RESPONSIBILITY IN THE “PIVOT GENERATION”:
INFORMATION SHARING ABOUT THE BENEFITS OF OUTDOOR PHYSICAL
ACTIVITY TO MANAGE OVERWEIGHT OR OBESITY

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by

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ABSTRACT

Midlife adults who are both parents and adult children are in unique positions to positively influence the health of their children and aging parents. One means through which they may enact such influence is through sharing health information. The purpose of this dissertation is to examine the question: Does a midlife adult’s perception of responsibility to share health information about the benefits of outdoor physical activity with their overweight or obese child/aging parent in the near future influence their intentions to do so? In order to investigate this question, this dissertation conceptualizes responsibility and posits that attributions of solution, obligation, and agency influence responsibility. Responsibility from the Norm Activation Model (NAM) is then situated within the Theory of Reasoned Action (TRA) and its extensions the Theory of Planned Behavior (TPB) and the Integrative Model (IM) to extend these rational-choice frameworks into the moral domain. The indirect effects of perceptions of responsibility on intentions to share health information via anticipated emotions, including anticipated regret, guilt, pride, and hope, as well as physical activity mavenism, are also considered. Finally, this dissertation investigates potential iatrogenic effects of perceptions of responsibility, including regret, guilt, self-blame, and obesity stigma beliefs.

Participants (N = 334) were recruited from Amazon’s Mechanical Turk. After providing informed consent, participants read a brief message about the benefits of outdoor exercise for young adults (those in the adult child condition) or older adults (those in the aging parent condition). Participants then completed measures for the theoretical variables of interest. Bivariate correlations and structural equation modeling using the hybrid approach was used to test the hypotheses and research questions.
Results indicated that attributions of solution and agency predict a midlife adult’s perceptions of responsibility to share information about the benefits of outdoor physical activity with a child or aging parent. Perceptions of responsibility were also positively related to generative concern and negatively related to psychological reactance. Attitudes and responsibility significantly predicted a midlife adult’s intentions to share information. Responsibility significantly predicted anticipated regret, guilt, pride, and hope, but these anticipated emotions did not predict information sharing intentions. Likewise, responsibility significantly predicted mavenism, but mavenism did not predict information sharing intentions.

The results from this dissertation have important theoretical and practical implications. First, the results on predictors of responsibility provide an important step in contributing to the theoretical design of responsibility messages. To increase a midlife adult’s perceptions of responsibility to share health information with a family member, health messages should focus on content cues that elicit attributions of solution, particularly for those sharing health information with an aging parent. Second, the results of this dissertation support the theoretical integration of responsibility from the NAM with the TRA/TPB/IM frameworks to predict intentions to perform a behavior that impact’s another’s welfare. Variables from each significantly predicted information sharing intentions, including attitudes from the TRA/TPB/IM and responsibility from the NAM. Responsibility was the strongest predictor of information sharing intentions, which suggests that perceptions of responsibility should be integrated into communication theories on information sharing. Third, this dissertation has important implications for theoretical advancement within intergenerational communication, as it underscores specific cognitions and beliefs (i.e., attitudes and responsibility) that lead midlife adults to enter into intergenerational contact with their family members.
The contributions of this dissertation to communication science should be considered in light of several limitations. The sample was not representative of the general population, and thus future work should endeavor to recruit a more diverse participant sample. Additionally, the study design was limited by the cross-sectional, observational nature of the data, the measures used, and the lack of replication. Future work should thus attempt to replicate these findings, as well as study the relationships proposed in this dissertation with a longitudinal or experimental design.
# TABLE OF CONTENTS

List of Tables ................................................................. xiv
List of Figures ................................................................. xv
Acknowledgements ......................................................... xvii

Chapter 1: Literature Review ................................................. 1

Introduction ................................................................. 1

Obesity in Children and Older Adults ................................. 3

Overview of this Dissertation and Program of Research .......... 6

Responsibility ............................................................. 10

Attributions of Causation and Solution ............................... 14

Hypothesis 1 ............................................................... 19

Obligation ................................................................. 19

Hypothesis 2 ............................................................... 21

Generativity .............................................................. 21

Research Question 1 ..................................................... 23

Psychological Reactance ............................................... 23

Research Question 2 ..................................................... 25

Agency ................................................................. 25

Knowledge .............................................................. 26

Choice ................................................................. 26

Ability and Control: Self-efficacy ..................................... 27

Dyadic Agency .......................................................... 28

Hypothesis 3 ............................................................. 30
Responsibility for a Child versus Aging Parent

Research Question 3

Predicting Information Sharing Intentions

Health Information Sharing

Health Information Sharing in the TRA, TPB, and IM

Hypothesis 4

Perceived Norms

Research Question 4

Responsibility

Hypothesis 5

Potential Mediators: Anticipated Emotions

Anticipated Regret

Anticipated Guilt

Anticipated Pride

Hope

Negative versus Positive Emotions

Research Question 5a

Research Question 5b

Research Question 5c

Potential Mediator: Physical Activity Mavenism

Research Question 6a

Research Question 6b

Research Question 6c
Iatrogenic Effects of Responsibility........................................... 58

Research Question 7............................................................. 60

Research Question 8............................................................. 62

Overview of this Research..................................................... 63

Chapter 1 Endnotes............................................................. 67

Chapter 2: Methods............................................................. 69

Participants................................................................. 69

Procedures............................................................... 72

Measures............................................................... 73

Screening Measures......................................................... 73

Theoretical Measures....................................................... 76

Participant Demographics................................................. 104

Questionnaire Pre-Test.......................................................... 105

Participants............................................................... 105

Questionnaire Feedback........................................................ 105

Questionnaire Modifications................................................. 106

Data Analysis Plan............................................................ 106

Chapter 2 Endnotes........................................................... 108

Chapter 3: Results.............................................................. 109

Original Model............................................................. 109

Descriptive Statistics and Bivariate Correlations......................... 109

Maximum Likelihood Estimation Assumptions.......................... 110

Measurement Model......................................................... 111
Pre-Testing Responsibility Messages........................................... 153

Predicting Information Sharing Intentions: TRA, TPB, and IM.................. 154
  Attitudes and Subjective Norms.................................................. 154
  Perceived Norms...................................................................... 155
  Agency...................................................................................... 157

Predicting Information Sharing Intentions: Responsibility...................... 158
  Responsibility.......................................................................... 158
  Anticipated Emotions.............................................................. 159
  Physical Activity Mavenism...................................................... 161

Predicting Information Sharing Intentions: Theoretical Implications......... 163
  Iatrogenic Effects of Responsibility.......................................... 166
    Towards the Self................................................................. 166
    Towards Others................................................................. 166

Outcomes of Receiving Information.................................................. 168
  Outcomes of Receiving Information in an Intergenerational Context...... 171

Information Sharing versus Information Selection.................................. 172
  Message Characteristics......................................................... 172
  Psychological Motives............................................................ 174

Limitations and Future Directions...................................................... 175
  Study Sample........................................................................... 175
    Education.............................................................................. 176
    Ethnic/Cultural Background................................................. 178
  Study Design........................................................................... 178
Cross-Sectional, Observational Data……………………………… 179
Health Information Topic………………………………………………... 179
Measures…………………………………………………………………….. 179
Single-Study Design………………………………………………………….. 180
Additional Dyadic Relationships………………………………………… 182
A Look Forward Towards Shaping Health Policy………………………… 183
Conclusions…………………………………………………………………….. 184
References…………………………………………………………………….. 186
Appendix A: Informed Consent………………………………………………... 250
Appendix B: Original Message………………………………………………….. 252
Appendix C: Child Condition Message……………………………………… 253
Appendix D: Aging Parent Condition Message……………………………… 254
Appendix E: Randomized Figural Rating Scale……………………………… 255
Appendix F: Attributions of Solution Measure……………………………… 256
Appendix G: Obligation Measure………………………………………………... 257
Appendix H: Generative Concern Measure…………………………………… 258
Appendix I: Psychological Reactance Measure……………………………… 260
Appendix J: Agency Measure…………………………………………………… 261
Appendix K: Responsibility Measure………………………………………… 263
Appendix L: Attitudes Measure………………………………………………….. 264
Appendix M: Subjective Norms Measure……………………………………… 265
Appendix N: Personal Descriptive Norms Measure…………………………… 266
Appendix O: Personal Injunctive Norms Measure…………………………….. 267
Appendix P: Societal Descriptive Norms Measure................................................. 268
Appendix Q: Societal Injunctive Norms Measure............................................... 269
Appendix R: Information Sharing Intentions Measure........................................ 270
Appendix S: Anticipated Regret and Anticipated Guilt Measure..................... 271
Appendix T: Anticipated Pride and Hope Measure............................................. 272
Appendix U: Physical Activity Mavenism Measure........................................... 273
Appendix V: Regret and Guilt Measure............................................................. 275
Appendix W: Self-Blame Measure.................................................................... 276
Appendix X: Obesity Stigma Beliefs Measure................................................... 277
Appendix Y: Modified Responsibility Measure............................................... 279
Appendix Z: Modified Attributions of Solution Measure................................. 280
LIST OF TABLES

Table 1: Public Perceptions of Responsibility for Solving Obesity………………………………… 18
Table 2: Overview of Hypotheses and Research Questions………………………………………… 65
Table 3: BMI Values Corresponding to the BIAS-BD……………………………………………… 75
Table 4: Correlations between Variables Predicted to Influence Responsibility……………….. 109
Table 5: Correlations between Variables Predicted to Influence Sharing Intentions……… 110
Table 6: Estimates for the Direct Paths……………………………………………………………….. 113
Table 7: Correlations between Variables Predicting Responsibility in Modified Model 1… 115
Table 8: Correlations between Variables Predicting Sharing Intentions in Modified 1…… 116
Table 9: Estimates for the Direct Paths in Modified Model 1…………………………………… 118
Table 10: Correlations between Variables Predicting Responsibility in Modified Model 2. 121
Table 11: Correlations between Variables Predicting Sharing Intentions in Modified 2….. 122
Table 12: Estimates for the Direct Paths in Modified Model 2………………………………….. 124
Table 13: Correlations between All Perceived Norms……………………………………………… 129
Table 14: Correlations between All Anticipated Emotions………………………………………. 133
Table 15: Attributions of Solution-Relevant Beliefs………………………………………………… 151
Table 16: Agency-Relevant Beliefs…………………………………………………………………… 152
LIST OF FIGURES

Figure 1: Proposed Theoretical Model..............................................................9
Figure 2: Public Perceptions of the Major Causes of Obesity..........................17
Figure 3: Interdependent Influence in a Dyad..................................................29
Figure 4: Proposed Theoretical Model of Predictors of Responsibility................32
Figure 5: Graphical Representation of the Theory of Reasoned Action...............33
Figure 6: Graphical Representation of the Theory of Planned Behavior.............34
Figure 7: Graphical Representation of the Integrative Model..........................35
Figure 8: Graphical Representation of the Norm Activation Model.................43
Figure 9: Proposed Theoretical Model Predicting Information Sharing Intentions...62
Figure 10: Proposed Theoretical Model with Hypotheses............................64
Figure 11: The Body Image Assessment Scale: Body Dimensions (BIAS-BD)........74
Figure 12: Structural Model Modified Based on Agency Measure...................107
Figure 13: Structural Equation Model of the Observed Standardized Effects......112
Figure 14: Standardized Equation Model of Observed Standardized Effects Modified 1…117
Figure 15: Standardized Equation Model of Observed Standardized Effects Modified 2…123
Figure 16: Modified Structural Model 2 with the Inclusion of All Perceived Norms…128
Figure 17: Structural Equation Model of the Observed Direct Standardized Effects for Modified Model 2 with the Inclusion of All Perceived Norms.................................131
Figure 18: Modified Structural Model 2 with the Inclusion of Anticipated Emotions…132
Figure 19: Structural Equation Model of the Observed Direct Standardized Effects for Modified Model 2 with the Inclusion of All Anticipated Emotions.................................136
Figure 20: Modified Structural Model 2 with the Inclusion of Mavenism............137
Figure 21: Structural Equation Model of the Observed Direct Standardized Effects for Modified Model 2 with the Inclusion of Physical Activity Mavenism………………………………… 139

Figure 22: Summary of Public Communication About Responsibility for Disease........ 149
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CHAPTER 1: LITERATURE REVIEW

Responsibility in the “Pivot Generation”:
Information Sharing about the Benefits of Outdoor Physical Activity
to Manage Overweight or Obesity

Familial responsibility for adults at midlife is ubiquitous and complex. Indeed, Erikson (1963) noted that middle adulthood is a period during which familial relationships become more salient, and their responsibilities for these family members increases. Likewise, Markus, Ryff, Conner, Pudberry, and Burnett (2001) underscore the increasing demands of responsibility for adults at midlife, as their “lives have become increasingly intertwined and interdependent with the lives of others” (p. 349). This is likely because middle-aged adults have more living family members than both younger and older adults (Fingerman & Birditt, 2003), and, additionally, middle-aged adults have the greatest number of close family ties (Antonucci & Akiyama, 1987; Fingerman & Birditt, 2003; Lang, 2004). Further, midlife adults have family members in generations both below them (e.g., children) and above them (e.g., parents; Fingerman, Birditt, Nussbaum, & Ebersole, 2013). Indeed, the Pew Research Center (Parker & Patten, 2013) found that 47% of midlife adults in the United States have at least one child and one aging parent.

In addition to having a larger number of family ties, these middle-aged adults are also more engaged with their family members than younger and older adults (Fingerman et al., 2013). Indeed, multiple family members across generations depend on middle-aged adults for emotional, physical, and financial support (Fingerman, Miller, Birditt, & Zarit, 2009; Grundy & Henretta, 2006). For example, young adults depend on their middle-aged parents for advice about their careers, schooling, and romantic relationships (Fingerman et al., 2009). Likewise, older adults frequently turn to middle-aged children for assistance, as oftentimes they have lost
family members of their own generation (Wolff & Kasper, 2006). Further, The Pew Research Center (Parker & Patten, 2013) found that 15% of midlife adults are providing financial support to both a child and an aging parent.

Historically, middle-aged adults have been referred to as the “sandwich generation” in reference to being “sandwiched” between generations (Miller, 1981) and “sandwiched” in an overwhelming role that requires managing multiple family responsibilities (Brody, 1981). However, little evidence exists for such “sandwiching” (Putney & Bengtson, 2001; Williams & Nussbaum, 2001). Fingerman and colleagues (2013) note that the “nearly impossible task of simultaneously caring for an older parent and a misbehaving teen in the same house is quite rare” (p. 100). Instead, middle-aged adults more often find themselves caring for both young adult children and aging parents, but not necessarily under the same roof (Fingerman et al., 2013). Indeed, these middle-aged adults often do provide support to their young adult children (Fingerman, Cheng, Tighe, Birditt, & Zarit, 2012; Fingerman et al., 2009) and continue to support their children even when providing care to their aging parents (Fingerman et al., 2009; Grundy & Henretta, 2006). Midlife adults are therefore more aptly referred to as the “pivot generation” to describe the attention and care they provide to generations both above and below them (Fingerman et al., 2013).

Adults at midlife are thus oftentimes in close communication with family members in multiple generations (Fingerman et al., 2013), and this places individuals who are both parents and adult children (i.e., midlife adults) in unique positions to positively influence the health of their children and aging parents. One means through which they may enact such influence is through sharing health information, as Bylund and Duck (2004) note that communication and health information sharing between family members throughout the lifespan can have a
“tremendous impact on individuals’ construction of health, talk about health, participation in health-care systems, enactment of healthy or unhealthy behaviors, and health status” (p. 5).

Importantly, a midlife adult’s decision to share health information with their adult child or aging parent is a unique instance of intergenerational contact. Intergenerational contact occurs when the interactants lived through different historical periods and may thus be operating with different communicative assumptions, skills, needs, and experiences (Williams & Nussbaum, 2001). Williams and Nussbaum (2001) note, “to reach a richer understanding of intergenerational communication, we must investigate the cognitions and beliefs of individuals as they enter into and evaluate intergenerational contact” (p. xii). This dissertation is thus interested in examining the cognitions and beliefs, specifically perceptions of responsibility, that motivate midlife adults to enter into intergenerational contact with a child or aging parent through intentions to share health information with that family member. Obesity is a rising health concern of interest in both children and older adults; thus the focus of this dissertation is on midlife adults’ perceptions of responsibility to share health information about behaviors to reduce overweight or obesity with their children and aging parents.

**Obesity in Children and Older Adults**

Obesity prevalence in both children and older adults in the United States is alarming. In 2011 to 2012, 31.8% of youth were overweight or obese, with 16.9% of youth meeting the standards for obesity (Ogden, Carroll, Kit, & Flegal, 2014). The rates of childhood obesity are similar to those observed in 2009-2010 and have not changed significantly since 2003-2004 (Ogden, Carroll, Kit, & Flegal, 2012). For adults over the age of 60 in 2011 to 2012, 71.6% were overweight or obese (Body Mass Index [BMI] ≥ 25), and 35.4% of these individuals met the
standards for obesity (BMI ≥ 30; Ogden et al., 2014). Further, 19.6% of adults over the age of 60 met the criteria for severe (grade 2 and 3) obesity (BMI ≥ 35; Ogden et al., 2014).¹

In response to these obesity rates, there has been an increased interest in family members’ responsibility to promote good health in both children and older adults (e.g., CDC, 2015a; Espat, 2015; WebMD, 2015) as social ties influence health habits and behaviors (Umberson, Crosnoe, & Reczek, 2010). Specifically, parents are important forces in changing children’s obesity-related behaviors (e.g., Lindsay, Sussner, Kim, & Gortmaker, 2006; see also Umberson et al., 2010). Likewise, as the proportion of older adults has increased over the last decades, more adult children are acting as caregivers for their aging parents (Roberto & Jarrott, 2008; Wolff & Kasper, 2006), and this social support is important in shaping the health habits of older adults (Wilcox et al., 2003). Health messages have thus targeted the “pivot generation” to increase midlife adults’ perceptions of responsibility for the health of both their children and aging parents (see Kirkwood & Brown, 1995).

Messages that appeal to the responsibility of parents to children oftentimes (1) stress the power of parents to influence their child’s health and (2) define their child’s health as the parent’s choice (Kirkwood & Brown, 1995). The goal of these messages is to engender a sense of parental responsibility, so that these parents then encourage health-promoting behavior in their child (see Kirkwood & Brown, 1995). For example, in addressing parents, the CDC (2015a) notes “You can help children learn to be aware of what they eat by developing healthy eating habits [and] looking for ways to make favorite dishes healthier.” The same message also uses the language of choice: “You (and your child) can…reach or keep a healthy weight through physical activity and healthy food choices!”
Messages to adult children caring for their aging parent also focus on the adult child’s responsibility to help foster health promoting behaviors in their aging parents. For example, WebMD (2015) notes: “Make sure your parent is eating a balanced diet. Accompany him or her to the market to guide shopping choices [and] discuss the importance of all the food groups, vitamins, fiber, and calcium.” Additionally, Espat (2015) urges midlife adults to “Encourage parents to do activities they enjoy and that will keep them active. Gardening, golfing, playing tennis and swimming are all great choices.” Both of these examples again stress midlife adults’ power to influence their aging parents’ health and also use the language of choice, thus appealing to these adult children’s sense of responsibility to their parents (see Kirkwood & Brown, 1995).

The current emphasis of these messages on responsibility assumes that a midlife adult’s perception of responsibility for the health of a child or an aging parent motivates them to encourage health-promoting behaviors, by, for example, sharing health information with these family members, and these messages may result in the intention to do so. However, little empirical research has examined this assumption. Further, these messages have led to an environment wherein the public believes family members are responsible for the health of children and older adults, as recent national survey data suggests that the public believes that individuals and their family members have the strongest influence on overall health (Robert & Booske, 2011), adult obesity (Associated Press-NORC, 2013), and childhood obesity (Wolfson, Gollust, Niederdeppe, & Barry, 2015). Important to note, however, is that if midlife adults are unable to keep their child or aging parent healthy, then this perception of personal responsibility, together with public perceptions of their responsibility, may evoke feelings of regret, guilt, and self-blame directed towards the self, as well as obesity stigma beliefs directed towards others. Indeed, people may feel guilty and blame themselves in response to responsibility appeals if they
feel they cannot adopt the recommended practices (Guttman & Salmon, 2004; Janoff-Bulman, 1979), and, further, guilt and self-blame often serve as obstacles to good health practices (e.g., Chapple, Ziebland, & McPherson, 2004). Likewise, midlife adults who are able to act upon these responsibility appeals to aid their child or aging parents may stigmatize those who are unable to provide such assistance, which, far from enhancing the motivation to comply, may instead result in harm (see Vartanian & Smyth, 2013).

Overview of This Dissertation and Program of Research

This dissertation aims to examine the question: Does a midlife adult’s perception of responsibility for the health of their child or aging parent motivate them to encourage health-promoting behaviors? Specifically, this dissertation is interested in whether perceptions of responsibility lead midlife adults to share health information with their children or aging parents about the benefits of outdoor physical activity to reverse overweight or obesity. Sharing this information is one way to encourage healthy behaviors because individuals who receive health information from close ties, including family members, are more likely to perceive the information as persuasive (Garrett, 2011; van Noort, Antheunis, & van Reijmersdal, 2012). Obesity is associated with a myriad of lifestyle behaviors; however, this dissertation focuses specifically on exercise because of its physical (e.g., Reiner, Niermann, Jekauc, & Woll, 2013), psychological (e.g., Kim et al., 2012), and neurobiological (e.g., Smith et al., 2010) benefits to preventing and/or reversing obesity. Outdoor physical activity may be particularly beneficial, as research suggests that walking outdoors, as opposed to indoors, is associated with a different stride and gait (Fellin, Manal, & Davis, 2010) and greater energy expenditure (Jones & Doust, 1996). Likewise, cycling outdoors, as opposed to indoors on a stationary bike, also requires greater energy expenditure when covering the same distance (Jobson et al., 2007). Importantly,
exercising outdoors, as opposed to exercising indoors, is associated with more physical activity (Kerr et al., 2012), longer duration of the exercise (Dunton, Berrigan, Ballard-Barbash, Graubard, & Atienza, 2009), and greater intention to repeat the physical activity in the future (Thompson et al., 2011). Outdoor physical activity is also associated with a lower risk of poor mental health (Mitchell, 2013), more enjoyment and satisfaction with the activity, greater feelings of revitalization and positive engagement, and decreases in tension, confusion, anger, and depression (Thompson et al., 2011).

In order to answer this core question, this dissertation first conceptualizes responsibility within the context of midlife adulthood and posits three key predictors of responsibility perceptions, including attributions of causation and solution, obligation, and agency. Next, this dissertation integrates the literature on information sharing with current frameworks for predicting intentions and behaviors, including the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980) and its extensions the Theory of Planned Behavior (TPB; Ajzen, 1988, 1991) and the Integrative Model (IM; Fishbein, 2000). This dissertation argues that responsibility from the Norm Activation Model (NAM; Schwartz, 1977) should be included to extend these frameworks into the moral domain to predict intentions to share health information, as doing so inherently impacts another individual (in this case the child or aging parent). The potential indirect effects of responsibility on sharing intentions via anticipatory emotions (guilt, regret, pride, and hope) are then considered, and doing so responds to calls for further research on emotions as determinants of health-related behaviors (e.g., Aertsens, Verbeke, Mondelaers, & Van Huylenbroeck, 2009; King & Meiselman, 2010), calls for further research on the role of anticipated emotions in influencing intentions and behavior (e.g., Arvola et al., 2008; Baumgartner, Pieters, & Bagozzi, 2008; Lench, Safer, & Levine, 2011), and calls for further
research across a range of emotions (e.g., Onwezen, Bartels, & Antonides, 2014). The potential indirect effect of responsibility on sharing intentions via physical activity mavenism is also considered. This dissertation concludes by examining the potential iatrogenic effects of perceptions of responsibility directed towards the self, including regret, guilt, and self-blame, and directed towards others, including obesity stigma beliefs. The overall proposed theoretical model is depicted below in Figure 1.

This dissertation is intended to serve as an initial step in a program of research that will focus on perceptions of responsibility, information sharing, and strategic message design across the lifespan. After answering the core question in this dissertation regarding whether midlife adults’ perceptions of responsibility motivate them to share health information about the benefits of outdoor exercise with their children and aging parents, important next steps will include, for example, determining: (1) What other obesity and health-related behaviors does this model apply to (e.g., nutrition, stress management); (2) How do midlife adults share this information with their children and aging parents (i.e., what do these individuals say)?; (3) Is information sharing effective in promoting health behaviors in children and aging parents (i.e., how do the children and aging parents respond)?; (4) How can messages be designed to strategically increase these perceptions of responsibility for sharing information in midlife adults?; (5) How might public policy capitalize on the impact of midlife adults on children and aging parents to promote population health?; and (6) What iatrogenic effects may result from increasing midlife adults’ perceptions of responsibility for the health of their children and aging parents? This dissertation therefore acts as an important first step in examining the role of responsibility in health communication and health information sharing across a broad range of health topics and health-related behaviors, including, but not limited to, obesity and outdoor physical activity.
Figure 1

*Proposed Theoretical Model*
Responsibility

“As captain of the ship, X was responsible for the safety of his passengers and crew. But on his last voyage he got drunk every night and was responsible for the loss of the ship with all aboard. It was rumoured that he was insane, but the doctors considered that he was responsible for his actions. Throughout the voyage he behaved quite irresponsibly, and various incidents in his career showed that he was not a responsible person. He always maintained that the exceptional winter storms were responsible for the loss of the ship, but in the legal proceedings brought against him he was found criminally responsible for his negligent conduct” (Hart, 1968, p. 211).

The above quote illustrates the many distinguishable ways in which the term “responsibility” and its grammatical cognates can be used. As a theoretical construct, the term responsibility therefore needs to be explicated and clarified from similar terms (e.g., authority, accountability). Smith (2007) notes that one way to distinguish a term from related concepts is through its etymology, and her example is followed here. The English word “responsibility” and the French word “responsabilité” can be traced back to the Latin “responsabilis” (Bovens, 1998). The Latin word “respondere” means to respond, to answer to, and to promise in return, and “responsabilis” can be traced to “respons-,” the past participle stem of “respondere.” Bovens (1998) notes “the word [responsibilis] does not occur in classic Latin vocabularies and likely dates from legal jargon of the late Middle Ages” (Bovens, 1998, p. 23). Bemelmans-Videc (2007) further distinguishes these concepts: “(1) Authority is the right to act; (delegated) authority presupposes the allocation of commensurate responsibility; (2) Responsibility is the obligation to (properly) perform delegated duties and tasks; and (3) Accountability is the obligation to present an account of and answer for the execution of responsibilities to those who entrusted those responsibilities” (p. 23).

The complexity of the concept of responsibility is further evident across numerous classification schemes and definitions. For example, Hart (1968) provided the following classification: “(1) Role-responsibility: Whenever a person occupies a distinctive place or office in a social organization, to which specific duties are attached to provide for the welfare of others
or to advance in some specific way the aims or purposes of the organization, he is properly said to be responsible for the performance of these duties; (2) Causal responsibility: In many contexts...it is possible to substitute for the expression “was responsible for” with the words “caused” or “produced” or some other causal expression; (3) Liability-Responsibility: When legal rules require men to act or abstain from action, one who breaks the law is usually liable, according to other legal rules, to punishment for his misdeeds; and (4) Capacity-Responsibility: The expression “he is responsible for his actions” is used to assert that a person has certain normal capacities...The capacities in question are those of understanding, reasoning, and control of conduct” (p. 213-230).

Bovens (1998) built upon this previous classification (a classification also seen in Bemelmans-Videc, 2007, p. 22) with the following: “(1) Responsibility as cause. ‘Responsible for’ can in a number of contexts be replaced by ‘caused’ or ‘to have as a consequence’ or some such expression that indicates a causal connection; (2) Responsibility as accountability. Often ‘being responsible’ is used in the sense of political, moral, or legal liability (or in all or some of these senses) for the results...of a given form of behavior or event; (3) Responsibility as capacity. To be responsible in the sense of ‘accountable,’ one must in most cases also have been in a position to exercise a certain amount of responsibility; (4) Responsibility as task. When someone fulfills a given social role, holds an office, or is allotted a task or function in an organization from which competences flow and that entail certain duties in regard to others and in regard to the organization, then we mostly speak of his or her competencies and duties as ‘responsibilities’; and (5) Responsibility as virtue. The concept refers to a virtue [when] it suggests that someone takes his tasks and duties seriously, acts only after due deliberation, and considers himself answerable to others for the consequences of his actions” (p. 24-26).
Guttman and Ressler (2001) also note the complex nature of the term responsibility and specify three facets of personal responsibility, including attributions of causation, obligation, and agency. Markus and colleagues (2001) also examine notions of responsibility in the general public and find that responsibility includes meeting obligations (e.g., requirements or duties), attending to the needs of others (e.g., role-related familial responsibilities), and being dependable to others. These classification schemes and definitions reflect the multidimensional nature of the concept responsibility, and, together, consider a midlife adult’s familial responsibility for an event that has occurred or may occur in the future as requiring that the individual has either caused the event or can solve the event, has an obligation to act, and has the agency to do so.

This definition reflects one final important aspect to consider: feelings of responsibility can result in reference to past behavior or events that one caused (or solved) or to future behavior or events that one may cause (or solve). Cummings and Anton (1990) refer to these two aspects as “retrospective” and “prospective” reflectivity, respectively. These perspectives have also been labeled “after-the-fact accountability” versus “before-the-fact consciousness” (Culbert, 1974) and “assumed responsibility” versus “assigned responsibility” (Graham, 1986).

Research on retrospective responsibility is concerned with the attribution process wherein individuals attribute responsibility for actions to themselves, others, or some other entity for something that has already occurred (e.g., Fuller, Marler, & Hester, 2006). With prospective responsibility, an individual may be assigned future responsibility to, for example, care for a child or an aging parent. In both cases, however, this assignment of responsibility does not necessarily mean that individuals will hold themselves either retrospectively or prospectively responsible for another’s health, as society or an organization cannot force an individual to assume responsibility (see Fuller et al., 2006). In other words, it does not necessarily mean that
individuals will feel that they were or are responsible (see Cummings & Anton, 1990; Fuller et al., 2006). Indeed, “responsibility can only be voluntarily assumed by the individual” (Fuller et al., 2006, p. 1092). Thus, if an individual does not assume responsibility, they are unlikely to experience a sense of regret, guilt, or failure when the desired results were not achieved (see Fuller et al., 2006); when an individual does assume retrospective or prospective responsibility, they hold themselves accountable for past or future outcomes, respectively (Culbert, 1974).

In reference to prospective responsibility, Fuller and colleagues (2006) note, “when individuals assume responsibility, they hold themselves personally responsible for current and future actions” (p. 1092). Assumed prospective responsibility is thus intentional and encompasses “proactive involvement in future achievement” (Seiling, 2001, p. 121). This future-oriented prospective construct has been labeled felt responsibility for constructive change and assumes a willingness to be held accountable for future behavior and results (Fuller et al., 2006; Morrison & Phelps, 1999). Further, felt responsibility for constructive change is often intentionally positive and other-oriented (Fuller et al., 2006). Responsibility appeals attempt to engender a midlife adult’s sense of prospective responsibility for their child or aging parent, and, therefore, the remainder of this dissertation focuses on this concept that pertains to perceptions of responsibility for constructive change. This dissertation specifically examine midlife adults’ perceptions of responsibility for sharing health information about the benefits of outdoor physical activity with their overweight child or aging parent, as doing so could contribute to constructive health changes for weight loss. This dissertation argues that these perceptions of responsibility are predicted by attributions of causation and solution, obligation, and agency. The following sections outlines each of these predictors of a midlife adult’s perceptions of responsibility to share health information with their child or aging parent.
Attributions of Causation and Solution

Establishing a causal chain of responsibility for a health outcome (e.g., obesity in children or aging parents) examines the locus of the cause (as internal or external) and the locus of the solution (as internal or external). Attribution theories are concerned with antecedents to attributions, which refer to the perception or inference of a cause, including factors that lead an individual to attribute a particular event or outcome to one cause rather than another (Kelley & Michela, 1980). Attribution theory (Heider, 1958) posits that individuals strive to predict their environment, and doing so is achieved by understanding the causes of behavior. The causes of our own or others’ behaviors are attributed to the individual person (internal/dispositional) or to the environment (external/situational) in order to make sense of the world.

