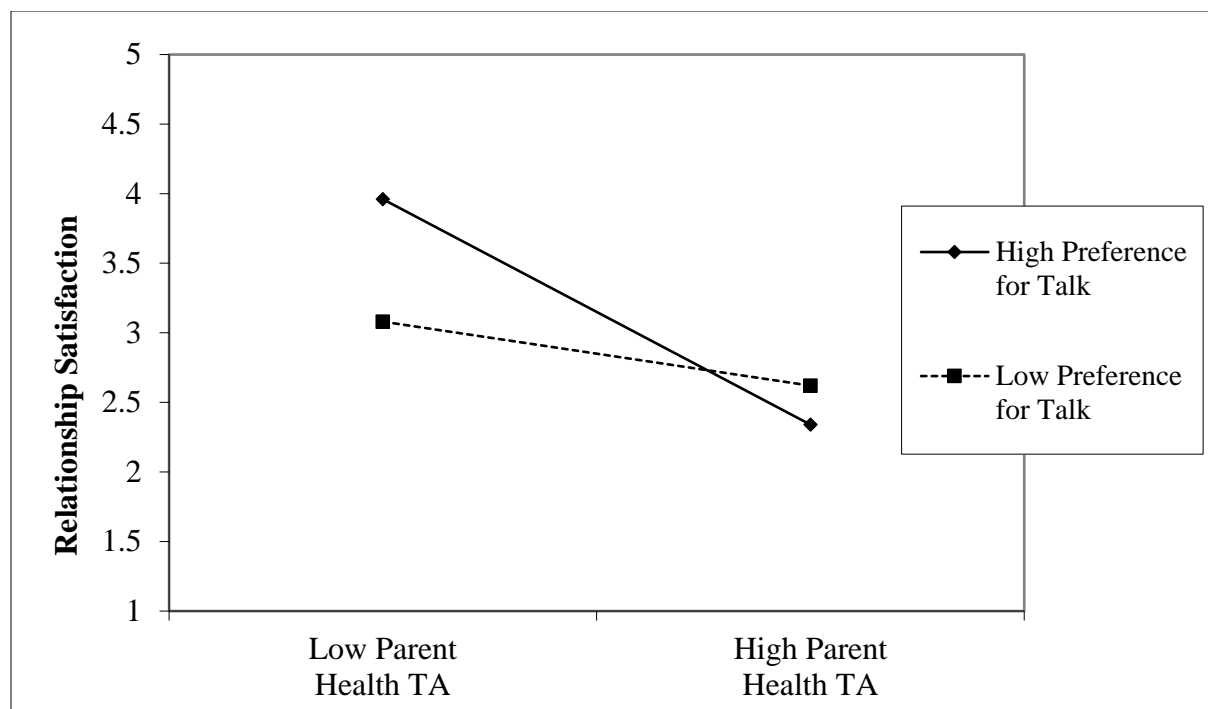
Figure 8. Caregiving Talk Preference Moderates Non-Primary Caregivers' Parent Well-Being TA and Relationship Satisfaction.
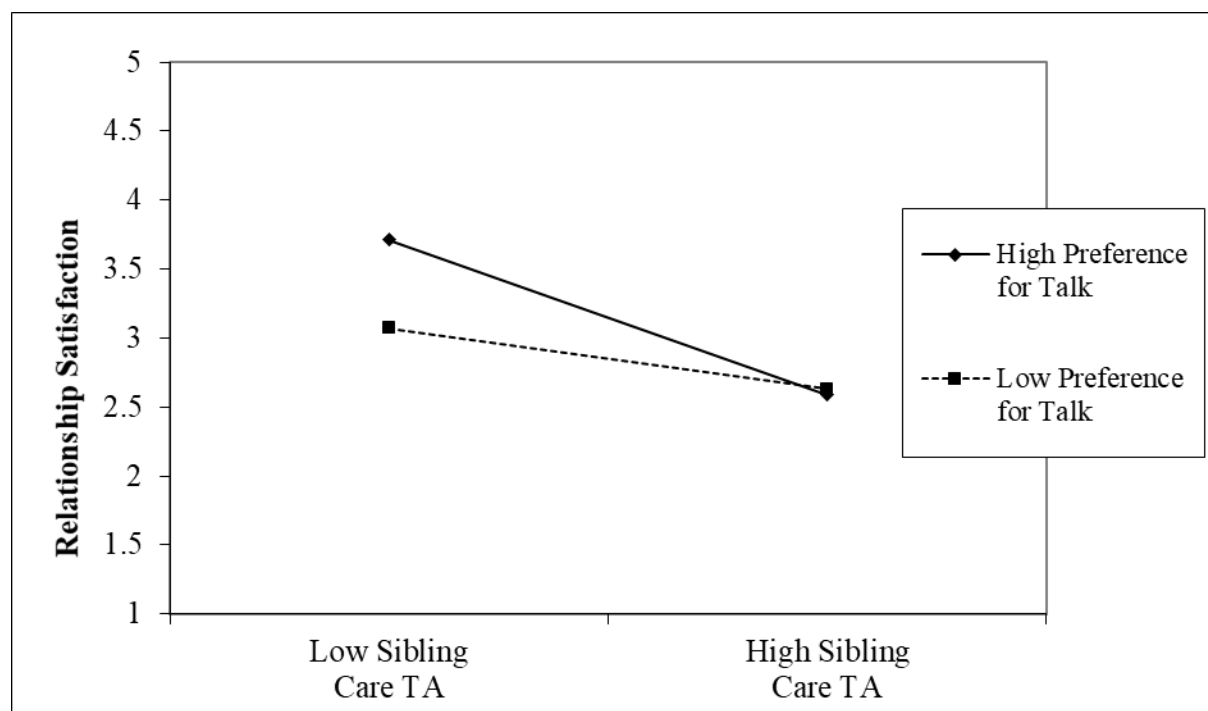

Figure 9. Caregiving Talk Preference Moderates Non-Primary Caregivers' Sibling Caregiving TA and Relationship Satisfaction.

Table 23. Summary of Significant Moderation of Privacy Expectations on Topic Avoidance and Relationship Satisfaction and Depression

	Primary Caregiver		Non-Primary Caregiver	
	Caregiving Talk Preference	Information Ownership	Caregiving Talk Preference	Information Ownership
Parent Well-Being TA and Relationship Satisfaction			✔	
Parent Well-Being TA and Depression				
Sibling Caregiving TA and Relationship Satisfaction		✔	✔	
Sibling Caregiving TA and Depression	✔			

Note: ✔ Significant Moderation

Conclusion

This chapter described the analysis of models predicting topic avoidance, relationship satisfaction, and depression for primary and non-primary caregivers as well as moderation analyses. It detailed whether hypotheses proposed in chapter two were supported by the data. The next chapter will discuss the theoretical and practical implications of these findings.

CHAPTER 5. DISCUSSION

The purpose of the current study was to further the understanding of siblings' privacy management regarding caregiving for aging parents. This was accomplished by empirically testing 1) the effect of privacy rule criteria proposed by CPM on two types of topic avoidance, including topic avoidance about parent well-being and sibling caregiving, 2) the effect of topic avoidance on relationship satisfaction and depression, 3) moderators of the association between topic avoidance and both relationship satisfaction and depression, and 4) the differences in these effects for primary and non-primary caregivers. Chapter 4 detailed the results of these tests. The current chapter will explicate the theoretical and practical implications of these findings. Specifically, it will address privacy rule criteria, privacy turbulence, and practical recommendations for siblings managing care.

Theoretical Contributions

The current study utilized communication privacy management theory (CPM; Petronio, 2002) as a framework for understanding siblings' caregiving topic avoidance. The study aimed to test CPM predictions related to privacy rule criteria and further understanding of privacy turbulence. Findings provide empirical support for the effect of privacy rule criteria on the enactment of privacy rules through the use of topic avoidance. Additionally, findings demonstrate how unwanted topic avoidance constitutes privacy turbulence, evidenced by topic avoidance affecting relationship satisfaction and depression differently depending on privacy management expectations. The following will explicate the findings related to privacy rule criteria and privacy turbulence and relate these findings to the CPM and caregiving literature.

Privacy Rule Criteria

CPM proposed five privacy rule criteria that would influence development of privacy rules, including culture, gender, context, benefit-risk analysis, and motivation (Petronio, 2002). Recent iterations of the theory have discussed two broad categorizations of privacy rule criteria, including core criteria and catalyst criteria (Petronio, 2013). The current study tested the association between privacy rule criteria and two privacy rules: "I avoid talking to my sibling about our parent's well-being" (parent well-being TA) and "I avoid talking to my sibling about his/her contributions to our parent's care" (sibling caregiving TA). The following will discuss the effect the privacy rule criteria had on topic avoidance privacy rules for both primary and non-primary caregivers, including family culture, gender, context (care length, parent health, and caregiving involvement), benefit-risk analysis, and relationship motivations (liking and trust). Then, broader conclusions about the role of privacy rule criteria in privacy management will be discussed.

Internal Family Privacy Orientation

It was expected that internal family privacy orientation (FPO), meaning how permeable family members' privacy boundaries generally are with one another, would be associated with topic avoidance. CPM studies have connected having a more permeable internal FPO with greater intentions to disclose, disclosure expectations, and more openness (Hammonds, 2015; Morr, 2002; Morr Serewicz et al., 2007). However, internal FPO was only associated with primary caregivers' engagement in parent well-being TA. If family members typically kept secrets from one another and were not open, primary caregivers were more likely to engage in parent well-being TA. Internal FPO did not predict primary caregivers' sibling caregiving TA or either type of TA for non-primary caregivers.

Internal FPO could serve as a guide for primary caregivers in deciding how to manage private information about their parent's well-being. Parent well-being information is unique from sibling caregiving information because it is information regarding a third party. In the absence of explicitly negotiated privacy rules, primary caregivers likely fall back on the family's typical pattern of revealing or concealing to determine how their parent, the third party, would want the information to be managed. If this is the case, it makes sense that primary caregivers' parent well-being TA would be associated with internal FPO while their sibling caregiving TA would not be.

Internal FPO may be relevant specifically to primary caregivers, but not non-primary caregivers, because of primary caregivers' role as "information guardians" of parents' health information (Plander, 2013). Plander (2013) utilized the term "information guardian" to represent how adult child caregivers felt responsible to protect information about their parents' finances. Primary caregivers are likely privy to more information about the parents' physical, psychological, and emotional health than other siblings are. This places primary caregivers in the unique position of being a principle manager of the parents' private information. Parents can be protective of their health information, not wanting their adult children to know if they are not doing well (Wenzel Egan & Hesse, 2018). Parents' desires to conceal health information could address positive face concerns by avoiding sharing embarrassing health information and negative face concerns by avoiding sharing information that implies limited parent autonomy (Wenzel Egan & Hesse, 2018). Primary caregivers may engage in topic avoidance to protect parent health information. Geographically distant siblings have reported concerns that siblings living near their parent are misrepresenting the parents' health status, suggesting that the sibling is protecting the parent's health information (Bevan & Sparks, 2011).

Many primary caregivers who have taken on the role of "information guardian" regarding parent's well-being likely feel the need to comply with parents' expectations of how their information will be managed. In interviews with adult child caregivers, Wenzel Egan and Hesse (2018) did find that many participants had "benevolent ownership" over parents' information and sought to follow parents' privacy expectations regarding information about their health. Yet, parents' expectations may not always be explicitly stated. Plander (2013) found that many caregivers identified parents' preferences for management of their financial information through socialization rather than explicit rule negotiation. Parents did not explicitly state their privacy preferences, rather caregivers relied on privacy rules they had observed over time, including before caregiving (Plander, 2013). Caregivers would rely on internal FPO in the absence of explicit privacy rules.

Although internal FPO has been a significant predictor of privacy management preferences and behaviors in other contexts, it was of limited importance in the present study. This may be due to the nature of the parent care context. Providing care for an aging parent is considered a step into a new phase of the life course (Cicirelli, 1991). According to CPM, changes in life circumstances mean that "[p]rivacy rules may temporarily need to be changed to cope with the demands of these situations or they may become permanently changed" (Petronio, 2002, p. 57). When talking about privacy management in families, Caughlin and colleagues (2013) explain how different stages in the life-cycle can instigate change in well-developed family privacy management patterns. As a new stage in the life-cycle, parental caregiving may necessitate the development of new privacy rule patterns that are based on the caregiving context rather than the family's previous level of boundary permeability. If this is the case, internal FPO

would not serve as a primary guide for siblings' decisions to disclose or withhold caregiving related information from one another.

Gender

Disclosure research has produced mixed findings for the effect of gender on revealing and concealing of private information. In a meta-analysis of studies on gender and disclosure, Dindia and Allen (1992) found that women disclose more than men and that women are more likely to be confidants than men are, but these effects were small. CPM assumes that under particular conditions when gender is more salient, that women will disclose more than men will (Petronio, 2002). Due to the gendered nature of caregiving (Hequembourg & Brallier, 2005) it was expected that men would be more likely to topic avoid than women and that topic avoidance would occur more when caregivers communicated with brothers than with sisters. These hypotheses, however, were not supported. Neither the participants' or the siblings' sex was significantly associated with topic avoidance.

There are multiple explanations for the lack of association between sex and topic avoidance. Expectations for the effect of sex on topic avoidance were based on the finding that women are typically more involved in caregiving than men are (Pinquart & Sörensen, 2006) and would therefore perceive caregiving talk to be more relevant or necessary. However, caregiving involvement of both participant and sibling were included in the model. If gender mattered because of caregiving involvement, that variation would be accounted for by those variables.

Additionally, differences in caregiver responsibilities between men and women were small. In terms of primary caregivers, men and women were equally likely to report they were the primary caregiver with 57.3% of men and 58.0% of women indicating that they were the primary caregiver. *T*-tests comparing the caregiving involvement of men and women resulted in

only two significant differences. First, women ($M = 4.60$) reported higher levels of involvement in emotional support than men ($M = 4.37$) did ($t(405) = -2.93$, $p < .01$). Second, participants indicated that their sisters ($M = 3.15$) were more involved in performing routine tasks than their brothers ($M = 2.85$) were ($t(402) = -2.25$, $p < .05$). Actual differences between men and women in caregiving involvement in the current study were small, meaning that caregiving talk could be perceived as equally necessary for women and men.

Further, the current study was not interested in disclosure, but rather in the intentional avoidance of caregiving topics as a means of keeping information private. Topic avoidance is not simply the lack of disclosure, but an active communication behavior engaged in to conceal information. Much of the research on gender differences in privacy management is focused on differences in disclosure, not in concealing information (Petronio, 2002). It is possible that even if gender differences exist in caregiving disclosures, that topic avoidance as a communication behavior is not impacted by gender. The presence of topic avoidance implies that there is a conversational pressure to engage in the topic and that some effort is used to avoid it. Men and women may differ on the presence of that pressure, meaning that if brothers are less involved in emotional support or routine care or are not expected to engage in caregiving talk for gendered reasons, they would have less instances of caregiving-related conversations and less need to avoid. The lack of opportunity to topic avoid would balance the sense that caregiving talk was relevant or necessary, resulting in no sex differences in topic avoidance.

Petronio (2002) also suggested that actual privacy management behavior may not differ for men and women, but rather the importance of privacy rule criteria may be weighted differently based on gender. To test this supposition, the researcher conducted multi-group structural equation modeling comparing the effect of privacy rule criteria on topic avoidance for

men and women. Following the same procedures used to assess differences between primary and non-primary caregivers, the fit of models in which structural coefficients were restricted to be the same for both groups was compared with models in which the structural coefficients were not constrained. The models were not significantly different, indicating that the privacy rule criteria had the same effect on topic avoidance for women and men.

Care Context

CPM proposes that contextual factors influence the creation and adjustment of privacy rules. Aspects of the context can serve as catalyst criteria (Petronio, 2013) that may alter previous patterns of disclosure. In the present study, the following aspects of the context were examined: care length, parent health, and participant and sibling involvement in parental caregiving. Each aspect of the context, except for the participants' caregiving involvement, played a role in the development of caregiving privacy rules.