These attributions of causation are a well-recognized component of responsibility. For example, Hart (1968) offered a classification of responsibility that included responsibility as cause, noting that in many contexts, the phrase “was responsible for” can be replaced with the word “caused.” Likewise, Bovens (1998) notes “there has to be a certain causal connection between the conduct of the person held to account and the damage done” (p. 29). Additionally, Guttman and Ressler (2001) note that attributions of causation are a major facet of personal responsibility: “An appeal to personal responsibility inherently assumes causal connections between people’s deeds and health outcomes” (p. 119). Further, Weiner (2006) notes “responsibility for an outcome implies that one has caused that outcome” (p. 32).

The theory of perceived responsibility and social motivation (Weiner, 1993, 2006) further distinguishes between causal attributions and solution attributions. Causal attributions are beliefs about who is responsible for causing a particular behavior or outcome (and align with attribution theory), and solution attributions are beliefs about who is responsible for addressing or solving
problematic behaviors or outcomes. For example, attributions may be made about a midlife adult’s responsibility for causing obesity-related behaviors (i.e., the behaviors; e.g., sedentariness or lack of physical activity) or obesity (i.e., the outcome; e.g., weight gain) in their child or aging parent; separate attributions may be made about a midlife adult’s responsibility for solving obesity-related behaviors (e.g., promoting physical activity) or obesity outcomes (e.g., weight loss) in their child or aging parent. The theory predicts that causal attributions influence solution attributions, and empirical work testing variants of this model in the context of obesity supports these propositions (e.g., Barry, Brescoll, Brownell, & Schlesinger, 2009; Lee, Shapiro, & Niederdeppe, 2014; Niederdeppe, Shapiro, Kim, Bartolo, & Porticella, 2013; Niederdeppe, Shapiro, & Porticella, 2011; Oliver & Lee, 2005; Wolfson et al., 2015).²

Causal and solution attributions are distinct; however, “a close connection exists between claims about patient responsibility for healing a disease and responsibility for its cause. Hence, keeping these responsibilities distinct is difficult’” (Kirkwood & Brown, 1995, p. 67). This underscores the importance of examining attributions of causation and solution as separate predictors of midlife adults’ perceptions responsibility to share information about the benefits of outdoor exercise with their child or aging parent. Specifically, attributions of prospective responsibility for a causation appear likely to influence a midlife adult’s perceptions of responsibility when their children or aging parents are of normal-weight (i.e., in situations to prevent causing obesity); attributions of prospective responsibility for a solution, on the other hand, appear likely to influence a midlife adult’s perceptions of responsibility when their children or aging parents are already obese (i.e., in situations to reverse and solve obesity).

In examining attributions of causation and solution as predictors of responsibility, it is important to also consider attribution bias, as the processing of attribution information “rarely
proceeds without some influence from preexisting suppositions and expectations” (Kelley & Michela, 1980, p. 468). Attribution bias refers to systematic errors that occur when an individual attributes causes for their own and others’ behaviors (Heider, 1958). The attributions that people make do not always reflect reality and may be biased interpretations based on the individual’s own social world (Funder, 1987). There are several specific types of attribution biases, including the ultimate attribution error, the fundamental attribution error, the self-serving bias, and the positivity bias.

These attribution biases highlight the notion that perceptions of responsibility for health outcomes are likely influenced by pre-existing cause and solution attributions that may not accurately reflect reality. Indeed, Kelley and Michela (1980) note that an individual’s perception of new information regarding an attribution is “greatly affected by subjects’ preconceptions about cause-effect relations, even being rendered wholly erroneous” (p. 462). Further, Kelley (1972a, 1972b) makes note of the discounting principle, in which an individual gives less weight to one cause if other plausible causes are also present, and the importance of a causal schema, in which an individual believes two or more causal factors interact to produce a particular event or outcome. Further, Weiner and colleagues (1971) argue that causes possess an additional property, labeled causal stability (a characteristic that Heider, 1958 also mentioned by did not elaborate). Causal stability refers to whether a cause will continue in the future, in which case a prior effect of the same cause will be anticipated to recur; if the cause changes, then so too might the outcome (see also Weiner, 2010; Weiner, Nierenberg, & Goldstein, 1976).

Attributions of causation and solution for obesity are complex. The Associated Press-NORC (2013) conducted a national survey on public perceptions related to the causes of obesity in the United States. Beliefs about the major causes of obesity are displayed below in Figure 2.
These results suggest that the majority of the public believes that individual level factors (e.g., sedentary behaviors including too much TV or video games) play the largest role in causing obesity. In the context of this dissertation, these beliefs may then extend such that midlife adults may attribute the cause of enactment of these behaviors in children and older adults to themselves. In other words, for example, a midlife adult may believe that their child’s sedentary behaviors (i.e., watching TV or playing video games) are causally attributed to the fact that they as a parent do not adequately encourage outdoor physical by sharing health information with them about the benefits of doing so. However, the public also cites environmental causes as a major factor causing obesity, including not enough safe places for outdoor activities. This highlights the potential for the discounting principle and causal stability to impact attributions of causation for a child or aging adult’s obesity, such that a midlife adult may attribute their child or
aging parent’s obesity-related behaviors to external factors or believe that these causes may change. To continue with the above example, the midlife parent may believe that their child’s sedentary behaviors are causally attributed to the lack of a safe play area, not to themselves as a parent, thus decreasing their feelings of responsibility to share health information with that child.

The Associated Press NORC (2013) also examined public perceptions concerning the responsibility different groups had for solving obesity, as displayed below in Table 1.

Table 1

Public Perceptions of Responsibility for Solving Obesity

<table>
<thead>
<tr>
<th>Group</th>
<th>Very large/large Responsibility, %</th>
<th>Moderate amount, %</th>
<th>Little/no responsibility, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual people</td>
<td>88</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Parents and other family members</td>
<td>87</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Doctors/health care professionals</td>
<td>57</td>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>The food industry</td>
<td>55</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>Schools</td>
<td>50</td>
<td>32</td>
<td>17</td>
</tr>
<tr>
<td>Health insurance companies</td>
<td>33</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td>The U.S. government</td>
<td>23</td>
<td>29</td>
<td>47</td>
</tr>
<tr>
<td>State and local governments</td>
<td>23</td>
<td>31</td>
<td>45</td>
</tr>
<tr>
<td>Employers</td>
<td>14</td>
<td>30</td>
<td>56</td>
</tr>
</tbody>
</table>

These results show that the majority of the public believes that individuals and parents/other family members are the most responsible for solving obesity. Health care professionals, the food industry, and schools are also believed to have a large portion of the responsibility for solving obesity. These beliefs may therefore extend such that a midlife adult may attribute the solution to their obese child or aging parent’s obesity-related behaviors to themselves as family members (e.g., they as a parent must encourage the child to engage in physical activity to promote weight loss by sharing health information with them), thus increasing feelings of responsibility; however, they may also attribute those behaviors to external entities, including schools (e.g., the school must dedicate more time to active play to promote physical activity) or to unstable causes,
thus decreasing feelings of responsibility. This dissertation focuses specifically on midlife adults with an overweight or obese child and/or aging parent; thus, the focus is on attributions of solution. This dissertation predicts the following:

H1: A midlife adult’s attributions of solution for weight loss in their overweight or obese child/aging parent to themselves increase their perceptions of responsibility to share health information about the benefits of outdoor physical with their child/aging parent.

Obligation

Obligation underscores the duty that one has to themselves or to others. Bovens (1998) notes that if someone is to be held responsible for another’s actions, they must have an accepted relationship with the agent: “[without] a particular and close relationship with the agent…the person held to account could not be held responsible” (p. 31). Further, Bemelmans-Videc (2007) notes “responsibility presupposes having the capacity to exercise the tasks (authority), which implies that these duties or tasks have been formally delegated to the person in charge” (p. 23), and Agich (1982) notes that obligation as a component of responsibility is a moral charge to help another person. Additionally, Guttman and Ressler (2001) state that obligation is one of the three major facets of personal responsibility and identify three forms: “(1) The obligation to take care of one’s own health for one’s own sake, for the sake of significant others, and for society as a whole, that is by being a productive member; (2) The obligation to promote the health of others; and (3) The obligation to avoid becoming an unfair burden to others and society as a whole by engaging in risky behaviors that may turn oneself into a dependent” (p. 126). Obligation also pertains to “role acceptance” (Cummings & Anton, 1990) and “role responsibility” (Gibson & Schroeder, 2003). Indeed, accepting a role as, for example, a parent caring for a child or an adult child caring for an aging parent, requires an individual to accept the obligation to perform the
“specific, prescribed, often stereotypical, and impersonal expectations” associated with that role (Cummings & Anton, 1990, p. 265).

In drawing on this formulation, this dissertation argues for three types of obligation that may influence perceptions of responsibility: personal, personal-interdependent, and interdependent. Personal obligation refers to a duty to act to improve one’s own health for the benefit of the self. Personal-interdependent obligation refers to a duty to act to improve one’s own health for the benefit of others. For example, women are oftentimes told that they should maintain healthy practices because others, including children or aging parents, depend on them (e.g., Earp et al., 1997). Indeed, some scholars have argued that parenthood promotes a sense of purpose, commitment, and responsibility that leads individuals to protect their own health in the interest of caring for others (e.g., Waite & Gallagher, 2000). Further, personal-interdependent obligation encompasses the duty one has to others to avoid placing financial and other burdens on close others (see Wikler, 2002). Interdependent obligation refers to an individual’s duty to act to improve others’ health (e.g., a parent’s obligation to care for a child’s health or an adult child’s obligation to care for an aging parent’s health). Interdependent obligation may also refer to the responsibility of voters and institutions to the public. Indeed, Wikler (2002) notes, “if social and economic inequalities are as powerful in determining health expectancies as current research indicates…then signatories to the covenant would seem to be obligated to narrow these inequalities, or to find ways to reduce their effects on health and longevity” (p. 49).  

Perceptions of responsibility to share health information, specifically a parent’s perceptions of responsibility to promote the health of a child by sharing information about the benefits of outdoor physical activity or an adult child’s perceptions of responsibility to promote the health of an aging parent by sharing information about the benefits of outdoor physical
activity, falls primarily under interdependent obligation. Gutmann and Ressler (2001) note that “health campaigns typically explicate what it means to be a responsible spouse, parent, or friend” (p. 118), and responsibility appeals often focus on interdependent dyads across the lifespan (see Umberson et al., 2010). This includes the obligation that a midlife adult has to encourage physical activity by sharing health information with both children and aging parents to promote weight loss and reverse overweight or obesity in their family members.

Interdependent obligation can be further conceptualized based on the intimacy of the relationships. Family members and close friends represent intimate relationships, and people report increased social and personal obligations to help in these intimate relationships (Roloff, Janiszewski, McGrath, Burns, & Manrai, 1988; Schwartz, 1977). Roloff and colleagues (1988) note that this interpersonal compliance by intimate partners is due to role obligation. Nonintimate relationships, on the other hand, do not carry the same inherent presumption of obligation to help. Roloff and colleagues (1988) refer to this compliance by nonintimate partners as social responsibility, and these authors note that there is more uncertainty as to the probability of whether or not nonintimates will feel obligated to assist others. The relationships of interest to this dissertation, the parent-child and adult child-aging parent relationships, however, can certainly be characterized as intimate relationships. This dissertation therefore predicts:

H2: A midlife adult’s perceptions of obligation to share health information about the benefits of outdoor physical activity with their child/parent increase their perceptions of responsibility to do so.

**Generativity**

NussBaum (2015) notes that the nature and function of communication changes across the lifespan (see also NussBaum, Pecchioni, Baringer, & Kundrat, 2002), and one component of
those changes may be generativity. Erikson (1950) originally defined generativity as “the concern in establishing and guiding the next generation” (p. 267). This generativity may be particularly relevant in terms of examining obligation from a lifespan perspective. Generativity was first viewed as a midlife phenomenon, involving midlife adults’ responsibility to bear, nurture, and guide the children and adolescents who will follow them (Erikson, Erikson, & Kivnick, 1986). Indeed, cross-sectional evidence suggests that middle-aged adults score higher on generativity than both younger and older adults (e.g., Keyes & Ryff, 1998; McAdams, de St. Aubin, & Logan, 1993). However, scholars have also proposed that generativity is an important contributor to successful aging (e.g., Baltes & Baltes, 1990). Indeed, McAdams and Logan (2004) note that different forms of generativity are more or less important across the lifespan. Different forms of obligation (e.g., parent to child, adult child to aging parent), then, may be more be or less important across the lifespan. For example, older adults have higher social responsibility motivation (Steele et al., 2008), social capital (e.g., Kolins & Herron, 2003; Putnam, 2000) and community involvement (e.g., Kolins & Herron, 2003; Putnam, 2000) than younger adults, which could lead midlife adults who are relatively older to have greater feelings of responsibility for their child or aging parent’s health behaviors and outcomes than midlife adults who are relatively younger that manifests in differences in perceptions of obligation.

Erikson (1950, 1963) viewed generativity as strictly adhering to a sequential stage developmental process; however, McAdams and de St. Aubin (1992) rejected this focus and instead proposed a theory of generativity that argues that generativity exists within a psychosocial space that includes the individual, interpersonal, and societal dynamics. This theory posits that generativity is motivated by both cultural demands (i.e., an individual’s felt expectations regarding cultural pressure to take responsibility for younger individuals) and
generative desire (i.e., an individual’s desire to be needed by others and to leave a legacy behind after death). These motivational forces then lead to generative concern (i.e., an individual’s conscious preoccupation for individuals in the next generation) and belief that the human enterprise is worthwhile (i.e., an individuals’ respect and trust for other humans). Concern and belief lead an individual to a commitment to be generative, which then leads to generative actions and narration.

Generative concern is a general personality tendency that appears to be applicable to perceptions of interdependent obligation of a parent to a child or an adult child to an aging parent. For example, de St. Aubin and McAdams (1995, study 2) found that generative concern was related to nurturance, and McKeering and Pakenham (2000) found that generative concern was related to fathers’ performance of childcare activities. Scholars have also found that generative concern is positively related to moral obligation (Keyes & Ryff, 1998; Rossi, 2001). Further, Einolf (2014) conducted a longitudinal study that found that generative concern has rank-order stability, suggesting that generative concern remains rather stable across the lifespan and does not necessarily conform to Erikson’s (1950, 1963) original conceptualization of generativity as relating to a specific life stage. In considering both age and generative concern, this dissertation therefore poses the following research question:

RQ1: Does a midlife adult’s (a) age and (b) generative concern relate to perceptions of obligation to share health information about the benefits of outdoor physical activity with their child/aging parent?

Psychological Reactance

Psychological reactance refers to “the motivational state that is hypothesized to occur when a freedom is eliminated or threatened with elimination” (Brehm, 1966; Brehm & Brehm,
1981, p. 37), and midlife adults likely have differing levels of reactivity to perceptions of responsibility, specifically obligation, to act for the benefit of their child or aging parent. Indeed, obligation is an uncomfortable state that is made aversive by a restriction on behavioral autonomy and an anticipation of negative social repercussions if one does not comply (Greenberg & Bar-Tal, 1976; Greenberg & Shapiro, 1971). Further, an obligation to help may constitute a threat to a target person’s face (see Brown & Levinson, 1987 for Politeness Theory), and individuals are less likely to respond favorably to obligations when they believe their decision-making freedom is being threatened by the requester (Berkowitz, 1973), if they feel that it is an unjustified threat to their decision freedom (Langer & Abelson, 1972), or if their compliance with the obligation demands future commitment to help (Jones, 1970). Threat to face may also be high when an intimate is asked to do something costly when “he or she might not wish to provide assistance, but relationship obligations mandate compliance. Therefore, while assistance may be forthcoming, it is forced rather than voluntary and may become a source of resentment” (Roloff & Janiszewski, 1989, p. 38). Indeed, measures of obligation oftentimes include notions of “having to do something” (e.g., Abrahams & Bell, 1994).

This type of face threat may be particularly prominent when a midlife parent is asked to care for a child or a midlife adult is asked to care for their aging parent. Schwartz (1977) further notes that recipients of messages implying obligation might respond defensively by, for example, minimizing the harm to the help-seeker, denying their own responsibility for involvement, or questioning their personal obligation to assist. Jordan and Roloff (1990) note that reactance is less likely in intimate relationships, which should suppress these defensive reactions, and, as mentioned, the parent-child and adult child-aging parent relationships are intimate. However,
these perceptions of obligation may still be related to psychological reactance. This dissertation therefore considers the following:

**RQ2:** Do a midlife adult’s perceptions of obligation to share health information about the benefits of outdoor physical activity with their child/aging parent relate to psychological reactance?

According to Kohlberg (1981), the interdependent obligation portion of responsibility is a matter of personal choice and social convention. Gilligan (1982) instead argues that a concern for caring and interdependent obligation is a moral strength and views responsibility to others as natural. From either perspective, however, an obligation to do something does not necessarily mean that one is able to do that something. Indeed, the perception that one has a duty to care for a child or aging parent by promoting physical activity by sharing health information does not automatically mean that one will perceive that they also have the agency to do so (see Fischer, 2003 for a rejection of the ought-implies-can principle).

**Agency**

Agency, which highlights that an individual or group has the knowledge, choice, ability and control to act, is also a well-recognized component of responsibility. Guttman and Ressler (2001) state, “a person should be held liable for adverse outcomes of activities…only when these are under their complete volition” (p. 120). Further, Adler and Stewart (2009) note “individuals are responsible for engaging in health-promoting behaviors but should be held accountable only when they have adequate resources to do so” (p. 50). Complete volition and resources in the context of this dissertation include a midlife adult’s: (1) knowledge about how to share information with their child or aging parent about the benefits of outdoor exercise; (2) choice about whether or not to share this health information with their child or aging parent; and (3) the
ability and control required to share the health information about the benefits of outdoor exercise with their child or aging parent.

**Knowledge**

Knowledge involves the midlife adult’s awareness of what they are doing with reference to sharing information about the benefits of outdoor physical activity with their child or aging parent, as well as awareness of the potential ramifications of doing so. For example, Bovens (1998) notes “the person held to account must at the moment of engaging in the form of behavior under consideration have been in adequate possession of his mental faculties” (p. 30). Further, individuals must be properly educated about the potential outcomes of their actions or inactions to be considered responsible for their behaviors and outcomes (Guttmann & Ressler, 2001). Likewise, a series of scholars have suggested that foreseeability of consequences is important for responsibility (Brehm & Jones, 1970; Cooper, 1971; Sogin & Pallak, 1976). Moreover, Weiner (2006) notes that the perception of intent “typically augments references of responsibility” (p. 32), and intent to achieve a particular outcome implies awareness of behaviors leading to it. Further, Wikler (2002) notes that to be responsible for an action requires that the individual was informed about the outcomes of their action for themselves or another. The norm activation model (NAM; Schwartz, 1977) also posits that awareness of the consequences of behaviors influences responsibility, and empirical examinations support this proposition (e.g., De Groot & Steg, 2009; Onwezen, Antonides, & Bartels, 2013).

**Choice**

Choice involves the midlife adult having the resources to choose whether or not to share health information about the benefits of outdoor exercise with their child or aging parent. Weiner (2006) notes that responsibility requires that the causal agent have freedom of choice.
Additionally, Bovens (1998) notes that “to be responsible, one must have had a real possibility of acting otherwise than one actually did…[and must have] alternative forms of conduct available” (p. 30), and Bemelmens-Videc (2007) notes responsibility “presupposes freedom of decision or the ability to make choices” (p. 23). Additionally, Wikler (2002) notes, “ascriptions of responsibility presuppose freedom of action” (p. 50). In one example, Zeelenberg, van Dijk, and Manstead (1998) found that participants perceived students to be more responsible when an outcome stemmed from the student’s own choice as opposed to from computer reassignment.

**Ability and Control: Self-Efficacy**

Ability refers to the skills required for the midlife adult to act in reference to sharing health information with their child or aging parent. Gustafson and Laney (1968) note that responsibility presupposes the ability and capability to respond. Control over one’s actions is also an important aspect of midlife adult’s agency to share health information with their child or aging parent, and it refers to control over a behavior such that is volitionally alterable. Weiner (1979, 1985) argued that controllability should be included in attribution theory as a separate dimension. As mentioned, individual and environmental factors refer to the perceived causes of a particular behavior; controllability refers to behaviors that are voluntarily produced (Weiner, 1979, 1985). Internal, individual attributions for outcomes can be viewed as controllable or uncontrollable (Weiner, 1979, 1985). For example, a child or aging parent’s sedentariness may be believed to be a function of the midlife adult’s laziness, lack of parental control, or lack of educating and sharing of the proper information (i.e., controllable) or their sedentariness may be believed to be a function of environmental constraints (i.e., uncontrollable). Likewise, external attributions can be viewed as controllable or uncontrollable (e.g., the physical activity of the child or parent may be considered controllable if the family has the resources to be physically
active, including safe play areas or money to join a gym, or uncontrollable if they do not).

Further, Folkes (1982) notes that refusing to comply because of uncontrollable obstacles lessens the degree of responsibility assigned to the individual who refuses, and Smith (2008) argues that individuals have increased perceptions of responsibility when they believe they are in control of their behavior. Finally, there is empirical work that supports this notion that perceptions of ability and control influence perceptions of responsibility (e.g., Onwezen et al., 2013).

This ability and control is closely connected with the concept of efficacy. Self-efficacy, which is oftentimes used synonymously with perceived behavioral control, refers to “beliefs in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1995, p. 2). Efficacy is important with reference to responsibility, as efficacy has been empirically linked to perceptions of responsibility (e.g., Zimmerman, 1994; Zimmerman & Kitsantas, 2005; see Fuller et al., 2006 for an exception).

Bandura (1986, 1997) notes that efficacy is a task and/or situation specific belief. This dissertation is interested in a midlife adult’s self-efficacy beliefs about their ability and control to share health information about the benefits of outdoor physical activity with their child/aging parent to reverse overweight/obesity. Efficacy defined in this way is closely related to what Afifi and colleagues (2006) label communication efficacy, defined as “individuals’ belief that they have the skill to complete the communication task at hand” (p. 192).

**Dyadic Agency**

The impact of agency may be particularly relevant in cases of interdependent responsibility, where the behavior changes in a child or aging parent is a function of both members of the dyad (i.e., a function of both the parent and child, and a function of both the adult child and aging parent). Indeed, behavior of one or both members in a dyadic system is
likely a function of input from both individuals. This idea draws on Interdependence Theory, which is a dyad-level social psychological theory that aims to understand the interpersonal context of social situations and the manner in which individuals respond to social situations (Kelley, Bercheid, Chistensen, Harvey, & Huston, 1983; Kelley & Thibaut, 1978; Rusbult & Van Lange, 2003). Interdependence refers to the way partners in a dyad influence each other’s outcomes and can be characterized in several ways, as shown in Figure 3. Actor effects (black lines) suggest that each person in the dyad predicts only their own outcomes, regardless of the social context. Partner effects (blue lines) suggest that each dyad member’s actions influence his or her partner’s outcomes, but not their own outcomes. Joint effects or influence occur when a person’s outcome is determined by his or her own factors or action (actor effects) and his or her partner’s factors or action (partner effect).

Figure 3

*Interdependent Influence in a Dyad*

In the context of this dissertation, constructive physical activity behavior changes are likely a function of both actor (i.e., the midlife adult) and partner (i.e., the child or aging parent) effects, with the weighting of such effects varying across the lifespan. For example, Bassett,
Chapman, and Beagan (2008) found that parents had more control over their younger children’s obesity-related behavior choices (dominant midlife adult actor effect), but teens were more likely to assert autonomy and ignore or refuse their parent’s advice (dominant child partner effect). This influence of both members in the dyad raises ethical concerns, including to what extent a midlife adult is “responsible for adverse outcomes when the other person refuses to comply” (Guttman & Salmon, 2004, p. 545). However, the midlife adult likely will perceive that they are responsible for encouraging these constructive physical activity behavior changes by sharing health information with their child or aging parent about the benefits of outdoor activity when they believe that they have the agency to do so. This dissertation therefore predicts:

H3: A midlife adult’s perceptions of agency, including (a) knowledge, (b) choice, and (c) self-efficacy, increase their perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent.

Responsibility for a Child versus Aging Parent

As mentioned, this dissertation is interested in examining a midlife adult’s perceptions of responsibility for both their children and aging parents; however, there may be important distinctions between these relationships. A midlife adult’s responsibility associated with the parent-child relationship may be inherently different than that associated with the adult child-aging parent relationship. A parent’s responsibility to care for a child is prevalent across the child’s lifespan (Rossi & Rossi, 1990; Umberson et al., 2010). Indeed, the multidimensional Lamb model (Lamb, Pleck, Charnov, & Levine, 1987) conceptualizes parental involvement with children across the lifespan in three categories: (1) interaction (i.e., the parent interacts with the child during one-on-one activities, including playing); (2) accessibility (i.e., the parent is physically and psychologically accessible to the child); and (3) responsibility (i.e., the parent
assumes responsibility for the welfare and care of the child). This latter category, responsibility, is particularly relevant. Parental responsibility for the health of their children is so ubiquitous that legal requirements mandate parental care for children, and the public also blames parents for childhood health conditions like obesity (see Wolfson et al., 2015).

Filial responsibility, on the other hand, refers to societal attitudes about rights and duties that specify how family members should care for and provide support for each other, specifically with respect to adult children caring for older parents (Rossi & Rossi, 1990; also referred to as filial obligation and filial piety). Historically, and in some current societies, perceptions of filial responsibility are one of the most important values regulating the behavior of adult children towards their aging parents (e.g., Chow, 2009). However, Modernization and Aging Theory (Burgess, 1960) posits that modernization, individualism, and secularization combine to weaken filial obligation norms and break down traditional family structures. This modernization and emphasis on individual freedom, then, suggests that caring for an aging parent may be viewed as limiting the midlife adult’s autonomy. Indeed, Markus and colleagues (2001) note, “tending and bending to the needs and demands of another is often cast as compromising one’s own autonomy and independence” (p. 351). Further, adults at midlife may think that providing care to their aging parents also poses a threat to the older adult’s autonomy, as “Responsibility to others may also be viewed as harmful to its recipients, construed as fostering their dependence and hampering their independence” (Markus et al., 2001, p. 352). This dissertation therefore considers the following:

RQ3: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity differ when considering a child versus an aging parent?
Figure 4 below displays the model that stems from this section of this dissertation. The next section of this dissertation situates responsibility from the Norm Activation Model (NAM; Schwartz, 1977) within pre-existing frameworks, including the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980), the Theory of Planned Behavior (TPB; Ajzen, 1988, 1991), and the Integrative Model (IM; Fishbein, 2000), to predict information sharing intentions. In doing so, this dissertation extends these rational-choice frameworks into the moral domain to consider other-oriented behaviors. This dissertation also considers potential mediators of the relationship between responsibility and information sharing intentions, including anticipated emotions and mavenism.

Figure 4

*Proposed Theoretical Model of Predictors of Responsibility*
Predicting Information Sharing Intentions:

Rational-Choice and Moral Perspectives

Current theoretical perspectives often seek to explain the determinants of health intentions and behavior through a rational-choice perspective. Several of these theories have gained widespread scholarly attention, including the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980) and its extensions the Theory of Planned Behavior (TPB; Ajzen, 1988, 1991) and the Integrative Model (IM; Fishbein, 2000). The TRA (see Figure 5 below) posits that behavior is directly determined by an individual’s intentions. Intentions motivate an individual to engage in a particular behavior and are directly predicted by (1) an individual’s attitude towards the behavior (e.g., the individual’s evaluation of the behavior as positive or negative) and (2) subjective norms (i.e., an individual’s perceptions of whether or not important others think they should engage in the behavior). Attitudes are comprised of beliefs about the likelihood of behavioral outcomes weighted by the evaluation of each outcome. Subjective norms are comprised of beliefs about whether significant others think that one should perform a behavior weighted by the motivation to comply with that referent.

Figure 5

*Graphical Representation of the Theory of Reasoned Action*
The TPB (see Figure 6 below) extends the TRA by including perceived behavioral control. The TPB posits that a behavior is directly determined by an individual’s intentions and perceived behavioral control. Perceived behavioral control, also referred to as self-efficacy, encompasses the extent to which an individual believes they have control over performing that behavior. Intentions, in turn, are directly predicted by (1) an individual’s attitude towards the behavior, (2) subjective norms, and (3) perceived behavioral control. Perceived control is comprised of beliefs about the facilitators or barriers in engaging in the behavior weighted by the perceived power of each facilitator or barrier to impact performance of the behavior.

Figure 6

*Graphical Representation of the Theory of Planned Behavior*

The IM framework (see Figure 7 below) posits that behavior is predicted by intentions, skills required to perform the behavior, and environmental constraints (i.e., behavior is likely to occur if there are no environmental constraints preventing behavioral performance). The model suggests three primary determinants of intentions: (1) attitudes towards performing the behavior,
(2) perceived norms concerning performance of the behavior (which, in the IM, include both perceptions of subjective norms as well as descriptive norms, or perceptions of what others are doing), and (3) self-efficacy beliefs. Attitudes, perceived norms, and self-efficacy are functions of underlying beliefs.

Figure 7

*Graphical Representation of the Integrative Model*

The TRA, TPB, and IM underscore a principal of specificity, such that in order to best predict behavior, the attitudes, subjective norms, and efficacy beliefs must relate to a specific intention and subsequent behavior. These frameworks note that any given behavior includes an action, target, and time period in which the behavior is observed or expected. This dissertation examines whether perceptions of responsibility lead midlife adults to share health information about the benefits of outdoor physical activity with their child/aging parent. The elements of interest are therefore sharing health information (i.e., the action) with a child or aging parent (i.e., the target) in the near future (i.e., the time period).
Health Information Sharing

The action of interest, sharing health information, may be defined as a voluntary behavior wherein individuals communicate new ideas to others whom they believe have information needs (see Jarvenpaa & Staples, 2001). Past research on sharing health information has focused primarily on formal contexts and information exchanges (e.g., public health campaigns or patient-provider communication), not on interpersonal health information sharing between family members or friends (Bylund & Duck, 2004; Cline, 2011; Kline, 2011; Roter & Hall, 2011; Southwell & Yzer, 2009). However, individuals often share health messages and news stories with others in their social networks (Southwell, 2013). Indeed, the Pew Internet and American Life Project (Fox & Duggan, 2013) found that approximately 60% of individuals report receiving or seeking health information from family and friends. Thus, examining this health information sharing in informal interactions between family members is important.

Information sharing is closely related to proactive communication, which is defined as “constructive change-oriented communication intended to improve the situation” (LePine & Van Dyne, 2001, p. 326). This communication or information sharing is intended positively (LePine & Van Dyne, 2001; Van Dyne, Ang, & Botero, 2003) and results when an individual seeks out opportunities for improvement (LePine & Van Dyne, 2001). Important to note, however, is that proactive communication can challenge the status quo and can thus be considered a deviant behavior (Warren, 2003). If this communication or information sharing is seen as personal criticism, then it can hurt interpersonal relationships, with potentially negative implications (Stamper & Van Dyne, 2001).

Health information sharing is often examined through the two-step flow theory (Katz, 1957; Katz & Lazarsfeld, 1955; Lazarsfeld, Berelson, & Gaudet, 1944). The two-step flow
theory posits that messages are transmitted from the mass media to individuals, who then share the message with others in their social network via interpersonal communication. This two-step flow theory can be used to explain how individuals receive health messages and then share this information with others in their social network via not only interpersonal conversations, but also online retransmission channels (i.e., it may examine information sharing more broadly). Research has examined different mechanisms under this framework that may explain the relationship between health messages and information sharing. Information sharing may be viewed as a mediator (Hornik, 2006; Southwell & Yzer, 2007), such that health messages may lead an individual to share health information with others, which then influences health outcomes (e.g., Dunlop, 2011; Durkin & Wakefield, 2006; Jeong et al., 2015; Lee, 2009). Information sharing may also be viewed as a moderator (Hornik, 2006; Hornik & Yanovitzky, 2003), in which message content and information sharing could reinforce each other if, for example, both individuals had seen the health information, with interpersonal communication then amplifying or diminishing the message effects (e.g., Hafstad & Aaro, 1997; Dunlop, Cotter, & Perez, 2014; Hwang, 2010; Schuster et al., 2006; van den Putte et al., 2011).