Care Length

It was expected that topic avoidance would be less likely in earlier stages of caregiving. As families transitioned into caregiving, conversations about the parents' health and care would be more necessary (Amaro & Miller, 2016). Over time, patterns of care would be established, lessening the need for talk. This supposition received limited support in the current study. For non-primary caregivers, care length was positively associated with parent well-being TA. The longer care had occurred, the more likely non-primary caregivers were to avoid talking about the parent's well-being. Care length was not associated with non-primary caregivers' sibling caregiving TA or either type of TA for primary caregivers.

Once the reality of the parent's declining health status is established, non-primary caregivers may experience less need to communicate about parent well-being as time progresses compared with primary caregivers. In a study of 10 primary caregivers, participants explained that at the beginning of care there was a honeymoon period in which the family all pulled together and were communicating more (Hricik et al., 2011). Communication among family members about caregiving decreased over time. The diminishment of this togetherness was disappointing to the primary caregivers, suggesting that it was other members of the family avoiding talk. Specific siblings can also be shielded from distressing information about the parents' health, at times through their own topic avoidance. Globerman's (1995) interviews with adult child caregivers and non-caregivers revealed that certain siblings are considered "unencumbered," meaning they are not expected to participate in parental care. Although unencumbered siblings were initially informed about the parents' health status and need for informal care, they then avoided or were shielded from information about the parent (Globerman, 1995). After a pattern of care has been established, non-primary caregivers are more likely to avoid talk about their parents' well-being. However, this is not true for primary caregivers.

For primary caregivers, care length may be a less important factor because they serve as a primary source of information about the parents' well-being for other family members. Continuing to keep family members appraised of their parents' well-being will not become less important over time. Therefore, care length would not influence primary caregivers' parent well-being TA.

Similarly, motivation to communicate about siblings' contributions to parental care may not diminish with time. Szinovacz and Davey (2007; 2013) have established that caregiving

networks change over time, with approximately half of the families in their samples experiencing caregiver change. These changes would necessitate communication among siblings about their contributions to parent care and would take place at various time points across the care experience. Even if caregiver change is not occurring, expressions of both gratitude and criticism for siblings' contributions occur throughout the caregiving experience (Amaro & Miller, 2016). Conversations about the siblings' competence and effort in caregiving are initiated by both primary and non-primary caregivers and take place regardless of care length. Additionally, siblings have been found to address inequities in caregiving involvement after some time has passed and they begin to feel overwhelmed (Ingersoll-Dayton et al., 2004b). Based on these findings, it makes sense that sibling caregiving TA is not influenced by care length for either primary or non-primary caregivers.

Parent Health

In previous studies, caregivers have expressed that parents' diminishing health served as a catalyst for conversation, forcing family members to discuss the parents' health and caregiving even if they did not feel emotionally prepared to do so (Roff et al., 2007). Based on these findings, it was expected that topic avoidance would be less likely when parents' health was poor. In the current study, parent health was positively associated with both types of topic avoidance for primary caregivers, but not for non-primary caregivers. When parents were in better health, primary caregivers were more likely to topic avoid about both parent well-being and sibling caregiving.

CPM posits that distressing contexts motivate disclosure based on emotional needs (Petronio, 2002). From this perspective, primary caregivers' distress over parents' declining health would generate a need to seek emotional support from siblings through discussion of the

parents' health and care. This explanation aids in understanding the relationship between parent health and primary caregivers' parent well-being TA. Poor parent health has been associated with increased distress for family members (Lieberman & Fisher, 1995). Distress over parents' health could motivate primary caregivers to talk to siblings about their parents' well-being, making topic avoidance less likely when parent health is poor.

However, this explanation does not account for the relationship between parent health and primary caregivers' sibling caregiving TA or why parent health does not predict non-primary caregivers' parent well-being TA. Additionally, if parents' declining health limited parent well-being TA because parents' poor health increased psychological distress, it would be expected that parent health would be directly associated with caregivers' depression. Yet, there was not a significant association between parent health and depression in the current study. Therefore, a different explanation for the relationship between parent health and topic avoidance for primary caregivers is needed.

Declining parent health may necessitate talk because primary caregivers need to inform other siblings about the parents' well-being and ask siblings for more involvement in care. In interviews with caregivers, Wenzel Egan and Hesse (2018) found that caregivers violated their parents' privacy rules and disclosed parent health information if the caregivers were concerned about the parents' health and safety. Primary caregivers are typically privy to parent health information that other siblings may not have access to (Bevan & Sparks, 2011). When parent health declines, primary caregivers may feel the need to disclose that information to other siblings in order to safeguard the parents' health or keep siblings informed of relevant family health information. As a result, primary caregivers would be less likely to engage in parent well-being TA when parents' health is poor.

Similarly, as parents' health declines, primary caregivers may feel a greater need to discuss other siblings' contributions to parental caregiving. Primary caregivers may require greater assistance from siblings as parents become less capable of managing their daily activities. Primary caregivers' may also feel a greater desire to express their gratitude for other siblings' help when parents' health is worse (Ingersoll-Dayton et al., 2004a). This would make primary caregivers' sibling caregiving TA less likely as parent's health declines.

Participant Caregiving Involvement

It was expected that greater levels of caregiving involvement would motivate participants to discuss caregiving with siblings, meaning that topic avoidance would be more likely when participants' caregiving involvement was low. Hours of caregiving has been associated with depression and negative caregiving experiences in past studies (Lin et al., 2012; Pinquart & Sörensen, 2003b). As discussed above, this distress could motivate caregivers to talk with siblings about the parents' health and caregiving (Petronio, 2002).

Additionally, CPM posits that changes in circumstances serve as catalysts for changes in privacy rules (Petronio, 2002, 2013). It was expected that the more impact caregiving had on adult children's lives, exemplified through greater involvement in care, the greater the effect this shift would have on adult children. Therefore, even if parent health was previously a highly private topic (Wenzel Egan & Hesse, 2018), greater involvement in caregiving would prompt siblings to have more open privacy rules. However, this was not the case. Counter to predictions, the participants' own involvement in caregiving had no effect on topic avoidance.

Greater involvement in care may make privacy management issues surrounding parents' health and caregiving more salient for adult children without influencing what resulting privacy rules they create. Instead of relying on criteria that are based on their own activities, caregivers'

topic avoidance was mainly influenced by factors related to the target sibling (benefit-risk

analysis of talk with the sibling and siblings' caregiving involvement) or the parent (parent

health and care length). From these findings, a conclusion could tentatively be drawn that

privacy rules are more strongly influenced by characteristics of the confidant or of the subject of

the information than by contextual changes related primarily to the discloser. Petronio (2002)

does discuss the importance of confidant selection, although most of the literature focuses on

selection based on gender and attraction. If confidant characteristics are of higher importance for

caregivers' privacy management, it makes sense that participants' own involvement in

caregiving would not affect their privacy rules about parent well-being and sibling caregiving.

Sibling Caregiving Involvement

Although participants' level of caregiving involvement did not affect topic avoidance,

perceptions of the siblings' caregiving involvement did. Perceived sibling involvement in

personal care was positively associated with primary caregivers' topic avoidance. Perceived

sibling provision of emotional support for the parent was negatively associated with primary

caregivers' parent well-being TA and non-primary caregivers' parent well-being and sibling

caregiving TA. The following will discuss the effect of siblings' involvement in personal care on

topic avoidance, followed by the effect of siblings' involvement in emotional support.

For primary caregivers, siblings' involvement in providing personal care to the parent

was a catalyst for topic avoidance, counter to predictions. It was hypothesized that greater

involvement in caregiving would be associated with less topic avoidance. However, the

uncomfortable and distressing nature of personal care may prompt primary caregivers to avoid

discussing it. Personal care included helping the parent shower or bathe, go to the bathroom, and

get dressed. Primary caregivers were more likely to engage in both types of topic avoidance if they perceived that their sibling was providing greater personal care for their parent.

Previous topic avoidance and disclosure research demonstrates that individuals avoid discussing topics that they find uncomfortable or distressing such as irritable bowel syndrome (Bevan, 2009), sexual experiences (Guerrero & Afifi, 1995), and parents' alcoholism (Haverfield & Theiss, 2016). Primary caregivers may find it uncomfortable to discuss their parents' health or their siblings' efforts in caregiving when those topics are tied to details about helping the parent use the bathroom or shower. Although CPM proposes that people are motivated to disclose distressing events to attain social support (Petronio, 2002), other disclosure research suggests that the opposite may also be true. For example, in one study, adolescents were found to engage in topic avoidance with their parents about negative life experiences, including traumatic incidents (Guerrero & Afifi, 1995). Caregivers may avoid discussing parental caregiving when their siblings are engaged in personal care in order to avoid further upsetting themselves or their sibling.

Additionally, topic avoidance may serve to protect the parents' privacy and dignity when personal care is occurring. As discussed previously, primary caregivers may feel the need to maintain parents' privacy regarding personal matters (Plander, 2013; Wenzel Egan & Hesse, 2018). Jansson and Plejert (2014) discuss how invasive both mentally and physically it is for older adults to have someone else aid them in personal care activities like taking a shower. They explicate how these activities can challenge older adults' dignity and independence. Caregivers may avoid talking to siblings who are engaged in this type of care as a means of preserving the parents' privacy.

While siblings' personal care motivated primary caregivers' topic avoidance, siblings' emotional support for the parent inhibited parent well-being TA for both primary and non-primary caregivers and sibling caregiving TA for non-primary caregivers. Participants who believed that their siblings were highly engaged in providing emotional support to the parent were less likely to topic avoid with that sibling.

Much of the previous discussion has focused on caregivers' protective role regarding parent well-being information. The effect of siblings' emotional support on parent well-being TA may be explained by similar reasoning. Siblings who are engaged in providing parents with emotional support may be perceived as more sympathetic to the parents' situation and more trustworthy in terms of guarding parent health information. There is a significant correlation between siblings' involvement in emotional support and trust in that sibling ($r = .53$, $p < .001$). Caregivers will be less likely to engage in parent well-being TA with siblings who provide parents with emotional support because they can be more trusted to prioritize the parents' best interests and protect parent well-being information. Parents may also provide more information to siblings who are engaged in providing emotional support, making them useful sources of information about the parents' health.

Perceived sibling emotional support was also negatively associated with sibling caregiving TA for non-primary caregivers. Siblings' emotional support was one of only two variables that were significantly associated with non-primary caregivers' sibling caregiving TA. For non-primary caregivers, discussing siblings' contributions to providing emotional support may be less distressing or uncomfortable than discussing personal care, but more informative than discussing routine tasks. Provision of emotional support is a caregiving task that non-primary caregivers may be more likely to relate to or be able to become involved in themselves.

Past caregiving research demonstrates that distant siblings are more likely to provide emotional support to their parents because it does not necessitate close proximity (Roff et al., 2007). In the current study, non-primary caregivers were more likely to be distance caregivers with 32.4% living 10-100 miles away and 37.6% living over 100 miles away from the parent. Therefore, emotional support may be a safe and useful aspect of siblings' caregiving involvement to discuss.

Benefit-Risk Analysis

CPM proposes that a key factor in the formation of privacy rules is weighing the risks of disclosure against the benefits (Petronio, 2002). If the anticipated risks of disclosure outweigh the anticipated benefits, information is more likely to be kept private. Past CPM and disclosure research have demonstrated the effect of perceived risks on disclosure intentions and behaviors (Hammonds, 2015; Westerman et al., 2017). However, researchers have yet to test the quantitative effect of the ratio of overall perceived benefits to risks.

The present study tested the effect of caregivers' benefit-risk ratio about discussing caregiving talk topics with a specific sibling (e.g. their parent's physical health and their feelings about the sibling's efforts in caregiving for the parent) on their topic avoidance with that sibling about those topics. Benefit-risk analysis was the strongest predictor of topic avoidance for both primary and non-primary caregivers, lending support to CPM. Participants were more likely to engage in both parent well-being TA and sibling caregiving TA if they believed the risks of talk outweighed the benefits.

This is an important finding for CPM because it supports the claim that individuals calculate the relative weights of disclosure benefits against disclosure risks and use this information to make decisions about actual communication behavior. Unfortunately, this finding

does not provide information about what risks and benefits caregivers assessed in order to calculate the benefit-risk ratio. To assess if other privacy rule criteria contributed to benefit-risk analysis, the researcher tested models in which privacy rule criteria predicted topic avoidance through benefit-risk analysis. The models exhibited poor fit (significant χ^2, CMIN/DF > 3, CFI < .90, RMSEA > .10), indicating that other factors not presented in the model drove participants' benefit-risk analysis.

Motivation

In the current study, the motivation privacy rule criterion was conceptualized as relationship motivations to ensure that each privacy rule criterion was distinct and to align with Petronio's (2002) earlier delineation of the motivation privacy rule criterion. Specifically, motivation included sibling liking and sibling trust. Unfortunately, liking and trust were highly correlated with relationship satisfaction and each other, resulting in multicollinearity issues in the study models. Therefore, both liking and trust were removed from analyses.

However, both liking and trust were significantly correlated with both types of topic avoidance, suggesting that relationship motivations influence siblings' engagement in topic avoidance. To further assess this supposition, the researcher conducted multi-group structural equation modeling on models that included relationship motivations but did not include relationship satisfaction. Separate analyses were conducted for liking and trust. The models exhibited good fit. Results of these analyses are presented in Appendix B. For primary caregivers, both liking and trust were negatively associated with topic avoidance. For non-primary caregivers, trust was negatively associated with parent well-being TA.

CPM posits that individuals are more likely to disclose information to people they like, particularly in long-term relationships (Petronio, 2002). Openness between siblings is associated

with liking such that individuals are more open with siblings they like (Myers et al., 2001). It follows that caregivers would be less likely to engage in topic avoidance with siblings that they like. However, liking was only associated with topic avoidance for primary caregivers.

Non-primary caregivers appear to rely more on catalyst criteria for determining caregiving-related privacy rules as opposed to core criteria such as liking, gender, and internal FPO. This is interesting, because it would be expected that more involved siblings (i.e. primary caregivers) would be more reliant on catalyst criteria than less involved siblings would be because their lives are more impacted by caregiving. Instead, it seems that non-primary caregivers use situational criteria, such as the benefit-risk ratio, siblings' involvement in emotional support, and care length, to determine if they will engage in topic avoidance. In the current study, the one exception to this is the association between trust and parent well-being TA.

Sibling trust was associated with parent well-being TA for both primary and non-primary caregivers. As discussed earlier, adult children serve as guardians of private information about their parents' well-being (Plander, 2013). Parents may prefer that their health information be kept from their children (Wenzel Egan & Hesse, 2018). However, adult children at times need to share this information with other siblings in order to make caregiving decisions or improve the parents' safety or quality of life. Caregivers may decide to share parental information with siblings if the sibling is trusted and therefore can be expected to safeguard that information. Caregivers will engage in parent well-being TA as a strategy for protecting parent health information from untrustworthy siblings.

Privacy Rule Criteria Implications

Overall, the importance of specific privacy rule criteria varied based on the privacy rule (parent well-being or sibling caregiving) and the type of caregiver (primary or non-primary). Parent well-being information is unique from sibling caregiving information because of its third-party nature. Findings from the current study suggest that management of third-party information may necessitate consideration of additional variables compared to information regarding the self or the target confidant. In addition to the variables associated with primary caregivers' sibling caregiving TA (parent health, siblings' involvement in personal care, and benefit-risk analysis), primary caregivers' parent well-being TA was also affected by internal FPO and siblings' involvement in emotional support.

Findings also indicate that privacy rule criteria vary in importance depending on the role of the caregiver (primary or non-primary). Primary caregivers' topic avoidance was influenced by several factors that had no bearing on non-primary caregivers' privacy management. Specifically, unlike non-primary caregivers, primary caregivers considered internal FPO, parent health, and siblings' involvement in personal care. Non-primary caregivers, on the other hand, were influenced by care length and were more strongly influenced by siblings' involvement in emotional support than primary caregivers were.

The current study also demonstrates the importance of catalyst criteria in the caregiving context. Benefit-risk analysis and context criteria were the primary drivers of caregivers' topic avoidance. However, additional analyses suggest that the core criterion of sibling trust plays a significant role in caregivers' management of parent well-being information. This finding again emphasizes the importance caregivers likely place on protecting third-party health information.