This dissertation examines the mediation process of the two-step flow theory, in which individuals (i.e., midlife adults) view health information and then share this information with others (i.e., their children or parents). The midlife adults may choose to share this information for a variety of reasons, including as an attempt to influence positive health changes in their child or aging parent. Importantly, scholars have speculated on different psychological motives that may motivate someone to share information with others, including persuading others (see Berger, 2014). An examination of a midlife adult’s outcome motives for sharing and outcomes in terms of influence are beyond the scope of this dissertation; thus, this dissertation specifically focuses
on the first portion of the two-step flow theory to examine the factors that influence a midlife adult to intend to share health information with their child or parent.

**Health Information Sharing in the TRA, TPB, and IM**

According to the TRA/TPB/IM, attitudes, subjective norms, and self-efficacy beliefs specific to health information sharing likely influence intentions to do so. For example, if midlife adults have positive attitudes about sharing information about the benefits of outdoor exercise with their child/aging parent, they are likely to engage in information sharing; however, if they have negative attitudes and believe that this information sharing will be viewed as personal criticism, they are unlikely to do so. Importantly, middle-aged adults devote more time to their health care compared to younger adults, and, as such, the content of their communication often shifts to focus on health-related issues (e.g., Hay et al., 2009; Wright, 2009). This shift in family communication content at midlife may thus impact an adult’s attitudes and normative beliefs about sharing health information with family members. Self-efficacy may also be particularly important in this context, as Mirowsky and Ross (2003) suggest that the internalization of norms about responsibility for family ties may foster a sense of personal control for enacting upon that responsibility.

Notably, meta-analytic data suggests that the rational-choice variables in these frameworks, attitudes, subjective norms, and self-efficacy, explain between 40-49% of the variance in intentions and 19-36% of the variance in behavior across a wide range of health-related behaviors (Ajzen, 1991; Armitage & Conner, 2001; Hagger, Chatzisarantis, & Biddle, 2002; McEachan, Conner, Taylor, & Lawton, 2011; Schulze & Whittmann, 2003), including 42%-36% of the variance in exercise intentions and behavior (Godin & Kok, 1996). Further, intentions are most strongly predicted by attitudes, followed by self-efficacy, and behaviors are
most strongly predicted by intentions, followed by efficacy (e.g., McEachan et al., 2011). As such, self-efficacy may act not only indirectly on intentions via perceptions of agency and responsibility (H3c), but also directly on intentions to share health information. This dissertation therefore predicts the following:

H4: A midlife adult’s (a) attitudes, (b) subjective norms, and (c) self-efficacy to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influences their intentions to do so.

**Perceived Norms**

The TRA and TPB theorize that subjective norms (i.e., norms about what important others think one should do) influence intentions. The IM suggests that both subjective norms and descriptive norms (i.e., norms that refer to the popularity of a certain act) play important roles. An additional framework, the Social Norms Approach (SNA; Berkowitz, 1997; Perkins, 2003; Perkins & Berkowitz, 1986), posits that the relevant norms for predicting intentions are categorized into two types: descriptive norms and injunctive norms (i.e., norms that refer to social approval of the act; see also Cialdini, Reno, & Kallgren, 1990).

Park and Smith (2007) examined these five types of perceived norms at the personal and societal level: subjective norms, personal and societal injunctive norms, and personal and societal descriptive norms. Subjective norms were defined as “perceptions of important others’ expectations for a given individual’s behavior”, personal injunctive norms as “perceptions of important people’s approval of a given individual’s behavior”, personal descriptive norms as “perceptions of important people’s own behavior”, societal injunctive norms as perceptions of society’s approval of a given behavior, and societal descriptive norms as perceptions of society’s behaviors (Park & Smith, 2007, p. 197). These societal level norms are important for behaviors
that have important implications for not only one’s family and personal group, but also for society at large. Park and Smith (2007) examined organ donation, which has implications for society (Ashkenazi, Guttman, & Hornick, 2005); this dissertation is interested in obesity, which also has important societal health implications (see Ogden et al., 2014).

Park and Smith (2007) did find that these five norms were operationally distinct for two different health behaviors, and that different norms were more or less important for behaviors enacted individually (signing the state organ-donor registry) versus those enacted socially (discussing organ donation with family members). Additionally, Kim, Lee, and Yoon (2015) found that subjective norms and personal descriptive norms influenced behavioral intentions to interact with Like Ads on Facebook (but perceived injunctive norms did not). Further, Rivis and Sheeran (2003a, 2003b) proposed that the TPB should be extended to include descriptive norms, and in a recent meta-analysis, Melnyk, van Herpen, and van Trijp (2010) found that descriptive norms have a greater impact on behavior than subjective norms. More recently, Onwezen and colleagues (2014) examined this notion and did find that descriptive norms did directly and indirectly (via anticipated guilt) influence intentions. Together, this research suggests a distinction between these perceived norms, and, despite the fact that some researchers have equated subjective norms from the TPB with injunctive norms from the SNA (e.g., Boer & Westhoff, 2006; Lapinski & Rimal, 2005; Rivis & Sheeran, 2003a), and despite the fact that Ajzen (2006) recommended that the measure of subjective norms should include descriptive norms, the influence of each type of norm should be examined separately. Examining these additional perceived norms may serve as an important theoretical addition by considering additional sources of social influence. This dissertation therefore considers whether these distinct types of perceived norms influence intentions to share health information by considering:
RQ4: Do a midlife adult’s (a) personal injunctive norms, (b) personal descriptive norms, (c) societal injunctive norms, and (e) societal descriptive norms about share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influence their intentions to do so?

**Responsibility**

As mentioned, the TPB variables account for up to 49% of the variance in intentions and 36% of the variance in behaviors. However, these percentages still mean that approximately 51% and 64% of the variance in intentions and behaviors, respectively, is left unexplained. Further, despite the empirical support linking the TPB variables with intentions and behaviors, additional research suggests a disconnect between intentions and actual behavior change. For example, Sheeran’s (2002) meta-analysis of 422 studies found a strong effect size of $d = 1.47$ of intentions on behavior, which exceeds the criterion of $d = 0.80$ for large effect size (Cohen, 1992).

However, this meta-analysis included correlational studies, and a subsequent meta-analysis of experimental studies indicated a smaller impact of intentions on behavior: a medium-to-large change in intention ($d = 0.66$) engenders a small-to-medium change in behavior ($d = 0.36$; Webb & Sheeran, 2006). Importantly, Webb and Sheeran (2006) note that the relationship between intentions and behavior is substantially weaker for behaviors performed in a social context.

Together, the above evidence suggests that these rational-choice theories fail to sufficiently predict behaviors with a moral component (i.e., behaviors that focus on another’s welfare, another’s rights, or considerations of fairness or justice). Past research has examined this notion with respect to pro-environmental behavior (e.g., Kaiser, Ranney, Hartig, & Bowler, 1999; Kantola, Syme, & Nesdale, 1983; Thøgersen, 1996); however, many behaviors also focus on another’s health. Indeed, Umberson and Montez (2010) note that “social ties can instill a
sense of responsibility and concern for others that then lead individuals to engage in behaviors that protect the health of others, as well as their own health” (p. S56). Indeed, a growing body of literature suggests that social relationships contribute to the performance and maintenance of health behaviors over the lifespan (see Umberson et al., 2010), including the parent-child and adult child-aging parent relationships.

This suggests that the TRA/TPB/IM as they stands are inadequate at predicting behaviors with a moral component; thus, this dissertation argues that the norm-activation model (NAM; Schwartz, 1977), which posits that people feel obligated for others’ health beyond the prudential interest of their own well-being (Stern, Dietz, & Kalof, 1993), should be integrated into the TRA/TPB/IM when examining midlife adults’ behaviors that benefit their child or aging parent, including sharing health information with these family members. Personal norms, which are central to this model, are defined as “feelings of moral obligation” (Schwartz, 1977, p. 227). Personal norms predict individual behavior, and personal norms are themselves predicted by two factors: (1) awareness that a performing or not performing behavior has particular consequences; and (2) perceptions of responsibility for performing that behavior.

The NAM has been interpreted both as a mediator and a moderator model. The mediator model posits that awareness influences personal norms via perceptions of responsibility, and the moderator model posits that the influence of personal norms on behavior is moderated by both awareness and responsibility. In a series of five studies, De Groot and Steg (2009) compared these two models and found strong evidence in favor of the mediator model (see also Onwezen et al., 2013). That is, an individual must first be aware of the consequences of a behavior before feeling responsible, and perceptions of responsibility in turn influence personal norms (De Groot
& Steg, 2009). Figure 8 provides a graphical representation of the mediator version of the NAM, adapted from De Groot and Steg (2009) and Onwezen and colleagues (2013).

Figure 8

*Graphical Representation of the Norm Activation Model*

Some previous work has integrated the TRA/TPB/IM with the NAM (see Bamberg, Hunecke, & Blöbaum, 2007; Bamberg & Möser, 2007; Kaiser et al., 1999; Onwezen, Antonides, & Bartels, 2013), and personal norms increase the variance explained in behavioral intentions and behavior (e.g., Harland, Staats, & Wilke, 1999). Interestingly, Ajzen and Fishbein (1980) discount the inclusion of a moral component (e.g., responsibility or personal norms) in their rational-choice framework; however, Kaiser and colleagues (1999) argue that a moral component should be included for two reasons. First, moral-norm activation theories are the second most popular theoretical approach used in the social sciences to predict behavior, and, instead of using rational choice and norm activation theories independently, these approaches should be integrated (Kaiser et al., 1999). Second, moral philosophy distinguishes between two types of social norms: social conventional norms and moral norms (Kaiser et al., 1999). This distinction parallels that made between conventional and moral social cognition domains (Turiel, 1985). Conventional norms derive from social customs or traditions, appeals to authorities, and an individual’s need for social appreciation; moral norms are grounded in moral concepts, including another’s welfare, another’s rights, and considerations of fairness/justice.
As mentioned, health behaviors and recommendations often focus on another’s health (Umberson & Montez, 2010; Umberson et al., 2010). If health behaviors partially fall into the moral domain and are determined by both conventional and moral norms, then rational-choice theories, including the TRA/TPB/IM, insufficiently predict these behaviors. The “subjective norms” in the TRA/TPB and “perceived norms” in the IM are synonymous with conventional social norms and do not include a moral norms component. The addition of a moral concept to these rational-choice frameworks thus seems warranted, and midlife adults’ perceptions of responsibility for sharing health information with their child or parent appear to be promising in this regard. Indeed, as Markus and colleagues (2001) note, “Responsibility in most common senses of the word involves others and connections to others” (p. 349), thus situating responsibility as a moral norms component. Note, however, that in the theoretical model for this dissertation, this dissertation situates perceptions of obligation (i.e., personal norms) as influencing intentions indirectly via perceptions of responsibility.

There is some limited evidence that perceptions of responsibility do influence health-related intentions and behaviors. For example, Rothman, Salvoey, Turvey, and Fishkin (1993) found that women who viewed a video that emphasized internal attributions of responsibility for health were more likely to believe they were personally responsible for cancer prevention and then obtain a mammogram than those who viewed an external attributions or information-only presentation. Additionally, Williams-Piehota and colleagues (2004) found that messages that emphasized personal responsibility increased fruit and vegetable consumption after 1 month, but made no changes in intake between the one and four month follow-ups. Likewise, Niederdeppe, Roh, Shapiro, and Kim (2013) found that high personal responsibility increases intentions to eat fruits and vegetables, engage in regular exercise, and diet to lose weight. Further, examinations
of the NAM have shown that responsibility indirectly influences behavior (e.g., De Groot & Steg, 2009; Onwezen et al., 2013). However, Ziff, Conrad, and Lachman (1995) found that perceptions of responsibility did not significantly predict perceived health or health-related behaviors (note, however, that in this study responsibility was measured via a single-item that asked participants whether they felt responsible for their own well-being, not health). This empirical evidence suggests that perceptions of personal responsibility are likely to achieve the desired outcome in terms of intentions and behaviors.

Results regarding perceptions of interdependent responsibility (i.e., perceptions of responsibility for another) also suggest that responsibility leads to the desired health behaviors. For example, Tennen, Affleck, and Gershman (1986) found that perceptions of responsibility are associated with positive behavior changes in mothers of children with prenatal complications. Additionally, Morrison and Phelps (1999) suggest that when individuals feel a sense of responsibility for constructive change, they will engage in proactive behaviors because they view these behaviors as feasible and desirable. Indeed, Fuller and colleagues (2006) found that felt responsibility for constructive change motivated individuals to communicate openly about workplace issues. Further, Bryan and Hershfield (2012) conducted an interesting experiment that examined people’s sense of responsibility to their future self, or a self-future self dyad (i.e., participants viewed their future self as distinct from their current selves or as an “other”). Results suggested that participants exposed to a social responsibility message that emphasized their responsibility to a future self (i.e., to an “other”) were more likely than those exposed to a self-interested message to save money for retirement. These studies again support the notion that perceptions of interdependent responsibility motivate the desired behavior changes, yet, contrary to this pattern, Yun, Silk, Bowman, Neuberger, and Atkin (2009) found that mothers’ perceived
responsibility to teach their adolescent and pre-adolescent daughters about breast cancer reduction measures was not related to behavioral intentions to do so, despite high perceptions of efficacy. Importantly, however, perceptions of responsibility have been found to motivate proactive conversations with family members about health (e.g., Parrott, Greenberg, & Hong, 2015 found that thrombosis survivors felt responsible for being proactive and disclosing information about genetic risk to biological family members).

In addition to empirical work directly examining perceptions of responsibility, work on a related concept, perceived moral obligation (PMO), also suggests that perceptions of responsibility impact intentions and behaviors. Indeed, PMO is often operationalized very similarly to responsibility, and, according to Ajzen (1991), PMO takes into account “personal feelings of…responsibility to perform, or refusal to perform, a certain behavior” (p. 199). PMO may be particularly relevant in cases of personal-interdependent and interdependent obligation, as the NAM notes that moral norms are activated when an individual is cognizant of the consequences of their actions for others and when they perceive a personal responsibility for those actions. PMO can elicit positive intention and behavioral outcomes in interdependent situations. For example, Conner and Armitage (1998) conducted a meta-analysis of 11 studies and found that PMO explained an additional 4% of the variance in intentions, after controlling for attitudes, subjective norms, and perceived control. Likewise, a more recent meta-analysis found that PMO increased the variance explained in intentions by 3% after controlling for attitudes, subjective norms, and perceived control (Rivis, Sheeran, & Armitage, 2009). Additionally, Rivis and colleagues (2009) found that PMO is more strongly correlated with intentions for behaviors that have consequences for the welfare of others (i.e., behaviors with an interdependent obligation). Further, Rapaport and Orbell (2000) also found that subjective norms
influenced intentions to assist older parents, which suggests that peoples’ “motivations to care may be influenced by a set of normative social obligations” (p. 321). As mentioned, this well-studied concept of PMO is very closely tied to responsibility. This dissertation therefore predicts:

H5: A midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influences their intentions to do so.

**Potential Mediators: Anticipated Emotions**

Midlife adults’ perceptions of responsibility to share health information about the benefits of outdoor exercise with their child/aging parent appear likely to not only directly influence intentions, but also indirectly influence intentions to share health information via anticipated emotions. That is, if a midlife adult believes they have the responsibility to share health information about the benefits of outdoor physical activity with their child/parent, they will likely anticipate negative emotions if they do not act on that responsibility and positive emotions if they do. These foreseen consequences likely impact an individual’s behavioral choices (Brehm & Jones, 1970; Cooper 1971), and, indeed, people anticipate post-decisional emotions and take them into consideration when making behavior choices (for reviews see van der Plight, Zeelenberg, van Dijk, de Vries, & Richard, 1998; Zeelenberg, 1999). Additionally, according to Gross and Thompson’s (2007) process model of emotion regulation, one way to regulate emotions is to anticipate how one’s actions will make one feel and to adjust one’s behavior accordingly (i.e., situation modification, or efforts to change a situation to modify it’s emotional impact). Indeed, anticipated emotions can shape and motivate behaviors as people strive to avoid negative feelings and strive to attain positive feelings (Baumeister et al., 2007; O’Keefe, 2015) and may be more persuasive than experienced emotions (Xiao, 2011).
Importantly, however, the “anticipation of emotions on decision making is very much dependent on the specific emotion that one is anticipating” (Zeelenberg, van Dijk, & Manstead, 1998). Anticipations of regret, guilt, pride, and hope appear to be particularly relevant to responsibility, and this dissertation argues that these anticipated emotions mediate the relationship between a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor exercise with their child/aging parent in the near future and their intentions to do so. Indeed, there is a substantial literature on the relationship between attributions (an important element of responsibility) and emotions (see Weiner, 1985, 1986, 1995, 2010). Note that this dissertation maintains a discrete-emotion perspective (Lerner & Keltner, 2000) and examines these emotions separately, as opposed to a valence-based approach that places negative and positive emotions on extreme ends of the same continuum.

**Anticipated regret.** Regret is defined as “a negative, cognitive-based emotion that is experienced when we realize or imagine that the present situation could have been better had we acted differently” (Sandberg & Conner, 2008, p. 590). This definition echoes those offered by previous scholars (e.g., Bell, 1985; Kelsey & Schepanski, 1991; Loomes & Sugden, 1982) by associating regret with a discrepancy between “what is” and “what might have been.” Indeed, “regret stems from decisions that are ‘wrong’ in retrospect, and…there is a sense of responsibility on the part of the decision-maker. If he or she had made a different decision, the outcome would have been better” (Zeelenberg, van Dijk, & Manstead, 1998, p. 255). Regret therefore does not arise in situations where negative outcomes were not caused by the decision-maker, not under control of the decision-maker, and not the responsibility of the decision-maker; in these situations, other negative emotions such as frustration, anger, disappointment, or sadness may be experienced, not regret (see Zeelenberg, van Dijk, van der Plight, et al., 1998).
model of decision-related regret (Connolly & Zeelenberg, 2002) posits that overall feelings of regret at a decision include two components: (1) the comparative evaluation of the outcome; and (2) the feeling of self-blame for having made a poor decision.

Importantly, responsibility is considered a necessary precondition for regret (see Zeelenberg et al., 2000), and empirical work demonstrates a clear relationship between regret and responsibility. For example, Frijda, Kuipers, and ter Schure (1989, study 2) found that a perception of responsibility was a typical appraisal item for regret. Further, Gilovich and Medvec (1995) had participants list regrets, and, as very few participants listed regretting outcomes beyond their control, the authors concluded that “a sense of personal responsibility appears to be central to the experience of regret” (p. 383). Additionally, in an interesting series of four papers (consisting of numerous empirical studies), Connolly and colleagues (Connolly, Ordóñez, & Coughlan, 1997; Ordóñez & Connolly, 2000) and Zeelenberg and colleagues (Zeelenberg, van Dijk, & Manstead, 1998, 2000) eventually concluded that responsibility for a decision is indeed associated with regret. More specifically, the experience of regret is positively associated with internal attributions of responsibility, whereas external attributions of responsibility produce feelings of disappointment (Zeelenberg, van Dijk, van der Plight, et al., 1998). Interestingly, felt responsibility for an event decreases with the investment of instrumental effort to achieve the goal, which attenuates feelings of regret (van Dijk, van der Plight, & Zeelenberg, 1999). This empirical work “provides a strong case for a conceptualization of regret that includes the notion of responsibility for the regretted outcome” (Zeelenberg, van Dijk, & Manstead, 1998, p. 267).

Specifically of interest to the impact of perceptions of responsibility on intentions to share health information is anticipated regret. Regret theories have focused on the anticipation of emotions on decision-making (Bell, 1982; Loomes & Sugden, 1982), and, as Loomes and
Sugden (1982) note, “the individual who does experience rejoicing and regret can be expected to try to anticipate those feelings and take them into account when making a decision” (p. 809). Anticipations of regret that stem from responsibility can elicit the intended intention and behavioral outcomes in interdependent dyads. Indeed, a recent meta-analysis found that anticipated regret added significantly and independently to the prediction of intentions over and above TPB variables (Sandberg & Conner, 2008). Further, anticipated regret had a direct and significant impact on prospective behavior (Sandberg & Conner, 2008). Additionally, several studies have found that anticipated regret strengthens intentions by associating inaction with aversive affect, and, additionally, anticipated regret increases the consistency between intentions and behavior (Sheeran & Orbell, 1999; Abraham & Sheeran, 2003, 2004). Anticipated regret, often conceived as an individually-oriented emotion, is also relevant in interdependent situations. Indeed, Rapaport and Orbell (2000) found that anticipated regret increases children’s intentions to provide practical assistance and emotional support to their aging parents, and Zeelenberg (1999) demonstrated that anticipated regret motivates social decision-making strategies.

**Anticipated guilt.** Guilt is a self-conscious or self-condemning emotion that is evoked by evaluating one’s self after following (or failing to follow) personal or social norms that causes harm or suffering to others (Haidt, 2003; Tracy & Robins, 2004a), and guilt occurs in reference evaluations of a specific behavior, not an evaluation of the entire self (Onwezen et al., 2013). Miceli (1992) notes that in order to feel guilt, an individual must feel responsible and know that their action (or inaction) caused harm. Indeed, Baumeister, Reis, and Delespaul (1995, Study 2) found that one common source of guilt is having inflicted harm on others. Miceli and Castelfranchi (1998) later extended this conceptualization of guilt to include a violation of the individual’s personal moral standards, and several scholars have noted that guilt arises when one
feels personally responsible for the violation of personal, social, or moral norms (Berndsen & Manstead, 2007; Kugler & Jones, 1992; Tangney, Miller, Flicker, & Barlow, 1996) and when failure is attributed to internal, controllable causes (i.e., agency, a component of responsibility; Weiner, Russell, & Lerman, 1978, 1979). Further, O’Keefe (2015) notes, “guilt paradigmatically arises from conduct that is inconsistent with self-standards, and it commonly motivates actions aimed at restoring a sense of integrity and worth” (p. 93). However, guilt itself does not necessarily motivate the desired behavior change, especially when efficacy information (i.e., how to relieve the guilt) is absent (see Niederdeppe, Bu, Borah, Kindig, & Robert, 2008).

Anticipation of guilt, which “occurs when individuals violate their own understanding of what they ought to do” (Basil, Ridgway, & Basil, 2006, p. 1036), however, can elicit the intended intentions and behavior. This may be particularly relevant in interdependent dyads, including the parent-child and adult child-aging parent relationships, as guilt is a moral emotion that is based in social relationships and can occur when individuals imagine doing something wrong or perceive that their action (or inaction) might adversely impact another (Haidt, 2003; Lazarus, 1991). O’Keefe (2002) notes that people will avoid actions that they anticipate will make them feel guilty, thus serving as an influence mechanism. Some initial examinations of anticipated guilt indicate that anticipated guilt functions to motivate people to alter their behavior after reading a message about a threat to family members or unknown others (e.g., bone marrow donation; Lindsey, 2005; Lindsey, Yun, & Hill, 2007). Likewise, Xiao (2011) found that anticipated guilt increases the variance in intentions to register as an organ donor and to discuss organ donation with family members, after controlling for TPB variables. Finally, there is some evidence that perceptions of responsibility indirectly influence anticipated guilt, which, in turn, influences intentions (e.g., Onwezen et al., 2013).
**Anticipated pride.** Like guilt, pride is a self-conscious emotion that is evoked by evaluating one’s self after following (or failing to follow) personal or social norms (Tracy & Robins, 2004); however, pride has been studied less than other self-conscious emotions like guilt (Tangney et al., 2007). Pride is a positive, pleasant feeling that is associated with autonomy, agency, and successful self-achievement of a goal (Lewis, 1997; Mosquera, Manstead, & Fischer, 2000; Tangney, 1999; Tracy & Robins, 2004a, 2004b; Weiner, Russell, & Lerman, 1978, 1979; Williams & DeSteno, 2008), and pride is also conceptualized as a key element of motivation (Atkinson, 1957). Tracy and Robins (2007) distinguished between two types of pride: authentic pride and hubristic pride. Authentic pride, also referred to as achievement-oriented pride, is associated with a specific event (e.g., mastering a skill; see also Tangney, 1999). Hubristic pride, by contrast, is not related to a specific achievement, but instead is an unconditional positive view of one’s self that has the potential to lead to negative social consequences (Tangney, 1999). This dissertation is interested in authentic pride because authentic pride results from evaluations of a specific behavior (i.e., the midlife adult’s health information sharing with their child or aging parent) rather than evaluations of the total self. An individual feels pride when they attribute their achievements to the self (i.e., they had agency) and evaluate themselves positively with respect to both personal and social standards (Exline & Lobel, 2001; Tracy & Robins, 2004b; Williams & DeSteno, 2008). Importantly, pride is integral to responsibility, as Mascolo and Fisher (1995) define pride as an emotion that is “generated by appraisals that one is responsible for being a socially valued person” (p. 66), and Harth, Leach, and Kessler (2013) found that in-group felt responsibility for prosocial behaviors elicited pride.

Anticipations of pride occur based on evaluations of personal and social standards, and “pride can be considered a desired end state that individuals strive to reach and maintain”
Anticipated pride can therefore impact intentions and behaviors, and, indeed, Tangney, Stuewig, and Mashek (2007) note that anticipated pride plays an important role in promoting behaviors that conform to social standards. Further, pride affects behavior over time (Patrick, Chun, & MacInnis, 2009). Importantly, pride encourages prosocial behaviors, including care-giving activities (Tracy & Robins, 2004b). Further, Goei and Boster (2005) found that gratitude, a positive, desirable state associated with pride, contentment, and happiness (McCullough, Kilpatrick, Emmons, & Larson, 2001) increased compliance with a request, while obligation did not. Additionally, there is some evidence that perceptions of responsibility indirectly influence anticipated pride, which, in turn, influences intentions (e.g., Onwezen et al., 2013), and that pride is more strongly formed by personal norms than guilt (Onwezen et al., 2013). Finally, Williams and DeSteno (2008) found that pride leads to greater perseverance on a difficult task or behavior, whereas self-efficacy and positive mood does not.

**Hope.** Hope is an anticipatory emotion defined within Persuasive Hope Theory (PHT; Chadwick, 2010, 2014) as a positively valenced “discrete emotion that involves appraisals of a stimulus as novel and relevant to a future or unknown outcome that is consistent with goals, possible but not certain, important, and consistent with a better future” (Chadwick, 2010, p. 28). Hope is experienced when the outcome is not certain; if the positive outcome has occurred, the individual experiences happiness or relief, not hope. PHT posits that perceptions of hope, together with efficacy, motivate an individual to action to achieve a positive future. Hope, an anticipated emotion, may therefore motivate an individual to action (or inaction). Indeed, Weiner (2010) summarizes attribution theories, noting that hope “facilitates motivation” (p. 35).

Little work has examined the relationship between hope and responsibility. However, one empirical study did find that happiness and responsibility were not correlated (Zeelenberg et al.,
1998). Weiner, Russell, and Lerman (1979) note, “certain emotions such as happiness and
disappointment are independent of attributions by dependent on outcomes” (p. 1216). Other
emotions, including hope, may be dependent on attributions based on the anticipatory nature of
that emotion. Interestingly, decisional elation appears to counter decisional regret by making
good outcomes appear even better, just as regret makes bad outcomes appear worse (Connolly et
al., 1997). More work is needed to determine the relationship between responsibility and hope.

**Negative versus positive emotions.** There may be important distinctions between
anticipations of negative versus anticipations of positive emotions. For example, van der Plight
and colleagues (1998) conjectured that anticipated positive affect may be less important in
decision-making than anticipated negative affect. Consistent with this idea, Rivis and colleagues
(2009) found that measures of anticipated feelings of regret (i.e., regret, worry, upset, tension)
were stronger predictors of intentions than anticipation of generally positive or generally
negative affective reactions. Likewise, O’Keefe and Nan (2012) conjectured that findings that
loss-framed messages enjoy a persuasive advantage over gain-framed messages when
considering vaccination of another person (e.g., parents to children) is due to anticipations of
guilt or regret. However, Perugini and Bagozzi (2001) found that a general measure of
anticipated positive emotion predicted desire to exercise and diet in order to maintain or reduce
body weight (after controlling for attitudes, subjective norms, and perceived behavioral control),
whereas anticipated negative emotions (including guilt, but not regret) did not. Further, positive
emotions are particularly relevant in behaviors that are essential to social functioning
(Frederickson & Losada, 2005; Shiota, Campos, Keltner, & Hertenstein, 2004), and positive
emotions are pleasurable and may thus “reinforce effort in a way that negative emotions may
not” (Harth et al., 2013, p. 26). Additionally, people are generally more willing to help another if
they are experiencing positive emotions (e.g., Schaller & Cialdini, 1990), and a midlife adult’s anticipations of positive emotions may therefore motivate them to help their child or aging parent with respect to physical activity by sharing health information. It may be particularly important to examine the role of positive affect and outcomes, as Guttman and Ressler (2001) suggest presenting a connection between personal responsibility and potential positive outcomes as a more ethical alternative to emphasizing a threat that evokes negative affect. In considering anticipations of regret, guilt, pride, and hope, this dissertation follows the line of research that perceives of anticipated emotions as mechanisms through which people feel encouraged to follow personal norms or, in this case, responsibility (Bamberg et al., 2007; Fransson & Gärling, 1999; Onwezen et al., 2013; Thøgersen, 2006), to pose the following research questions:

RQ5a: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influence anticipations of (a) regret, (b) guilt, (c) pride, and (d) hope?

RQ5b: Do a midlife adult’s anticipations of (a) regret, (b) guilt, (c) pride, and (d) hope influence intentions to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future?

RQ5c: Is there an indirect relationship from a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future and their intentions to do so via anticipations of (a) regret, (b) guilt, (c) pride, and (d) hope?

**Potential Mediator: Physical Activity Mavenism**

In addition to anticipated emotions, perceptions responsibility appear likely to influence a midlife adult’s intentions to share health information with their child or aging parent about
outdoor physical activity via physical activity mavenism. Mavenism broadly refers to individuals who have a general interest in a topic area and who actively participate in exchanging that information. The term “market maven” was originally used in marketing, as interpersonal information exchange plays an important role in shaping the attitudes and behaviors of consumers, and marketers have thus tried to identify types of individuals who engage in this communication and influence other consumers (Arndt, 1967; Bayns, 1985). Market mavens have been defined as “individuals who have information about many kinds of products, places to shop, and other facets of markets, and initiate discussions with consumers and respond to requests from consumers for market information” (Feick & Price, 1987, p. 85) and as “interpersonal source[s] of communication whose influence and consumer product information is based on general knowledge and experience” (Kontos, Emmons, Puleo, & Viswanath, 2011, p. 3).

Kontos and colleagues (2011) extended this concept from marketing into health mavenism, noting that health mavens have general knowledge about health and believe that it is important to share their knowledge with others in their social networks. Likewise, Boster, Kotowski, Andrews, and Serota (2011) describe health mavens as individuals that “would have knowledge of a broad range of health behavior and health topics, would enjoy volunteering health information to others, and would be recognized as health experts by others” (p. 182). Health mavenism has also been studied with respect to online health information, as Sun, Liu, and Krakow (2015) define health e-mavens as “individuals who are consistently and actively involved with health information acquisition and information transmission on the web space” (p. 3). Acquisition in this case refers to both health information tracking and consulting, and transmission refers to information sharing and online posting activities (Sun et al., 2015). The term maven has also been used in specific health-related areas. For example, Somers, Worsley,
and McNaughton (2014) coined food mavenism, noting that food mavens have a general interest in food, are influential in their social group, and are willing to share their general knowledge and experiences related to food (see also Farragher, Wang, & Worsley, 2016).

Mavenism is predicted by a variety of demographic variables including being female (Kontos et al., 2011; Sun et al., 2015), being older (Kontos et al., 2011), and having a higher education level (Sun et al., 2015). Mavenism is also associated with having a larger social network (Kontos et al., 2011), health status (Sun et al., 2015), and health insurance (Sun et al., 2015). Perceptions of responsibility for another’s health and well-being also appear likely to influence health mavenism, as a midlife adult caring for a child or aging parent, for example, may be more inclined to acquire and subsequently share health information.