Overall, the current study illustrates the importance of CPM's privacy rule criteria for sibling caregiving communication. Engagement in topic avoidance as a method for maintaining privacy around caregiving topics is primarily predicted by benefit-risk analysis, sibling caregiving involvement, and sibling trust. Future research should continue to examine how privacy rule criteria differ in importance based on the context, particularly comparing contexts involving significant life changes (like caregiving) with ongoing privacy management. The following section will detail how unwanted topic avoidance causes privacy turbulence, exemplified through the moderation effects of privacy expectations on the associations between topic avoidance and both relationship satisfaction and depression.

Privacy Turbulence

The extant literature builds a case for the negative effects of topic avoidance on relationships and well-being (e.g. Dailey & Palomares, 2004; Mallinger et al., 2006), with a few notable exceptions (Donovan-Kicken & Caughlin, 2010). It was hypothesized in the current study that both types of topic avoidance, parent well-being and sibling caregiving, would be negatively associated with relationship satisfaction and positively associated with depression. These hypotheses were fully supported. For both primary and non-primary caregivers, greater parent well-being TA and greater sibling caregiving TA resulted in diminished relationship satisfaction and greater symptoms of depression. The practical implications for these findings will be discussed later in this chapter.

Beyond testing these associations, the current study was interested in determining under what conditions the effects of topic avoidance on relationship satisfaction and depression were stronger or weaker. It was hypothesized that topic avoidance would be less problematic when the act of withholding parent well-being and caregiving information aligned with familial and

individual privacy management expectations. Specifically, topic avoidance would be less detrimental to the sibling relationship and participants' mental health when participants preferred not to discuss caregiving and did not consider siblings to be co-owners of caregiving-related information. Cases in which topic avoidance did not align with privacy management expectations were conceptualized as privacy turbulence.

Privacy turbulence comprises one of the three main elements of CPM (Petronio, 2013). Privacy turbulence "occurs when expectations for privacy management are unfulfilled" (Petronio, 2010, p. 182). Much of the privacy turbulence literature focuses on cases in which confidants disclose private information to others counter to the original owners' privacy rules (e.g. Steuber & McLaren, 2015). Little research has examined privacy turbulence as restricting information from others who are viewed as having rights to that information. Though in-depth interviews, Miller (2009) found that divorced co-parents considered the withholding of dating information that affected their children to be a form of privacy turbulence. In interviews with members of 30 step-families, Afifi (2003) indicated that topic avoidance was a strategy for addressing privacy turbulence, but not necessarily the cause of turbulence. Although research on unwanted topic avoidance as privacy turbulence is limited, CPM does include confidants restricting disclosure and the inability to share desired information as turbulence (Petronio, 2002).

In the current study, privacy turbulence would occur when engaging in topic avoidance was counter to privacy expectations based on the participants' own caregiving talk preferences and perceptions of siblings' caregiving information ownership. Although there was no case in which greater topic avoidance was associated with positive outcomes, caregiving talk

preferences and caregiving information ownership did moderate the relationship between topic avoidance and its outcomes in four cases.

Primary Caregivers' Privacy Turbulence

For primary caregivers, caregiving information ownership moderated the relationship between sibling caregiving TA and relationship satisfaction. When participants perceived that their siblings' ownership of caregiving information was low, sibling caregiving TA had a minimal effect on relationship satisfaction. When siblings' ownership of caregiving information was high, greater sibling caregiving TA resulted in diminished relationship satisfaction. This finding suggests that, for primary caregivers, sibling caregiving TA constituted privacy turbulence when primary caregivers believed that their sibling had ownership rights over the information being avoided.

Primary caregivers may believe that their sibling has a right to know what they think about how the sibling is contributing to the parents care but choose to withhold that information anyway. Feeling the need to withhold information that the sibling has a right to could strain the relationship, resulting in privacy turbulence and reduced satisfaction. In interviews with caregivers, Ingersoll-Dayton and colleagues (2004b) found that caregivers sometimes refrain from discussing their siblings' care contributions because they do not believe that such conversations will result in behavior change. Topic avoidance can be detrimental to relationship satisfaction when it is caused by partners' constraining of communication (Donovan-Kicken & Caughlin, 2010). In the current study, primary caregivers were more likely to engage in sibling caregiving TA if they believed that talking to their sibling will be more risky than beneficial. Primary caregivers may perceive talk is risky because of siblings shutting down those conversations in the past (Donovan-Kicken & Caughlin, 2010; Keeler, 2014) or believing that

the sibling would respond poorly to being asked to help more (Ingersoll-Dayton et al., 2004b). Primary caregivers may feel forced to violate privacy expectations, resulting in privacy turbulence.

Also for primary caregivers, caregiving talk preferences moderated the association between sibling caregiving TA and depression. When primary caregivers would have preferred to talk to their siblings about the sibling's caregiving contributions, topic avoidance had a stronger effect on depression. In interviews with same-sex couples, Lanutti (2013) found that couples felt distressed when they were forced to avoid talk about their marriage and sexuality because of their family members. As discussed above, primary caregivers may avoid talk about sibling caregiving contributions if it appears too risky. Interestingly, privacy turbulence caused by violating personal boundary permeability preferences (caregiving talk preference) moderated sibling caregiving TA's association with depression whereas privacy turbulence caused by violating the other's right to information (caregiving information ownership) moderated its association with relationship satisfaction. This suggests that the effects privacy turbulence has on relationships and mental health depend in part on the type of privacy turbulence. For primary caregivers in the present study, violating personal privacy expectations impacted mental health and violating the other's right to information impacted the relationship.

Privacy expectations did not moderate the relationship between parent well-being TA and either relationship satisfaction or depression for primary caregivers. This finding provides further support for the unique role of primary caregivers as protectors of parents' well-being information. Perceptions of personal preference and the siblings' rights to the information may not matter due to the fact that the information is about a third party who the primary caregiver feels an obligation to protect (Plander, 2013; Wenzel Egan & Hesse, 2018). Although greater

parent well-being TA was associated with greater symptoms of depression and relationship satisfaction, this may be due to the reasons primary caregivers feel the need to protect parent well-being information from their own siblings rather than privacy turbulence. Primary caregiver's parent well-being TA was predicted primarily by the perception that talking to the sibling about the parents' well-being was too risky.

Non-Primary Caregivers' Privacy Turbulence

For non-primary caregivers, caregiving talk preferences moderated the relationship between both types of topic avoidance and relationship satisfaction. When non-primary caregivers preferred not to talk about the parents' well-being or caregiving, topic avoidance had a minimal effect on relationship satisfaction. When non-primary caregivers would prefer to talk, greater topic avoidance resulted in diminished relationship satisfaction. In a study of breast cancer patients' communication with their romantic partners, Donovan-Kicken and Caughlin, (2010) found that greater topic avoidance resulted in relationship dissatisfaction when topic avoidance was caused by partner constraints on talk. However, when the partner was not constraining talk, topic avoidance was associated with greater satisfaction in the relationship (Donovan-Kicken & Caughlin, 2010). In multiple studies, long distance caregivers have expressed concern that the sibling who is geographically close to the parent is restricting their involvement in the parents' caregiving or is concealing information about the parents' health (Bevan & Sparks, 2011; Lashewicz & Keating, 2009). In the current study, non-primary caregivers' main reason for engaging in topic avoidance was the perception that talk is more risky than beneficial. This perception could be driven by the primary caregivers' communication behaviors that constrain non-primary caregivers' communication and are perceived as blocking them from involvement in care.

Caregiving information ownership did not moderate the association between topic avoidance and relationship satisfaction or depression for non-primary caregivers. Particularly concerning parent well-being information, ownership may not be an issue for non-primary caregivers because the primary caregiver would have the greatest access to parent health information. Non-primary caregivers' avoiding of talk may not be viewed as restricting the other's rightful information.

Privacy Turbulence Implications

Overall, the current study demonstrates that topic avoidance can constitute privacy turbulence when topic avoidance is counter to privacy expectations, evidenced by relationship satisfaction and greater symptoms of depression. This supports CPM's conceptualization of privacy turbulence as any disruption in boundary coordination, not just disclosing information intended to be kept private (Petronio, 2002). The current study's findings build on qualitative CPM work that included unwanted topic avoidance (Bute & Vik, 2010; Lannutti, 2013). They also clarify that topic avoidance is not harmful in all circumstances (Donovan-Kicken & Caughlin, 2010).

Privacy turbulence arose primarily due to violations of personal privacy expectations. Privacy turbulence occurred when participants would prefer to discuss caregiving with their sibling, but instead engaged in topic avoidance. For primary caregivers, this resulted in greater depressive symptoms. For non-primary caregivers, this resulted in relationship dissatisfaction. Only for primary caregivers did privacy turbulence arise from violations of ownership.

For primary caregivers, engaging in parent well-being TA did not cause privacy turbulence when violating caregiving talk preferences or caregiving information ownership. Due to the third-party nature of parent well-being information, it is possible that privacy turbulence

would result if caregivers shared or withheld the information counter to the parents' wishes. However, the current study examined the caregivers' talk preferences and perceptions of siblings' ownership of caregiving information, not parents' ownership or preferences.

Summary of Theoretical Contributions

The current study has contributed to the continuing development of CPM. First the creation of measures assessing caregiving privacy management variables, such as benefit-risk analysis, information ownership, and talk preferences, will allow for future study of caregiving privacy management and serve as models for quantitative CPM research in other contexts. Second, the study tested and confirmed the role of privacy rule criteria in driving the creation and implementation of privacy rules in a large sample quantitative study. Third, the study demonstrated how privacy rule criteria vary in importance based on the particular privacy rule and the role of the discloser through comparison of two types of topic avoidance (parent well-being and sibling caregiving) and two types of caregivers (primary and non-primary). Fourth, the study enhanced understanding of privacy turbulence by quantitatively assessing the conditions under which topic avoidance is more or less problematic for relationships and mental health. Along with its theoretical contributions, the current study also provided valuable insight into the experiences of siblings managing parental caregiving. Findings from the current study provide a foundation for future interventions and investigations into siblings' management of parental care. These practical implications are discussed below.

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Practical Implications

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In addition to testing CPM predictions, the current study aimed to further understanding of the aspects of the caregiving situation, particularly sibling communication, that influence

caregiver well-being. The goal of these investigations is to find avenues for future interventions to improve caregivers' mental health and sibling relationships. The following sections will discuss the study variables that directly affected relationship satisfaction and depression, focusing on caregiving involvement, topic avoidance, past family interactions, and parent health.

Caregiving Involvement

Although no predictions were made about the relationship between caregiving involvement and relationship satisfaction or depression, such relationships did emerge in the data. For both primary and non-primary caregivers, siblings' caregiving involvement was associated with relationship satisfaction. For primary caregivers, participants' own caregiving involvement was associated with depression. The specific associations and their practical implications for caregivers, are discussed below.

Sibling Caregiving Involvement and Relationship Satisfaction

In the current study, different types of sibling caregiving involvement were associated with relationship satisfaction for primary compared with non-primary caregivers. For primary caregivers, siblings' involvement in routine tasks was associated with relationship satisfaction. For non-primary caregivers, siblings' involvement in personal care was associated with relationship satisfaction. Qualitative research examining sibling relationships during caregiving demonstrate how siblings' level of involvement in caregiving can affect the sibling relationship (Amaro & Miller, 2016; Gentry, 2001; Hequembourg & Brallier, 2005). Feeling that caregiving tasks are inequitably distributed can be upsetting for caregivers and create resentment among siblings (Ingersoll-Dayton et al., 2004b). The following will discuss the effect of siblings'

involvement in routine tasks on relationship satisfaction, then the effect of siblings' involvement in personal care.

Caregivers experience greater burden and life strain the more hours they spend providing care. In a review of the caregiver burden literature, Adelman, Tmanova, Delgado, Dion, and Lachs (2014) found that number of hours spent caregiving was a risk factor for experiencing caregiver burden. The more time spent completing caregiving tasks, the less time caregivers have to engage in their regular daily activities. Primary caregivers often sacrifice their own social and recreation time in order to provide more care (Pinquart & Sörensen, 2003a). Time spent caregiving can also create strain in marriages, particularly when the couples have children (Kang & Marks, 2016).

When other siblings assist in the performance of routine tasks, such as cooking, cleaning, or shopping, it likely alleviates some of the burden that primary caregivers feel and provides them with time to take for themselves, their work, or other family members. Although routine tasks may not seem as strenuous or distressing as providing personal care, non-primary caregivers can lessen the work that primary caregivers perform by taking on these tasks. Sometimes, siblings do not aid primary caregivers because they do not know what to do to help (Ingersoll-Dayton et al., 2004b). Based on the current study's findings, primary caregivers appreciate when their siblings engage in routine tasks, as evidenced by higher satisfaction in relationships with siblings who are highly engaged in performing routine tasks. Helping with transportation, shopping for groceries, cleaning, cooking, and going to medical visits are ways that non-primary caregivers can aid their siblings and maintain healthier relationships with primary caregiver siblings.

For non-primary caregivers, siblings' involvement in personal care was positively associated with relationship satisfaction. Non-primary caregivers likely recognize the distressing nature of personal care which includes helping the parent shower or bathe, go to the bathroom, and get dressed. Siblings who are willing to help the parent with these tasks may be more appreciated because of this. Interestingly, this also means that non-primary caregivers are dissatisfied with siblings who are not involved in providing personal care for the parent. About two-thirds (62%) of non-primary caregivers in the current study were reporting on relationships with other non-primary caregivers. Only about one-third (38%) were reporting about the primary caregiver. Non-primary caregivers may be dissatisfied with other siblings when they are not participating in parent care, leaving caregiving tasks to other siblings.

Participant Caregiving Involvement and Depression

The caregiving literature presents a complicated picture of the association between caregiving involvement and depression. Numerous studies attest that caregivers experience greater symptoms of depression than non-caregivers (Cichy et al., 2014; Cooper et al., 2007). Yet, other researchers caution that caregiving is not an innately distressing experience (Roth et al., 2015). Rather, caregiving is distressing under particular circumstances. In the current study, caregiving was more or less distressing partially due to the type of care the individual provided. For primary caregivers, greater involvement in personal care was associated with more depressive symptoms and greater involvement in emotional support was associated with less depressive symptoms.

Based on the current study, interventions should target informal caregivers who are engaged in personal care because they are at a greater risk for experiencing depressive symptoms. As noted earlier in this chapter, providing personal care can be an upsetting or

uncomfortable task. When primary caregivers are helping their parents perform bathroom activities and get dressed, they are more likely to report frequent depressive symptoms. There is a strong body of literature examining bathing disability, meaning when individuals have difficulties with bathing due to illness, aging, or injury (Murphy, Gretebeck, & Alexander, 2007). Much of this research focuses on formal, paid care, including environmental constraints and difficulties in interactions between older adults and formal caregivers. However, this literature provides recommendations for changes in bathrooms to allow older adults to bathe, shower, and use the toilet independently longer such as increasing the amount of space in the bathroom, including railings, raising the height of the toilet seat, and including a bench in the shower (Morales, Rousseau, & Passini, 2012). These solutions may be helpful for informal caregivers. However, for many these solutions may not be financially possible or may not be enough to allow older adults to perform their own personal care tasks. If this is the case, it is important to identify avenues that will address depressive symptoms for caregivers who must engage in personal care. Provision of emotional support to the parent may help.

Unlike personal care, higher involvement in emotional support was associated with reduced depressive symptoms. In the current study, primary caregivers who provided more emotional support to their parents were less likely to report experiencing depressive symptoms. Emotional support included listening to concerns, providing encouragement, and comforting. These support activities imply healthy communication is occurring between the primary caregiver and the parent. Poor communication between the parent and the caregiver has been linked to strain in the relationship (Edwards & Forster, 1999).

To further test the protective effect of emotional support on primary caregivers' depressive symptoms, the researcher assessed if primary caregivers' emotional support provision

moderated the association between primary caregivers' personal care and depression. Emotional support provision did serve as a moderator. (For results of these analyses, see Appendix B). When primary caregivers were providing high levels of emotional support to their parent, personal care had little effect on their depression.