Health mavens are also influential in disseminating health information (Kontos et al., 2011), and health mavenism predicts healthy lifestyle activism even when persuasiveness and connectedness within a social network did not (Boster et al., 2011, study 2). Further, with respect to food mavens, Somers and colleagues (2014) note that a food maven has a propensity to communicate about food, which may involve “talking with people about food management, planning, purchasing, preparing and eating or it may include discussions around food production, environmental considerations, health benefits of foods or issues of cost, access, and equity (p. 7; see also Vidgen & Gallegos, 2014).”

Together, this evidence suggests that perceptions of responsibility influence health mavenism, and health mavenism, in turn, influences intentions to share health information. With respect to this dissertation, physical activity mavens would have a general interest in physical activity, are influential in their social group, and are willing to share their general physical activity knowledge and experiences with physical activity with others. A midlife adult’s
perceptions of responsibility to share health information about the benefits of outdoor exercise with their child/aging parent may influence physical activity mavenism, which then impacts their intentions to share this health information with their child or aging parent. This dissertation therefore poses the following research questions:

RQ6a: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influences physical activity mavenism.

RQ6b: Does a midlife adult’s physical activity mavenism influence intentions to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future?

RQ6c: Is there an indirect relationship from a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with the child/aging parent in the near future and their intentions to do so via physical activity mavenism?

**Iatrogenic Effects of Responsibility**

Despite the potential for perceptions of responsibility to evoke the desired health information sharing intentions in the parent-child and adult-child aging parent relationships, these feelings of responsibility may also engender iatrogenic effects, including perceptions of regret, guilt, and self-blame. Indeed, an individual’s awareness that they may cause (or failed to solve) another’s health condition and that they have an obligation to prevent (or solve) that health state by sharing appropriate health information may increase perceptions of actual regret, guilt, and blame for their child or aging parent’s current overweight or obese status. Guttman and Salmon (2004) note that “people may react to [perceptions of responsibility] with feelings of
guilt, shame, or frustration when they feel they cannot adopt the recommended practices” (p. 544). For example, Guttman and Zimmerman (2000) found that although mothers were oftentimes aware of the benefits of breastfeeding, they felt guilty when difficult life circumstances prevented them from doing so.\textsuperscript{12} Further, parents of obese children oftentimes feel guilty and worry about being blamed for their child’s weight (e.g., Turner, Salisbury, & Shield, 2011), especially mothers (Jackson, Mannix, Faga, & McDonald, 2005). These perceptions of guilt likely increase amid messages accusing parents of obese children of child abuse (e.g., Saul, 2014) and public perception polls indicating 87% of adults believe parents are responsible for childhood obesity (Associated Press-NORC, 2013). Additionally, research suggests that adult children who act as caregivers for their aging parents experience psychological distress (Amirkhanyan & Wolf, 2006; Choi & Marks, 2006), particularly among daughters (Bookwala, 2009). Hence, a midlife adult’s awareness of their responsibility for caring for an aging parent may also evoke regret and/or guilt.

Perceptions of responsibility can also reinforce self-blame, as Janoff-Bulman (1979) noted that internal attributions for negative outcomes can include blame directed at one’s character (e.g., ability) and blame directed at one’s behavior (e.g., effort). If an individual or dyad is unable to adopt recommended behaviors due to life circumstances or personal/collective capacities, they are likely to feel blamed. Gutman and Salmon (2004) provide the following example: “a single parent may feel guilty and frustrated after viewing a recent US television advertisement on drug abuse prevention. The advertisement depicts an assertive African American mother who successfully manages to influence the behavior of her adolescent son, who is shown to be experimenting with drugs with his friends. The mother effectively ‘grounds’ him” (p. 544). This advertisement has the potential to be effective for some, but at the same time,
it may make other parents feel blamed if they are unable to use it as a model, with potential negative ramifications for health disparities (Guttman & Salmon, 2004).

Lindelof, Nielsen, and Pederson (2010) illustrate the complexity of blame within obesity in their findings that parents of obese children blame their child for lacking the willpower to change exercise and eating behaviors. Further, obese adolescents blame themselves for their weight status, but also blame their parents for an unhealthy diet and for being unsupportive regarding exercise (Lindelof et al., 2010). Self-blame in patients with chronic conditions, including obesity, is associated with poor psychological adjustment, depression, poor coping, and difficulty managing self-care (Beverly et al., 2012; Voth & Sirois, 2009). However, the impact of blame on negative outcomes may depend on the health condition. For example, Bulman and Wortman (1977) found that self-blame in quadriplegic and paraplegic accident victims was associated with improvements in coping as compared to blaming another. Self-blame may also be related to perceived responsibility, as Beverly and colleagues (2012) found that patients with Type 2 diabetes assumed responsibility for their unmet treatment goals and expressed a sense of personal failure and blamed themselves for not adhering to recommendations. This dissertation therefore considers:

RQ7: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent relate to perceptions of (a) regret, (b) guilt, or (c) self-blame?

In addition to iatrogenic effects directed towards the self (i.e., personal feelings of regret, guilt, or self-blame), there may further be unintended consequences directed towards others, specifically with respect to obesity stigma beliefs. Stigma beliefs are based in stereotypes and thus oversimplify the attributes of a group’s members (Smith, 2007, 2011). The stigma of obesity
is well documented (e.g., Puhl, Andreyeva, & Brownell, 2008; Puhl & Heuer, 2009; Puhl & Latner, 2007), and it is important to examine potential antecedents of this stigma towards this group. Indeed, the Institute of Medicine (2012) report states, “the case for addressing the obesity epidemic cannot be made at the expense of obese people” (p. 104), and attempts to address obesity via perceptions of responsibility must therefore consider how these perceptions might influence an individual’s attributions of another’s obesity. Specifically, if a midlife adult feels responsible for their child or aging parent’s physical activity levels, they might also believe that other midlife adults are similarly responsible. If, however, others are unable to act on that responsibility (e.g., with constraints on agency), then those midlife adults who are able to act may stigmatize those who are not.

Understanding responsibility is central to the formation of stigma beliefs, as people stigmatize those who choose immoral beliefs, attitudes, or actions more than those who do not have control (Smith, 2007). However, Smith (2012) found that although a mouse transmission of disease (controllable) as compared to a human-to-human transmission (uncontrollable) did predict stronger perceptions of responsibility, responsibility had no relation to stigma-related outcomes. Further, Smith (2014) did not find that stigma content cues of responsibility elicit perceptions of responsibility. These results also align with Haslam (2011), who failed to reduce stigma by changing perceptions of responsibility. These empirical examinations suggest a limited role of perceived responsibility in eliciting stigma, leading Smith (2014) to note that more work is needed “to understand the role, if any, of perceived responsibility” in stigma (p. 13). Stigma experiences are generally demotivating and do not lead to the intended intention and behavioral outcomes (Vartanian & Smyth, 2013). This dissertation therefore poses the following research question:
RQ8: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent relate to obesity stigma beliefs?

Figure 9 below displays the model that stems from this section of this dissertation on predicting a midlife adult’s intentions to share information about the benefits of outdoor exercise with their child/aging parent.

Figure 9

*Proposed Theoretical Model Predicting Information Sharing Intentions*
**Overview of this Research**

As mentioned, the purpose of this dissertation is to examine the question: Does a midlife adult’s perception of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influence their intentions to do so? In this chapter, responsibility was first conceptualized as having three key predictors, including attributions of solution, obligation, and agency. Research questions also considered whether age, generative concern, and psychological reactance are related to obligation. Differences in perceptions of responsibility based on the parent-child versus adult child-aging parent relationships were also considered.

In the next section of this chapter, perceptions of responsibility from the NAM were situated within the TRA/TPB/IM to extend these rational-choice frameworks into the moral domain. Research questions were also posed to consider the indirect effects of perceptions of responsibility on intentions to share health information via anticipated emotions, including anticipated regret, guilt, pride, and hope. Physical activity mavenism was then examined as an additional mechanism through which perceptions of responsibility may influence information sharing intentions. Finally, potential iatrogenic effects of perceptions of responsibility were considered, including regret, guilt, self-blame, and stigma. This chapter concludes with an outline of the hypotheses and research questions that stem from this new theoretical examination of the antecedents and outcomes of a midlife adult’s perceptions of responsibility that are examined in this dissertation (see Figure 10 and Table 2 below).
Figure 10

Proposed Theoretical Model with Hypotheses
Table 2

Overview of Hypotheses and Research Questions

Responsibility

H1: A midlife adult’s attributions of solution for weight loss in their overweight or obese child/aging parent to themselves increase their perceptions of responsibility to share health information about the benefits of outdoor physical with their child/aging parent.

H2: A midlife adult’s perceptions of obligation to share health information about the benefits of outdoor physical activity with their child/parent increase their perceptions of responsibility to do so.

RQ1: Does a midlife adult’s generative concern relate to perceptions of obligation to share health information about the benefits of outdoor physical activity with their child/aging parent?

RQ2: Do a midlife adult’s perceptions of obligation to share health information about the benefits of outdoor physical activity with their child/aging parent relate to psychological reactance?

H3: A midlife adult’s perceptions of agency, including (a) knowledge, (b) choice, and (c) self-efficacy, increase their perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent.

RQ3: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity differ when considering a child versus an aging parent?

Predicting Information Sharing Intentions

H4: A midlife adult’s (a) attitudes, (b) subjective norms, and (c) self-efficacy to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influences their intentions to do so.

RQ4: Do a midlife adult’s (a) personal injunctive norms, (b) personal descriptive norms, (c) societal injunctive norms, and (e) societal descriptive norms about share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influence their intentions to do so?
RQ5a: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influence their intentions to do so?

RQ5b: Do a midlife adult’s anticipations of (a) regret, (b) guilt, (c) pride, and (d) hope influence intentions to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future?

RQ5c: Is there an indirect relationship from a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future and their intentions to do so via anticipations of (a) regret, (b) guilt, (c) pride, and (d) hope?

RQ6a: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future influence physical activity mavenism?

RQ6b: Does a midlife adult’s physical activity mavenism influences intentions to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future?

RQ6c: Is there an indirect relationship from a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent in the near future and their intentions to do so via physical activity mavenism?

RQ7: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent relate to perceptions of (a) regret, (b) guilt, or (c) self-blame?

RQ8: Do a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent relate to obesity stigma beliefs?

Note: H = hypothesis; RQ = research question
Chapter 1 Endnotes

1 Obesity in children is defined as a BMI \( \geq 95^{th} \) percentile for age and gender. Overweight in adults is defined as a BMI greater than or equal to 25, and obesity is defined as a BMI greater than or equal to 30. BMI, however, is not a perfect measure of body fat (Ahima & Lazar, 2013), and a given BMI may indicate a different body fat in individuals of different sex, age, and racial/ethnic groups (Flegal et al., 2010).

2 Study | Results/Conclusions
--- | ---
Oliver & Lee (2005) | The belief that obesity is caused by “too much unhealthy food in restaurants and supermarkets” was positively related to support for proposed government policies, including regulation of the food industry and taxes on junk foods; The belief that obesity is caused by “individuals’ lack of willpower to diet and exercise” was negatively related to support for policy changes.
Barry, Brescoll, Brownell, & Schlesinger (2009) | The belief that obesity was caused by external, societal factors (e.g., food industry marketing) was positively related to support for policy changes.
Niederdeppe, Shapiro, & Porticella (2011) | Societal cause attributions for obesity were positively related to societal solution attributions for obesity, and societal solution attributions for obesity were positively related to support for public policies. Further, the relationship between societal cause attributions and support for public policies was partially mediated by societal solution attributions.
Lee, Shapiro, & Niederdeppe, (2014) | Societal cause attributions for obesity mediate the relationship between conservative political ideology (vs. liberal) and support for obesity-related public policy.
Niederdeppe, Shapiro, Kim, Bartolo, & Porticella (2013) | Societal cause attributions were positively associated with support for obesity prevention policies. The association between societal cause attributions and policy support was twice as strong for conservatives than liberals/moderates.
Wolfson, Gollust, Niederdeppe, & Barry (2015) | Attributions of external responsibility for solving childhood obesity (i.e., to schools, the food and beverage industry, and the government) was strongly and positively related to support for policies designed to prevent childhood obesity (e.g., prohibit advertising of unhealthy foods during children’s television programming). Attributions of parental responsibility for solving childhood obesity were associated with support for a variety of school-based childhood obesity prevention policies.

3 The ultimate attribution error is a group-level attribution bias wherein an individual will tend to attribute negative outgroup behavior and positive ingroup behavior to internal causes and solutions, and will attribute positive outgroup behavior and negative ingroup behavior to external causes and solutions (see Pettigrew, 1979). For example, outgroup members’ unhealthy eating behaviors might be attributed to laziness (i.e., a negative outgroup behavior is attributed to a personality flaw), and outgroup members’ exercising behaviors might be attributed to workplace requirements (i.e., a positive outgroup behavior is attributed to outside circumstances). Likewise, ingroup members’ unhealthy eating might be attributed to the high cost of healthy food (i.e., a negative ingroup behavior is attributed to outside circumstances), and ingroup members’ exercising might be attributed to their self-control and discipline (i.e., a positive ingroup behavior attributed to personality). This ultimate attribution error therefore predisposes individuals to view members of their ingroup positively and members of their outgroup negatively, as reflected in beliefs and attributions for their behavior.

4 The fundamental attribution error is a bias in attributions for others’ behaviors (Jones & Harris, 1967; Ross, 1977). This fundamental attribution error notes that when an individual makes attributes about another person’s behavior, they are likely to overemphasize the role of internal, dispositional factors and underemphasize the role of external, situational factors (Jones & Harris, 1967; Ross, 1977). For example, this attribution error might lead an individual to state “S/he became obese because of laziness and lack of self-control in eating properly,” which underemphasizes and ignores environmental causes, including, for example, the high cost of fresh fruits and vegetables.
The self-serving bias (Larson, 1977) is the tendency for an individual to attribute their own positive behaviors or successes to internal factors, but attribute their own negative behaviors or failures to external factors (Larson, 1977). For example, an obese individual in a weight loss program might attribute success (i.e., weight loss) to individual factors such as their motivation and discipline, whereas they might attribute failure (i.e., no weight loss or weight gain) to external factors outside of their control. This enables an individual to enhance or protect their self-esteem (Kelley & Michela, 1980; Harvey & Weary, 1984) and present themselves in a way that is designed to gain approval from or otherwise control others’ responses (Harvey & Weary, 1984).

The positivity bias (Feather & Simon, 1971) is the tendency for an individual to attribute behavior with positive consequences more to internal factors and behavior with negative consequences more to external factors. Interestingly, this attribution bias persists for both the individuals who perform the behavior and those who observe others’ behaviors.

Additionally, Guttmann and Ressler (2001) assert that responsibility depends on the extent “to which it was carried out for personal gratification or for others’ benefit” (p. 120). Prosocial risk taking (e.g., a firefighter takes personal risks, but does so for society’s benefits) differs from the decision to engage in risky behaviors for recreation or personal gratification (Guttmann & Ressler, 2001). Indeed, invoking perceptions of responsibility on the part of an individual towards another over the protection of oneself can, in some circumstances, be both morally acceptable and effective (see, e.g., Bayer, 1996; Kopelman, 2002).

It is important to note that in many societies, parents or guardians are legally required to care for children, and, in some societies, adult children are required to care for their aging parents (e.g., Rickles-Jordan, 2007). However, a moral obligation to care for others is more than legal requirements (Guttmann & Ressler, 2001).

Richard, van der Pligt, and de Vries (1996) noted “it is possible that anticipated affective reactions are more important for behaviors with negative consequences than for behaviors with positive consequences” (p. 126). However, Abraham and Sheeran (2003) found that anticipated regret predicted health protective behaviors (i.e., exercise, a behavior with positive consequences).

The concept of maven is similar to an early adopter or opinion leader, which have both been studied with regards to health promotion (Rogers, 2004; Valente & Pumpuang, 2007); however, mavens are distinct in that they have general knowledge about health to share with others in their broad social networks, rather than specific information and influence (Feick & Price, 1987; see also Kontos et al., 2011).

Research has also shown that mavenism is related to healthy behaviors in the individual, including vegetable consumption (Farragher et al., 2016) and food involvement (i.e., the importance of food in an individual’s life; Somers et al., 2014), which leads to a healthier diet for both food-involved parents and their children (Ohly et al., 2013; see also Marshall & Bell, 2004).

Guilt also has the potential to lead to poorer adjustment, For example, Chapple and colleagues (2004) found that individuals with lung cancer report hiding their illness or not seeking support because they felt guilty about having the illness because it is associated with the culpability of smokers. Likewise, Roseman, Wiest, and Swartz (1994) found that people who feel guilty want to “make up for what [they’ve] done wrongly” and to “be forgiven” (p. 215).
CHAPTER 2: METHODS

Participants

Participants were recruited using Amazon’s Mechanical Turk (AMT). AMT is a service provided by Amazon in which people sign up to complete tasks, such as survey, and researchers and other professionals can post tasks to complete (for more information on how to use AMT, see Brandon, Long, Loraas, Mueller-Phillips, & Vansant, 2013; Mason & Suri, 2012). There are several advantages to using AMT as it can provides custom participant screening to a demographically and geographically diverse group of participants (Brandon et al., 2012), and AMT participants respond with a comparable response rate to participants recruited via offline techniques (Mason & Suri, 2012). Further, research has shown that AMT provides high-quality data, and participants from AMT are appropriate for academic research (Berinsky, Huber, & Lenz, 2012). Importantly, Brandon and colleagues (2013) note that AMT “allows the researcher to exercise complete discretion over participant incentives and includes an additional accountability mechanism: the ability to improve and deny incentive payments” (p. 13).

Participants were recruited from AMT focusing on the following characteristics. Participants had to have both a biological child 18 years of age or older and a biological aging parent 65 years of age or older (i.e., they must be a midlife adult and member of the “pivot generation”). For those in the child condition, their child had to be overweight or obese; for those in the aging parent condition, their parent had to be overweight or obese. The participants also had to be between 35 and 65 years old (i.e., they must be a midlife adult; see Staudinger & Bluck, 2001). Finally, the participants also had to reside in Pennsylvania and had to have completed as least high school. Note that AMT provides the ability to pre-screen participants for some characteristics so that only participants that meet those criteria are able to view the survey;
however, the survey for this dissertation screened participants with the first few questions and did not utilize this AMT service.

A total of 1,258 participants attempted to take the survey. Of these, 372 participants met the criteria for inclusion in the study based on the screening questions and provided informed consent. Only these 372 participants were able to complete the survey. Of these 372 participants, \( n = 31 \) indicated that their age was less than 35 and \( n = 3 \) indicated that their age was over 65 at a later point in the survey (note that when there were discrepancies in the age reported and the birthday provided, the birthday provided was used to calculate age). Of the remaining participants, an additional \( n = 4 \) indicated that they had completed less than high school at a later point in the survey. These participants were therefore removed, and the final study sample consisted of \( N = 334 \) participants.

Participants (\( N = 334 \)) ranged in age from 35 to 63 (\( M = 42.68, SD = 6.19 \)) and included 131 females (39.22%) and 200 males (59.88%); three participants indicated “prefer not to tell” for their gender. The 131 females indicated their BMI as follows: normal weight (\( n = 57, 43.51\% \)); overweight (BMI \( \geq 25; n = 34, 25.95\% \)); obesity (BMI \( \geq 30; n = 21, 16.03\% \)); and severe obesity (BMI \( \geq 35; n = 19, 14.50\% \)). A total of 198 males indicated their BMI as follows: normal weight (\( n = 60, 30.00\% \)); overweight (BMI \( \geq 25; n = 67, 33.50\% \)); obesity (BMI \( \geq 30; n = 38, 19.00\% \)); and severe obesity (BMI \( \geq 35; n = 33, 16.50\% \)); two participants (1.00%) who indicated that they were male did not indicate their BMI. The three participants who indicated “prefer not to tell” for their gender also did not indicate their BMI.

The majority of the participants were white (\( n = 209, 62.57\% \)); other self-reported ethnic/racial backgrounds included Asian (\( n = 44, 13.17\% \)), black or African American (\( n = 32, 9.58\% \)), Hispanic (\( n = 18, 5.39\% \)), American Indian or Alaskan (\( n = 25, 7.49\% \)), and Native
Hawaiian or other Pacific Islander ($n = 2$, 0.60%); one participant did not indicate their racial/ethnic background. The participants indicated their education as follows: completed high school ($n = 45$, 13.47%), completed some college ($n = 81$, 24.25%), graduated college ($n = 175$, 52.40%), and attended and/or completed graduate school ($n = 32$, 9.58%); one participant did not indicate their education.

From the total number of participants, $n = 177$ (52.99%) completed the survey when thinking about an overweight or obese child, and $n = 157$ (47.01%) completed the survey when thinking about an overweight or obese aging parent. Midlife adult participants in the child condition ($n = 177$) ranged in age from 35 to 63 ($M = 43.89$, $SD = 6.43$) and included 54 females (30.51%) and 123 males (69.49%). The children that these participants chose to think about included 36 females (30.51%) and 141 males (69.49%). Participants in the child condition who thought about a female child ($n = 36$) indicated their children’s BMI as follows: overweight (BMI $\geq 25$; $n = 2$, 5.56%); obesity (BMI $\geq 30$; $n = 6$, 16.67%); and severe obesity (BMI $\geq 35$; $n = 28$, 77.78%). Participants in the child condition who thought about a male child ($n = 141$) indicated their children’s BMI as follows: overweight (BMI $\geq 25$; $n = 16$, 11.35%); obesity (BMI $\geq 30$; $n = 22$, 15.60%); and severe obesity (BMI $\geq 35$; $n = 101$, 71.63%); two participants in the child condition who thought about a male child did not indicate their child’s BMI.

Midlife adult participants in the aging parent condition ($n = 157$) ranged in age from 35 to 60 ($M = 41.31$, $SD = 5.62$) and included 77 females (30.51%) and 77 males (69.49%); three participants indicated “prefer not to tell” for their gender. The aging parents that these participants chose to think about included 75 females (47.78%) and 82 males (52.23%). Participants in the parent condition who thought about a female parent ($n = 75$) indicated their parent’s BMI as follows: overweight (BMI $\geq 25$; $n = 1$, 1.33%); obesity (BMI $\geq 30$; $n = 13$, 17.33%); severe obesity (BMI $\geq 35$; $n = 59$, 78.67%).
15.29%); and severe obesity (BMI ≥ 35; n = 71, 83.53%). Participants in the parent condition who thought about a male parent (n = 82) indicated their children’s BMI as follows: overweight (BMI ≥ 25; n = 10, 12.20%); obesity (BMI ≥ 30; n = 17, 20.73%); and severe obesity (BMI ≥ 35; n = 55, 67.07%).

**Procedures**

Two separate Qualtrics online surveys were posted for participants via the AMT service (see Brandon et al., 2013 for the benefits of using AMT to recruit participants and Qualtrics to design and administer the research instrument). One of the surveys asked the midlife adult to focus on an adult child who was overweight or obese, and the other survey asked the midlife adult to focus on an aging parent who was overweight or obese (note that after the surveys were completed the participants’ unique AMT code was used to ensure that participants did not take both surveys). Participants first provided informed consent (see Appendix A) and then completed screening questions to determine their eligibility for the study. Those who did not meet the study’s criteria were sent to the end of the survey and thanked for their time. Participants who completed the child survey were asked to complete the survey when thinking about an overweight or obese child. If the participant had more than one child, they were asked to choose one particular child to think about when completing the survey. Participants in the aging parent condition were asked to complete the survey when thinking about an overweight or obese aging parent. If the participant had more than one living parent, they were asked to choose one particular parent to think about when completing the survey.

Participants then read a brief message about the benefits of outdoor exercise for young adults (those in the adult child condition) or older adults (those in the aging parent condition). The original message, the child condition message, and the aging parent condition message are
available in Appendix B, C, and D, respectively. All participants were then asked to complete measures for the variables of interest to this dissertation and to provide demographic information. The Institutional Review Board approved this study.

Measures

Screening Measures

**Biological child/parent.** Participants were asked to respond to the following questions, with responses including “Yes” or “No”: (1) Do you have at least one living biological child who is 18 years of age or older?; and (2) Do you have at least one living biological parent who is 65 years of age or older? Participants who answered “No” to either question were thanked for their time and directed to the end of the survey.

**Age.** Participants were asked to indicate their age with the following response options: (1) Less than 35 years old; (2) Between 35 and 65 years old; (3) Greater than 65 years old. Participants who did not indicate that they were between 35 and 65 years old were thanked for their time and directed to the end of the survey.

**State of residence.** Participants were asked to respond to the following question, with responses including “Yes” or “No”: Do you live in Pennsylvania? Participants who answered “No” were thanked for their time and directed to the end of the survey.

**Education.** Participants were asked to respond to the following question, with responses including “Yes” or “No”: Did you complete high school? Participants who answered “No” were thanked for their time and directed to the end of the survey.

**Child/parent weight status.** Participants in the child condition had to have a biological child over the age of 18 who is overweight or obese. Participants in the parent condition had to have a biological aging parent over the age of 65 who is overweight or obese. Child/aging parent
BMI was measured using figural rating scales developed by Gardner, Jappe, and Gardner (2009), labeled the Body Image Assessment Scale – Body Dimensions (BIAS-BD). Participants were shown the 17 drawings that corresponded to their child/aging parent’s gender shown in Figure 11; the figures were randomly arranged by size on a single page (see Gardner et al., 2009; Gardner & Brown, 2011 for the benefits of this approach; see Appendix E for the randomized figures shown to participants). BMI was calculated using the scoring instructions in Table 3. These figural rating scales are appropriate for use with AMT participants (see Gardner, Brown, & Boice, 2012). Participants who indicated a figure for a child or aging parent that was not overweight or obese were thanked for their time and directed to the end of the survey.

Figure 11

*The Body Image Assessment Scale: Body Dimensions (BIAS-BD)*

Note: These figural line drawings represent adult men and women with weights ranging from 60% below to 140% above average. Dimensions of the shoulder, chest, waist, hip breadth, thigh breadth, and upper leg breadth were determined from anthropometric data.
Table 3

<table>
<thead>
<tr>
<th>Size</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>60%</td>
<td>16.7</td>
<td>16.9</td>
</tr>
<tr>
<td>65%</td>
<td>18.0</td>
<td>18.3</td>
</tr>
<tr>
<td>70%</td>
<td>19.5</td>
<td>19.7</td>
</tr>
<tr>
<td>75%</td>
<td>20.9</td>
<td>21.2</td>
</tr>
<tr>
<td>80%</td>
<td>22.2</td>
<td>22.6</td>
</tr>
<tr>
<td>85%</td>
<td>23.6</td>
<td>24.0</td>
</tr>
<tr>
<td>90%</td>
<td>25.0</td>
<td>25.4</td>
</tr>
<tr>
<td>95%</td>
<td>26.4</td>
<td>26.8</td>
</tr>
<tr>
<td>100%</td>
<td>27.8</td>
<td>28.2</td>
</tr>
<tr>
<td>105%</td>
<td>29.2</td>
<td>29.6</td>
</tr>
<tr>
<td>110%</td>
<td>30.6</td>
<td>31.0</td>
</tr>
<tr>
<td>115%</td>
<td>32.0</td>
<td>32.4</td>
</tr>
<tr>
<td>120%</td>
<td>33.4</td>
<td>33.8</td>
</tr>
<tr>
<td>125%</td>
<td>34.8</td>
<td>35.3</td>
</tr>
<tr>
<td>130%</td>
<td>36.1</td>
<td>36.7</td>
</tr>
<tr>
<td>135%</td>
<td>37.5</td>
<td>38.1</td>
</tr>
<tr>
<td>140%</td>
<td>38.9</td>
<td>39.5</td>
</tr>
</tbody>
</table>

Note: These scoring instructions were retrieved from the Measurement Instrument Database for the Social Science. Retrieved from www.midss.ie
Theoretical Measures

In order to examine each measure, the data were first proofread to check for errors. The descriptive statistics for each item and the distribution shape were then examined. The amount and nature of missing data was evaluated. The inter-item correlations between the items used to measure each variable were then examined. Principal axis factoring and oblique rotation (direct oblimin) was employed to examine each measure. These exploratory factor analyses were conducted as a way to evaluate each measure before running the hypothesized structural equation models (Note that to actually develop and test a measure, the exploratory factor analysis and confirmatory factor analysis would be conducted using two different samples/data sets. The exploratory factor analyses here were used as diagnostic tools to assess the measures).

Attributions of Solution

Attributions of solution were measured via three 5-point Likert-type items. Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I can impact whether he/she loses weight with physical activity by sharing this information with him/her; (2) My sharing this information with him/her can cause him/her to lose weight with outdoor exercise; and (3) I have the ability to influence whether he/she loses weight with exercise by sharing this information.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.74</td>
<td>0.94</td>
<td>1</td>
<td>5</td>
<td>-0.99</td>
<td>0.95</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>3.70</td>
<td>1.01</td>
<td>1</td>
<td>5</td>
<td>-0.49</td>
<td>-0.38</td>
<td>0%</td>
</tr>
</tbody>
</table>
The inter-item correlations for the items used to measure attributions of solution are presented below. The magnitude of the correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>AttSol_1</th>
<th>AttSol_2</th>
<th>AttSol_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttSol_1</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AttSol_2</td>
<td>.56***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>AttSol_3</td>
<td>.64***</td>
<td>.52***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Principal axis factoring and oblique rotation (direct oblimin) was employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 71.75% of the variance in attributions of solution. These items were then used to create a composite scale for attributions of solution ($M = 3.71$, $SD = 0.81$, $\alpha = .80$; see Appendix F).

**Obligation**

Obligation was measured via three 5-point Likert-type items based on Gärling, Fujii, Gärling, and Jakobson (2003; $\alpha = .84$) and Sparks and Shepherd (2002; ranged from $\alpha = .76$ to $\alpha = .91$). Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I feel a moral obligation to share this information with my (child/parent); (2) I feel that I should make sure to share this information with my (child/parent); and (3) I feel that it is important to share this information with my (child/parent).
To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.90</td>
<td>0.91</td>
<td>1</td>
<td>5</td>
<td>-0.92</td>
<td>0.69</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>4.05</td>
<td>0.90</td>
<td>1</td>
<td>5</td>
<td>-0.94</td>
<td>0.61</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>4.02</td>
<td>0.91</td>
<td>1</td>
<td>5</td>
<td>-0.97</td>
<td>0.82</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure obligation are presented below. The magnitude of the correlations between the fourth item and the first, second, and third items were not as strong as the correlations among the other items.

<table>
<thead>
<tr>
<th></th>
<th>Oblig_1</th>
<th>Oblig_2</th>
<th>Oblig_3</th>
<th>Oblig_4</th>
<th>Oblig_5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oblig_1</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oblig_2</td>
<td>.53***</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oblig_3</td>
<td>.56***</td>
<td>.64***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Principal axis factoring and oblique rotation (direct oblimin) was employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 71.80% of the variance in obligation. All three items were then used to create a composite scale for obligation ($M = 4.00, SD = 0.77, \alpha = .80$; see Appendix G).