Effects of Topic Avoidance

The current study confirms that topic avoidance in the caregiving context can be detrimental. For primary and non-primary caregivers, greater parent well-being TA and sibling caregiving TA resulted in relationship dissatisfaction and increased symptoms of depression. It is important for caregivers to be aware of the mental and relational strain that is associated with caregiving topic avoidance. However, open communication about the parents' well-being and sibling caregiving contributions is not necessarily the answer.

Although openness is considered a relational ideal in Western society, communication scholars agree that simply recommending people be open with their close others is not beneficial (Goldsmith et al., 2007). Openness can be detrimental when close others give unsupportive responses (Manne & Glassman, 2000). For caregivers specifically, discussing caregiving inequity with less involved siblings can be disappointing and increase tension in the relationship (Ingersoll-Dayton et al., 2004b). Openly discussing the parents' well-being or the siblings' contributions (or lack of contributions) to caregiving could create conflict (Amaro & Miller, 2016). Caregivers' experience of family conflict has been associated with poor mental health and increased caregiver burden (Strawbridge & Wallhagen, 1991). Additionally, in the current study, topic avoidance was not always detrimental if it aligned with caregivers' privacy expectations. This suggests that topic avoidance can be an effective strategy for caregivers to maintain privacy.

Therefore, recommendations are needed for improving caregiver communication that go beyond openness.

Rather than making blanket recommendations for addressing the negative effects of topic avoidance, strategies should vary based on the cause of caregivers' topic avoidance. This claim will be further explicated by exploring four unique causes of topic avoidance and recommendations for addressing them. These examples include sibling involvement in personal care, trust, parent health, and benefit-risk analysis.

First, in the current study, primary caregivers were more likely to topic avoid when their siblings were highly engaged in personal care. Strategies that help caregivers effectively talk about personal care in a way that is supportive for their siblings and less distressing for them could be the most helpful solution for these caregivers. Caregivers may not have a script from their life experiences to draw on when having these conversations, making it more difficult and uncomfortable. Communication scholars should identify strategies for discussing personal care that mitigate distress, generate support, and respect the parent. This is particularly important, because findings from the current study demonstrate that involvement in personal care is associated with increased depression. Learning to express support and gratitude to siblings involved in personal care could help decrease their distress (Amaro & Miller, 2016).

Second, caregivers may engage in topic avoidance because they do not trust their siblings. If this is the case, encouraging discussion of the parents' health and care may not be helpful, particularly if their mistrust is well-founded. Instead, if there is frequent communication between the caregiver and the distrusted sibling, caregivers could benefit from strategies to negotiate more closed privacy boundaries with them (Petronio, 2002). It would be important to identify methods for negotiating those boundaries without creating or increasing conflict.

Third, primary caregivers are more likely to engage in topic avoidance when parents are in better health. Caregivers may not feel psychologically ready to discuss caregiving, instead putting-off the conversation until it becomes absolutely necessary due to declining parent health (Roff et al., 2007). Waiting until parent health has significantly worsened to discuss caregiving contributions and the parents' well-being may not be an effective plan because parents may no longer be able to clearly express their preferences, care decisions may need to be made quickly without time to consider all options, and siblings may feel uninformed about the parents' well-being (Crotty et al., 2015; Kramer, Boelk, & Auer, 2006; Willyard et al., 2008). Rather, primary caregivers could benefit from strategies for engaging in care-planning conversations with siblings while parents are in better health. Having earlier conversations would allow for parents to be more involved in decision-making and help siblings be prepared for the future.

Fourth, caregivers are more likely to engage in topic avoidance when caregiving talk is perceived as more risky than beneficial. Both Plander (2013) and Wenzel Eggan and Hesse (2018) explored privacy management between older adults and their adult child caregivers. They found that parents often attempted to maintain thicker boundaries around their private health and financial information. Caregivers often waited to disclose information to others until they thought it was more beneficial for the parent. In the current study, caregivers may have weighed caregiving talk as more risky than beneficial if they thought the parent would prefer them to keep caregiving information private. Caregivers also may consider attempts to talk riskier if siblings engaged in mutual topic avoidance or constrained their communication in the past, making it difficult to talk about caregiving even when talk is desired (Donovan-Kicken & Caughlin, 2010). If either is the case, caregivers would not profit from communication strategies aimed at discussing caregiving information. Instead, caregivers could benefit from other forms of

supportive sibling communication including relational maintenance behaviors (Myers et al., 2011), dyadic resilience promoting communication (Buzzanell, 2010; Chernichky-Karcher, Venetis, & Lillie, 2019), and being open without talking about it (Caughlin et al., 2011).

The four examples described above demonstrate how beneficial recommendations for addressing caregiving topic avoidance may vary with the cause of topic avoidance. The current study provides insight into these causes, including sibling caregiving involvement, care length, parent health, benefit-risk analysis, internal FPO, trust, and liking. Findings also demonstrate that there are conditions under which topic avoidance could be a beneficial strategy for maintaining privacy. The next section will discuss how previous family patterns of communication influence caregivers' relationship satisfaction and depression through internal FPO and benefit-risk analysis.

Previous Family Interactions

Past interactions with family members have an effect on caregivers. In the current study, both internal FPO and benefit-risk analysis were associated with relationship satisfaction and depression. Any intervention to improve caregivers' sibling relationships and mental health need to recognize the family context in which caregiving takes place.

Caregivers from a family with an open internal FPO were more satisfied with their sibling relationships and reported less frequent depressive symptoms. This is not surprising, because a more open internal FPO has been associated with greater family satisfaction (Morr Serewicz et al., 2007) and improved well-being (Hammonds, 2015). Caregivers in more closed families would experience greater barriers to improving sibling communication. Strategies aimed at improving sibling communication may not be possible in a closed family environment.

Instead, caregivers may need to seek support elsewhere and be aware that their family climate can exacerbate caregiving-related stressors.

Unsurprisingly, benefit-risk analysis was positively associated with relationship satisfaction, meaning caregivers were more satisfied in relationships where caregiving talk was considered more beneficial than risky. This could be indicative of a sibling who is more helpful, easier to talk to, and less likely to cause problems. Caregivers reporting that talk is riskier may have had conflictual or unpleasant interactions with their sibling in the past. In Keeler's (2014) dissertation, caregivers discussed how they would avoid talking to their siblings about a variety of topics because those siblings had responded poorly in the past. They utilized knowledge from past interactions to evaluate their siblings' possible reactions to caregiving talk. These evaluations impact how satisfied they were with the sibling relationship.

Interestingly, the more beneficial talk was perceived to be, the more frequent depressive symptoms caregivers reported experiencing. This is likely due to the reasons why talk is considered beneficial that are unrelated to the siblings' openness to caregiving talk. Although parent health was not associated with depression, it is possible that when critical incidents occur, such as the parent falling or being hospitalized, that caregivers perceive caregiving talk to be more beneficial. Talk could also be considered more beneficial if the caregiver needs to request more help from the target sibling. Even when a sibling is willing to help, caregivers can become frustrated or disappointed if siblings need to be asked first before helping (Hequembourg & Brallier, 2005; Ingersoll-Dayton et al., 2004a). Therefore, talk could be beneficial because the sibling will help if asked but be depressing because the sibling needs to be asked or because the situation requires more help. If benefit-risk analysis is associated with depression for these reasons, it will be important to prepare caregivers for the challenges associated with times of

transition, such as critical incidents or caregiving change. Caregivers could also benefit from communication skills training aimed at improving delivery of and coping with bad news about the parent as well as skills training to improve asking siblings for help.

Parent Health

Parent health was positively associated with relationship satisfaction for both primary and non-primary caregivers. This suggests that parent ill health puts a strain on sibling relationships. Parents' declining health can trigger feelings of sadness, distress, or frustration for adult children (Boyer et al., 2002; Zapka et al., 2006). Stress caused by critical incidents can have a negative impact on relationships (Randall & Bodenmann, 2009). Distress due to parent ill health or a build-up of strain from caregiving could increase conflict and dissatisfaction among siblings.

As parents' health declines, issues with caregiving inequity may become starker. More involved siblings may feel more frustrated with less involved siblings when parents require greater assistance. Conversely, less involved siblings may resent pressure from others to be more involved, particularly if barriers like work, children, and distance prevent them from helping as much as their siblings want. Conflict can result when siblings do not meet other siblings' expectations for involvement in care, with both sides experiencing anger or frustration (Strawbridge & Wallhagen, 1991).

Future interventions should target caregivers before parents become severely frail. It is important to prepare caregivers for the strain that can occur on their sibling relationships as their parents' health worsens. It will be important to determine the mechanisms through which parent ill health affects sibling relationship satisfaction. Strategies for improving sibling relationships will vary based on these mechanisms, such as stress related to parent illness or siblings' lack of involvement in care.

Summary of Practical Implications

The current study provides insight into potential avenues for interventions targeting caregivers and their communication with their siblings. Of particular importance are the differences between primary and non-primary caregivers. As discussed above, the factors that are associated with topic avoidance, relationship satisfaction, and depression differ for primary and non-primary caregivers. For example, for primary caregivers, depression is largely impacted by their own involvement in caregiving, including personal care and emotional support. However, this was not the case for non-primary caregivers. Another example is parent health, which is associated with relationship satisfaction for both types of caregivers but is only associated with topic avoidance for primary caregivers. Future interventions must take into account the key differences between primary and non-primary caregivers, tailoring advice to the type of caregiver. Important areas of consideration for interventions include caregiving involvement, topic avoidance, previous family interactions, and parent health.

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Limitations and Future Directions

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Although the current study provides important contributions to CPM, sibling communication, and caregiving literature, it has several limitations. These limitations point to future areas of research that will be important for developing effective interventions for siblings managing parent care. The following will briefly discuss each of these areas including: utilizing a longitudinal design, assessing past critical incidents in sibling communication, exploring the benefits and risks of caregiving talk, measuring specific parent illnesses, and utilizing other sampling techniques.

The current study utilized a cross-sectional design, taking data from each participant at only one time point. Cross-sectional studies are limited in their ability to make claims about

causality (Rindfleisch, Malter, Ganesan, & Moorman, 2008). For example, the current study proposes that topic avoidance causes changes in relationship satisfaction and depression. However, both relationship satisfaction and depression have been conceptualized as causes of topic avoidance in specific studies (Knobloch, Sharabi, Delaney, & Suranne, 2016; Merril and Afifi, 2012). In the current study, models positioning relationship satisfaction and depression as outcomes had better fit than models positioning topic avoidance as the outcome, but the cross-sectional nature of the data still does not allow for claims about causality. Similarly, variables such as liking, benefit-risk analysis, and relationship satisfaction can be reciprocal, each affecting the other over time. Future research should utilize a longitudinal design, measuring study variables across multiple time points to better establish causality. This is particularly important, because change in caregiver status can occur over time (Szinovacz & Davey, 2007; 2013). Additionally, as discussed earlier, caregivers' communication is influenced by past interactions with siblings (Keeler, 2014), and these interactions could generate change in caregiving communication patterns over time.

Due to the importance of benefit-risk analysis for topic avoidance, relationship satisfaction, and depression, it is important to assess what factors influence caregivers' perceptions of benefit and risk. The current study was unable to do this because study variables (caregiving involvement, parent health, gender, internal FPO, etc.) did not predict benefit-risk analysis. Future research should explore the benefits and risks that caregivers consider. In-depth interviews or focus groups would be effective for determining these factors.

The current study did not assess if parents had been diagnosed with cognitive conditions (such as dementia or Alzheimer's disease), cancer, or other illnesses. The study did measure overall parent health, categorizing parents diagnosed with terminal illnesses as severely frail.

However, research assessing caregiver well-being suggests that informal caregivers for older adults with cognitive limitations experience diminished health and well-being compared to other caregivers (Cooper et al., 2007; Roth et al., 2015). Caregivers for older adults with dementia or other cognitive limitations may have unique considerations when managing private caregiving information compared to other caregivers.

Finally, the study utilized MTurk in order to obtain a more varied sample in terms of level of caregiving involvement. However, this limits the applicability of the findings to individuals who had the time, motivation, and access to use MTurk. The current study's sample represents caregivers whose parents are not currently in assisted living or on hospice care. Future research should utilize other sampling techniques in order to validate and further study findings with caregivers who are not heavy internet users and who have parents in assisted living or hospice care.

Conclusion

In sum, findings from the current study support CPM suppositions regarding privacy rules and privacy turbulence in the context of sibling caregiving communication. Specifically, privacy rule criteria predicted siblings' engagement in topic avoidance about parent well-being and sibling caregiving. Topic avoidance resulted in privacy turbulence when topic avoidance violated privacy expectations, exemplified primarily by relationship dissatisfaction. The current study also identified factors that contribute to caregivers' sibling relationship satisfaction and depression. Sibling relationship satisfaction varied based on topic avoidance, siblings' involvement in caregiving, parent health, internal FPO, and benefit-risk analysis. Depression varied based on topic avoidance, own caregiving involvement, internal FPO, benefit-risk analysis, and relationship satisfaction. Findings point to areas of intervention for communication

scholars to address caregivers' difficulties in sibling relationships and with depression. The current study also illustrated how primary and non-primary caregivers are differently affected by privacy rule criteria and other variables. Future research should explore these differences further, tailoring interventions and advice to fit the caregivers' role.

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APPENDIX A. SURVEY MEASURES

Appendix A includes all survey measures and items from both the pilot and main surveys. Scale names were not included in the actual surveys but have been added to clarify the purpose of the presented items. Additionally, formatting has been altered on scale items to improve readability. Some items and scales were randomized within survey blocks. The informed consent document, compensation information, and eligibility questions are presented first.

Informed Consent

Thank you for your interest in this research project. The following includes information about the study and asks you to agree to participate. Once you agree, you will be directed to the survey.

 RESEARCH PARTICIPANT CONSENT FORM
 Family Communication about Health and Care
 Principal Investigator: Dr. Maria Venetis
 Co-Investigator: Helen M. Lillie
 Brian Lamb School of Communication
 Purdue University

 What is the purpose of this study? The purpose of this study is to better understand factors that affect family communication about health and caregiving. The study will also look at how family communication can affect family relationships and stress. Approximately 1,000 people will participate in this study. All study responses will be kept anonymous.

 What will I do if I choose to be in this study? First, you will answer a couple of screening questions to identify if you are qualified for the survey. This should take about one minute.

 If you qualify, you will be asked questions about your family, your and your family members' health, your communication with family members, and some demographics. The survey should take 20-45 minutes to complete.

 After completing the study, you will be given a random code to enter into MTurk in order to receive compensation.

 How long will I be in the study? Total time to complete the survey is 20-45 minutes.

 What are the possible risks or discomforts? The risks involved with this study are minimal. All research carries the risk of breach of confidentiality. There are safeguards in place to guard against this, which are described in the confidentiality section of this consent form.

 Are there any potential benefits?   There are no direct benefits to participating beyond compensation as discussed below.

 Will I receive payment or other incentive?
 You will receive $1.50 for completion of the survey. You must enter the random code generated at the end of the survey into MTurk in order to receive compensation.

 Will information about me and my participation be kept confidential? The project's

research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight. Otherwise, all data will only be accessed by the research team. No data linking you personally to your responses will be collected. All survey data will be stored in a password protected file on a password protected computer only accessible by the research team. Data will be kept indefinitely. Results of the study will potentially be presented at academic conferences and published in academic journals. If you are interested in the study results, please contact the research team at familycommunicationstudies@gmail.com.

What are my rights if I take part in this study? Your participation in this study is voluntary. You may choose not to participate or, if you agree to participate, you can withdraw your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Remember that you must complete the survey to receive compensation. If you do not meet eligibility criteria (determined at the beginning of the survey) or you fail the attention check, you will not be able to complete the survey.

 Who can I contact if I have questions about the study?
 If you have questions, comments or concerns about this research project, you can talk to one of the researchers. Please contact Helen Lillie at familycommunicationstudies@gmail.com.

If you have questions about your rights while taking part in the study or have concerns about the treatment of research participants, please call the Human Research Protection Program at (765) 494-5942, email (irb@purdue.edu)or write to:
Human Research Protection Program - Purdue University
Ernest C. Young Hall, Room 1032
155 S. Grant St.,
West Lafayette, IN 47907-2114

I have had the opportunity to read this consent form. I am prepared to participate in the research study described above.
- o   Yes

- o   No

Important Instructions for Receiving Survey Compensation

At the end of the survey, the survey program will generate a random, unique number. This is your individual survey code, validating that you completed the survey**.** It will be displayed in bold on the last page of the survey. In order to receive compensation for completing this survey, you must enter that survey code (displayed on the last survey page) into MTurk. THIS IS NOT YOUR MTURK ID!

The researchers will check the codes entered against a list of the codes the survey program has generated prior to giving compensation, so make sure you enter the actual code given at the end of the survey. Codes entered must be valid in order to receive compensation (i.e. do not make up your own code or put in your MTurk ID...you will not be compensated without the code!).

There are a few screener questions at the beginning of this survey. You must meet the eligibility criteria in order to take the survey and receive compensation. Those who are not eligible will be informed immediately after answering screening questions. (It should take no more than one minute to answer the screener questions).

Additionally, there are attention checks in the survey. If you fail an attention check (meaning you are not actually reading the questions) you will not be allowed to complete the survey or receive compensation. So make sure that you are actually reading the questions!

I have read and understand the requirements for compensation and that there are screener questions and an attention check that I must pass to complete the survey and receive compensation.

- o Yes

- o No

Screener Questions

How many siblings do you have? (including, but not limited to, biological, adoptive, or step-siblings)
- o 0

- o 1

- o 2

- o 3

- o 4

- o 5+

How many living parents do you have? (including, but not limited to biological, adoptive, or step-parents)
- o 0

- o 1

- o 2

- o 3

- o 4

- o 5+

How many of your parents are receiving unpaid care from a family member and/or yourself?

(Unpaid care includes a range of activities such as driving the parent, providing personal care for them such as dressing or bathing, running errands for them, contributing to and organizing their

finances, administering their medication, providing emotional support, and making decisions for them).

- o   0
- o   1
- o   2
- o   3
- o   4
- o   5+

What is your current age?
- o   15-17 years old
- o   18-24 years old
- o   25-40 years old
- o   41-60 years old
- o   61-75 years old
- o   76 or older

Participant Demographic Questions

Which race/ethnicity best describes you?
- o   Black or African American
- o   East Asian or Asian American
- o   Latinx or Hispanic American
- o   Middle Eastern or Arab American
- o   Native American or Alaskan Native
- o   Native Hawaiian or Other Pacific Islander
- o   South Asian or Indian American
- o   White or Caucasian American
- o   Other: _____

Please select which of the following best describes your current relationship/marital status:
- o   Single

- Married

- Committed Partnership

- Separated

- Divorced

- Widowed

What is the highest level of school you have completed or the highest degree you have received?
- Less than high school degree

- High school graduate (high school diploma or equivalent including GED)

- Some college, but no degree

- Associate's degree in college (2 year)

- Bachelor's degree in college (4 year)

- Master's degree

- Doctoral degree

- Professional degree (JD, MD)

What is your sex?
- Male

- Female

- Other _____

Which of the following best describes your sexual orientation?
- Heterosexual (straight)

- Homosexual (gay)

- Bisexual

- Asexual

- Other _____

Which of the following best describes your situation as a parent?
- I have no children

- I have children living in my home

- I have children living in a different person's home (such as another parent or relative)

- I have adult children living away from home

      o   I have a mix of both children living at and away from home

Which best describes your current employment:
- Full-time
- Part-time
- Unemployed

Participant Well-Being

Self-Rated Health
In general, I would say my current health is:
- Poor
- Fair
- Good
- Very Good
- Excellent

Depression: Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977)

Below is a list of the ways you might have felt or behaved. Please mark how often you have felt this way <u>during the past week</u>.

Scale Points
1 - Rarely or none of the time (less than 1 day)
2 - Some or a little of the time (1-2 days)
3 - Occasionally or a moderate amount of time (3-4 days)
4 - Most or all of the time (5-7 days)

Items
I was bothered by things that usually don't bother me.
I did not feel like eating; my appetite was poor.
I felt that I could not shake off the blues even with help from family or friends.
I felt that I was just as good other people.
I had trouble keeping my mind on what I was doing.
I felt depressed.
I felt that everything I did was an effort.
I felt hopeful about the future.
I thought my life had been a failure.
I felt fearful.
My sleep was restless.

I was happy.
I talked less than usual.
I felt lonely.
People were unfriendly.
I enjoyed life.
I had crying spells.
I felt sad.
I felt that people dislike me.
I could not get "going."

Family of Origin Communication

Internal Family Privacy Orientation (Morr, 2002)

This section asks questions about how **your family of origin** (the family you grew up with) communicates with one another.

Please consider how your family handles private information within your family. Answer each question by indicating how much you agree that each statement describes your family.

Scale Points
1 - Strongly disagree
2 - Disagree
3 - Somewhat disagree
4 - Neutral
5 - Somewhat agree
6 - Agree
7 - Strongly agree

Items
Family members are very open with each other.
Family members do not discuss private information with one another.
Within the family, everybody knows everything.
Family members keep secrets from one another.
For this question select neutral as your answer for an attention check.
There are specific groups within the family that keep information from one another.
Family members share their private information with each other.

Parent Demographics

Which of your parents requires **the most care**? (including a range of activities such as driving the parent, providing personal care for them such as dressing or bathing, running errands for

them, contributing to and organizing their finances, administering their medication, providing emotional support, and making decisions for them): _____

Important: In the remainder of the survey "your parent" will refer to this particular parent. (The one who needs the most care)

Which of the following best describes that parent:
- o Father

- o Mother

- o Step-father

- o Step-mother

- o Other _____

What is that parent's current age?
- o 15-17 years old

- o 18-24 years old

- o 25-40 years old

- o 41-60 years old

- o 61-70 years old

- o 71-80 years old

- o 81-90 years old

- o 90+ years old

How far away from you does that parent live?
- o In the same home

- o Less than 10 miles away

- o 10-100 miles

- o More than 100 miles away

Which of the following best describes that parent's current living situation?
- o Independent

- o Living with you or a relative (other than his/her spouse)

- o In-home professional care

- o Assisted living facility

Is that parent currently receiving hospice care?
- o Yes

o   No

Which of the following best describes that parent's current state of health:
- Very fit – robust, active, energetic, well motivated and fit; commonly exercise regularly and is in the most fit group for his/her age.

- Well – without active disease, but less fit than possible

- Well, with treated disease – is experiencing disease/illness, but symptoms are well-controlled

- Apparently vulnerable – although not completely dependent, commonly complains of being "slowed up" or having illness/aging symptoms

- Mildly frail – has some dependence on others for instrumental activities and daily living

- Moderately frail – needs help with both instrumental and non-instrumental activities of daily living

- Severely frail – completely dependent on others for the activities of daily living and/or is terminally ill

Are you the primary caregiver for this parent (meaning, you give the most care, are the main decision-maker for their care, etc.)?
- Yes

- No

Do you have power of attorney for this parent?
- Yes

- No

How long has this parent been receiving care?
- Less than 1 year

- 1-2 years

- 3-5 years

- 6-10 years

- 11-20 years

- 21+ years

Participant Caregiving Involvement

Please state whether **you have done** for your parent or helped your parent with the following since your parent began receiving unpaid care.
I have done for my parent or helped my parent with:

Scale Points
1 - Disagree
2 - Somewhat disagree
3 - Unsure
4 - Somewhat agree
5 – Agree

Items
Cooking
Shopping for groceries
Cleaning
Transportation
Seeing to financial matters
Washing
Taking a bath or shower
Getting dressed
Going to the toilet
Getting up or sitting down
Contributed money/finances
Provided encouragement
Listened to concerns
Helped make decisions
Managed social life/outings
Visited with
Comforted
Assisted at medical visits
Monitored medication(s)
Had over in your home
Hired/managed professional help for
Monitored meals/eating
Hired/managed professional help for

Caregiving Information Ownership

Please indicate how strongly you agree or disagree with the following statements concerning information about your parent's health and care.
My sibling(s) and I have the right to know about:

Scale Points
1 - Disagree
2 - Somewhat disagree
3 – Neither agree nor disagree
4 - Somewhat agree
5 – Agree

Items
The details of my parent's physical health.
The details of my parent's emotional health.
My parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.).
If my parent's physical or mental health is getting worse.
All decisions related to our parent's care before they are made.
All decisions that have been made about our parent's care.
Our parent's current financial situation.
How our parent's care is paid for.
The details of how each of us is contributing to our parent's care.
Each other's opinions about our parent's care.
Each other's feelings about our parent's health.
The details of what is said in my parent's medical appointments/doctor visits.

Sibling Selection

Earlier in the survey, you indicated that you have # of siblings. Please enter the initials in the boxes below for your # siblings.

The next page of the survey will randomly select one of those siblings. The rest of the survey will ask questions about your communication with that randomly selected sibling.

For the remainder of the survey, please answer questions about your communication and relationship with the person you entered as: [randomly selected sibling initials]

Note: For the remainder of the survey, wherever the phrase "your sibling" is included, Qualtrics auto-filled with the sibling's initials.

Sibling Demographics

Which of the following best describes your sibling?
- o Biological Sibling
- o Adoptive Sibling
- o Step Sibling
- o Other _____

What is your sibling's sex?
- o Male
- o Female
- o Other _____

Which of the following best describes your sibling?
- o Older than you
- o Younger than you
- o Same age as you (for example: twins)

What is your sibling's current age?
- o 15-17 years old
- o 18-24 years old
- o 25-40 years old
- o 41-60 years old
- o 61-75 years old
- o 76 or older

Please select the following that best describes your sibling's current relationship/marital status:
- o Single
- o Married
- o Committed Partnership
- o Separated
- o Divorced
- o Widowed

Which of the following best describes your sibling's situation as a parent?
- o Your sibling has no children
- o Your sibling has children living in his/her home
- o Your sibling has children living in a different person's home (such as another parent or relative)
- o Your sibling has adult children living away from home
- o Your sibling has a mix of both children living at and away from home

What race/ethnicity best describes your sibling?
- o Black or African American
- o East Asian or Asian American
- o Latinx or Hispanic American
- o Middle Eastern or Arab American
- o Native American or Alaskan Native
- o Native Hawaiian or Other Pacific Islander

- o South Asian or Indian American

- o White or Caucasian American

- o Other: _____

What is the highest level of school your sibling has completed or the highest degree your sibling has received?
- o Less than high school degree

- o High school graduate (high school diploma or equivalent including GED)

- o Some college, but no degree

- o Associate's degree in college (2 year)

- o Bachelor's degree in college (4 year)

- o Master's degree

- o Doctoral degree

- o Professional degree (JD, MD)

Which describes your sibling's current employment status?
- o Full-time

- o Part-time

- o Unemployed

Is your parent receiving care also your sibling's parent? (do you share that parent?)
- o Yes

- o No

Is you sibling the primary caregiver for this parent (meaning, your sibling gives the most care, is the main decision-maker for your parent's care, etc.)?
- o Yes

- o No

Does your sibling have power of attorney for your parent who is receiving care?
- o Yes

- o No

Sibling Caregiving Involvement

Please state whether **your sibling has done** for your parent or helped your parent with the following <u>since your parent began receiving unpaid care:</u>
Your sibling has done for your parent or helped your parent with:

Scale Points
1 - Disagree
2 - Somewhat disagree
3 - Unsure
4 - Somewhat agree
5 – Agree

Items
Cooking
Shopping for groceries
Cleaning
Transportation
Seeing to financial matters
Washing
Taking a bath or shower
Getting dressed
Going to the toilet
Getting up or sitting down
Contributed money/finances
Provided encouragement
Listened to concerns
Helped make decisions
Managed social life/outings
Visited with
Comforted
Assisted at medical visits
Monitored medication(s)
Had over in your home
Hired/managed professional help for
Monitored meals/eating

Relationship Motivation

Sibling Trust: Dyadic Trust Scale (Larzelere & Huston, 1980)

Please indicate how strongly you agree or disagree with the following statements about your sibling.

Scale Points
1 - Strongly Disagree
2 - Disagree
3 - Somewhat Disagree
4 - Neutral
5 - Somewhat Agree

6 - Agree
7 - Strongly Agree

Items
My sibling is primarily interest in his/her own welfare. (R)
There are times when my sibling cannot be trusted. (R)
My sibling is perfectly honest and truthful with me.
I feel that I can trust my sibling completely.
My sibling is truly sincere in his/her promises.
I feel that my sibling does not show me enough consideration. (R)
My sibling treats me fairly and justly.
I feel that my sibling can be counted on to help me.

Liking: Rubin's Liking Scale (1970)

Scale Points
1 - Strongly Disagree
2 – Somewhat Strongly Disagree
3 – Disagree
4 – Somewhat Disagree
5 - Neutral
6 - Somewhat Agree
7 – Agree
8 – Somewhat Strongly Agree
9 – Strongly Agree

Items
When I am with my sibling, we are almost always in the same mood.
I think that my sibling is unusually well-adjusted.
I would highly recommend my sibling for a responsible job.
In my opinion, my sibling is an exceptionally mature person.
I have great confidence in my sibling's good judgement.
Most people would react very favorably to my sibling after a brief acquaintance.
I think that my sibling and I are quite similar to each other.
I would vote for my sibling in a group election.
I think that my sibling is one of those people who quickly wins respect.
I feel that my sibling is an extremely intelligent person.
My sibling is one of the most likable people I know.
My sibling is the sort of person whom I myself would like to be.
It seems to me that it is very easy for my sibling to gain admiration.

Sibling Caregiving Communication

Caregiving Topic Avoidance

Please indicate how strongly you agree or disagree with the following statements concerning your communication with your sibling <u>since your parent began receiving care</u>.

I usually **AVOID** talking to my sibling about:

Scale Points
1 - Disagree
2 - Somewhat disagree
3 - Neutral
4 - Somewhat agree
5 – Agree

Items
Our parent's physical health.
Our parent's mental health.
Our parent's emotional state.
Our parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.).
If our parent's physical or mental health is getting worse.
Our parent's finances.
My feelings about our parent's physical health.
My feelings about our parent's mental/emotional health.
My efforts in caring for our parent.
Decisions related to our parent's health.
My stress related to caring for our parent.
My sibling's efforts in caring for our parent.
How I feel about my sibling's efforts in caring for our parent.
My sibling's emotions related to our parent's care.
My sibling's feelings about our parent's emotional state.
My sibling's feelings about our parent's physical health.
My financial contributions to our parent's care.
My sibling's financial contributions to our parent's care.

Caregiving Talk Preference

Please indicate how strongly you agree or disagree with the following statements concerning your preferences/wishes for talking with your sibling about your parents' health and care.

I prefer **<u>not</u>** to talk to my sibling about:

Scale Points
1 - Disagree
2 - Somewhat disagree
3 - Neutral
4 - Somewhat agree
5 – Agree

Items
Our parent's physical health.
Our parent's mental health.
Our parent's emotional state.
Our parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.).
If our parent's physical or mental health is getting worse.
Our parent's finances.
My feelings about our parent's physical health.
My feelings about our parent's mental/emotional health.
My efforts in caring for our parent.
Decisions related to our parent's health.
My stress related to caring for our parent.
My sibling's efforts in caring for our parent.
How I feel about my sibling's efforts in caring for our parent.
My sibling's emotions related to our parent's care.
My sibling's feelings about our parent's emotional state.
My sibling's feelings about our parent's physical health.
My financial contributions to our parent's care.
My sibling's financial contributions to our parent's care.

Benefit-Risk Analysis

Sometimes people believe that discussing a topic could be risky. It could cause conflict or stress. Other times, people believe that discussing a topic could be beneficial. It could help them vent or gain support. For each of the following topics, please indicate if you believe discussing them with your sibling would be **more beneficial or more risky.**

Scale Points
1 Completely risky
2 Much more risky than beneficial
3 Somewhat more risky than beneficial
4 Equally risky and beneficial
5 Somewhat more beneficial than risk
6 Much more beneficial than risk
7 Completely beneficial

Items
Our parent's physical health.
Our parent's mental health.
Our parent's emotional state.
Our parent's ability to care for his/her daily tasks (eating, going to the bathroom, etc.).
If our parent's physical or mental health is getting worse.
Our parent's finances.
My feelings about our parent's physical health.
My feelings about our parent's mental/emotional health.
My efforts in caring for our parent.