**Generative Concern**

Generative concern was measured via 13 5-point Likert-type items adapted from the Loyola Generativity Scale (McAdams & de St. Aubin, 1992; ranged from $\alpha = .83$ to $\alpha = .84$).
Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I try to pass along the knowledge that I have gained through my experiences; (2) I think I would like the work of a teacher; (3) I feel as though I have made a difference to many people; (4) I have made and created things that have had an impact on other people; (5) I try to be creative in most things that I do; (6) I think that I will be remembered for a long time after I die; (7) Others would say that I have made unique contributions to society; (8) I have important skills that I try to teach others; (9) I have made many commitments to many different kinds of people, groups, and activities in my life; (10) Other people say that I am a very productive person; (11) I have a responsibility to improve the neighborhood in which I live; (12) People come to me for advice; and (13) I feel as though my contributions will exist after I die.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.95</td>
<td>0.77</td>
<td>1</td>
<td>5</td>
<td>-1.25</td>
<td>2.82</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>3.34</td>
<td>1.21</td>
<td>1</td>
<td>5</td>
<td>-0.37</td>
<td>-0.83</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>3.69</td>
<td>0.92</td>
<td>1</td>
<td>5</td>
<td>-0.49</td>
<td>-0.11</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>✓</td>
<td>3.56</td>
<td>1.04</td>
<td>1</td>
<td>5</td>
<td>-0.58</td>
<td>-0.13</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>✓</td>
<td>3.83</td>
<td>0.92</td>
<td>1</td>
<td>5</td>
<td>-0.72</td>
<td>0.20</td>
<td>0%</td>
</tr>
<tr>
<td>6</td>
<td>✓</td>
<td>3.36</td>
<td>1.06</td>
<td>1</td>
<td>5</td>
<td>-0.29</td>
<td>-0.52</td>
<td>0%</td>
</tr>
<tr>
<td>7</td>
<td>✓</td>
<td>3.44</td>
<td>1.04</td>
<td>1</td>
<td>5</td>
<td>-0.43</td>
<td>-0.47</td>
<td>0%</td>
</tr>
<tr>
<td>8</td>
<td>✓</td>
<td>3.72</td>
<td>0.97</td>
<td>1</td>
<td>5</td>
<td>-0.70</td>
<td>0.15</td>
<td>0%</td>
</tr>
</tbody>
</table>
The inter-item correlations for the items used to measure generative concern were assessed. Principal axis factoring and oblique rotation (direct oblimin) was employed to examine these items. The initial analysis revealed two factors with eigenvalues greater than one that accounted for 49.95% of the variance. The analysis revealed low communalities for item three (“I feel as though I have made a difference to many people”) and item 10 (“Other people say that I am a very productive person”), and these variables also did not load strongly onto any factor; these variables were therefore dropped. The second analysis revealed two factors with eigenvalues greater than one that accounted for 51.70% of the variance. The analysis revealed low communalities for item five (“I try to be creative in most things that I do”) and item 12 (“People come to me for advice”), and these items also did not load strongly onto any factor; these items were therefore dropped. The third analysis revealed two factors with eigenvalues greater than one that accounted for 55.78% of the variance. The analysis revealed a low communality for item 11 (“I have a responsibility to improve the neighborhood in which I live”), and this item also did not load strongly onto any factor and was therefore dropped. The final subsequent analysis revealed one factor with an eigenvalue greater than one that accounted for 45.21% of the variance.

<table>
<thead>
<tr>
<th></th>
<th>✓</th>
<th>3.65</th>
<th>0.96</th>
<th>1</th>
<th>5</th>
<th>-0.75</th>
<th>0.39</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>✓</td>
<td>3.80</td>
<td>0.87</td>
<td>1</td>
<td>5</td>
<td>-0.71</td>
<td>0.76</td>
<td>0%</td>
</tr>
<tr>
<td>10</td>
<td>✓</td>
<td>3.68</td>
<td>0.98</td>
<td>1</td>
<td>5</td>
<td>-0.63</td>
<td>0.04</td>
<td>0%</td>
</tr>
<tr>
<td>11</td>
<td>✓</td>
<td>3.72</td>
<td>0.86</td>
<td>1</td>
<td>5</td>
<td>-0.51</td>
<td>0.19</td>
<td>0%</td>
</tr>
<tr>
<td>12</td>
<td>✓</td>
<td>3.55</td>
<td>1.02</td>
<td>1</td>
<td>5</td>
<td>-0.58</td>
<td>-0.06</td>
<td>0%</td>
</tr>
</tbody>
</table>
Item one (“I try to pass along the knowledge that I have gained through my experiences”), item two (“I think I would like the work of a teacher”), item four (“I have made and created things that have had an impact on other people”), item six (“I think that I will be remembered for a long time after I die”), item seven (“Others would say that I have made unique contributions to society”), item eight (“I have important skills that I try to teach others”), item nine (“I have made many commitments to many different kinds of people, groups, and activities in my life”), and item 13 (“I feel as though my contributions will exist after I die”) were then used to create a composite scale for generative concern ($M = 3.54$, $SD = 0.67$, $\alpha = .82$; see Appendix H).

**Psychological Reactance**

Psychological reactance was measured via four 5-point Likert-type items based on Hong’s psychological reactance scale (Hong, 1992; Hong & Faedda, 1996; ranged from $\alpha = .77$ to $\alpha = .80$) asked participants to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I am uncomfortable when I am told what I am obligated to do for my (child/parent); (2) I do not like being told that I have a duty to share health information with my (child/parent); (3) It irritates me when messages tell me about my obligation to my (child/parent); and (4) I dislike being told that I have an obligation to share health information with my (child/parent).

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>2.85</td>
<td>1.19</td>
<td>1</td>
<td>5</td>
<td>0.03</td>
<td>-1.08</td>
<td>0%</td>
</tr>
</tbody>
</table>
The inter-item correlations for the items used to measure psychological reactance are presented below. The correlations between the items were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>PsyReact_1</th>
<th>PsyReact_2</th>
<th>PsyReact_3</th>
<th>PsyReact_4</th>
</tr>
</thead>
<tbody>
<tr>
<td>PsyReact_1</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PsyReact_2</td>
<td>.69***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PsyReact_3</td>
<td>.71***</td>
<td>.77***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>PsyReact_4</td>
<td>.72***</td>
<td>.76***</td>
<td>.78***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Principal axis factoring and oblique rotation (direct oblimin) was employed to examine these items. The initial analysis revealed one factor with an eigenvalue greater than one that accounted for 80.45% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All four items were then used to create a composite scale of psychological reactance ($M = 2.77$, $SD = 1.09$, $\alpha = .92$; see Appendix I).

**Agency**

The subscales for agency, knowledge, choice, and self-efficacy, are presented below.

**Knowledge.** Knowledge was measured via two 5-point Likert-type items based on Crook and colleagues (2016; note that Crook et al., 2016 used a single item measure, thus the previous reliability is not available). Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I am...
aware of how to share this information with my (child/parent); and (2) I understand how to share this information with my (child/parent).

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>4.07</td>
<td>0.80</td>
<td>1</td>
<td>5</td>
<td>-1.15</td>
<td>2.19</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>4.17</td>
<td>0.83</td>
<td>1</td>
<td>5</td>
<td>-1.13</td>
<td>1.57</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure knowledge are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>Know_1</th>
<th>Know_2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know_1</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Know_2</td>
<td>.51***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Choice. Choice was measured via three 5-point Likert-type items. Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I am able to choose whether or not I pass along this information to my (child/parent); (2) It is my choice if I share this information with my (child/parent); and (3) I can decide if I share this information with my (child/parent).

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:
The inter-item correlations for the items used to measure choice are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>4.16</td>
<td>0.79</td>
<td>1</td>
<td>5</td>
<td>-1.12</td>
<td>2.02</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>4.24</td>
<td>0.80</td>
<td>1</td>
<td>5</td>
<td>-0.91</td>
<td>0.52</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>4.27</td>
<td>0.73</td>
<td>1</td>
<td>5</td>
<td>-0.92</td>
<td>1.14</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure choice are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>Choice_1</th>
<th>Choice_2</th>
<th>Choice_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice_1</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choice_2</td>
<td>.48***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Choice_3</td>
<td>.55***</td>
<td>.55***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

**Self-efficacy.** Self-efficacy was measured via six 5-point Likert-type items. Participants were asked to indicate the extent to which they agree ("1" = "Strongly disagree" to "5" = "Strongly agree") with the following statements: (1) I am able to share this information with my (child/parent) in the near future; (2) I am capable of passing this information along to my (child/parent) soon; (3) It is easy for me to share this information with my (child/parent) in the near future; (4) I am confident that I could share this information with my (child/parent) soon; (5) Taking responsibility for my (child/parent’s) physical activity by sharing this information soon is possible; and (6) It is easy for me to take responsibility for my (child/parent’s) physical activity by sharing this information in the near future.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:
<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>4.13</td>
<td>0.75</td>
<td>1</td>
<td>5</td>
<td>-0.94</td>
<td>1.47</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>4.18</td>
<td>0.83</td>
<td>1</td>
<td>5</td>
<td>-0.94</td>
<td>0.63</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>4.05</td>
<td>0.87</td>
<td>1</td>
<td>5</td>
<td>-0.95</td>
<td>0.93</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>✓</td>
<td>4.15</td>
<td>0.80</td>
<td>2</td>
<td>5</td>
<td>-0.78</td>
<td>0.29</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>✓</td>
<td>4.06</td>
<td>0.83</td>
<td>1</td>
<td>5</td>
<td>-0.99</td>
<td>1.41</td>
<td>0%</td>
</tr>
<tr>
<td>6</td>
<td>✓</td>
<td>3.89</td>
<td>0.92</td>
<td>1</td>
<td>5</td>
<td>-0.89</td>
<td>0.86</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure self-efficacy, which are presented below. The correlations were strong and flat.

\[
\begin{array}{cccccc}
\text{SE}_1 & \text{SE}_2 & \text{SE}_3 & \text{SE}_4 & \text{SE}_5 & \text{SE}_6 \\
\text{SE}_1 & --- & .48*** & --- & & \\
\text{SE}_2 & .48*** & --- & .36*** & & \\
\text{SE}_3 & .48*** & .36*** & --- & & \\
\text{SE}_4 & .52*** & .52*** & .53*** & --- & \\
\text{SE}_5 & .39*** & .41*** & .36*** & .41*** & --- \\
\text{SE}_6 & .42*** & .44*** & .50*** & .50*** & .47*** & --- \\
\end{array}
\]

*p < .05; **p < .01; ***p < .001

**Agency.** Principal axis factoring and oblique rotation (direct oblimin) were then employed to examine these scales. The initial analysis revealed two factors with eigenvalues greater than one that accounted for 57.82% of the variance. The analysis revealed low communalities for knowledge item one (“I am aware of how to share this information with my child/parent”) and choice item two (“It is my choice if I share this information with my parent”).
and these variables also did not load strongly onto any factor; these variables were therefore dropped. The second analysis revealed two factors with eigenvalues greater than one that accounted for 60.75% of the variance. The analysis revealed low communalities for self-efficacy item one (“I am able to share this information with my child/parent in the near future”) and self-efficacy item two (“I am capable of passing this information along to my child/parent soon”), and these variables also did not load strongly onto any factor; these variables were therefore dropped. The final subsequent analysis revealed one factor with an eigenvalue greater than one that accounted for 49.88% of the variance. The remaining seven items, including knowledge item two (“I understand how to share this information with my child/parent”), choice item one (“I am able to choose whether or not I pass along this information to my child/parent”), choice item three (“I can decide if I share this information with my child/parent”), self-efficacy item three (“It is easy for me to share this information with my child/parent in the near future”), self-efficacy item four (“I am confident that I could share this information with my child/parent soon”), self-efficacy item five (“Taking responsibility for my child/parent’s physical activity by sharing this information soon is possible”), and self-efficacy item six (“It is easy for me to take responsibility for my child/parent’s physical activity by sharing this information in the near future”), formed a composite scale for agency ($M = 4.10, SD = 0.59, \alpha = .82$; see Appendix J).

These results did not align with the conceptual distinction this dissertation posited between knowledge, choice, and self-efficacy. Based on these results, the theoretical model examined in this dissertation was modified, as explained in further detail later.

**Responsibility**

Perceived responsibility was measured via three 5-point Likert-type items adapted from Morrison and Phelps (1999; $\alpha = .80$). Participants were asked to indicate the extent to which they
agree ("1" = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I feel a personal responsibility to share this information with my (child/parent) in the near future; (2) It’s up to me to share this information with my (child/parent soon); and (3) I feel it is my responsibility to share this information with my (child/parent) in the near future.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.97</td>
<td>0.86</td>
<td>1</td>
<td>5</td>
<td>-1.07</td>
<td>1.53</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>4.02</td>
<td>0.94</td>
<td>1</td>
<td>5</td>
<td>-0.97</td>
<td>0.71</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>4.01</td>
<td>0.93</td>
<td>1</td>
<td>5</td>
<td>-0.99</td>
<td>0.83</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure responsibility are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>Responsibility_1</th>
<th>Responsibility_2</th>
<th>Responsibility_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility_1</td>
<td>---</td>
<td>.50***</td>
<td>---</td>
</tr>
<tr>
<td>Responsibility_2</td>
<td>.50***</td>
<td>---</td>
<td>.54***</td>
</tr>
<tr>
<td>Responsibility_3</td>
<td>.63***</td>
<td>.54***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Principal axis factoring and oblique rotation (direct oblimin) was employed to examine these items. The initial analysis revealed one factor with an eigenvalue greater than one that accounted for 70.57% of the variance. The analysis did not reveal any items with low communalities, and
all items loaded strongly onto the one factor. All three items were then used to create a composite scale of responsibility ($M = 3.98$, $SD = 0.78$, $\alpha = .79$; see Appendix K).

**Attitudes**

Midlife adults’ attitudes towards sharing this information with their child/parent were assessed via six 5-point semantic differential items in line with Ajzen and Fishbein (1980). The items began with a stem that referenced the behavior “I think that sharing this information with my (child/parent) about the benefits of exercising outdoors in the near future is” followed by: (1) harmful[beneficial]; (2) unpleasant[pleasant]; (3) boring[interesting]; (4) unimportant[important]; (5) undesirable[desirable]; and (6) unhealthy[healthy].

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>4.39</td>
<td>0.83</td>
<td>1</td>
<td>5</td>
<td>-1.25</td>
<td>0.94</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>4.06</td>
<td>0.98</td>
<td>1</td>
<td>5</td>
<td>-0.87</td>
<td>0.14</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>4.10</td>
<td>0.99</td>
<td>1</td>
<td>5</td>
<td>-1.06</td>
<td>0.66</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>✓</td>
<td>4.42</td>
<td>0.84</td>
<td>1</td>
<td>5</td>
<td>-1.64</td>
<td>2.87</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>✓</td>
<td>4.14</td>
<td>0.96</td>
<td>1</td>
<td>5</td>
<td>-1.14</td>
<td>1.07</td>
<td>0%</td>
</tr>
<tr>
<td>6</td>
<td>✓</td>
<td>4.52</td>
<td>0.73</td>
<td>1</td>
<td>5</td>
<td>-1.48</td>
<td>2.01</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure attitudes are presented below. The correlations were mostly strong and flat.
Principal axis factoring and oblique rotation (direct oblimin) was employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 55.58% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All six items were then used to create a composite scale of attitudes ($M = 4.28$, $SD = 0.66$, $\alpha = .84$; see Appendix L).

**Subjective Norms**

Subjective norms about information sharing were measured via three 5-point Likert-type items based on Park and Smith (2007; $\alpha = .78$). Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) Most people who are important to me think that I should share this information with my (child/parent) in the near future; (2) Most people whose opinion I value think that I ought to share this information with my (child/parent) soon; and (3) It is expected of me that I share this information with my (child/parent) soon.

<table>
<thead>
<tr>
<th></th>
<th>Att_1</th>
<th>Att_2</th>
<th>Att_3</th>
<th>Att_4</th>
<th>Att_5</th>
<th>Att_6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Att_1</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att_2</td>
<td>.32***</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att_3</td>
<td>.46***</td>
<td>.52***</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att_4</td>
<td>.55***</td>
<td>.41***</td>
<td>.48***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att_5</td>
<td>.48***</td>
<td>.44***</td>
<td>.56***</td>
<td>.52***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Att_6</td>
<td>.52***</td>
<td>.36***</td>
<td>.39***</td>
<td>.53***</td>
<td>.45***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001
To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.91</td>
<td>0.80</td>
<td>1</td>
<td>5</td>
<td>-0.74</td>
<td>0.91</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>3.94</td>
<td>0.89</td>
<td>1</td>
<td>5</td>
<td>-0.62</td>
<td>0.14</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>3.98</td>
<td>0.86</td>
<td>1</td>
<td>5</td>
<td>-0.87</td>
<td>1.03</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure subjective norms are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>SubjNorms_1</th>
<th>SubjNorms_2</th>
<th>SubjNorms_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SubjNorms_1</td>
<td>---</td>
<td>.60***</td>
<td>.53***</td>
</tr>
<tr>
<td>SubjNorms_2</td>
<td>.60***</td>
<td>---</td>
<td>.39***</td>
</tr>
<tr>
<td>SubjNorms_3</td>
<td>.53***</td>
<td>.39***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 67.35% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All three items were then used to create a composite scale of subjective norms ($M = 3.94$, $SD = 0.70$, $\alpha = .75$; see Appendix M).

**Personal Descriptive Norms**

Personal descriptive norms about information sharing were measured via three 5-point Likert-type items based on Park and Smith (2007; $\alpha = .84$). Participants were asked to indicate
the extent to which they agree ("1" = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) Most people who are important to me have already shared this type of information with their (children/parents); (2) Most people whose opinion I value have already share this type of information with their (children/parents); and (3) Most people who are important to me have already shared this type of information with their (children/parents).

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.33</td>
<td>1.03</td>
<td>1</td>
<td>5</td>
<td>-0.09</td>
<td>-0.57</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>3.37</td>
<td>1.05</td>
<td>1</td>
<td>5</td>
<td>-0.10</td>
<td>-0.69</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>3.37</td>
<td>1.01</td>
<td>1</td>
<td>5</td>
<td>-0.23</td>
<td>-0.43</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure personal descriptive norms are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>PersDesNorms_1</th>
<th>PersDesNorms_2</th>
<th>PersDesNorms_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PersDesNorms_1</td>
<td>---</td>
<td>.72***</td>
<td>.73***</td>
</tr>
<tr>
<td>PersDesNorms_2</td>
<td>.72***</td>
<td>---</td>
<td>.71***</td>
</tr>
<tr>
<td>PersDesNorms_3</td>
<td>.73***</td>
<td>.71***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 81.14% of the variance. The analysis did not reveal any items with low communalities, and
all items loaded strongly onto the one factor. All three items were then used to create a composite scale of personal descriptive norms ($M = 3.32, SD = 0.91, \alpha = .88$; see Appendix N).

**Personal Injunctive Norms***

Personal injunctive norms about proactive communication was measured via three 5-point Likert-type items based on Park and Smith (2007; $\alpha = .81$). Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) Most people whose opinion I value would approve of my sharing this information with my (child/parent) soon; (2) Most people who are important to me would endorse my sharing this information with my (child/parent) soon; and (3) Most people who are important to me would support that I share this information with my (child/parent) in the near future.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>4.05</td>
<td>0.81</td>
<td>1</td>
<td>5</td>
<td>-0.79</td>
<td>0.56</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>4.03</td>
<td>0.85</td>
<td>1</td>
<td>5</td>
<td>-0.73</td>
<td>0.24</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>4.12</td>
<td>0.74</td>
<td>2</td>
<td>5</td>
<td>-0.64</td>
<td>0.33</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure personal injunctive norms are presented below. The correlations were strong and flat.
Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 70.75% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All three items were then used to create a composite scale of personal injunctive norms ($M = 4.06$, $SD = 0.67$, $\alpha = .79$; see Appendix O).

**Societal Descriptive Norms**

Societal norms about information sharing were measured via three 5-point Likert-type items based on Park and Smith (2007; $\alpha = .87$). Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) A majority of people in the United States have already shared this type of information with their (children/parents); (2) A majority of people in the United States have already passed along this type of information to their parents; and (3) A majority of people in the United States have already decided to share this type of information with their children/parents.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.24</td>
<td>1.06</td>
<td>1</td>
<td>5</td>
<td>0.01</td>
<td>-0.64</td>
<td>0%</td>
</tr>
</tbody>
</table>
The inter-item correlations for the items used to measure societal descriptive norms are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>SocDesNorms_1</th>
<th>SocDesNorms_2</th>
<th>SocDesNorms_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SocDesNorms_1</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SocDesNorms_2</td>
<td>.71***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>SocDesNorms_3</td>
<td>.71***</td>
<td>.73***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 80.99% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All three items were then used to create a composite scale of societal descriptive norms (M = 3.20, SD = 0.93, α = .88; see Appendix P).

**Societal Injunctive Norms**

Societal injunctive norms about information sharing were measured via three 5-point Likert-type items based on Park and Smith (2007; α = .87). Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) A majority of people in the United States approve of (parents/adult children) sharing this type of information with their (children/aging parents); (2) A majority of people in the United States endorse (parents/adult children) sharing this type of information with
their (children/aging parents); and (3) A majority of people in the United States support that
(parents/adult children) share this type of information with their (children/aging parents).

To assess this measure, the data were proofread to check for errors. Descriptive statistics
for the items and the distribution shapes were then examined. The amount and nature of missing
data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.94</td>
<td>0.81</td>
<td>2</td>
<td>5</td>
<td>-0.49</td>
<td>-0.15</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>3.89</td>
<td>0.88</td>
<td>1</td>
<td>5</td>
<td>-0.63</td>
<td>0.15</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>3.91</td>
<td>0.83</td>
<td>1</td>
<td>5</td>
<td>-0.61</td>
<td>0.32</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure societal injunctive norms are presented
below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th>SocInjNorm_1</th>
<th>SocInjNorm_2</th>
<th>SocInjNorm_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SocInjNorm_1</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>SocInjNorm_2</td>
<td>.60***</td>
<td>---</td>
</tr>
<tr>
<td>SocInjNorm_3</td>
<td>.53***</td>
<td>.59***</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine
these items. The analysis revealed one factor with an eigenvalue greater than one that accounted
for 71.73% of the variance. The analysis did not reveal any items with low communalities, and
all items loaded strongly onto the one factor. All three items were then used to create a
composite scale of societal injunctive norms (M = 3.89, SD = 0.72, α = .80; see Appendix Q).

**Information Sharing Intentions**
Information sharing intentions were assessed via four 5-point Likert-type items. Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I intend to share this information with my (child/parent) soon; (2) I mean to pass this information along to my (child/parent) in the near future; (3) I have it in my mind to share this information with my (child/parent) soon; and (4) I will share this information with my (child/parent) in the near future.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>(M)</th>
<th>(SD)</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>4.03</td>
<td>0.86</td>
<td>1</td>
<td>5</td>
<td>-1.09</td>
<td>1.56</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>4.06</td>
<td>0.89</td>
<td>1</td>
<td>5</td>
<td>-1.00</td>
<td>0.92</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>4.05</td>
<td>0.93</td>
<td>1</td>
<td>5</td>
<td>-1.25</td>
<td>1.73</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>✓</td>
<td>4.11</td>
<td>0.86</td>
<td>1</td>
<td>5</td>
<td>-1.10</td>
<td>1.60</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure information sharing intentions are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>Intentions_1</th>
<th>Intentions_2</th>
<th>Intentions_3</th>
<th>Intentions_4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentions_1</td>
<td>---</td>
<td>.63***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intentions_2</td>
<td>.63***</td>
<td>---</td>
<td>.61***</td>
<td></td>
</tr>
<tr>
<td>Intentions_3</td>
<td>.65***</td>
<td>.61***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Intentions_4</td>
<td>.63***</td>
<td>.64***</td>
<td>.61***</td>
<td>---</td>
</tr>
</tbody>
</table>

*\(p < .05\); **\(p < .01\); ***\(p < .001\)
Principal axis factoring and oblique rotation (direct oblimin) was the employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 72.08\% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All four items were then used to create a composite scale of information sharing intentions ($M = 4.07$, $SD = 0.74$, $\alpha = .87$; see Appendix R).

**Anticipated Regret**

Anticipated regret was measured via one Likert-type item based on Abraham and Sheeran (2003, 2004), Rapaport and Orbell (2000), and Sheeran and Orbell (1999; see Appendix S). The participants were asked to anticipate, on a 5-point scale (“1” = “not at all” to “5” = “very much”), “If I did not talk to [child/parent’s name] in the near future about physical activity, I would feel”: (1) Regret.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the item and the distribution shape was then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.49</td>
<td>1.25</td>
<td>1</td>
<td>5</td>
<td>-0.64</td>
<td>-0.60</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Anticipated Guilt**

Anticipated guilt was measured via one Likert-type item based on Onwezen and colleagues (2013) and Kugler and Jones’ (1992) guilt inventory (see Appendix S). The participants were asked to anticipate, on a 5-point scale (“1” = “not at all” to “5” = “very much”), “If I did not talk to my child/parent about physical activity in the near future, I would feel”: (1) Guilty.
To assess this measure, the data were proofread to check for errors. Descriptive statistics for the item and the distribution shape was then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.44</td>
<td>1.36</td>
<td>1</td>
<td>5</td>
<td>-0.52</td>
<td>-0.92</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Anticipated Pride**

Anticipated pride was measured via one item adapted from Onwezen and colleagues (2013) and Tracy and Robins’ (2007) authentic pride scale (see Appendix T). The participants were asked to anticipate, on a 5-point scale (“1” = “not at all” to “5” = “very much”), “If I did talk to my child/parent about physical activity in the near future, I would feel”: (1) Proud.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the item and the distribution shape was then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.78</td>
<td>1.15</td>
<td>1</td>
<td>5</td>
<td>-0.83</td>
<td>0.02</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Hope**

Anticipated hope was measured via one item based on Chadwick (2014; see Appendix T). The participants were asked to anticipate, on a 5-point scale (“1” = “not at all” to “5” = “very much”), “If I did talk to my child/parent about physical activity in the near future, I would feel”: (1) Hopeful.
To assess this measure, the data were proofread to check for errors. Descriptive statistics for the item and the distribution shape was then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.98</td>
<td>1.13</td>
<td>1</td>
<td>5</td>
<td>-1.14</td>
<td>0.69</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Physical Activity Mavenism**

Physical activity mavenism was measured via nine 5-point Likert-type items based on Boster and colleagues (2011; $\alpha = .87$), Kontos and colleagues (2011; $\alpha = .77$), and Farragher and colleagues (2016; $\alpha = .83$). Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I like introducing new exercises to others; (2) I like helping people by providing them with information about physical activity; (3) Others think of me as a good source of information when it comes to new information about exercise; (3) When I know something about an exercise topic, I feel it is important to share that information with others; (4) I like to acquire new information about physical activity; (5) I like to be knowledgeable about physical activity; (6) I like to be aware of the most up-to-date physical activity information so I can help others by sharing when it is relevant; (7) If someone asked me about an exercise issue I was unsure of, I would know how to help them find the answer; (8) Being knowledgeable enough about physical activity so that I could teach someone else is important to me; and (9) People often seek me out for answers when they have questions about physical activity.
To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>( M )</th>
<th>( SD )</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.56</td>
<td>0.95</td>
<td>1</td>
<td>5</td>
<td>-0.69</td>
<td>0.26</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>3.70</td>
<td>1.03</td>
<td>1</td>
<td>5</td>
<td>-0.57</td>
<td>-0.17</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>3.51</td>
<td>1.06</td>
<td>1</td>
<td>5</td>
<td>-0.38</td>
<td>-0.60</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>✓</td>
<td>3.77</td>
<td>0.94</td>
<td>1</td>
<td>5</td>
<td>-0.88</td>
<td>0.84</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>✓</td>
<td>3.84</td>
<td>0.96</td>
<td>1</td>
<td>5</td>
<td>-0.86</td>
<td>0.61</td>
<td>0%</td>
</tr>
<tr>
<td>6</td>
<td>✓</td>
<td>3.67</td>
<td>1.02</td>
<td>1</td>
<td>5</td>
<td>-0.75</td>
<td>0.24</td>
<td>0%</td>
</tr>
<tr>
<td>7</td>
<td>✓</td>
<td>3.65</td>
<td>1.04</td>
<td>1</td>
<td>5</td>
<td>-0.71</td>
<td>-0.03</td>
<td>0%</td>
</tr>
<tr>
<td>8</td>
<td>✓</td>
<td>3.56</td>
<td>1.05</td>
<td>1</td>
<td>5</td>
<td>-0.63</td>
<td>-0.03</td>
<td>0%</td>
</tr>
<tr>
<td>9</td>
<td>✓</td>
<td>3.34</td>
<td>1.13</td>
<td>1</td>
<td>5</td>
<td>-0.34</td>
<td>-0.77</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure physical activity mavenism were then assessed, and the correlations were strong and flat. Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 55.51% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All nine items were then used to create a composite scale of physical activity mavenism \( (M = 3.59, SD = 0.77, \alpha = .90; \text{see Appendix U}) \).

Regret
Regret was measured via one Likert-type item (see Appendix V). The participants were asked to indicate, on a 5-point scale (“1” = “not at all” to “5” = “very much”), “When I think about the responsibility that I have had to share health information about physical activity with my (child/parent) parent in the past, I currently feel”: (1) Regret.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the item and the distribution shape was then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>2.24</td>
<td>1.19</td>
<td>1</td>
<td>5</td>
<td>0.53</td>
<td>-0.82</td>
<td>0%</td>
</tr>
</tbody>
</table>

Guilt

Guilt was measured via one Likert-type item based on Onwezen and colleagues (2013; see Appendix V). The participants were asked to indicate, on a 5-point scale (“1” = “not at all” to “5” = “very much”), “When I think about the responsibility that I have had to share health information about physical activity with my (child/parent) parent in the past, I currently feel”: (1) Guilty.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the item and the distribution shape was then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>2.29</td>
<td>1.27</td>
<td>1</td>
<td>5</td>
<td>0.54</td>
<td>-0.92</td>
<td>0%</td>
</tr>
</tbody>
</table>

Self-Blame

Perceptions of self-blame were measured via four 5-point Likert-type items based on Voth and Sirois (2009; $\alpha = .78$) and Phelan and colleagues (2012; self-blame was measured as a
single item, thus there is no previous reliability from these authors. Participants were asked to indicate the extent to which they agree (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I feel I am to blame for my (child/parent’s) current physical activity; (2) I am at fault for my (child/parent’s) current levels of exercise; (3) If my (child/parent) gets sick because they do not exercise, I am to blame; and (4) It is my fault if my (child/parent) gets sick because they aren’t active.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>2.92</td>
<td>1.19</td>
<td>1</td>
<td>5</td>
<td>-0.16</td>
<td>-1.16</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✓</td>
<td>2.91</td>
<td>1.25</td>
<td>1</td>
<td>5</td>
<td>0.10</td>
<td>-1.05</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>✓</td>
<td>2.97</td>
<td>1.26</td>
<td>1</td>
<td>5</td>
<td>-0.08</td>
<td>-1.10</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>✓</td>
<td>2.96</td>
<td>1.22</td>
<td>1</td>
<td>5</td>
<td>-0.15</td>
<td>-1.03</td>
<td>0%</td>
</tr>
</tbody>
</table>

The inter-item correlations for the items used to measure self-blame are presented below. The correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>SelfBlame_1</th>
<th>Self-Blame_2</th>
<th>Self-Blame_3</th>
<th>Self-Blame_4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SelfBlame_1</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SelfBlame_2</td>
<td>.77***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SelfBlame_3</td>
<td>.71***</td>
<td>.71***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>SelfBlame_4</td>
<td>.74***</td>
<td>.71***</td>
<td>.78***</td>
<td>---</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001
Principal axis factoring and oblique rotation (direct oblimin) was the employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 80.27% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All four items were then used to create a composite scale of self-blame ($M = 2.89$, $SD = 1.08$, $\alpha = .92$; see Appendix W).

**Obesity Stigma Beliefs**

Obesity stigma beliefs were measured via ten 5-point Likert-type items based on Link and colleagues (1989; ranged from $\alpha = .69$ to $\alpha = .82$). Participants were asked to indicate the extent to which they agreed (“1” = “Strongly disagree” to “5” = “Strongly agree”) with the following statements: (1) I think that obese people are unfairly treated; (2) Being a family member of someone who is obese carries a social stigma; (3) Most people will take an obese person’s opinions less seriously; (4) Most people will think less of a person who is obese; (5) Most people think that obese individuals have character flaws; (6) Most people feel that being obese is a sign of personal failure; (7) Most employers would pass over the application of an obese person in favor of someone else; (8) Most people would not hire an obese person to take care of their children; (9) Most people would be reluctant to date an obese person; and (10) Most people would not want their children to marry an obese person.

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the items and the distribution shapes were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✔️</td>
<td>3.69</td>
<td>0.93</td>
<td>1</td>
<td>5</td>
<td>-0.77</td>
<td>0.28</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>✔️</td>
<td>3.47</td>
<td>1.10</td>
<td>1</td>
<td>5</td>
<td>-0.36</td>
<td>-0.68</td>
<td>0%</td>
</tr>
</tbody>
</table>
The inter-item correlations for the items used to measure obesity stigma beliefs were assessed, and the correlations were strong and flat. Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine these items. The analysis revealed one factor with an eigenvalue greater than one that accounted for 46.06% of the variance. The analysis did not reveal any items with low communalities, and all items loaded strongly onto the one factor. All 10 items were then used to create a composite scale of physical activity mavenism ($M = 3.62$, $SD = 0.67$, $\alpha = .86$; see Appendix X).

**Participant Demographics**

**Biological sex.** Biological sex was assessed via a single-item that asks participants “What is your biological sex?” Response options included: (1) Female; (2) Male; (3) Prefer not to tell; (4) Other [write-in option].

**Age.** Participant age was assessed via two items. The first asks participants “How old are you?” with a write-in answer space. The second asked participants to provide their birthday in
the following format: MM/DD/YEAR. If there was a discrepancy between the age and birthday the participant indicated, the age associated with the birthday was used.

**Racial/ethnic background.** Participants were asked to select their racial/ethnic background from the following response options: (1) American Indian or Alaskan; (2) Asian; (3) Black or African American; (4) Native Hawaiian or Other Pacific Islander; (5) White; (6) Hispanic; (7) Other [write-in option].

**Education level.** Participants were asked to indicate the number of years of education they had completed, based on Singh and colleagues (2010). Response options will include (in years): (1) Less than high school (less than 12 years); (2) Completed high school (12 years); (3) Completed some college (13-15 years); (4) Graduated college (16 years); and (5) Attended and/or completed graduate school (more than 16 years).

**BMI.** Participant BMI was again measured using the the BIAS-BD figural rating scale for adults (Gardner et al., 2009).

**Questionnaire Pre-Test**

Before launching the full survey, a questionnaire pre-test was conducted. Eight midlife adults who met the majority of the study criteria were recruited. These participants were asked to complete the questionnaire and provide feedback on completion time, whether the items make sense, whether they find any of the items confusing, and whether they feel anything is missing.

**Participants**

Participants included six females, two males, and two participants who did not indicate their biological sex. Participants ranged in age from 56 to 64.

**Questionnaire Feedback**
The time for participants to complete the survey ranged from 20 to 40 minutes. Several participants noted that they felt some of the questions were repetitive or redundant. For example, Participant three noted: “Some questions seemed redundant.” Likewise, participant four said: I did not feel like questions were confusing but some were, in my view, redundant,” and participant seven noted: “They all made sense but unless you are looking for really narrow nuances I felt lots were redundant.” In addition, one participant indicated a desire for a button to “go back” to previous questions.

**Questionnaire Modifications**

Due to the feedback I received in this pilot of the questionnaire, I added an additional paragraph to the beginning of the survey that stated:

> When completing this survey, I ask for your patience. Some of the questions may seem very similar, but they are all different and all have important meanings. Please read each question very closely and answer them as best as you can.

> You will not be able to go back or start the survey again, so please make sure you have a full 45 minutes to complete the survey before starting.

**Data Analysis Plan**

To evaluate the structural hypotheses and research questions, the theoretical model visualized below in Figure 12 was tested by first analyzing the full measurement model. A hybrid approach was then used to test the structural model with the entire data set (see Holbert & Stephenson, 2002). This approach affords the opportunity to extract measurement error in order to analyze the true structural relationships among latent variables by allowing all measured variables to load individually on their respective latent variables (Holbert & Stephenson, 2002). One absolute fit statistic was included to test model fit: $\chi^2$ (Hu & Bentler, 1999; Holbert & Stephenson, 2002). Additional goodness of fit tests were also considered, including the
comparative fit index (CFI; as recommended by Hu & Bentler, 1999, and the most popular fit index in communication according to Holbert & Stephenson, 2002) and the root mean squared error (RMSEA; Browne & Cudeck, 1993). AMOS 24 with maximum likelihood estimation was used for all structural analyses; $p < .05$ was set as the significance level for hypothesis testing. Note that Figure 12 below has been modified to reflect the fact that the agency measures of knowledge, choice, and self-efficacy did not form three separate subscales but instead formed a single measure of agency.

Figure 12

*Structural Model Modified Based on Agency Measure*
Chapter 2 Endnotes

1 Figural rating scales are “age-specific and one must be careful to choose a scale that is appropriate for the age of the sample one wishes to assess” (Yanover & Thompson, 2009, p. 187). Gardner and Brown (2010) reviewed the psychometric properties of 11 figural rating scales for adults, and, based on their analysis, concluded that the figural drawing scale developed by Gardner, Jappe, and Gardner (2009), labeled the Body Image Assessment Scale – Body Dimensions (BIAS-BD), is the most appropriate scale for adults. This recommended scale improves upon previous scales because it uses known anthropometric data for figural dimensions, does not reflect ethnicity in facial and body features, and corresponds to a series of body weights ranging from 60% below the known average to 140% above average (see Gardner et al., 2009).

Self-report height and weight are widely used in surveys to estimate BMI; however, this self-reporting is subject to measurement error from bias and random error (Stewart, 1982) as well as social desirability and recall error (Gorber, Tremblay, Moher, & Gorber, 2007; Stommel & Schoenborn, 2009) that differs across racial/ethnic backgrounds (Gillum & Semies, 2005). Overall, this measurement error tends to result in underestimation of BMI (Gorber & Tremblay, 2010; Merrill & Richardson, 2009; Stommel & Schoenborn, 2009), and this trend in underestimation has not changed between 1999 and 2008 (Hattori & Sturm, 2013).

There is some evidence that parental report of adolescent obesity is a better measure than adolescent report of their own obesity (Goodman, Hinden, & Khandelwal, 2000). However, issues similar to that seen in adult reporting of their own obesity is observed in parent reports, with similar concerns regarding using parental-report data for estimating obesity prevalence (Akinbami & Ogden, 2009; Dubois & Girad, 2007). Note, however, that parental reports of subjective child overweight or obesity also tends to underestimate the actual weight status of the child (Lundahl, Kidwell, & Nelson, 2014).

2 This dissertation uses PAF with oblique rotation for several reasons. Principal components analysis (PCA), the alternative to PAF, aims to reduce the data and extract variance in order to generalize to one data set. PCA also assumes perfect reliability of measures. PAF, on the other hand, aims to identify the latent constructs and extract meaning in order to generalize to the conceptual domain and assumes that variables were imperfectly measured. PAF is therefore preferable as it is consistent with theory development, is a more accurate representation of the data, and does not assume infallible measures. The algorithm used in orthogonal rotation requires that the factors be uncorrelated, whereas the algorithm used in oblique rotation allows the factors to be correlated. The assumption that the factors are uncorrelated is questionable, so oblique rotation is preferred over orthogonal (and, if the factors were in fact uncorrelated, oblique rotation would provide the same answer as orthogonal).
CHAPTER 3: RESULTS

Original Model

The original model in Figure 12 was tested by first analyzing the measurement model. A hybrid approach was then used to test the structural model (see Holbert & Stephenson, 2002).

**Descriptive statistics and bivariate correlations.** Means, standard deviations, skewness, kurtosis, and bivariate correlations for the theoretical variables are displayed in Tables 4 and 5. Table 4 displays the means, standard deviations, skewness, kurtosis, and bivariate correlations for the theoretical variables posited to influence perceptions of responsibility. Table 5 displays the means, standard deviations, skewness, kurtosis, and bivariate correlations for the theoretical variables posited to influence health information sharing intentions.

Table 4

*Correlations between Variables Predicted to Influence Responsibility in Original Model*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsibility</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Attributions of Solution</td>
<td>.57***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Obligation</td>
<td></td>
<td>.63***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>4. Agency</td>
<td></td>
<td></td>
<td>.58***</td>
<td>---</td>
</tr>
<tr>
<td>(M)</td>
<td>3.98</td>
<td>3.71</td>
<td>4.00</td>
<td>4.10</td>
</tr>
<tr>
<td>(SD)</td>
<td>0.78</td>
<td>0.81</td>
<td>0.77</td>
<td>0.59</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.96</td>
<td>-0.83</td>
<td>-0.81</td>
<td>-0.48</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.35</td>
<td>0.80</td>
<td>0.65</td>
<td>-0.04</td>
</tr>
</tbody>
</table>

\*p < .05; **p < .01; ***p < .001
Table 5

*Correlations between Variables Predicted to Influence Information Sharing Intentions in Original Model*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsibility</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Attitudes</td>
<td>.60***</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Subjective Norms</td>
<td>.70***</td>
<td>.50***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Agency</td>
<td>.60***</td>
<td>.52***</td>
<td>.50***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>5. Intentions</td>
<td>.80***</td>
<td>.64***</td>
<td>.67***</td>
<td>.66***</td>
<td>---</td>
</tr>
</tbody>
</table>

*M*  

<table>
<thead>
<tr>
<th></th>
<th>3.98</th>
<th>4.28</th>
<th>3.94</th>
<th>4.10</th>
<th>4.07</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>SD</em></td>
<td>0.78</td>
<td>0.66</td>
<td>0.70</td>
<td>0.59</td>
<td>0.74</td>
</tr>
<tr>
<td><em>Skewness</em></td>
<td>-0.96</td>
<td>-0.75</td>
<td>-0.58</td>
<td>-0.48</td>
<td>0.74</td>
</tr>
<tr>
<td><em>Kurtosis</em></td>
<td>1.35</td>
<td>0.04</td>
<td>0.41</td>
<td>-0.04</td>
<td>2.11</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

**Maximum likelihood estimation assumptions.** The use of maximum likelihood estimation (MLE) assumes the following: (1) MLE assumes multivariate normality; (2) MLE assumes that exogenous variables are not correlated with disturbances (i.e., error terms); (3) MLE assumes that endogenous variables are interval data; (4) MLE assumes that the model is identified; and (5) MLE assumes adequate sample size.

Several of these variables have kurtosis values greater than one (responsibility and information sharing intentions). Structural equation modeling is sensitive to kurtosis, so these variables were noted. To assess normality of all the theoretical variables, Shapiro-Wilk tests
were conducted; all of the tests were statistically significant, suggesting that the theoretical variables are not normally distributed. Scholars have suggested using the bootstrap method to alleviate problems associated with violation the assumption of normality (see Efron & Tibshirani, 1993). In this method, a computer generates a series of data sets that would be obtained over many replications of the estimation study, with each bootstrap sample resulting from sampling with replacement from the original data. Bootstrapping is a nonparametric approach that does not make assumptions about the distribution type of the variables or the sampling distribution of the statistic. Consequently, the bootstrap method provides more accurate results when the assumption of normally distributed variables and/or test statistics is violated. Bootstrapping procedures were therefore used to analyze the theoretical model in this dissertation.

**Measurement model.** The power for testing the measurement model (0.99; with alpha = .05, df = 356, N = 334, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The measurement model ($\chi^2(356, N = 334) = 1093.95, p < .001; CFI = .86; RMSEA = .079, 90\% CI (.074, .084), p\text{-close} < .001$) had good model fit. I concluded that the model had adequate fit based on the following criteria: (1) An RMSEA between .05 and .08 is considered reasonable fit, and the RMSEA for this measurement model fits this criteria; and (2) A CFI greater than .90 is indicative of a good model fit, and the CFI for this measurement model is below that; however, CFI also accounts for model complexity, such that more complex models include a “penalty” in the CFI.

The correlations from the measurement model were examined based on the previously noted high correlation between responsibility and obligation ($r = .73, p < .001$), which suggested the potential for multicollinearity. The correlation between responsibility and obligation was
even higher in the measurement model \( r = .92, p < .001 \), which was to be expected as the structural equation modeling corrects for measurement error. The structural equation model was then examined, noting the potential for issues based on this multicollinearity.

**Structural model.** The power for testing the structural model (0.99; with alpha = .05, \( df = 360 \), \( N = 334 \), null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The structural model \( (\chi^2(360, N = 334) = 2325.22, p < .001; CFI = .86; RMSEA = .079, 90\% CI (.074, 0.084), p\text{-close} < .001) \) had good model fit. The chi-square difference test from the measurement and structural models \( (\chi^2 \text{ difference} = 1231.27, \text{df difference} = 4) \) was statistically significant. The structural equation model of the observed direct standardized effects is displayed below in Figure 13.

Figure 13

*Structural Equation Model of the Observed Direct Standardized Effects*

![Structural Equation Model](image)

**Note:** All covariances between exogenous variables were included in the analysis. The coefficients represent standardized beta weights, \( *p < .05, **p < .01, ***p < .001 \).
Table 6

*Estimates for the Direct Paths*

<table>
<thead>
<tr>
<th></th>
<th>( b^* )</th>
<th>90% CI</th>
<th>( SE^* )</th>
<th>( b )</th>
<th>90% CI</th>
<th>( SE )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Att. Solution → Responsibility</td>
<td>-.18</td>
<td>(-.59, .11)</td>
<td>.33</td>
<td>-.18</td>
<td>(-.64, .11)</td>
<td>.36</td>
</tr>
<tr>
<td>Obligation → Responsibility</td>
<td>1.10***</td>
<td>(.79, 1.69)</td>
<td>.43</td>
<td>1.24</td>
<td>(.82, 1.95)</td>
<td>.52</td>
</tr>
<tr>
<td>Agency → Responsibility</td>
<td>.03</td>
<td>(-.28, .22)</td>
<td>.21</td>
<td>.03</td>
<td>(-.32, .26)</td>
<td>.25</td>
</tr>
<tr>
<td>Attitudes → Sharing Intentions</td>
<td>.05</td>
<td>(-.10, .18)</td>
<td>.10</td>
<td>.07</td>
<td>(-.13, .23)</td>
<td>.13</td>
</tr>
<tr>
<td>Subj. Norms → Sharing Intentions</td>
<td>-.08</td>
<td>(-.55, .16)</td>
<td>.35</td>
<td>-.10</td>
<td>(-.65, .11)</td>
<td>.42</td>
</tr>
<tr>
<td>Agency → Sharing Intentions</td>
<td>.17</td>
<td>(-.59, .11)</td>
<td>.12</td>
<td>.17</td>
<td>(-.01, .33)</td>
<td>.12</td>
</tr>
<tr>
<td>Responsibility → Sharing Intentions</td>
<td>.89</td>
<td>(.55, 1.39)</td>
<td>.43</td>
<td>.77</td>
<td>(.45, 1.22)</td>
<td>.38</td>
</tr>
</tbody>
</table>

\*\( p < .05; **p < .01; ***p < .001 \)

The standardized beta weight for the path from obligation to responsibility was greater than 1.00. This indicates a “bouncing beta weight” that is likely due to the multicollinearity issues between responsibility and obligation described earlier. The items in these two measures were thus examined in more detail.

**Responsibility and obligation.** The items used to measure responsibility were: (1) I feel a personal responsibility to share this information with my (child/parent) in the near future; (2) It’s up to me to share this information with my (child/parent soon); and (3) I feel it is my responsibility to share this information with my (child/parent) in the near future. The items used to measure obligation were: (1) I feel a moral obligation to share this information with my (child/parent); (2) I feel that I should make sure to share this information with my (child/parent); and (3) I feel that it is important to share this information with my (child/parent). In looking at
these items, they do appear to be very similar. The correlations between these items were examined, as displayed below. All of the correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsibility_1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Responsibility_2&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.52***</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Responsibility_3&lt;sup&gt;c&lt;/sup&gt;</td>
<td>.64***</td>
<td>.58***</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Obligation_1&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.67***</td>
<td>.42***</td>
<td>.56***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Obligation_2&lt;sup&gt;e&lt;/sup&gt;</td>
<td>.53***</td>
<td>.48***</td>
<td>.58***</td>
<td>.51***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>6. Obligation_3&lt;sup&gt;f&lt;/sup&gt;</td>
<td>.57***</td>
<td>.43***</td>
<td>.49***</td>
<td>.56***</td>
<td>.65***</td>
<td>---</td>
</tr>
</tbody>
</table>

*<sup>p</sup> < .05; **<sup>p</sup> < .01; ***<sup>p</sup> < .001

<sup>a</sup>I feel a personal responsibility to share this information with my (child/parent) in the near future.

<sup>b</sup>It's up to me to share this information with my (child/parent soon).

<sup>c</sup>I feel it is my responsibility to share this information with my (child/parent) in the near future.

<sup>d</sup>I feel a moral obligation to share this information with my (child/parent).

<sup>e</sup>I feel that I should make sure to share this information with my (child/parent).

<sup>f</sup>I feel that it is important to share this information with my (child/parent).

Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine these items. The analysis revealed one factor with eigenvalues greater than one that accounted for 62.24% of the variance. The analysis did not reveal low communalities for any items, and all items loaded strongly onto the factor. This would suggest that these items are measuring the same latent construct. A new scale for responsibility that included all six of the items from the original responsibility scale plus the three items from the original obligation scale (\(M = 3.62, SD = 0.67, \alpha = .86\); see Appendix Y) was thus created. A modified measurement and structural model using this updated measurement for responsibility was constructed, labeled modified model 1.
Modified Model 1

Descriptive statistics and bivariate correlations. Means, standard deviations, skewness, kurtosis, and bivariate correlations for the theoretical variables in this modified model 1 with the new six-item responsibility measure are displayed below in Table 7 and Table 8.

Table 7

Correlations between Variables Predicting Responsibility in Modified Model 1

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsibility</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Attributions of Solution</td>
<td>.65***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>3. Agency</td>
<td>.64***</td>
<td>.49***</td>
<td>---</td>
</tr>
<tr>
<td>M</td>
<td>3.99</td>
<td>3.71</td>
<td>4.10</td>
</tr>
<tr>
<td>SD</td>
<td>0.72</td>
<td>0.81</td>
<td>0.59</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.13</td>
<td>-0.83</td>
<td>-0.48</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>0.27</td>
<td>0.80</td>
<td>-0.04</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001
Table 8

*Correlations between Variables Predicting Information Sharing Intentions in Modified Model 1*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsibility</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Attitudes</td>
<td>.63***</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Subjective Norms</td>
<td>.71***</td>
<td>.50***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Agency</td>
<td>.64***</td>
<td>.52***</td>
<td>.50***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>5. Intentions</td>
<td>.84***</td>
<td>.64***</td>
<td>.67***</td>
<td>.66***</td>
<td>---</td>
</tr>
</tbody>
</table>

*Measurements*

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>3.99</td>
<td>4.28</td>
<td>3.94</td>
<td>4.10</td>
<td>4.07</td>
</tr>
<tr>
<td>SD</td>
<td>0.72</td>
<td>0.66</td>
<td>0.70</td>
<td>0.59</td>
<td>0.74</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.13</td>
<td>-0.75</td>
<td>-0.58</td>
<td>-0.48</td>
<td>0.74</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>0.27</td>
<td>0.04</td>
<td>0.41</td>
<td>-0.04</td>
<td>2.11</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

**Measurement model.** The power for testing the measurement model (0.99; with alpha = .05, df = 362, N = 334, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The measurement model (χ²(362, N = 334) = 1119.18, p < .001; CFI = .86; RMSEA = .079, 90% CI (.074, .085), p-close < .001) had good model fit.

**Structural model.** The power for testing the structural model (0.99; with alpha = .05, df = 365, N = 334, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The structural model (χ²(365, N = 334) = 1200.39, p < .001; CFI = .85; RMSEA = .083, 90% CI (.078, .088), p-close < .001) had adequate
model fit. The chi-square difference test from the measurement and structural models ($\chi^2$ difference = 81.21, $df$ difference = 3) was statistically significant. The structural equation model of the observed direct standardized effects for this modified model 1 is displayed below in Figure 14, and the estimates of the direct paths are shown below in Table 9.

Figure 14

*Structural Equation Model of the Observed Direct Standardized Effects for Modified Model 1*

![Structural Equation Model](image)

*Note: All covariances between exogenous variables were included in the analysis. The coefficients represent standardized beta weights, $*p < .05$, $**p < .01$, $***p < .001$.}
Table 9

Estimates for the Direct Paths in Modified Model 1

<table>
<thead>
<tr>
<th>Path</th>
<th>b</th>
<th>90% CI</th>
<th>SE</th>
<th>b</th>
<th>90% CI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Att. Solution → Responsibility</td>
<td>.62</td>
<td>(.32, 1.13)</td>
<td>.27</td>
<td>.65</td>
<td>(.31, 1.56)</td>
<td>.40</td>
</tr>
<tr>
<td>Agency → Responsibility</td>
<td>.37</td>
<td>(-.24, .64)</td>
<td>.30</td>
<td>.43</td>
<td>(-.31, .75)</td>
<td>.34</td>
</tr>
<tr>
<td>Attitudes → Sharing Intentions</td>
<td>.12</td>
<td>(.03, .23)</td>
<td>.06</td>
<td>.15</td>
<td>(.04, .31)</td>
<td>.08</td>
</tr>
<tr>
<td>Subj. Norms → Sharing Intentions</td>
<td>.06</td>
<td>(-.10, .24)</td>
<td>.14</td>
<td>.08</td>
<td>(-.12, .28)</td>
<td>.16</td>
</tr>
<tr>
<td>Agency → Sharing Intentions</td>
<td>.12</td>
<td>(-.05, .27)</td>
<td>.10</td>
<td>.13</td>
<td>(-.05, .27)</td>
<td>.10</td>
</tr>
<tr>
<td>Responsibility → Sharing Intentions</td>
<td>.75</td>
<td>(.52, .96)</td>
<td>.17</td>
<td>.65</td>
<td>(.43, .88)</td>
<td>.17</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

The upper bound of the 90% CIs of the standardized beta weight for the path between attributions of solution and responsibility was greater than 1.00, which again indicates a “bouncing beta weight.” The items in these two measures were thus examined in more detail.

**Responsibility and Attributions of Solution**

The items used to measure the reconstructed measure of responsibility were: (1) I feel a personal responsibility to share this information with my (child/parent) in the near future; (2) It’s up to me to share this information with my (child/parent soon); (3) I feel it is my responsibility to share this information with my (child/parent) in the near future; (4) I feel a moral obligation to share this information with my (child/parent); (5) I feel that I should make sure to share this information with my (child/parent); and (6) I feel that it is important to share this information with my (child/parent). The items used to measure attributions of solution were: (1) I can impact whether he/she loses weight with physical activity by sharing this information with him/her; (2)
My sharing this information with him/her can cause him/her to lose weight with outdoor exercise; and (3) I have the ability to influence whether he/she loses weight with exercise by sharing this information. The correlations between these items are displayed below. All of the correlations were strong and flat.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Res_1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Res_2&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td>.52***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Res_3&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td>.64***</td>
<td>.57***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Res_4&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td>.67***</td>
<td>.42***</td>
<td>.56***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Res_5&lt;sup&gt;e&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.53***</td>
<td>.48***</td>
<td>.58***</td>
<td>.51***</td>
<td></td>
</tr>
<tr>
<td>6. Res_6&lt;sup&gt;f&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.57***</td>
<td>.43***</td>
<td>.49***</td>
<td>.56***</td>
</tr>
<tr>
<td>7. AS_1&lt;sup&gt;g&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.59***</td>
<td>.38***</td>
<td>.45***</td>
</tr>
<tr>
<td>8. AS_2&lt;sup&gt;h&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.41***</td>
<td>.41***</td>
</tr>
<tr>
<td>9. AS_3&lt;sup&gt;i&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.41***</td>
</tr>
</tbody>
</table>

<sup>a</sup>I feel a personal responsibility to share this information with my (child/parent) in the near future.

<sup>b</sup>It’s up to me to share this information with my (child/parent soon).

<sup>c</sup>I feel it is my responsibility to share this information with my (child/parent) in the near future.

<sup>d</sup>I feel a moral obligation to share this information with my (child/parent).

<sup>e</sup>I feel that I should make sure to share this information with my (child/parent).

<sup>f</sup>I feel that it is important to share this information with my (child/parent).

<sup>g</sup>I can impact whether he/she loses weight with physical activity by sharing this information with him/her.

<sup>h</sup>My sharing this information with him/her can cause him/her to lose weight with outdoor exercise.

<sup>i</sup>I have the ability to influence whether he/she loses weight with exercise by sharing this information.

Principal axis factoring and oblique rotation (direct oblimin) was then employed to examine these items. The analysis revealed one factor with eigenvalues greater than one that
accounted for 54.95% of the variance. The analysis did not reveal low communalities for any items. This would suggest that these items are measuring the same latent construct. However, the factor loadings for the measures used to attributions of solution were lower than those used to measure responsibility and the face validity of the items did not appear to be capturing the same variable of responsibility conceptualized in this dissertation. The reconstructed responsibility measure was thus kept as is, and an additional measure from the dataset for attributions of solution was examined.

**Attributions of solution: New measure.** The new item for attributions of solution was measured via one Likert-type item based on Niederdeppe, Shapiro, and Porticella (2011). The participants were asked to indicate on a 5-point scale (“1” = “not at all” to “5” = “very much”), “How responsible do you think the following individuals or groups are for SOLVING the fact that your child/parent is overweight or obese?”: (1) Me (see Appendix Z).

To assess this measure, the data were proofread to check for errors. Descriptive statistics for the item and the distribution shape were then examined. The amount and nature of missing data was evaluated. The results of this data screening are presented below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Proofing</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>% Miss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>✓</td>
<td>3.27</td>
<td>1.19</td>
<td>1</td>
<td>5</td>
<td>-0.12</td>
<td>-1.03</td>
<td>0%</td>
</tr>
</tbody>
</table>

This new, single-item measure for attributions of solution was significantly correlated with the old, three-item measure ($r = .39, p < .001$); however, the magnitude of the correlation would suggest that these are measuring a different latent construct. This single-item measure has been used in past research to measure attributions of solution (e.g., Niederdeppe et al., 2011). This dissertation attempted to create a new, three item measure to measure attributions of solution;
however, these results suggest that the measure created is operationally equivalent to that of measure created for responsibility. The new, single-item measure of attributions of solution aligns with the previous conceptualization of attributions of solution. A modified measurement and structural model using this updated measurement for attributions of solution were thus constructed, labeled modified model 2.

**Modified Model 2**

**Descriptive statistics and bivariate correlations.** Means, standard deviations, skewness, kurtosis, and bivariate correlations for the theoretical variables in this modified model 2 with the new attributions of solution measure are displayed below in Table 10 and Table 11.

Table 10

*Correlations between Variables Predicting Responsibility in Modified Model 2*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsibility</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Attributions of Solution</td>
<td>.37***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>3. Agency</td>
<td>.64***</td>
<td>.27***</td>
<td>---</td>
</tr>
<tr>
<td><em>M</em></td>
<td>3.99</td>
<td>3.27</td>
<td>4.10</td>
</tr>
<tr>
<td><em>SD</em></td>
<td>0.72</td>
<td>1.19</td>
<td>0.59</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.13</td>
<td>-0.12</td>
<td>-0.48</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>0.27</td>
<td>-1.03</td>
<td>-0.04</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001*
Table 11

Correlations between Variables Predicting Information Sharing Intentions in Modified Model 2

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsibility</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Attitudes</td>
<td>.63***</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Subjective Norms</td>
<td>.71***</td>
<td>.50***</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Agency</td>
<td>.64***</td>
<td>.52***</td>
<td>.50***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>5. Intentions</td>
<td>.84***</td>
<td>.64***</td>
<td>.67***</td>
<td>.66***</td>
<td>---</td>
</tr>
<tr>
<td>M</td>
<td>3.99</td>
<td>4.28</td>
<td>3.94</td>
<td>4.10</td>
<td>4.07</td>
</tr>
<tr>
<td>SD</td>
<td>0.72</td>
<td>0.66</td>
<td>0.70</td>
<td>0.59</td>
<td>0.74</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.13</td>
<td>-0.75</td>
<td>-0.58</td>
<td>-0.04</td>
<td>0.74</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>0.27</td>
<td>0.04</td>
<td>0.41</td>
<td>-0.04</td>
<td>2.11</td>
</tr>
</tbody>
</table>

* *p < .05; **p < .01; ***p < .001

Note that the correlations in Table 11 are the same as those in Table 8.

**Measurement model.** The power for testing the measurement model (0.99; with alpha = .05, df = 289, N = 334, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The measurement model ($\chi^2$(289, N = 334) = 882.01, p < .001; CFI = .88; RMSEA = .078, 90% CI (.073, .084), p-close < .001) had adequate model fit.

**Structural model.** The power for testing the structural model (0.99; with alpha = .05, df = 313, N = 334, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The structural model ($\chi^2$(313, N = 334) = 1040.15, p < .001; CFI = .85; RMSEA = .084, 90% CI (.078, .088), p-close < .001) had adequate
model fit. The chi-square difference test from the measurement and structural models ($\chi^2$ difference = 158.14, $df$ difference = 24) was statistically significant. The structural equation model of the observed direct standardized effects for this modified model 2 is displayed below in Figure 15, and the estimates of the direct paths are shown below in Table 12.

Figure 15

*Structural Equation Model of the Observed Direct Standardized Effects for Modified Model 2*

Note: All covariances between exogenous variables were included in the analysis. The coefficients represent standardized beta weights, *$p < .05$, **$p < .01$, ***$p < .001$. 

Table 12

Estimates for the Direct Paths in Modified Model 2

<table>
<thead>
<tr>
<th>Path</th>
<th>b*</th>
<th>90% CI</th>
<th>SE*</th>
<th>b</th>
<th>90% CI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Att. Solution → Responsibility</td>
<td>.15*</td>
<td>(.05, .28)</td>
<td>.07</td>
<td>.09</td>
<td>(.03, .18)</td>
<td>.05</td>
</tr>
<tr>
<td>Agency → Responsibility</td>
<td>.76***</td>
<td>(.60, .87)</td>
<td>.08</td>
<td>.92</td>
<td>(.72, 1.11)</td>
<td>.12</td>
</tr>
<tr>
<td>Attitudes → Sharing Intentions</td>
<td>.12*</td>
<td>(.02, .22)</td>
<td>.06</td>
<td>.15</td>
<td>(.02, .29)</td>
<td>.08</td>
</tr>
<tr>
<td>Subj. Norms → Sharing Intentions</td>
<td>.08</td>
<td>(-.06, .22)</td>
<td>.08</td>
<td>.09</td>
<td>(-.08, .25)</td>
<td>.10</td>
</tr>
<tr>
<td>Agency → Sharing Intentions</td>
<td>.11</td>
<td>(-.12, .31)</td>
<td>.14</td>
<td>.12</td>
<td>(-.14, .31)</td>
<td>.14</td>
</tr>
<tr>
<td>Responsibility → Sharing Intentions</td>
<td>.75***</td>
<td>(.55, .95)</td>
<td>.12</td>
<td>.65</td>
<td>(.45, .86)</td>
<td>.13</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001

Hypothesis 1: Attributions of Solution to Responsibility

Hypothesis one predicted that a midlife adult’s attributions of solution for weight loss in their overweight or obese child/aging parent to themselves increase their perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent. This hypothesis was analyzed by examining the regression coefficient from the direct path between attributions of solution and responsibility in the modified structural model 2 for its magnitude, direction, and statistical significance. Hypothesis one was supported:

\[ b^* = 15 (.05, .28), SE^* = .07, b = .09 (.03, .18), SE = .05, p < .05. \]

Hypothesis 2: Obligation to Responsibility

Hypothesis two predicted that a midlife adult’s perceptions of obligation to share health information about the benefits of outdoor physical activity with their child/parent increase their perceptions of responsibility to do so. This hypothesis could not be analyzed because the
measures that used for obligation and reasonability were operationally equivalent. This issue is discussed in further detail in the discussion section.

**Research Question 1 and 2: Age, Generative Concern, Psychological Reactance, and Obligation**

Research questions one and two considered whether the age (RQ1a), generative concern (RQ1b), and psychological reactance (RQ2) of a midlife adult relate to perceptions of obligation to share health information. The initial data cleaning and analysis revealed that obligation and responsibility were operationally equivalent. The items for both of these measures were combined into a single, six-item measure of responsibility used in modified model 2. These research questions were analyzed by examining the correlation coefficients between responsibility and age, generative concern, and psychological reactance for their magnitude, direction, and statistical significance. The bivariate correlation analyses revealed that generative concern is positively related to responsibility ($r = .48$, $p < .001$), and psychological reactance is negatively related to responsibility ($r = -.30$, $p < .001$). Age was not statistically significantly related to responsibility ($r = -.03$, $p = .55$).

**Hypothesis 3: Agency to Responsibility**

Hypothesis three predicted that a midlife adult’s perceptions of agency to share health information about the benefits of outdoor physical activity with their child/parent increase their perceptions of responsibility to do so. This hypothesis was analyzed by examining the regression coefficient from the direct path between agency and responsibility in the modified structural model 3 for its magnitude, direction, and statistical significance. Hypothesis three was supported: $b^* = .76$ (.60, .87), $SE^* = .08$, $b = .92$ (.72, 1.11), $SE = .12$, $p < .001$.