Decisions related to our parent's health.
My stress related to caring for our parent.
My sibling's efforts in caring for our parent.
How I feel about my sibling's efforts in caring for our parent.
My sibling's emotions related to our parent's care.
My sibling's feelings about our parent's emotional state.
My sibling's feelings about our parent's physical health.
My financial contributions to our parent's care.
My sibling's financial contributions to our parent's care.

Sibling Relationship

Relationship Satisfaction: Marital Opinion Questionnaire (Huston, McHale, & Crouter, 1986)

Please think about your relationship with your sibling over the last two weeks, and use the following words and phrases to describe it.

For example, if you think that your relationship with your sibling during the last two weeks has been very miserable, click on the space right next to the word "miserable." If you think it has been very enjoyable, click on the space right next to the word "enjoyable." If you think it has been somewhere in between, click on the space that is appropriate.

Note: these are semantic differentials on seven point scales
Miserable – Enjoyable
Hopeful – Discouraging
Empty – Full
Interesting – Boring
Rewarding – Disappointing
Brings out the worst in me – Brings out the best in me
Lonely – Friendly
Worthwhile – Useless

All things considered, how satisfied have you been with your relationship with your sibling over the last two weeks? Click on the space that best describes how satisfied you have been.

Completely Dissatisfied – Completely Satisfied

Sibling Communication Frequency

How often do you communicate with your sibling?

Scale Points
1 – Less than once a year
2 – Once or twice a year
3 – Several times a year

4 – Once or twice a month
5 – Once or twice a week
6 – Almost every day

Items
How often do you usually see your sibling?
How often do you usually talk with your sibling on the phone?
How often do you usually talk with your sibling via letter, text messages, social media, email, or other electronic means?

Riskiness of Disclosure: Afifi & Steuber (2009)

The following items describe things that some people think could happen if they share private information. Please indicate the degree that you are concerned that the following could happen as a result of talking with your sibling about your parent's health and caregiving.

Scale Points
1 Very Unlikely
2 Unlikely
3 Somewhat Unlikely
4 Neutral
5 Somewhat Likely
6 Likely
7 Very Likely

Items

Self Protection
My sibling would react to the conversation by blaming me.
My sibling would no longer like me after I talked to them about it.
My sibling would disapprove if I told them what I thought or felt about the topic.
I am afraid that my sibling will tell other people what I say.
My sibling would use what I say against me.
My sibling will be disappointed in what I have to say about it.
Talking to my sibling about it would shatter his/her beliefs about me.
My sibling would take advantage of what I say.
My sibling would react to me bringing it up by immediately withdrawing from me.
Other people would be angry at me for talking to my sibling about it.
My sibling would violate my trust if I told them what I thought or felt about it.
My sibling would use anything I say about it against me.

Other Protection
Talking to my sibling about it would create stress for others I care about.
My sibling would have a hard time talking about it with me.
Talking to my sibling about it would put him/her in an awkward position.
My sibling wouldn't know what to say if I brought it up.

Talking to my sibling about it could hurt his/her feelings.
Talking to my sibling about it could hurt other people.

Relationship Protection
I would lose a bond with other people who already know my thoughts and feelings on the topic.
Talking about it with my sibling would do nothing but harm the relationship we have.
My relationship with my sibling wouldn't be as good as it had been before I talked to them about it.
Other people would not trust me if I told my sibling what I really thought and felt about the topic.
Talking to my sibling about it could hurt my relationship with others.
Talking about it would hurt our relationship.

APPENDIX B. ADDITIONAL ANALYSES

Appendix B includes additional analyses referenced in chapter five. First, structural models including the variable "liking" but without the variable "relationship satisfaction" are presented (Figures 10-13). Second, structural models including the variable "trust" but without the variable "relationship satisfaction" are presented (Figures 14-17). Finally, the results of linear regression analysis testing participant emotional support as a moderator for the association between participant personal care and depression for primary caregivers (Table 24) and a plot of the moderation (Figure 18) are presented.
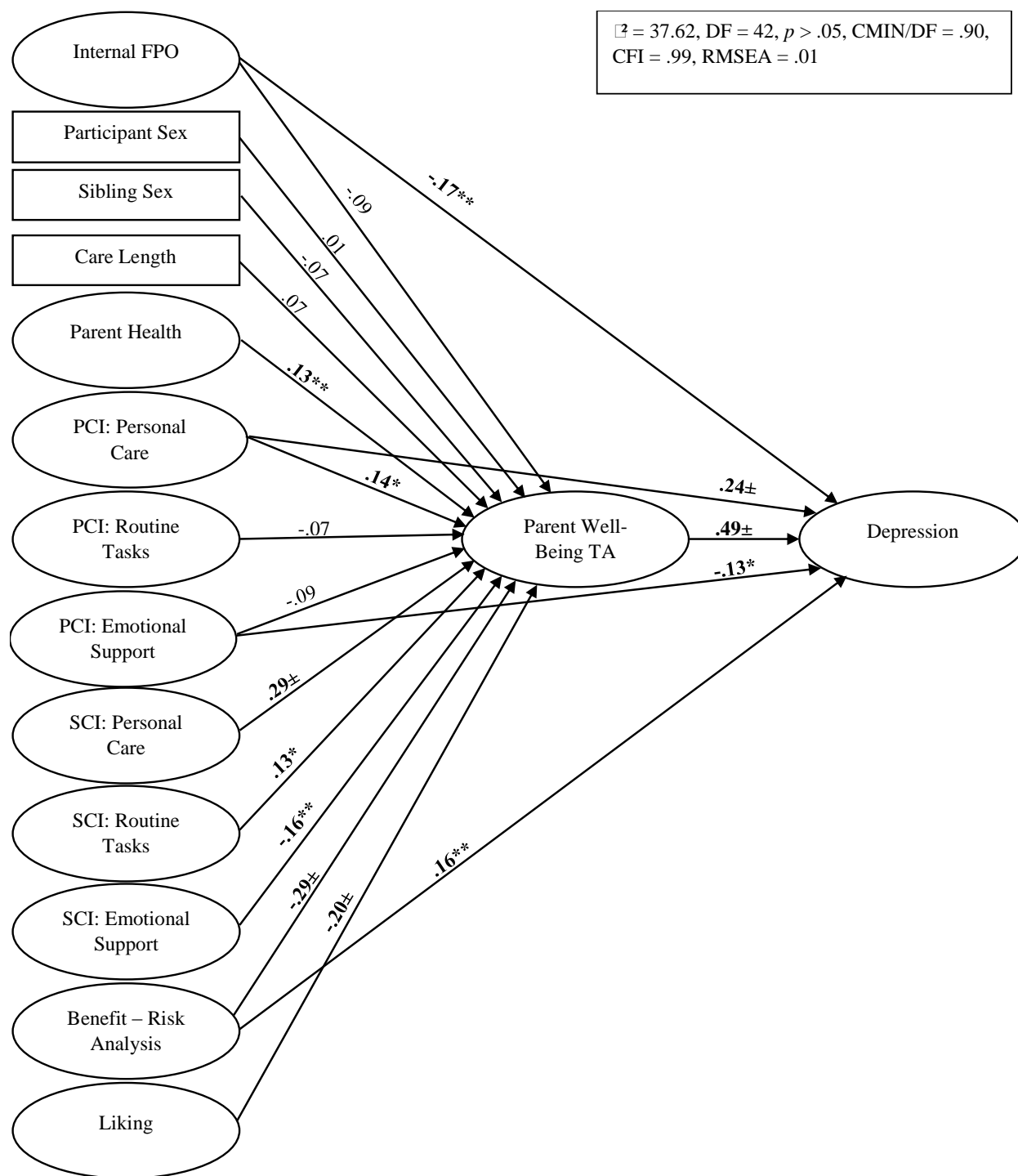
Figure 10. Structural Model for Primary Caregivers' Parent Well-Being TA with Liking
Note: * $p \leq .05$, ** $p \leq .01$, ± $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance
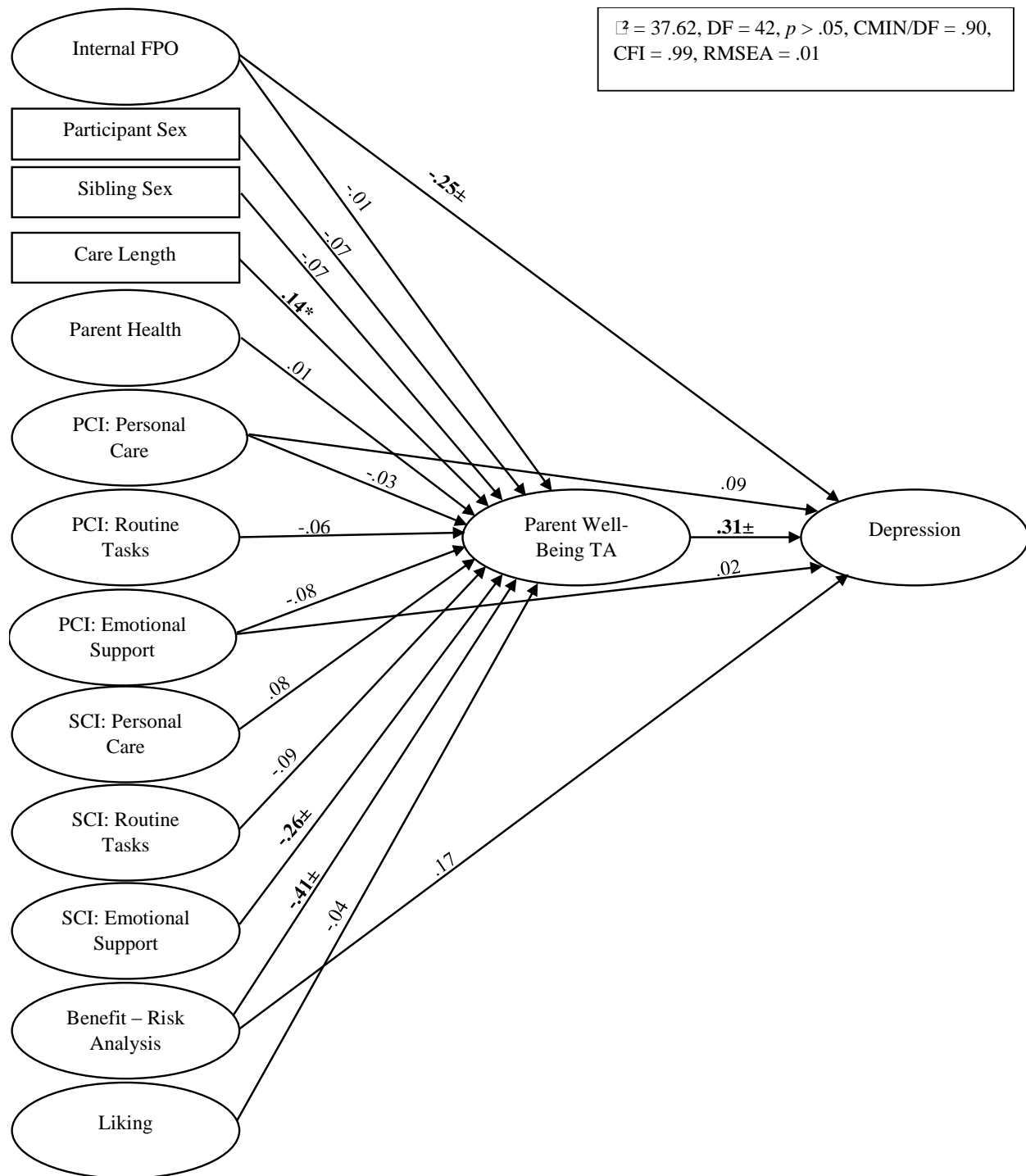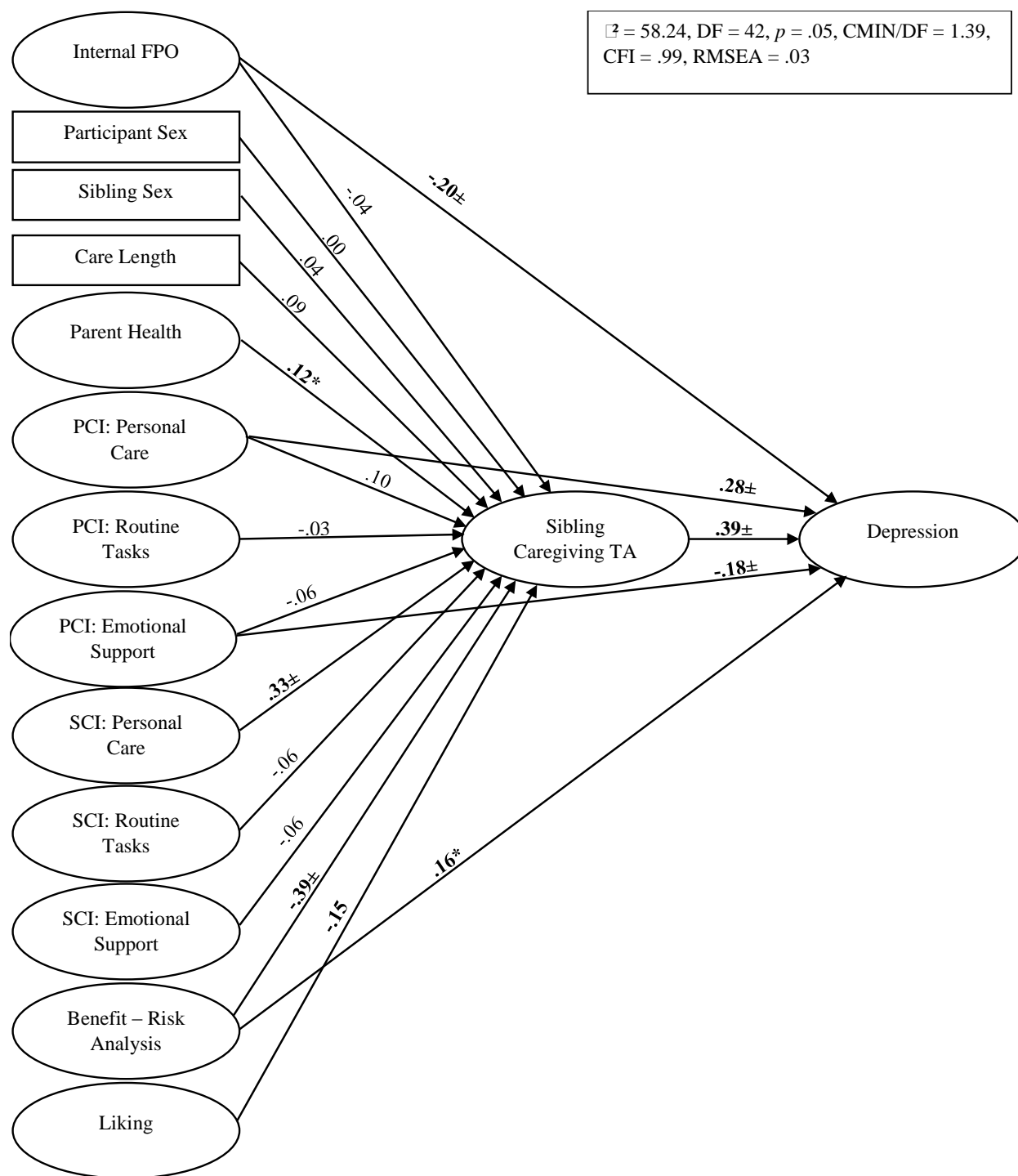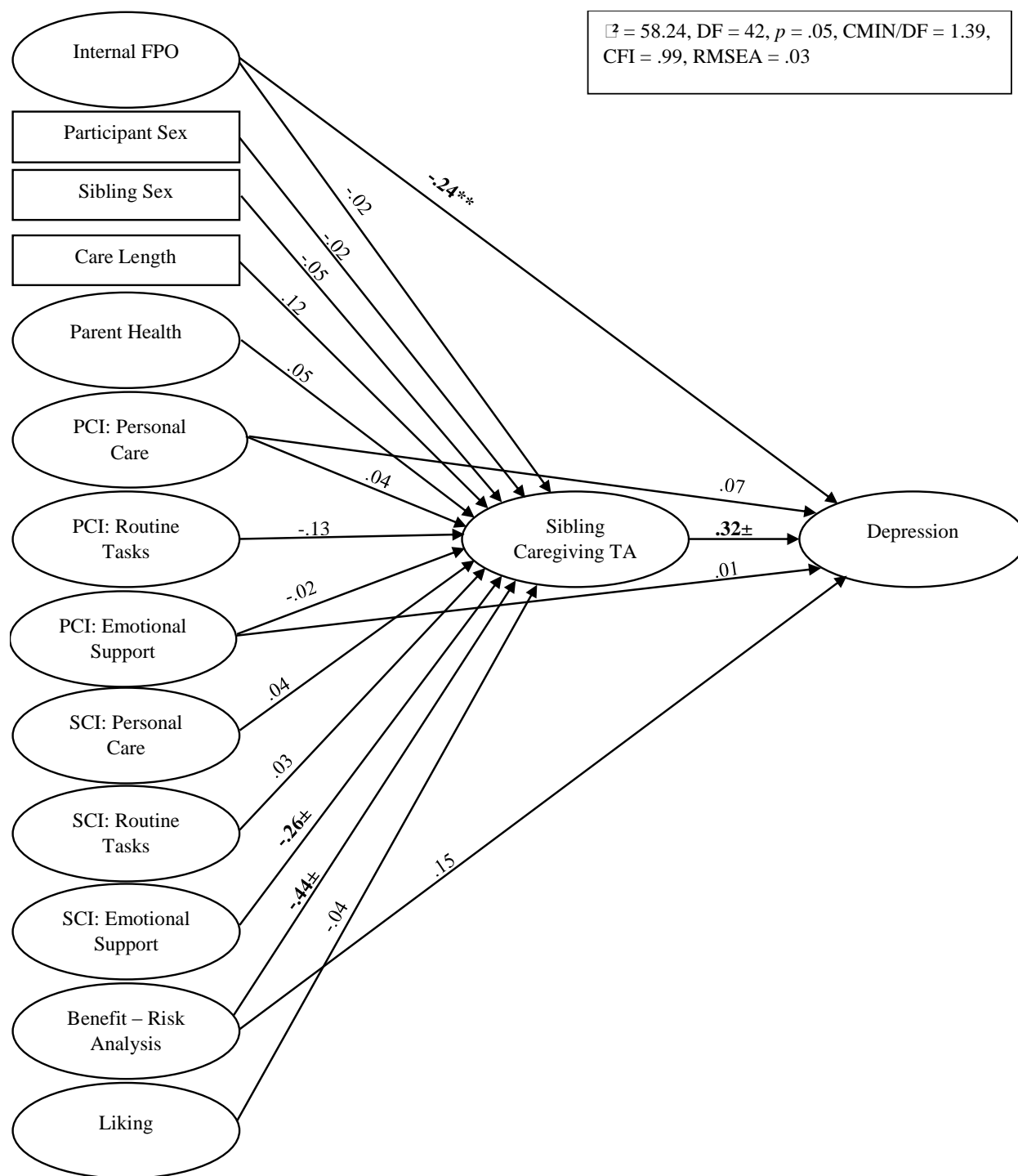
Figure 11. Structural Model for Non-Primary Caregivers' Parent Well-Being TA with Liking
Note: * $p \leq .05$, ** $p \leq .01$, $\pm$ $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance

Figure 12. Structural Model for Primary Caregivers' Sibling Caregiving TA with Liking
Note: * $p \leq .05$, ** $p \leq .01$, ± $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance
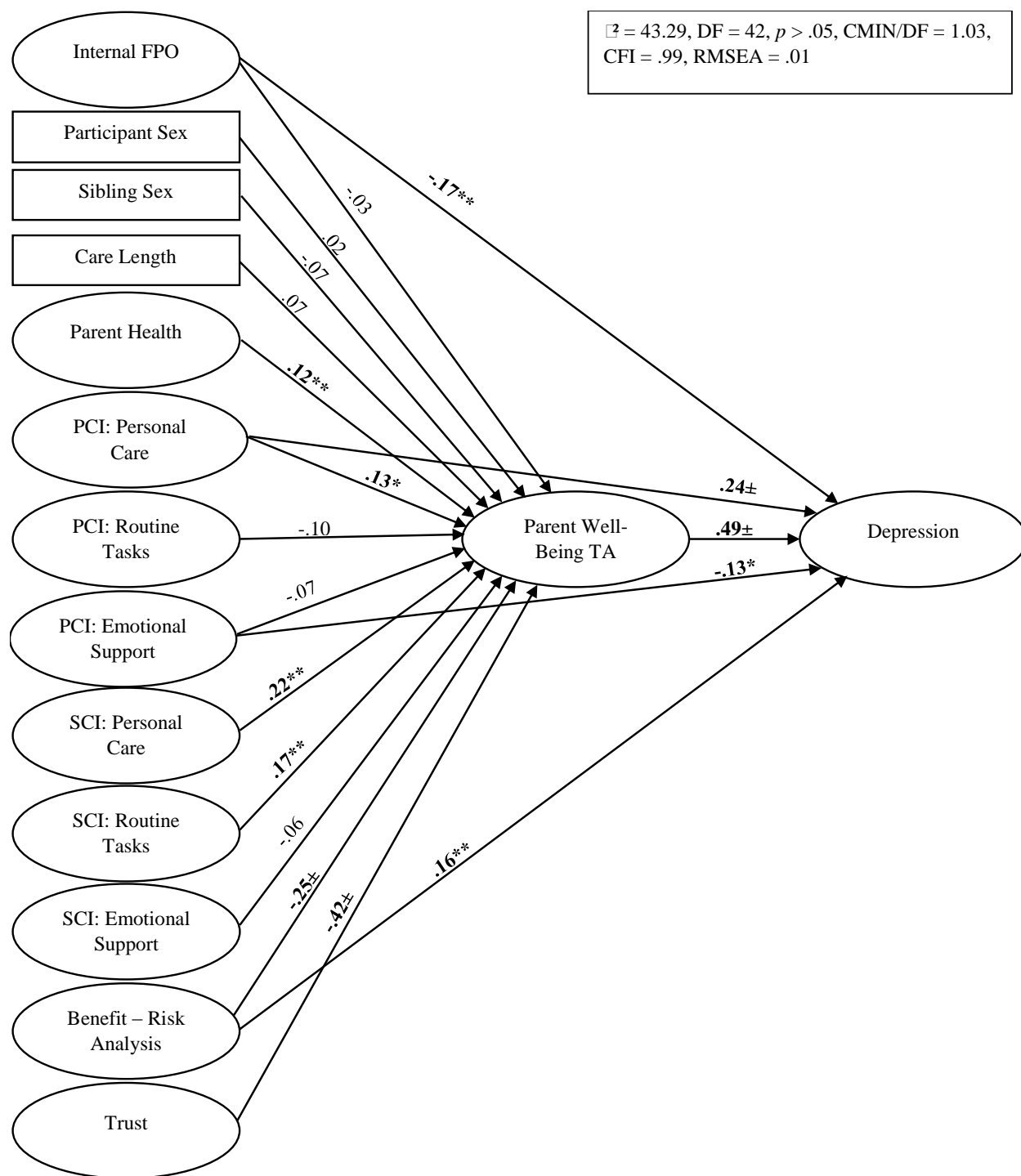
Figure 13. Structural Model for Non-Primary Caregivers' Sibling Caregiving TA with Liking
Note: * $p \leq .05$, ** $p \leq .01$, ± $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance

Figure 14. Structural Model for Primary Caregivers' Parent Well-Being TA with Trust
Note: * $p \leq .05$, ** $p \leq .01$, ± $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance
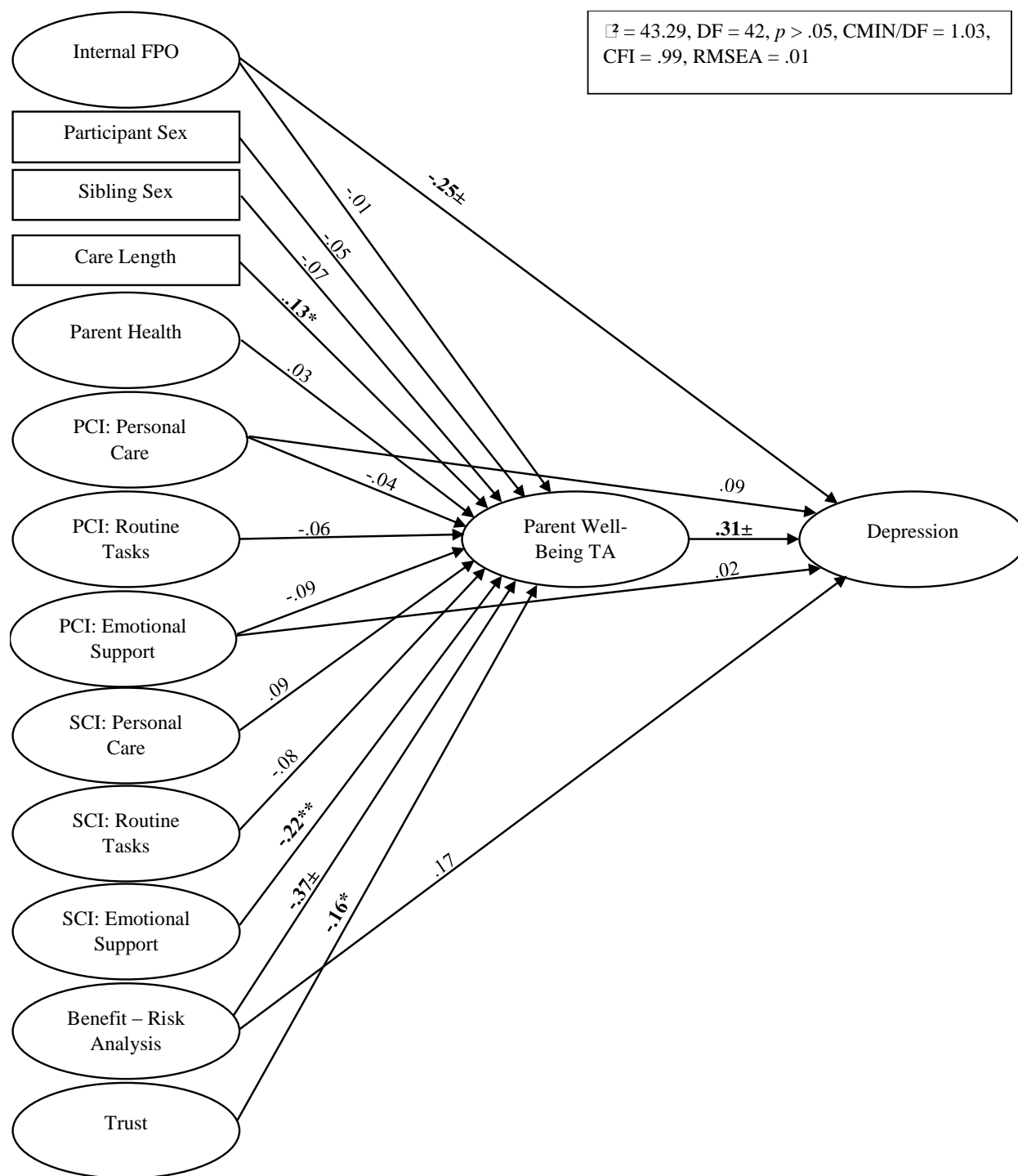
Figure 15. Structural Model for Non-Primary Caregivers' Parent Well-Being TA with Trust
Note: * *p* ≤ .05, ** *p* ≤ .01, ± *p* ≤ .001
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance
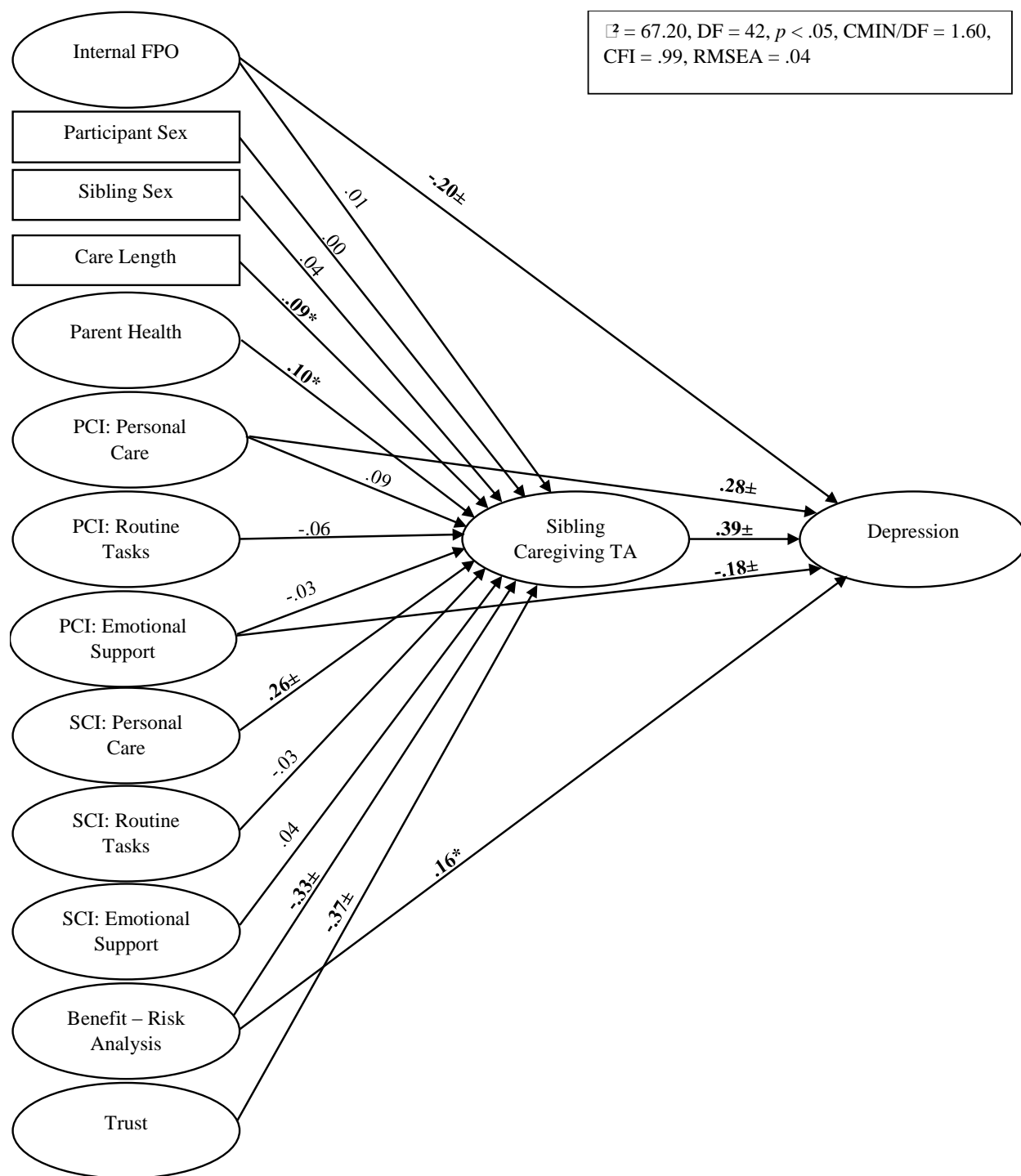
Figure 16. Structural Model for Primary Caregivers' Sibling Caregiving TA with Trust
Note: * $p \leq .05$, ** $p \leq .01$, ± $p \leq .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling
caregiving involvement; TA = topic avoidance