**Research Question 3: Moderating Effect of Child or Parent Conditions on Responsibility**
Research question three considered whether a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor exercise differ when considering a child \((n = 177)\) versus an aging parent \((n = 157)\). An independent samples \(t\)-test revealed that there were no significant differences between those who were thinking about a child \((M = 3.96, SD = 0.75)\) and those who were thinking about a parent \((M = 4.02, SD = 0.69)\) on perceptions of responsibility \([t(332) = 0.83, p = .41]\) or between those who were thinking about a child \((M = 4.11, SD = 0.60)\) and those who were thinking about a parent \((M = 4.09, SD = 0.57)\) on agency \([t(332) = 0.26, p = .80]\). However, there was a statistically significant difference between those who were thinking about a child \((M = 3.89, SD = 1.06)\) and those who were thinking about a parent \((M = 2.57, SD = 0.90)\) on attributions of solution \([t(332) = 12.16, p < .001]\).

The moderating influence of child versus aging parent for the predicted relationships between attributions of solution and agency on responsibility was then tested using a multigroup analysis with pairwise tests of path coefficients. There was no statistically significant difference between the path from attributions of solution to responsibility for those in the child condition \((b^* = .17 (-.01, .36), SE^* = .11)\) and those in the parent condition \((b^* = .32 (.17, .47), SE^* = .09)\), \(z = 1.84, p > .05\) (the \(z\)-test value is less than the critical value of \(|1.96|\)). However, there was a statistically significant difference between the path from agency to responsibility for those in the child condition \((b^* = .82 (.61, .95), SE^* = .10)\) and those in the parent condition \((b^* = .56 (.29, .75), SE^* = .14)\), \(z = 3.07, p < .05\) (the \(z\)-test value is greater than \(|1.96|\)).

**Hypothesis 4: Attitudes, Subjective Norms, and Self-Efficacy to Sharing Intentions**

Hypothesis four predicted that a midlife adult’s (a) attitudes, (b) subjective norms, and (c) self-efficacy to share health information about the benefits of outdoor physical activity with their
child/aging parent in the near future influences their intentions to do so. Due to the previous measurement analyses, H4c was analyzed using the measure for agency, as self-efficacy was included within agency. This hypothesis was analyzed by examining the regression coefficients from the modified structural model 2 for their magnitude, direction, and statistical significance. Hypothesis 4a was supported, as the direct path between attitudes and sharing intentions was statistically significant: $b^* = .12$, (.02, .22), $SE^* = .06$, $b = .15$ (.02, .29), $SE = .08$, $p = .05$.

Hypothesis 4b was not supported, as the direct path between subjective norms and sharing intentions was not statistically significant: $b^* = .08$ (-.06, .22), $SE^* = .08$, $b = .09$, (-.08, .25), $SE = .10$, $p = .36$. Hypothesis 4c was also not supported, as the direct path between agency and sharing intentions was not statistically significant: $b^* = .11$, (-.12, .31), $SE^* = .14$, $B = .12$ (-.14, .31), $SE = .14$, $p = .39$.

**Hypothesis 5**

Hypothesis five predicted that midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor exercise with their child/aging parent in the near future influences their intentions to do so. This hypothesis was analyzed by examining the regression coefficient from the direct path between responsibility and information sharing intentions the modified structural model 2 for its magnitude, direction, and statistical significance. Hypothesis five was supported: $b^* = .75$, (.55, .95), $SE^* = .12$, $b = .65$ (.45, .86), $SE = .13$, $p < .001$. The coefficient was very high, suggesting that responsibility is an important predictor of information sharing intentions.

**Research Question 4: Perceived Norms**

Research question four considered whether a midlife adult’s (a) personal injunctive norms (PIN), (b) personal descriptive norms (PDN), (c) societal injunctive norms (SIN), and (d)
societal descriptive norms (SDN) about sharing information about the benefits of outdoor exercise with their child/aging parent influences their intentions to do so. This research question was analyzed by examining the regression coefficients from the modified structural model 2 that includes all perceived norms visualized below in Figure 16 for their magnitude, direction, and statistical significance.

Figure 16

Modified Structural Model 2 with the Inclusion of All Perceived Norms

Descriptive statistics and bivariate correlations. The descriptive statistics and bivariate correlations for personal injunctive norms (PIN), personal descriptive norms (PDN), societal
injunctive norms (SIN), and societal descriptive norms (SDN) are displayed below in Table 13.

Subjective norms are also included.

Table 13

*Correlations between All Perceived Norms*

<table>
<thead>
<tr>
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<th>1</th>
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<th>3</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PIN</td>
<td>---</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>PDN</td>
<td>.06</td>
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<td></td>
</tr>
<tr>
<td>SIN</td>
<td>.58***</td>
<td>.14*</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDN</td>
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<td>.63***</td>
<td>.19***</td>
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<td>.30***</td>
<td>.53***</td>
<td>.23***</td>
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<td>M</td>
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<td>-0.13</td>
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<td></td>
</tr>
<tr>
<td>Kurtosis</td>
<td>3.20</td>
<td>0.93</td>
<td>-0.05</td>
<td>-0.56</td>
<td></td>
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</tbody>
</table>

*p < .05; **p < .01; ***p < .001

PIN correlated with the other theoretical variables in the model as follows: PIN and attributions of solution (*r* = .18, *p* < .001), PIN and agency (*r* = .59, *p* < .001), PIN and responsibility (*r* = .54, *p* < .001), PIN and attitudes (*r* = .44, *p* < .001), PIN and subjective norms (*r* = .56, *p* < .001), and PIN and information sharing intentions (*r* = .52, *p* < .001).

PDN correlated with the other theoretical variables in the model as follows: PDN and attributions of solution (*r* = .34, *p* < .001), PDN and agency (*r* = .09, *p* = .12), PDN and
responsibility \((r = .21, p < .001)\), PDN and attitudes \((r = .09, p = .09)\), PDN and subjective norms \((r = .30, p < .001)\), and PDN and information sharing intentions \((r = .21, p < .001)\).

SIN correlated with the other theoretical variables in the model as follows: SIN and attributions of solution \((r = .22, p < .001)\), SIN and agency \((r = .52, p < .001)\), SIN and responsibility \((r = .47, p < .001)\), SIN and attitudes \((r = .33, p < .001)\), SIN and subjective norms \((r = .53, p < .001)\), and SIN and information sharing intentions \((r = .46, p < .001)\).

SDN correlated with the other theoretical variables in the model as follows: SDN and attributions of solution \((r = .30, p < .001)\), SDN and agency \((r = .05, p = .36)\), SDN and responsibility \((r = .12, p < .05)\), SDN and attitudes \((r = .06, p = .28)\), SDN and subjective norms \((r = .23, p < .001)\), and SDN and information sharing intentions \((r = .12, p < .05)\).

**Measurement model.** The power for testing the measurement model \((0.99; \text{with } \alpha = 0.05, df = 629, N = 334, \text{null RMSEA} = 0.05, \text{alt RMSEA} = 0.08)\) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The measurement model \((\chi^2(629, N = 334) = 1583.71, p < .001; \text{CFI} = .87; \text{RMSEA} = 0.068, 90\% \text{CI (.063, .072)}, p\text{-close} < .001)\) had good model fit.

**Structural model.** The power for testing the structural model \((0.99; \text{with } \alpha = 0.05, df = 665, N = 334, \text{null RMSEA} = 0.05, \text{alt RMSEA} = 0.08)\) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The structural model \((\chi^2(665, N = 334) = 1753.82, p < .001; \text{CFI} = .85; \text{RMSEA} = 0.070, 90\% \text{CI (.066, .074)}, p\text{-close} < .001)\) had good model fit. The chi-square difference test from the measurement and structural models \((\chi^2 \text{difference} = 170.11, df \text{difference} = 36)\) was statistically significant. The structural equation model of the observed direct standardized effects for this modified model 2 with the inclusion of all perceived norms is displayed below in Figure 17.
Figure 17

*Structural Equation Model of the Observed Direct Standardized Effects for Modified Model 2 with the Inclusion of All Perceived Norms*

Note: All covariances between exogenous variables were included in the analysis. The coefficients represent standardized beta weights, *$p < .05$, **$p < .01$, ***$p < .001$.

The results indicate that PIN ($b^* = -.10$ (.28, .07), $SE^* = .13$, $b = -.10$ (.29, .06), $SE = .13$, $p = .33$), PDN ($b^* = .02$ (-.08, .13), $SE^* = .07$, $b = .02$ (-.06, .10), $SE = .05$, $p = .67$), SIN ($b^* = -.01$ (-.15, .13), $SE^* = .09$, $b = -.01$ (-.16, .12), $SE = .09$, $p = .89$, and SDN ($b^* = -.01$ (-.11, .10), $SE^* = .07$, $b = -.01$ (-.08, .07), $SE = .05$, $p = .95$) do not statistically significantly influence information sharing intentions.
Research Question 5: Anticipated Emotions

Research question 5a considered whether a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor exercise with their child/aging parent in the near future influences anticipations of (a) regret, (b) guilt, (c) pride, and (d) hope. Research question 5b considered whether a midlife adult’s anticipations of (a) regret, (b) guilt, (c) pride, and (d) hope influence a midlife adult’s intentions to share health information about the benefits of outdoor exercise with their child/aging parent in the near future. These research questions were analyzed by constructing a modified structural model 2 that includes all anticipated emotions visualized below in Figure 18.

Figure 18

*Modified Structural Model 3 with the Inclusion of Anticipated Emotions*
Research question 5c considered whether there is an indirect relationship from a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor exercise with their child/aging parent in the near future and their intentions to do so via anticipations of (a) regret, (b) guilt, (c) pride, and (d) hope. This research question was analyzed using bootstrapping procedures using 2000 bootstrap samples and bias-corrected confidence intervals to test the indirect effects (see Hayes & Sharkow, 2013 for the relative advantages of this technique).

**Descriptive statistics and bivariate correlations.** The descriptive statistics and bivariate correlations for anticipated regret, guilt, pride, and hope are displayed below in Table 14.

Table 14
*Correlations between All Anticipated Emotions*

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anticipated Regret</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Anticipated Guilt</td>
<td>.77***</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Anticipated Pride</td>
<td>.38***</td>
<td>.38***</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>4. Hope</td>
<td>.35***</td>
<td>.35***</td>
<td>.64***</td>
<td>---</td>
</tr>
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<td>M</td>
<td>3.49</td>
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<td>3.98</td>
</tr>
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<td>1.13</td>
</tr>
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<td>Skewness</td>
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<td>-0.84</td>
<td>-1.13</td>
</tr>
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<td>Kurtosis</td>
<td>-0.67</td>
<td>-0.98</td>
<td>0.04</td>
<td>0.63</td>
</tr>
</tbody>
</table>

* *p < .05; **p < .01; ***p < .001*
Anticipated regret correlated with the other theoretical variables in the model as follows: anticipated regret and attributions of solution ($r = .23, p < .001$), anticipated regret and agency ($r = .29, p < .001$), anticipated regret and responsibility ($r = .51, p < .001$), anticipated regret and attitudes ($r = .31, p < .001$), anticipated regret and subjective norms ($r = .40, p < .001$), and anticipated regret and information sharing intentions ($r = .46, p < .001$).

Anticipated guilt correlated with the other theoretical variables in the model as follows: anticipated guilt and attributions of solution ($r = .22, p < .001$), anticipated guilt and agency ($r = .26, p < .001$), anticipated guilt and responsibility ($r = .49, p < .001$), anticipated guilt and attitudes ($r = .28, p < .001$), anticipated guilt and subjective norms ($r = .38, p < .001$), and anticipated guilt and information sharing intentions ($r = .43, p < .001$).

Anticipated pride correlated with the other theoretical variables in the model as follows: anticipated pride and attributions of solution ($r = .29, p < .001$), anticipated pride and agency ($r = .33, p < .001$), anticipated pride and responsibility ($r = .51, p < .001$), anticipated pride and attitudes ($r = .42, p < .001$), anticipated pride and subjective norms ($r = .44, p < .001$), and anticipated pride and information sharing intentions ($r = .49, p < .001$).

Hope correlated with the other theoretical variables in the model as follows: hope and attributions of solution ($r = .28, p < .001$), hope and agency ($r = .37, p < .001$), hope and responsibility ($r = .55, p < .001$), hope and attitudes ($r = .50, p < .001$), hope and subjective norms ($r = .45, p < .001$), and hope and information sharing intentions ($r = .59, p < .001$).

**Measurement model.** The power for testing the measurement model (0.99; with alpha = .05, $df = 289$, $N = 334$, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The measurement model ($\chi^2(289, \text{df})$).
$N = 334) = 882.01, p < .001; CFI = .88; RMSEA = .078, 90\% CI (.073, .084), p$-

had good model fit.

**Structural model.** The power for testing the structural model (0.99; with alpha = .05, df = 419, N = 334, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The structural model ($\chi^2(419, N = 334) = 1477.55, p < .001; CFI = .81; RMSEA = .087, 90\% CI (.082, .092), p$-close < .001) had ok model fit. The chi-square difference test from the measurement and structural models ($\chi^2$ difference = 595.54, $df$ difference = 130) was statistically significant. The structural equation model of the observed direct standardized effects for this modified model 2 with the inclusion of all anticipated emotions is displayed below in Figure 19.

**Direct effects.** The results indicate that a midlife adult’s perceptions of responsibility statistically significantly influence anticipated regret ($b^* = -.10 (-.28, .07), SE^* = .13, b = 1.01 (.86, 1.17), SE = .09, p < .001), anticipated guilt ($b^* = .56 (.48, .65), SE^* = .05, b = 1.06 (.90, 1.24), SE = .10, p < .001), anticipated pride ($b^* = .59 (.50, .67), SE^* = .05, b = .94 (.79, 1.11), SE = .10, p < .001$, and hope ($b^* = .62 (.53, .70), SE^* = .05, b = .98 (.83, 1.15), SE = .10, p < .001$). However, the results also show that anticipated regret ($b^* = -.01 (-.09, .06), SE^* = .05, b = -.01 (-.05, .03), SE = .02, p = .77$), anticipated guilt ($b^* = -.08 (-.17, .00), SE^* = .05, b = -.04 (-.08, .00), SE = .02, p = .10$), anticipated pride ($b^* = -.06 (-.14, .02), SE^* = .05, b = -.03 (-.08, .01), SE = .03, p = .23$), and hope ($b^* = .06 (-.02, .15), SE^* = .05, b = .04 (-.01, .08), SE = .03, p = .20$) do not statistically significantly influence information sharing intentions.

**Indirect effects.** Bootstrapping procedures using 2000 bootstrap samples and bias corrected confidence intervals were employed to test the indirect effects of responsibility on sharing intentions via anticipated regret, anticipated guilt, anticipated pride, and hope. The
analysis revealed that there were no statistically significant indirect effects. The indirect relationship between responsibility and information sharing intentions via anticipated regret was not statistically significant ($b^* = -.00, b = .00, p = .89$), via anticipated guilt was not statistically significant ($b^* = -.05, b = .05, p = .10$), via anticipated pride was not statistically significant ($b^* = -.04, b = .04, p = .19$), and via hope was not statistically significant ($b^* = .05, b = .04, p = .14$).

Figure 19

*Structural Equation Model of the Observed Direct Standardized Effects for Modified Model 2 with the Inclusion of All Anticipated Emotions*

*Note: All covariances between exogenous variables were included in the analysis. The coefficients represent standardized beta weights, *$p < .05$, **$p < .01$, ***$p < .001$.***
Research Question 6: Physical Activity Mavenism

Research question 6a considered whether a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor exercise with their child/aging parent in the near future influences physical activity mavenism. Research question 6b considered whether a midlife adult’s physical activity mavenism influences intentions to share health information. These research questions were analyzed by examining the regression coefficients from the modified structural model 2 that includes physical activity mavenism visualized below in Figure 20 for their magnitude, direction, and statistical significance.

Figure 20

*Modified Structural Model 2 with the Inclusion of Physical Activity Mavenism*

Hypothesis 6c predicted that there is an indirect relationship from a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor exercise
with their child/aging parent in the near future and their intentions to do so via physical activity mavenism. This research question was analyzed using bootstrapping procedures using 2000 bootstrap samples and bias-corrected confidence intervals to test the indirect effects.

**Descriptive statistics and bivariate correlations.** Physical activity mavenism had the following descriptive statistics: $M = 3.59$, $SD = 0.77$, Skewness = -0.79, Kurtosis = 1.01. Mavenism correlated with the other theoretical variables in the model as follows: mavenism and attributions of solution ($r = .30, p < .001$), mavenism and agency ($r = .38, p < .001$), mavenism and responsibility ($r = .46, p < .001$), mavenism and attitudes ($r = .39, p < .001$), mavenism and subjective norms ($r = .44, p < .001$), and mavenism and information sharing intentions ($r = .45, p < .001$).

**Measurement model.** The power for testing the measurement model (0.99; with alpha = .05, $df = 545$, $N = 334$, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The measurement model ($\chi^2(545, N = 334) = 1464.84, p < .001$; CFI = .86; RMSEA = .071, 90% CI (.067, .076), $p$-close < .001) had good model fit.

**Structural model.** The power for testing the structural model (0.99; with alpha = .05, $df = 581$, $N = 334$, null RMSEA = .05, alt RMSEA = .08) was sufficient, as determined using the software provided by Preacher and Coffman (2006). The structural model ($\chi^2(581, N = 334) = 1637.45, p < .001$; CFI = .84; RMSEA = .074, 90% CI (.070, .078), $p$-close < .001) had good model fit. The chi-square difference test from the measurement and structural models ($\chi^2$ difference = 172.61, $df$ difference = 36) was statistically significant. The structural equation model of the observed direct standardized effects for this modified model 2 with the inclusion of mavenism is displayed below in Figure 21.
**Direct effects.** The results indicate that a midlife adult’s perceptions of responsibility statistically significantly influence physical activity mavenism \((b^* = .55 (.44, .65), SE^* = .06, b = .53 (.41, .67), SE = .08, p < .001)\). However, physical activity mavenism did not influence a midlife adult’s intentions to share information about the benefits of outdoor physical activity with a family member \((b^* = -.03 (-.12, .04), SE^* = .05, b = -.03 (-.11, .03), SE = .04, p = .46)\).

**Indirect effects.** Bootstrapping procedures using 2000 bootstrap samples and bias corrected confidence intervals were employed to test the indirect effect of responsibility on sharing intentions via physical activity mavenism. The analysis revealed that the relationship between responsibility and information sharing intentions via mavenism was not statistically significant \((b^* = -.02, b = -.02, p = .42)\).

Figure 21

*Structural Equation Model of the Observed Direct Standardized Effects for Modified Model 2 with the Inclusion of Physical Activity Mavenism*

*Note: All covariances between exogenous variables were included in the analysis. The coefficients represent standardized beta weights, *p < .05, **p < .01, ***p < .001.*
**Research Question 7 and 8: Iatrogenic Effects**

Research question seven considered whether a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent related to perceptions of (a) regret, (b) guilt, or (c) self-blame. Research question eight considered whether a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child/aging parent related to obesity stigma beliefs. These research questions were analyzed by examining the correlation coefficients for their magnitude, direction, and statistical significance. Responsibility was not statistically significantly correlated with regret (RQ7a, \( r = .01, p = .81 \)) or guilt (RQ7b, \( r = .05, p = .39 \)), but responsibility was significantly correlated with self-blame (RQ7c, \( r = .15, p < .01 \)) and obesity stigma beliefs (RQ8, \( r = .36, p < .001 \)).
CHAPTER 4: DISCUSSION

The goal of this dissertation was to examine whether a midlife adult’s perception of responsibility to share health information about the benefits of outdoor physical activity with their overweight or obese child or aging parent influence their information sharing intentions. In order to do so, this dissertation first conceptualized responsibility and argued that attributions of solution, obligation, and agency influence perceptions of responsibility. The TRA/TPB/IM and the NAM were then integrated to examine the role of responsibility in predicting a midlife adult’s intentions to share health information about the benefits of outdoor physical activity with an overweight or obese child or aging parent. This dissertation considered not only the direct effect of responsibility on information sharing intentions, but also the indirect effect of responsibility on information sharing intentions via anticipated emotions and physical activity mavenism. Finally, this dissertation examined potential iatrogenic effects of responsibility, including regret, guilt, self-blame, and obesity stigma beliefs. The results have important theoretical and practical implications for the discipline of communication.

Responsibility

This dissertation argued that a midlife adult’s perceptions of responsibility are influenced by attributions of solution, obligation, and agency. Additionally, this dissertation considered whether generative concern and reactance were related to responsibility. This section discusses the results of these analyses and addresses several of the measurement issues that arose during the course of the data analysis.

Attributions of Solution

Attributions of solution establish the locus of the solution to a health issue as either internal or external. With respect to overweight or obesity, internal attributions of solution may
occur when an overweight or obese individual believes they are personally responsible for losing weight or in dyadic situations when, for example, a parent or adult child believes that they are personally responsible for helping their child or aging parent, respectively, lose weight. This dissertation argued that these attributions of solution influence a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with a child or aging parent, and the results suggest that attributions of solution do significantly influence responsibility. In other words, the more a midlife adult believes that they should solve their child or aging parent’s obesity, the more likely they are to feel responsible for sharing health information about an obesity-related behavior with that family member. This empirical work aligns with previous conjectures that in order to feel responsible for solving a health problem requires that one can solve that problem (see Bovens, 1988, Weiner, 1993).

Results also indicated that there was a significant difference between midlife adults’ attributions of solution for a child’s obesity as compared to their attributions of solution for an aging parent’s obesity. Specifically, midlife adults were more likely to attribute the solution to their child’s overweight or obesity to themselves as parents than they were to attribute the solution to their aging parent’s overweight or obesity to themselves as adult children. A parent’s responsibility for a child is prevalent across the child’s lifespan (Rossi & Rossi, 1990; Umberson et al., 2010), and an important component of that responsibility is for the welfare and care of the child (Lamb et al., 1987). Norms of filial responsibility also specify the ways in which adult children should care and provide support for aging parents (Rossi & Rossi, 1990); however, modernization and societal shifts towards an emphasis on individual freedom have led to beliefs that caring of an aging parent is a limit on the midlife adult’s autonomy as well as the aging parent’s autonomy (Burgess, 1960; Markus et al., 2001). The results regarding attributions of
solution align with these societal shifts, as midlife adults in this study were more likely to feel like they should solve a child’s overweight or obesity than feel like they should solve an aging parent’s overweight or obesity.

Important to note is that the original items this dissertation used to measure attributions of responsibility were operationally equivalent to those used to measure responsibility. This close connection has been noted in previous conceptualizations, as Hart (1968), for example, noted that the phrase “was responsible for” can oftentimes be replaced with the word “caused.” At the same time, many scholars have argued for a distinction between attributions of solution and responsibility, as Guttman and Ressler (2001), for example, note that attributions are a major facet of personal responsibility, but are not conceptually equivalent to responsibility. It thus appears that the issues faced in this dissertation were measurement issues, not conceptual ones. This dissertation attempted to create a multiple-item scale of attributions of solution, but, in adhering to the principle of specificity outlined by Ajzen and Fishbein with respect to the TRA/TPB/IM, these items were operationally too close to the responsibility items to form distinct scales. The items originally used to measure attributions of solution (e.g., “I can impact whether my child/parent loses weight with physical activity by sharing this information with him/her”) and the items used to measure responsibility (e.g., “I feel a personal responsibility to share this information with my child in the near future”) adhere to a principle of specificity by using the same elements of interest, including sharing health information (i.e., the action) with a child or aging parent (i.e., the target). A more general belief attributing the solution of a child or parent’s overweight or obesity to the midlife adult’s self thus appears to be distinct from, and thus a better predictor of, responsibility. Indeed, a previously used single-item measure for attributions of solution that assessed attributions of solution more generally than the three-item
composite created by this dissertation was used, and, as discussed, this single-item measure did significantly influence perceptions of responsibility. Future work should focus on developing a reliable and validated measure of attributions of solution for use in responsibility communication work.

**Obligation**

This dissertation conceptualized obligation and responsibility not only as distinct concepts, but also predicted that perceptions of obligation would influence responsibility. This prediction aligned with previous scholars who argued that in order to feel responsible for another individual, one must have a close relationship with, or obligation to, that person (see Bemelmens-Videc, 2007; Bovens, 1998), as well as Guttman and Ressler (2001) who state that obligation is a major facet of responsibility. In particular, this dissertation argued that a specific form of obligation, interdependent obligation, influences a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with an overweight or obese family member.

This hypothesis could not be tested, however, because the items used to assess obligation and the items used to assess responsibility were operationally equivalent and did not capture their unique conceptual differences, thus forming a single scale. Past empirical work examining obligation and responsibility has treated these two concepts as operationally the same, as, for example, the concept perceived moral obligation is oftentimes conceptualized and operationalized as responsibility (e.g., Conner & Armitage, 1998; Rivis et al., 2009). However, as noted, this dissertation argues that these two concepts are conceptually distinct. Thus, when creating the items for obligation and responsibility, this dissertation again adhered to the principle of specificity, such that items that measured obligation (e.g., “I feel a
moral obligation to share this information with my child/parent”) and the items that measured responsibility (e.g., “I feel a personal responsibility to share this information with my child in the near future”) included the same elements of interest, including sharing health information (i.e., the action) with a child or aging parent (i.e., the target). Interdependent obligation refers to an individual’s duty to act to improve others’ health (e.g., a parent’s obligation to care for a child’s health or an adult child’s obligation to care for an aging parent’s health; see Guttman & Ressler, 2001), and future should consider creating a more generalized measure of obligation that may be used to predict a specific behavior.

Agency

Agency in this dissertation refers to a midlife adult’s (1) knowledge about how to share information with their child or aging parent about the benefits of outdoor physical activity; (2) choice about whether or not to share this health information with their child or aging parent; and (3) ability and control required to share the health information about the benefits of outdoor physical activity with their child or aging parent. Past scholars have argued that agency is a precondition for perceptions of responsibility as one can only be held responsible for an outcome if they have complete volition and adequate resources to act (Adler & Stewart, 2009; Guttman & Resler, 2001). More specifically, in order to feel responsible, an individual must be informed about the outcomes of their actions for themselves or another (i.e., knowledge; Wikler, 2002), an individual must have freedom of decision or action (i.e., choice; Bemelmens-Videc, 2007; Wikler, 2002), and an individual must have control over the behavior (i.e., self-efficacy; Smith, 2008). The results of this dissertation align with this previous research, as the amalgamated measure of agency that includes knowledge, choice, and self-efficacy items did significantly predict a midlife adult’s perceptions of responsibility to share health information with their child.
or aging parent. There was also a significant difference in the path between agency and responsibility for those thinking of a child versus those thinking of an aging parent, such that the coefficient was of a higher magnitude for those in the child condition ($b^* = .82$) than for those in the parent condition ($b^* = .56$); however, both coefficients are high, suggesting that agency is an important predictor of responsibility for midlife adults thinking about both a child and a parent.

This result raises an important point regarding dyadic agency. The parent-child and adult child-aging parent relationships are likely characterized by interdependence, such that partners in these dyads can influence their own and each others’ health outcomes. In the context of this dissertation, constructive changes in the child or aging parent’s physical activity are likely a function of both actor effects (i.e., the midlife adult’s sharing of health information) and partner effects (i.e., the child or aging parent’s decision to act on that information). The results of this dissertation suggest that a midlife adult’s perceptions of agency to share health information influence their feelings of responsibility to do so, and their agency for sharing information is quite high ($M = 4.10, SD = 0.59$). This is likely due to the fact that sharing health information is very common, as individuals often share health messages and news stories with others in their social networks (Southwell, 2013), and approximately 60% of individuals report receiving or seeking health information from family and friends (Pew Internet & American Life Project; Fox & Duggan, 2013). Important to note, however, is that the results do not suggest that a midlife adult necessarily feels agency regarding actually changing their child or aging parent’s physical activity behavior and thus responsibility for doing so. This underscores an important distinction regarding potential outcomes, as midlife adults could potentially be held accountable for sharing information, but they should not necessarily be held accountable for actual behavior changes and subsequent weight loss and obesity outcomes in their child or aging parent. (Note that partner
effects, or the child or aging parent’s decision to act on the received information, is discussed in further detail in a later section).

**Age and Generative Concern**

This dissertation found that a midlife adult’s age is not related to perceptions of responsibility. Past work has found that older adults, when compared to younger adults, have higher social responsibility motivation (Steele et al., 2008), social capital (e.g., Kolins & Herron, 2003; Putnam, 2000) and community involvement (e.g., Kolins & Herron, 2003; Putnam, 2000). The results from this dissertation thus suggest that while older adults may have more feelings of social responsibility than younger adults, feelings of responsibility for family members (i.e., intimate relationships) do not vary across the lifespan.

This dissertation did find that a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child or aging parent is positively related to generative concern. Generative concern is a general personality tendency that refers to an individual’s conscious preoccupation for individuals in the next generation (McAdams and de St. Aubin, 1992). Past research has found that generative concern is related to nurturance (de St. Aubin and McAdams, 1995), childcare activities (McKeering and Pakenham, 2000), and moral obligation (Keyes & Ryff, 1998; Rossi, 2001). These results thus extend past work on generative concern by suggesting that this personality tendency is also related to a midlife adult’s perceptions of responsibility to encourage health-promoting behaviors in their family members by sharing health information.

**Psychological Reactance**

Psychological reactance refers to “the motivational state that is hypothesized to occur when a freedom is eliminated or threatened with elimination” (Brehm, 1966; Brehm & Brehm,
Contrary to previous work that suggested that responsibility is an uncomfortable state that is made aversive by a restriction on behavioral autonomy and an anticipation of negative social repercussions if one does not comply (Greenberg & Bar-Tal, 1976; Greenberg & Shapiro, 1971), results from this dissertation suggest that a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with their child or aging parent is negatively related to psychological reactance. In other words, the more responsibility the midlife adult felt to share health information, the less likely they were to have psychological reactance.

The distinction between past results and the current dissertation may be because the midlife adults in this study were not told that they had a responsibility to share health information with their child or aging parent, but were instead asked if they already felt that way. Indeed, Berkowitz (1973) notes that individuals are less likely to respond favorably to feelings of responsibility when they believe a request for their responsibility is threatening their decision-making freedom, and, as no request for responsibility was made in this dissertation, they may be more likely to consider their responsibility to share health information without reactance. Sharing health information also does not demand a future commitment to help, and, as Jones (1970) noted, responsibility for a long-term commitment is more likely to result in reactance.

**Theoretical Implications**

The results of this dissertation regarding predictors of responsibility have important theoretical contributions, specifically for health communication and the strategic design of responsibility messages. Past research has examined health messages that appeal to personal responsibility, noting that they take many forms across health campaign messages. For example, Kirkwood and Brown (1995) examined public communication about disease and proposed a
framework for public communication about responsibility for health and disease, including specific audiences (i.e., the undiagnosed, diagnosed, and respondents to the sick), exigencies, and attributional strategies. This framework is displayed below in Figure 22.

Figure 22

*Summary of Public Communication About Responsibility for Disease*

<table>
<thead>
<tr>
<th>AUDIENCE</th>
<th>EXIGENCE</th>
<th>ATTRIBUTIONAL STRATEGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undiagnosed public</td>
<td>Foster health-promoting behavior</td>
<td>Assign responsibility to the sick, stress power to influence health, define health/disease as choice</td>
</tr>
<tr>
<td>Diagnosed public</td>
<td>Ease guilt</td>
<td>Avoid attribution, silence on subject, focus on biological mechanisms of disease, assign responsibility to causes beyond control of sick, tell sick they are not responsible, expand list of possible causes, ignorance relieves responsibility</td>
</tr>
<tr>
<td></td>
<td>Empower the sick</td>
<td>Assign responsibility to the sick, assign responsibility for solution, not cause</td>
</tr>
<tr>
<td>Respondents to sick</td>
<td>Motivate favorable treatment</td>
<td>Assign responsibility to causes beyond control of sick, define behavior as &quot;disease&quot; identify innocent victims, dissociate support from responsibility</td>
</tr>
<tr>
<td></td>
<td>Justify unfavorable treatment</td>
<td>Assign responsibility to the sick</td>
</tr>
</tbody>
</table>

These attribution strategies provide broad tactics to address a particular exigency, but lack clear guidance on how to communicate these messages to achieve the stated goals (e.g., motivate health behavior, ease guilt). Indeed, instead of a clear theoretical focus, health communication scholars studying responsibility within messages oftentimes note that a message
“emphasized” responsibility (e.g., emphasized personal or societal responsibility for a health issue) or used a particular attributional strategy, without reference to specific message features. Research on responsibility is thus missing theoretical guidance on how communication content can evoke perceptions of responsibility. This dissertation helps to fill this theoretical gap.