Figure 17. Structural Model for Non-Primary Caregivers' Sibling Caregiving TA with Trust
Note: * $p \le .05$, ** $p \le .01$, ± $p \le .001$
FPO = family privacy orientation; PCI = participant caregiving involvement; SCI = sibling caregiving involvement; TA = topic avoidance
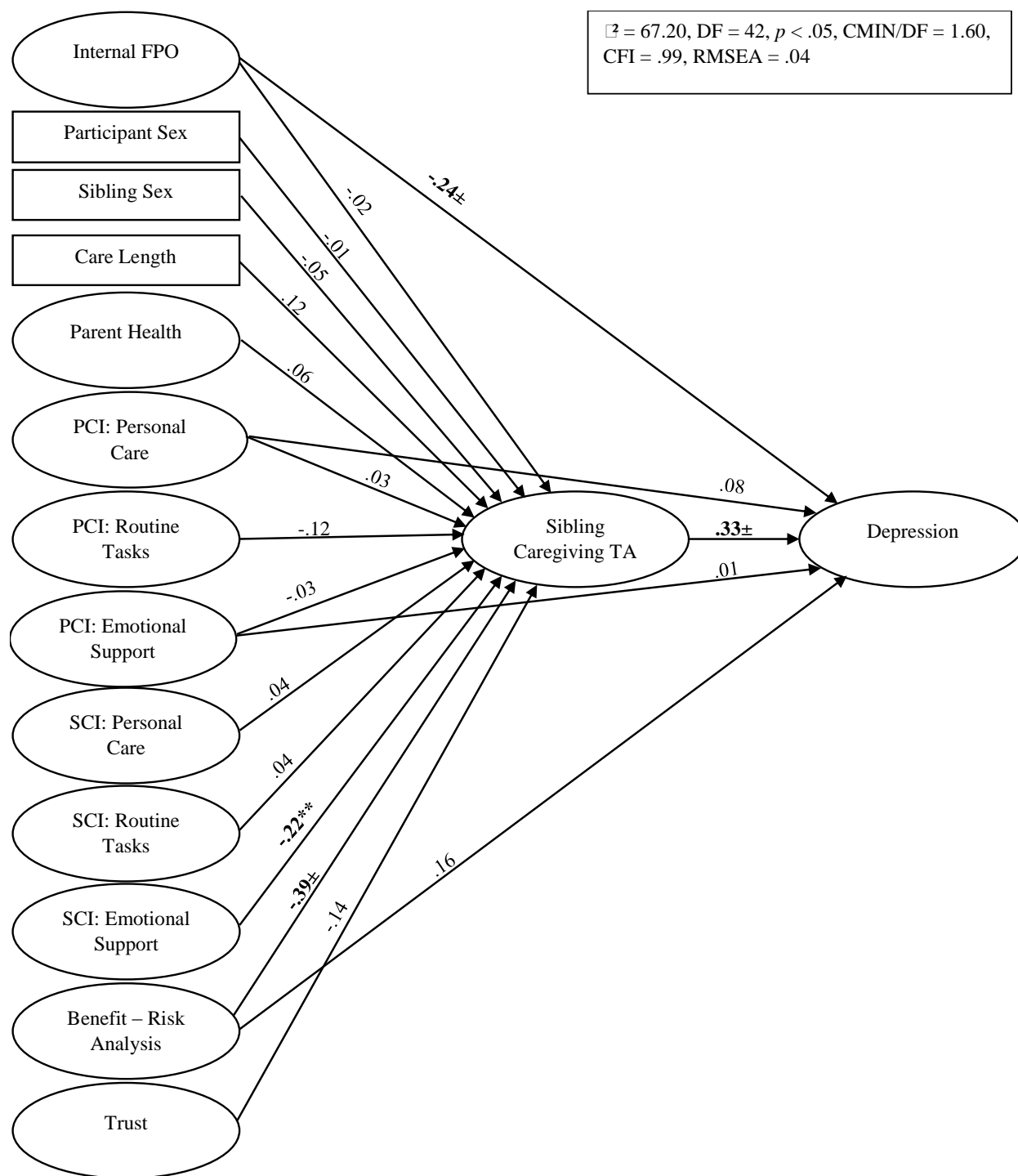
Table 24. Interactions between Participant Emotional Support and Participant Personal Care on Depression for Primary Caregivers

	B	SE B	β	R²	R² Δ
Step 1				.21	
Participant Personal Care	.35***	.06	.35		
Participant Emotional Support	-.34***	.08	-.26		
Step 2				.26	.05***
Interaction	-.31***	.08	-.24		

* $p \le .05$, ** $p \le .01$, *** $p \le .001$
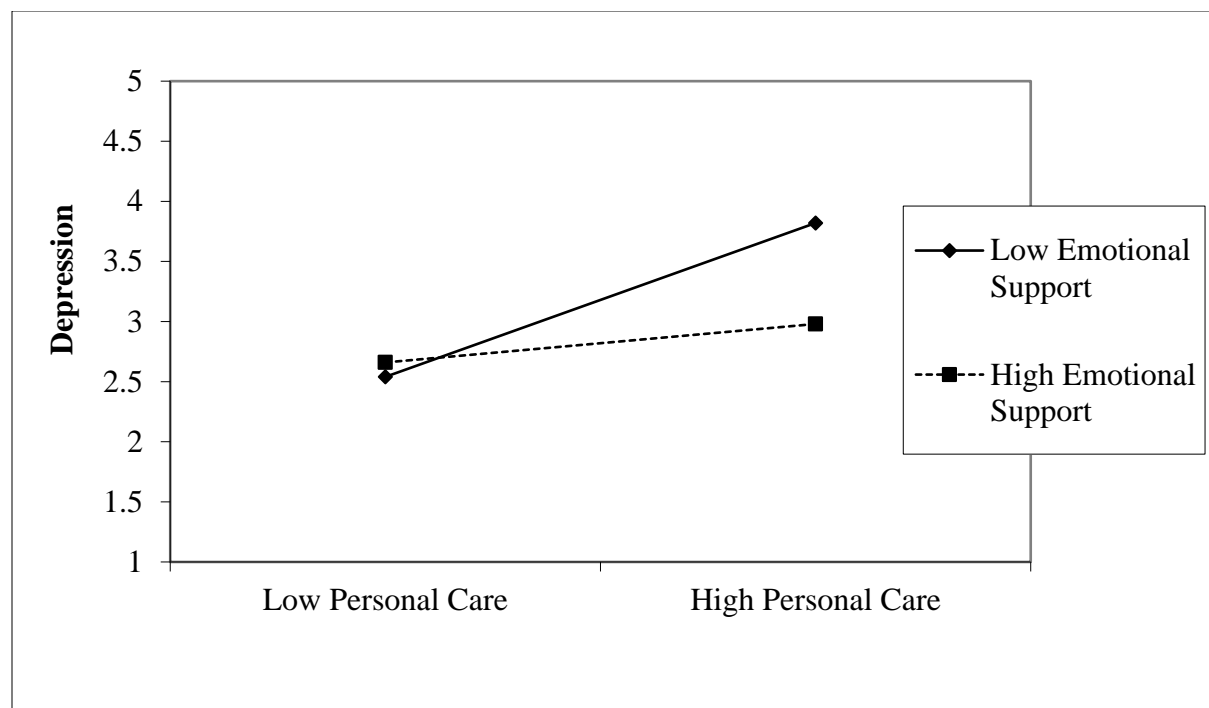

Figure 18. Participant Emotional Support Moderates Primary Caregivers' Participant Personal Care and Depression.

VITA

EDUCATION

Purdue University, West Lafayette, IN
Doctoral Student in Health and Interpersonal Communication   **2019**
Minor: Quantitative Research Methods
Dissertation: Parental Caregiving and Sibling Topic Avoidance: An Application of Communication
Privacy Management Theory.
Committee: Maria K. Venetis (chair), Steven R. Wilson, Felicia Roberts, and Cleveland Shields

Purdue University, West Lafayette, IN
M.A. in Interpersonal Health Communication   **2015**
Minor: Research Methods
Thesis: Comparing Uncertainty and Health Decision Making between Chinese International
and US Domestic Students: A Test of the Theory of Motivated Information Management.
Committee: Maria K. Venetis (chair), Steven R. Wilson, and Felicia Roberts

Michigan Technological University, Houghton, MI
B.A. in Communication and Cultural Studies   **2010**
Concentration: Human Interaction and Global Contexts
Minor: Psychology
Final Project: Addressing the Disclosure of PTSD Symptoms by United States War
Veterans
Advisor: Patricia Sotirin

ACADEMIC PUBLICATIONS

Chernichky-Karcher, S., Venetis, M. K., & **Lillie, H.** (2019). The Dyadic Communicative Resilience Scale
(DCRS): Scale development, reliability, and validity. *Supportive Care in Cancer*. doi: 10.1007/s00520-
019-04763-8.

Sanchez, V. & **Lillie, H. M.** (accepted). And then the war came: A content analysis of processes of resilience in
the narratives of refugees from Humans of New York. *International Journal of Communication.*

Lillie, H., Venetis, M. K., & Chernicky- Karcher, S. C. (2018). "He would never let me just give up":
Communicatively constructing dyadic resilience in the experience of breast cancer. *Health
Communication, 33,* 1516-1524. doi: 10.1080/10410236.2017.1372049.

MacGeorge, E. L., Guntzviller, L. M., Brisini, K. S., Bailey, L. C., Salmon, S., Severen, K., Branch, S. E., **Lillie,
H.**, Lindley, C., Pastor, R., & Cummings, R. (2017). The influence of emotional support quality on
advice evaluation and outcomes. *Communication Quarterly*, 1-17. doi:
10.1080/01463373.2016.1176945.

Greene, J. O. & **Lillie, H.** (2016) Information processing and cognition. In Jensen, K. B. (Ed.), *International
Encyclopedia of Communication Theory and Philosophy.* Wiley-Blackwell.

CONFERENCE PAPERS AND PRESENTATIONS

Lillie, H. M., Venetis, M. K., & Chernichky-Karcher, S. C. (2018, November). *Obtaining hard to reach health samples with Amazon Mechanical Turk.* In the panel: Opportunities, obstacles, and publishing using Amazon's Mechanical Turk with health communication samples. Presented at the annual meeting of the National Communication Association, Salt Lake City, Utah.

Venetis, M. K., Chernichky-Karcher, S. C., & **Lillie, H. M.** (2018, November). *Development of the dyadic coping resilience scale within the context of cancer.* Presented at the Communication and Resilience Pre-Conference at the annual meeting of the National Communication Association, Salt Lake City, Utah.

Sanchez, V. & **Lillie, H. M.** (2018, May). *And then the war came: A content analysis of processes of resilience in the narratives of refugees from Humans of New York.* Presented at the annual meeting of the International Communication Association, Prague, Czech Republic.

Venetis, M. K. Chernichky-Karcher, S. C., & **Lillie, H. M.** (2018, April). *2017 Federation Prize Winner Presentation: Dyadic Processes of Communicating Resilience.* Presented at the annual meeting of the Central States Communication Association, Minneapolis, Minnesota.

Lillie, H. M. (2017, November). *College students' medical help decision making: A test of the Theory of Motivated Information Management.* Presented at the annual meeting of the National Communication Association, Dallas, Texas.

Lillie, H. M. (2017, April). *Who controls my health? Health locus of control and students' medical help seeking.* Presented as the ***Top Student Paper*** at the biennial meeting of the DC Health Communication Conference, Fairfax, Virginia.

Lillie, H., Venetis, M. K., & Chernichky- Karcher, S. C. (2016, November). *"He would never let me just give up": Communicatively constructing dyadic resilience in the experience of breast cancer.* Presented at the annual meeting of the National Communication Association, Philadelphia, Pennsylvania.

Lillie, H. M. (2016, April). *Hope and depression in the face of uncertainty: examining the role of emotional reaction in the Theory of Motivated Information Management.* Presented as the ***Top Student Paper in the Interpersonal and Small Group Division*** and as the ***Top Student Debut Paper*** at the annual meeting of the Central States Communication Association, Grand Rapids, Michigan.

Chernichky-Karcher, S. C., Venetis, M. K., & **Lillie, H. M.** (2016, April). *"Cancer is a family disease:" An exploratory investigation of family communication during a maternal cancer diagnosis.* Presented at the annual meeting of the Central States Communication Association, Grand Rapids, Michigan.

MacGeorge, E. L., Guntzviller, L. M., Bailey, L., Brisini, K., Salmon, S., Severen, K., Branch, B., **Lillie, H.,** Lindley, C., Pastor, R., & Cummings, R. (2015, May). *The influence of emotional support quality on advice evaluation and outcomes.* Presented at the annual meeting of the International Communication Association, San Juan, Puerto Rico.

Cummings, R., MacGeorge, E. L., **Lillie, H.**, Branch, S., Yakova, L., Lindley, C. K., Pastor, R. G., Robinson, J., Ramirez, B., Barella, C., & Guntzviller, L. (2014). *The person focus of evidence as a predictor of immediate response to advice.* Presented at the annual meeting of the National Communication Association, Chicago, Illinois.

Pastor, R. G., MacGeorge, E. L., **Lillie, H.,** & Lindley, C. K. (2014). *Seeking the "masculine ruler": Gender and advice in supportive interactions.* Presented at the annual meeting of the National Communication Association, Chicago, Illinois.

Lindley, C. K., MacGeorge, E. L., **Lillie, H.,** & Pastor, R. G. (2014*). Gender differences in the evaluation of advice: Dual process or instrumental motivation?* Presented at the annual meeting of the National Communication Association, Chicago, Illinois.

COURSES TAUGHT – INSTRUCTOR OF RECORD

<u>PURDUE UNIVERSITY</u>

COM 212 Approaches to the Study of Interpersonal Communication (3 Sections)
Developed syllabus and overall course structure, developed exams, ran all class sessions, and administered all grades.

COM 212 Approaches to the Study of Interpersonal Communication - Online (3 Sections)
Developed syllabus and overall course structure, developed exams and assignments, and administered all grades.

COM 378 Introduction to Health Communication (4 Sections)
Developed syllabus and overall course structure, developed exams and assignments, ran all class sessions, and administered all grades.

COM 320 Small Group Communication (1 Section)
Developed syllabus and overall course structure, developed exams and assignments, ran all class sessions, and administered all grades.

COM 114 Fundamentals of Speech (7 Sections)
Ran all class sessions and administered all grades.

COM 114 Fundamentals of Speech - Technology Section (1 Section)
Ran all class sessions and administered all grades. The students were all in the same first year technology class together. Class sessions were developed to draw connections between speech and technology.

COM 114 Fundamentals of Speech - Learning Community (1 Section)
Ran all class sessions and administered all grades. Engaged with students outside of class time to build community.

COM 114 Fundamentals of Speech - Online (1 Section)
Posted all classroom material and weekly memos. Administered all grades.

COURSES TAUGHT – TEACHING ASSISTANT

<u>PURDUE UNIVERSITY</u>

Teaching Assistant – COM 102 Introduction to Communication Theory (2 Sections)
Ran weekly recitation sections, graded all papers, and developed exam and quiz questions.

SERVICE

Mentor for new COM 114 instructor   2017
Met with first year PhD student every two weeks, set teaching goals, and provided advice.

Head of Submissions for Purdue's annual Communication Graduate Student Association Conference
2017

Graduate Representative in the Brian Lamb School of Communication at Purdue University
2016 – 2017
Represented the communication graduate students at weekly graduate committee meetings
and monthly faculty meetings

Reviewer for Purdue's annual Communication Graduate Student Association Conference
2016

Buddy for new graduate students (Communication Graduate Student Association)   2014 –2017
Met regularly with first year graduate student to help transitioning to graduate school

Vice President of Networking and Social Relations   2014 – 2015
Communication Graduate Student Association (CGSA), Purdue University
Organized weekly events to promote networking among graduate students and faculty

AWARDS/FELLOWSHIPS

2018   National Communication Association's Doctoral Honors Seminar – Social Science Group

2018   Purdue Research Foundation Grant for the proposal "Siblings' Topic Avoidance about Parent Care:
Privacy Rules and Expectations" to support dissertation research ($20,000)

2017   Top Student Paper at D. C. Health Communication Conference 2017

2017   Central States Communication Association Federation Prize

2017   Purdue Graduate School Summer Research Grant

2016   Top Student Paper at Central States Communication Association Convention

2016   Past Officers Debut Paper Award at Central States Communication Association Convention

2015   Purdue University Academic Year Ross Fellowship (awarded for one year)