Results of this dissertation indicated that responsibility is predicted by attributions of solution and agency, and these beliefs may be useful for theoretical message design. Hornik and Woolf (1999) posit three criteria for making judgments about the utility of specific beliefs for message design. The first considers whether there are enough people in the target population who do not yet hold the desired belief. In order to be useful for message design, it must be possible to change the belief in the desired direction. This first criterion is assessed using the room-for-improvement index (RFII), which is defined as:

\[
RFII = \frac{UE - M}{UE - 1}
\]

where \(UE\) is the upper endpoint of the scale (which is 5 in this dissertation) and \(M\) is the mean of the item. The RFII is then interpreted as the percentage of individuals who have not yet adopted the desired belief, with larger values signaling more room for improvement and thus more suitable for change with message design. Of note: (1) the denominator subtracts 1 because the response scales are anchored with 1 instead of 0; and (2) the data are not dichotomous, so the concept of percentage is a useful, but fictitious one, so improvement implies movement towards the high end of the scale. The second criterion posits that the belief and the outcome of interest must be related. In this dissertation, this can be assessed by correlating the attribution of solution beliefs and the agency beliefs with perceptions of responsibility.

**Attributions of Solution-Relevant Beliefs**
The correlations between the belief of attributions for solving their child or aging parent’s overweight or obesity and responsibility for the full sample, those in the child condition, and those in the parent condition are displayed below in Table 15. Table 15 also includes the mean for attributions of solution for the full sample, those in the child condition, and those in the parent condition, and the RFII for each. The component beliefs were all significantly correlated with responsibility. The corresponding RFIs of 43.25%, 27.75%, and 60.75% suggest that there is considerable room for potential change in this belief, particularly for midlife adult’s thinking about an overweight or obese parent. (Note that separate analyses were conducted for the full sample, child, and parent condition because of the significant difference found for attributions of solution between those thinking about a child versus those thinking about a parent).

Table 15
Attributions of Solution-Relevant Beliefs

<table>
<thead>
<tr>
<th>How responsible do you think the following individuals or groups are for SOLVING the fact that your child/parent is overweight or obese?</th>
<th>r&lt;sup&gt;a&lt;/sup&gt;</th>
<th>M</th>
<th>RFII&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Me (Overall Sample)</td>
<td>.37***</td>
<td>3.27</td>
<td>43.25%</td>
</tr>
<tr>
<td>Me (Child Condition)</td>
<td>.50***</td>
<td>3.89</td>
<td>27.75%</td>
</tr>
<tr>
<td>Me (Aging Parent Condition)</td>
<td>.46***</td>
<td>2.57</td>
<td>60.75%</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001  
<sup>a</sup>Correlation with responsibility  
<sup>b</sup>Room-for-improvement index
Agency-Relevant Beliefs

The correlations between each component belief of agency for sharing health information and responsibility, the mean for each item, and the RFII for each are displayed below in Table 16. Each component belief was significantly correlated with responsibility. The corresponding RFIs, however, are low, suggesting that there is not much room for improvement for these beliefs.

Table 16
Agency-Relevant Beliefs

<table>
<thead>
<tr>
<th>Belief</th>
<th>r</th>
<th>M</th>
<th>RFII</th>
</tr>
</thead>
<tbody>
<tr>
<td>I understand how to share this information with my child/parent.</td>
<td>.47***</td>
<td>4.07</td>
<td>23.25%</td>
</tr>
<tr>
<td>I am able to choose whether or not I pass along this information to my child/parent.</td>
<td>.37***</td>
<td>4.17</td>
<td>20.75%</td>
</tr>
<tr>
<td>I can decide if I share this information with my child/parent.</td>
<td>.35***</td>
<td>4.26</td>
<td>18.50%</td>
</tr>
<tr>
<td>It is easy for me to share this information with my child/parent in the near future.</td>
<td>.42***</td>
<td>4.05</td>
<td>23.75%</td>
</tr>
<tr>
<td>I am confident that I could share this information with my child/parent soon.</td>
<td>.50***</td>
<td>4.13</td>
<td>21.75%</td>
</tr>
<tr>
<td>Taking responsibility for my child/parent’s physical activity by sharing this information soon is possible.</td>
<td>.55***</td>
<td>4.05</td>
<td>23.75%</td>
</tr>
<tr>
<td>It is easy for me to take responsibility for my child/parent’s physical activity by sharing this information in the near future.</td>
<td>.47***</td>
<td>3.86</td>
<td>28.50%</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001
aCorrelation with responsibility
bRoom-for-improvement index
The results of the RFII calculations for both attributions of solution and agency suggest that, at least for the participants in this sample, to increase a midlife adult’s perceptions of responsibility to share information with a family member, strategically designed messages should focus on including content cues that elicit attributions of solution, particularly for those thinking about an aging parent. Hornik and Woolf’s (1999) third, and final, criterion considers whether the belief may be altered by one or more persuasive messages. As Dillard (2011) notes, “this is a matter of expert judgment rather than numerical assessment, but a critical issue nonetheless” (p. 481). Responsibility communication could thus benefit from a theoretical framework that specifies specific message features that elicit attributions of solution, which may subsequently impact perceptions of responsibility. Future work should also note the potential for other samples to have lower agency scores and thus more potential room for improvement in this predictor of responsibility as well. Theoretical work on responsibility communication, however, underscores the necessity to pre-test these messages to determine if they result in the desired changes (e.g., increases in attributions of solution to increase perceptions of responsibility), but not in undesired outcomes, including, for example, psychological reactance.

Pre-Testing Responsibility Messages

Jackson and Aakhus (2014) argue that it is important to question “the societal consequences of design and especially any disadvantages it may create” (p. 133), and Harrison (2014) further notes that “while we create and design with specific goals in mind, it is important to engage in critique to explore not only how well we were able to achieve our stated goals, but to analyze both the particular elements of the design and the totality of the experience for effects, which go beyond our intentions” (p. 146). These scholars underscore the importance of testing for unintended effects of the messages, and it is therefore important to do so with messages
designed to increase a midlife adult’s perceptions of responsibility to share health information with their family members. Results from this dissertation indicated that responsibility is associated with self-blame and obesity stigma beliefs. Messages should thus be pre-tested to ensure that an increase in perceptions of responsibility is not also associated in an increase in feelings of self-blame and obesity stigma. The stigma of obesity is well documented (e.g., Puhl et al., 2008; Puhl & Heuer, 2009; Puhl & Latner, 2007), and health messages about overweight or obesity should be cautious that they do not increase levels of stigma towards this group. Indeed, pre-testing of responsibility and obesity messages should become standard for health communication messages, as Guttman and Ressler (2001) note that it is important “to construct interventional approaches that avoid the use of messages that evoke feelings of guilt, blame, or shame” (p. 132), and the Institute of Medicine (2012) report states, “the case for addressing the obesity epidemic cannot be made at the expense of obese people” (p. 104).

**Predicting Information Sharing Intentions: TRA, TPB, and IM**

The TRA, TPB, and IM predict that attitudes, subjective norms, and self-efficacy beliefs influence intentions to perform a behavior. This dissertation thus predicted that a midlife adult’s attitudes towards sharing health information, subjective norms about sharing health information, and agency beliefs to share health information with their child or aging parent about the benefits of outdoor physical activity influence their intentions to do so. This dissertation also considered whether additional norms, including personal injunctive norms, personal descriptive norms, societal injunctive norms, and societal descriptive norms influence these sharing intentions.

**Attitudes and Subjective Norms**

In line with the TRA/TPB/IM, this dissertation found that a midlife adult’s attitudes towards sharing health information with their child or aging parent about the benefits of outdoor
physical activity influenced their intention to do so (note, however, that this influence occurred at 
\( p = .05 \), and a standardized regression coefficient of .12). Subjective norms about the behavior, however, did not. Within the TRA/TPB/IM, the relative impact of attitudes and subjective norms on intentions has been examined using the beta-weights assigned to each. A behavior is considered to be under attitudinal control when attitudes are assigned a large beta-weight and subjective norms are assigned a small beta-weight. By contrast, a behavior is considered to be under normative control when the opposite occurs (i.e., attitudes are assigned a small beta-weight and subjective norms are assigned a large beta-weight). The predictive strength of attitudes and subjective norms are posited to vary based on the behavior (see Trafimow & Fishbein, 1994).

The results of this dissertation thus suggest that a midlife adult’s intentions to share health information are under attitudinal control. Past reviews of studies examining intentions and physical activity behaviors have found that the contribution of attitudes to intentions is typically stronger than the effect of subjective norms on intentions (e.g., Blue, 1995; Godin, 1993; Hagger et al., 2002; Hausenblas, Carron, & Mack, 1997). Likewise, Millar and Shevlin (2003) found that intentions to seek information are predicted by attitudes, but not normative beliefs. This dissertation thus extends this previous work by suggesting that in addition to physical activity intentions and behaviors and information seeking intentions, information sharing about physical activity is also under attitudinal control.

**Perceived Norms**

The TRA and TPB posit that subjective norms (i.e., norms about what important others think one should do) influence intentions. The IM suggests that both subjective norms and descriptive norms (i.e., norms that refer to the popularity of a certain act) play important roles. An additional framework, the Social Norms Approach (SNA; Berkowitz, 1997; Perkins, 2003;
Perkins & Berkowitz, 1986), posits that descriptive norms and injunctive norms (i.e., norms that refer to social approval of the act) also play a role in predicting intentions to perform a behavior.

In line with Park and Smith (2007), this dissertation therefore considered whether personal injunctive norms (i.e., perceptions of important people’s approval of a given individual’s behavior), personal descriptive norms (i.e., perceptions of important people’s own behavior), societal injunctive norms (i.e., perceptions of society’s approval of a given behavior), and societal descriptive norms (i.e., perceptions of society’s behaviors) influence a midlife adult’s intentions to share health information with a family member. The correlations among these normative beliefs would suggest that they are indeed measuring different concepts; however, in line with the finding that subjective norms did not predict information sharing intentions, the results of this dissertation also suggested that these additional norms do not predict information sharing intentions.

Interestingly, Kim, Lee, and Yoon (2015) found that subjective norms and personal descriptive norms influenced behavioral intentions to interact with Like Ads on Facebook, and subjective norms were a stronger predictor for intentions than attitudes. Interacting with Like Ads on Facebook can be characterized as a form of information sharing, and Kim and colleagues (2015) thus concluded that these behaviors are largely norm-controlled behaviors. However, there may be important distinctions between information sharing on Facebook and interpersonal information sharing with a family member that drive these observed differences. For example, Kim (2015) notes that sharing information via email generally targets a small audience, whereas social-media based sharing usually targets a larger group of individuals in the sharers social network. Results of Kim’s (2015) study did find some differences, as, for example, informational utility was more closely related to sharing via e-mail, and emotional evocativeness played a
larger role in social-media based retransmission of information. It thus appears that “narrowcasting” (i.e., sharing with a smaller audience via, for example, e-mail) leads to sharing of useful information by activating an other-focus, whereas “broadcasting” (i.e., sharing with a larger audience via, for example, social media) leads to sharing emotionally arousing information by activating a self-focus that leads to the sharing of self-enhancing content (Kim, 2015, p. 13; see also Barasch & Berger, 2014). Interestingly, responsibility, which is posited to be a moral norms component, did predict intentions. Thus, moral norms, but not social/conventional norms, appear to influence a midlife adult’s intentions to share health information with a family member. Future work should thus examine whether different types of information sharing are more strongly predicted by attitudes versus social/conventional normative beliefs and thus whether different forms of retransmission are under attitudinal, social/conventional normative, or moral normative control.

**Agency**

This dissertation found that a midlife adult’s perceptions of their agency to share health information about the benefits of outdoor physical activity with their child or aging parent did not influence their intentions to do so. This result is contrary to the theoretical propositions in the TPB and the IM, but there are several potential explanations. First, this dissertation used an amalgamated measure of agency, that included knowledge, choice, and self-efficacy items, and the TPB and IM limit their theoretical propositions to self-efficacy. However, and perhaps more importantly, midlife adults in this sample had high agency to share health information ($M = 4.10, SD = 0.59$). This high mean suggests that these midlife adults felt that they had high knowledge about how to share the information, felt that they had the choice about whether or not to share the information, and felt that they had high ability with which to do so. As such, this concept
may be less likely to influence their intentions to share information. This finding also aligns with previous work, in which Millar and Shevlin (2003) found that self-efficacy did not influence intentions to seek information. Individuals frequently share health information with others in their social networks (Southwell, 2013), including approximately 60% of individuals who report receiving or seeking health information from family and friends (Pew Internet & American Life Project; Fox & Duggan, 2013). This familiarity with seeking and sharing health information may thus impact the high agency participants in this dissertation felt for sharing health information with their family members.

**Predicting Information Sharing Intentions: Responsibility**

This dissertation argued that the TRA, TPB, and IM fail to sufficiently predict moral behaviors, or behaviors that focus on another’s welfare, another’s rights, or considerations of fairness or justice. This dissertation therefore integrated the NAM with these rational choice frameworks by including perceptions of responsibility as an additional predictor of a midlife adult’s intentions to share information about the benefits of outdoor physical activity with a child or aging parent. This dissertation also considered potential mediators of responsibility on information sharing intentions, including anticipated regret, anticipated guilt, anticipated pride, and hope, as well as physical activity mavenism.

**Responsibility**

This dissertation found that responsibility did significantly influence intentions, and, further, responsibility was the strongest predictor of intentions, with a standardized regression coefficient of .75. These results align with previous research that found that perceptions of personal responsibility lead an individual to engage in health behaviors (e.g., Rothman et al., 1993; Niederdeppe et al., 2013; Williams-Piehota et al., 2004) and previous research that found
that perceptions of interdependent responsibility lead an individual to act to protect the health of others (e.g., Tenen et al., 1986; Fuller et al., 2006). Likewise, past reviews on perceived moral obligation, which is conceptually and operationally close to responsibility, found that perceived moral obligation predicts intentions above and beyond attitudes, subjective norms, and self-efficacy (Conner & Armitage, 1998; Rivis et al., 2009). Finally, Morrison and Phelps (1999) suggest that when individuals feel a sense of responsibility for constructive change, they will engage in proactive behaviors because they view these behaviors as feasible and desirable. This dissertation advances communication scholarship on information sharing by extending these findings with initial empirical support that perceptions of responsibility also motivate a midlife adult to share health information with a family member. The important theoretical implications for communication science for this finding are discussed in future detail in a later section.

**Anticipated Emotions**

The results of this dissertation suggest that perceptions of responsibility influence anticipations of regret, guilt, pride, and hope. Previous research suggests that responsibility is related to experienced regret (e.g., Connolly, Ordóñez, & Coughlan, 1997; Ordóñez & Connolly, 2000; Zeelenberg, van Dijk, & Manstead, 1998, 2000), guilt (e.g., Miceli, 1992), and pride (e.g., Mascolo and Fisher, 1995; Harth et al., 2013). This research on emotions such as guilt and pride has focused on experienced emotions that occur after a behavior (e.g., Dahl, Honea, & Manchanda, 2003; Tangney et al., 1996), and, therefore, it has been unclear how these emotions are anticipated (Bagozzi, Dholakia, & Basuroy, 2003). This dissertation therefore provides initial evidence to suggest that perceptions of responsibility may drive anticipations of these emotions of guilt and pride, as well as anticipated regret and hope. Further, the finding that responsibility influences both anticipated pride and hope is important, as Guttman and Ressler (2001) suggest
presenting a connection between personal responsibility and potential positive outcomes is a more ethical alternative to emphasizing a threat that evokes negative affect.

Contrary to previous research, however, this dissertation did not find that anticipated regret, guilt, pride, or hope influenced information sharing intentions. This is surprising as, for example, a past review found that anticipated regret added significantly and independently to the prediction of intentions over and above attitudes, subjective norms, and self-efficacy (Sandberg & Conner, 2008). Likewise, past work has shown that anticipated guilt predicts an individual’s intentions (Lindsey, 2005; Lindsey, Yun, & Hill, 2007; Xiao, 2011). Further, Onwezen and colleagues (2013) found that anticipated guilt and pride do influences intentions to engage in pro-environmental behaviors.

The distinction between this dissertation’s results and this past work may be due to several reasons. First it is important to consider whether these emotions occur in relation to the midlife adult’s self or in relation to their child or aging parent. For example, pride has been studied as an in-group emotion (see Harth, Leach, & Kessler, 2013), as a group’s achievement may promote pride in its members (e.g., Boezman & Ellemers, 2008; Harth, Kessler, & Leach, 2008). Feelings of pride may therefore be based on the recognized achievements of close others, which are referred to as feelings of vicarious pride (Tracy & Robins, 2004a; Williams & DeSteno, 2008). As such, a midlife adult may anticipate feeling proud of themselves if they share health information with an overweight or obese family member, but they might also anticipate feeling proud of the family member for enacting the recommended behavior and achieving weight loss. Future work should therefore examine these nuances and the differential influences of anticipated emotions in relation to the self versus in relation to the other for other-oriented
behaviors like health information sharing and should determine whether the distinction between these types of emotions differentially impact intentions.

Second, the perceived difficulty of a task may also influence anticipations of emotions. For example, Weiner (2010) draws on Atkinson (1957) to assert that one feels greater pride after success at a task that is “attributed to high ability or effort than following success at a coin toss perceived as due to good luck” (p. 31). Thus, more pride will be expected if the task is harder and success is attributed to the self (rather than to the ease of the task; p. 31). Participants in this study had high perceptions of agency to share information about the benefits of outdoor physical activity ($M = 4.10$, $SD = 0.59$), which may indicate that they perceive low difficulty to share information. This may be a potential explanation for the differences in past research and the current results in the influence of anticipated emotions on intentions. Future research should therefore examine whether the perceived difficulty of the task, in this case information sharing, influences anticipations of regret, guilt, pride, and hope and subsequent intentions.

Responsibility thus appears to influence anticipated emotions, but, at least in this specific instance, anticipated emotions do not appear to influence a midlife adult’s intentions to share health information about the benefits of outdoor physical activity with their child or aging parent. Together, these results thus underscore and echo previous calls for further research on the role of anticipated emotions in influencing intentions and behavior (e.g., Arvola et al., 2008; Baumgartner et al., 2008; Lench et al., 2011), and calls for further research across a range of emotions (e.g., Onwezen et al., 2014), specifically with respect to information sharing and how anticipated emotions may differentially impact different intentions or behaviors.

**Physical Activity Mavenism**
This dissertation found that a midlife adult’s perceptions of responsibility to share health information with a family member influence physical activity mavenism. Physical activity mavens were defined as individuals that have a general interest in physical activity, are influential in their social group, and are willing to share their general physical activity knowledge and experiences with physical activity with others. As such, if a midlife adult feels that they are responsible for sharing health information with their family members, they are more likely to have a general interest in physical activity. However, the results of this dissertation did not find that physical activity mavenism influences information sharing intentions. This latter result is surprising as mavens are defined as individuals who are willing to share their general knowledge and experiences with others.

The inconsistency in these results may be due to differences in information seeking versus information sharing. Mavens are individuals that both seek and share information. Indeed, health mavenism is associated with exposure to health-specific media sources (e.g., reading health segments of newspapers, general magazines) and to health information via the Internet (Kontos et al., 2011). Thus, mavens accumulate health information incidentally through their routine use of health-information media (Kontos et al., 2011). The participants in this study did not seek information, but were instead shown a specific message about the benefits of outdoor physical activity. As such, mavens may be less likely to share information that they did not come across themselves or from one of their usual sources of information. Further, Sun and colleagues (2015) separate mavenism into two separate dimensions of information acquisition and information sharing. Future research should therefore do the same to determine if mavens are only likely to share information they sought and found themselves or, if, for example, there is a distinction between information acquisition mavens and information sharing mavens.
Examining physical activity mavenism may also be helpful in research looking to disseminate health behaviors throughout a social or family network. It is important to identify individuals that are highly influential in their social networks; however, doing so is difficult as assuming that a position in a social structure (e.g., a leadership position) leads to influence is inadequate (Boster et al., 2011; Keller & Berry, 2003; Rogers, 2003). Likewise, the assumption that midlife adults are all equally influential with respect to the health behaviors of their child or aging parent therefore also fails to identify influential individuals. Mavens, however, may hold this type of influence. Indeed, Farragher and colleagues (2016) note, “mavens’ trust positions in daily life might provide opportunities for them to act as secondary communicators (‘go betweens’)” in promoting health messages. Future work on information sharing and mavenism should thus examine whether mavens are more successful at garnering behavior change when sharing information than their non-maven counterparts.

**Predicting Information Sharing Intentions: Theoretical Implications**

These results also have important theoretical implications for communication science. Meta-analytic data suggests that the rational-choice variables in the TRA, TPB, and IM, including attitudes, subjective norms, and self-efficacy, explain between 40-49% of the variance in intentions and 19-36% of the variance in behavior across a wide range of health-related behaviors (Ajzen, 1991; Armitage & Conner, 2001; Hagger et al., 2002; McEachan et al., 2011; Schulze & Whittmann, 2003), including 42%-36% of the variance in physical activity intentions and behavior (Godin & Kok, 1996). However, these percentages still mean that approximately 51% and 64% of the variance in intentions and behavior, respectively, is left unexplained. Importantly, these theoretical frameworks may not sufficiently predict behaviors that focus on
another’s welfare, including a midlife adult’s intention to share information about the benefits of outdoor physical activity with an overweight or obese family member.

In order to more fully predict such information sharing intentions, this dissertation thus argued that the NAM should be incorporated into the TRA/TPB/IM framework. The NAM argues that people feel obligated for others’ health beyond the prudential interest of their own well-being (Schwartz, 1977; Stern et al., 1993). The mediator model of the NAM posits that an individual’s awareness influences perceptions of responsibility, which then influence behavior. This dissertation thus situated perceptions of responsibility within the TRA/TPB/IM as a moral norms component to integrate these two frameworks. Doing so advances behavior change theory by integrating the most popular theoretical approach to predicting behavior in the social sciences (i.e., rational-choice perspectives such as the TRA/TPB/IM) with the second most popular theoretical approach used in the social sciences to predict behavior (i.e., moral-norm activation theories such as the NAM). Past scholars have argued that there are several reasons to support this theoretical integration. For example, Kaiser and colleagues (1999) note that due to the popularity of each, these theoretical approaches should be integrated (Kaiser et al., 1999). Further, the addition of a moral norms component to the rational choice frameworks is warranted for behaviors that focus on another’s health and well-being; the subjective norms in the TRA/TPB/IM align with conventional social norms, not moral norms (Kaiser et al., 1999). This dissertation thus advances scholarly thought and work in this area by providing empirical evidence in favor of this integration.

The results of this dissertation suggest that variables from both the rational-choice frameworks and the moral norm activation theories were significant predictors of a midlife adult’s intentions to share health information with a family member. Specifically, attitudes from
the TRA/TPM/IM and responsibility from the NAM significantly predicted information sharing intentions. This suggests that variables from both the rational choice frameworks and the norm activation theories can be used to predict intentions (and possibly behaviors) to perform behaviors that impact another’s well-being, specifically sharing information about the benefits of outdoor physical activity with an overweight or obese child or aging parent. The significant predictive power of both types of variables may be due to different psychological motives that drive an individual to share information with others, which is discussed in more detail later.

Interestingly, no perceived social norms, including subjective norms, personal injunctive norms, personal descriptive norms, societal injunctive norms, and societal descriptive norms, influenced information sharing intentions. As mentioned previously, this suggests that the behavior in question, information sharing, is under attitudinal control and moral normative control, but not social/conventional normative control. The distinction here may again be due to different psychological motives that individuals have for sharing information with others, including family members (these motives are discussed in more detail in a later section).

Likewise, responsibility influenced anticipated emotions and mavenism, but neither anticipated emotions nor mavenism influenced information sharing intentions. Past scholars have called for work to examine the role of anticipated emotions in influencing intentions and behaviors (e.g., Arvola et al., 2008; Baumgartner et al., 2008; Lench et al., 2011), and this dissertation suggests that anticipated emotions may differentially impact different types of behaviors. The results suggest that behaviors with a moral norms component, including information sharing, may not be predicted by anticipated emotions. Future work should continue to examine the theoretical integration of the TRA/TPB/IM and the NAM, as well as the potential additions of perceived social norms, anticipated emotions, and mavenism.
Iatrogenic Effects of Responsibility

The above results underscore the importance of perceptions of responsibility for motivating a midlife adult to share health information about the benefits of outdoor physical activity with their child or aging parent. However, the results of this dissertation also highlight the potential for these perceptions of responsibility to result in negative externalities towards the self and towards others.

Towards the Self

This dissertation explored whether a midlife adult’s perceptions of responsibility to share health information about the benefits of outdoor physical activity with an overweight or obese family member was related to feelings of regret, guilt, or self-blame. Results indicate that responsibility was not significantly related to regret or guilt; however, responsibility and self-blame were significantly and positively correlated ($r = .15, p < .05$). These results indicate that midlife adults who feel responsible for sharing health information about behaviors that reverse overweight or obesity like outdoor physical activity also blame themselves for their child or aging parent’s current overweight or obese weight status. These results extend Janoff-Bulman’s (1979) assertion that beliefs about personal responsibility for a negative outcome (e.g., overweight or obesity) are related to self-blame, as this finding suggests that beliefs about personal responsibility for mitigating a negative outcome by sharing health information is also related to self-blame. This self-blame can have negative psychological and behavioral outcomes (e.g., Beverly et al., 2012; Voth & Sirois, 2009), thus message designers should be cautious about attempting to increase perceptions of responsibility to motivate information sharing, as doing so may also increase perceptions of self-blame.

Towards Others
This dissertation also considered whether a midlife adult’s perceptions of responsibility to share information about the benefits of outdoor physical activity with an overweight or obese family member was related to obesity stigma beliefs. Results indicated that the two were significantly and positively correlated ($r = .36$, $p < .001$). As such, midlife adults who perceived that they were responsible for sharing information about the benefits of outdoor physical activity with their overweight or obese family members were also more likely to believe that obese individuals are stigmatized and treated unfairly. This raises an important ethical concern regarding the extent to which overweight or obese individuals and family members are responsible for causing and solving obesity, as the stigma of obesity may be related to beliefs that family members or individuals are responsible. Ifert and Roloff (1994) make a distinction between individuals who are not able to comply with health recommendations (i.e., those who lack agency) versus those who are not willing to comply: “When individuals resist due to inability, they indicate a lack of power or resources required to grant the request” (p. 121). It is thus important to consider ways to motivate family members and individuals towards positive health behaviors (e.g., sharing information or engaging in outdoor physical activity, respectively) that do not stigmatize those who are unable to enact these behaviors.

This may be particularly important in light of the previously mentioned emphasis individuals in the United States place on personal and familial responsibility for health. Further, media reports often emphasize personal responsibility for obesity. For example, several content analyses have noted that news coverage of obesity is framed largely in terms of individual causes and solutions (Kim & Willis, 2006; Lawrence, 2004; Saguy & Almeling, 2008; Saguy & Gruys, 2010), and, despite some evidence that more recent news reports have increased coverage of societal causes of and solutions to obesity, a focus on the individual is still the dominant frame
In the most recent analysis, Shugart (2011) found that although many news articles still mention personal or environmental factors of obesity (40.3%), fatalism was the most prominent theme (almost 60% of articles). These fatalism frames included content about (1) the demands and consequences of everyday life that make maintaining a healthy weight virtually impossible; (2) the belief that regulation and policies would be ineffective or detrimental; and (3) the role of biological factors (e.g., genes) in obesity. These media messages frame issues in ways that tell readers not only which issue to think about, but also how to think about that issue (Kim, Scheufele, & Shanahan, 2002). Overweight or obese individuals who receive such messages from family members (i.e., the family members may share these messages with overweight or obese children or aging parents) may thus: (1) be motivated through beliefs of personal responsibility and agency to enact positive behavior changes; or (2) be disheartened by their lack of agency to enact the recommended changes or by beliefs of fatalism regarding their overweight or obese status. This thus raises an important question for future research regarding whether or not a child or aging parent who receives health information from a parent or adult child, respectively, engages in the recommended health behavior.

**Outcomes of Receiving Information**

This dissertation examined a midlife adult’s intentions to share health information with a family member, but it did not examine whether sharing this health information about the benefits of outdoor physical with a family member actually leads the child or aging parent to act in accordance with the health message’s recommendations. An important next question is raised for future research: Does receiving health information from a family member, in this case a parent or
adult child, prompt the recipient, a child or aging parent, respectively, to engage in health-promoting behaviors like outdoor physical activity?

There is some evidence that receiving health information does result in these positive outcomes. For example, receiving health information from others may trigger a conversation about the information that may improve the processing and learning of the information because of the interactive nature of conversations (Eveland & Thompson, 2006; Kohler, Behrman, & Watkins, 2007; Southwell, 2005). A growing body of research suggests that individuals who discuss health campaign messages are more likely to have attitudes, intentions, and behaviors that are in accordance with the campaign (e.g., Dunlop, Kashima, & Wakefield, 2010; Dunlop, Wakefield, & Kashima, 2008, 2009; Durkin & Wakefield, 2006; Hafstad & Aaro, 1997; van den Putte, Yzer, Southwell, de Bruijn, & Willemsen, 2011). For example, interpersonal communication that results from exposure to antismoking messages is related to smokers’ intentions to quit and quitting-related behaviors (e.g., Dunlop, Cotter, & Perez, 2014; Thrasher et al., 2015; van den Putte, Yzer, & Brunsting, 2005).

Importantly, Southwall and Yzer (2009) note that “it is not enough to know that talk matters; we also need to know when and why” (p. 2). These previous studies that found a positive relationship between information sharing and subsequent interpersonal conversations may be due to the fact that receiving health information from others and having conversations with others about that information may provide cues regarding the social appropriateness of the health behavior (Lapinski & Rimal, 2005). For example, obesity spread across social networks appears likely to be due to the social norms about the acceptability of related health behaviors among individuals who are socially close, but not necessarily geographically close (Christakis & Fowler, 2007; Smith & Christakis, 2008). Further, interpersonal communication about a health
topic may illuminate social norms surrounding the message, which could affect how an
individual interprets or acts upon the information (Hornik, 2006; Hornik & Yanovitzky, 2003).
The TRA/TPB/IM suggests that subjective norms influence intentions, and, as such, future work
should examine whether receiving health information from significant others, including family
members, directly predicts the information recipient’s subjective norms and indirectly predicts
health intentions and behaviors via these perceived norms.

Sharing health information may not always be effective and may instead incite reactance
on the part of the child or aging parent. For example, parental monitoring and discipline may
incite reactance, leading the adolescents to engage in more risky health behaviors (Chuang,
Ennett, Bauman, & Foshee, 2005; Ennett, Bauman, Foshee, Pemberton, & Hicks, 2001). This
reactance may also be moderated by the closeness of the relationship between the parent and
child or adult child and aging parent, the child or aging parents’ readiness for change, or the
child or aging parents’ agency for making positive health changes. Indeed, some children or
adults may be more likely to respond favorably (or unfavorably) to receiving health information
from their parent or adult children, respectively. Indeed, Umberson and colleagues (2010) note
that social ties may have a stronger effect on health behavior for those with certain personality
characteristics or prior beliefs. For example, Sarkisian, Procaska, Davis, and Weiner (2007)
found that persuading older adults that their failure to exercise is due to lack of effort rather than
“old age” increases walking behavior. Weiner (2010) notes that “old age” is an internal, stable,
and uncontrollable cause; thus, changing these prior attributional beliefs in older adults, a key
element of responsibility, leads to positive behavior changes. A child or aging parent’s prior
belief regarding their own responsibility for changing their behavior thus appears to be
important. Future work should therefore examine whether particular personality characteristics
or prior beliefs of the child or aging parent also influence a midlife adult’s perceptions of responsibility and intentions to share information, as well as a child or parent’s intention to adopt the health behavior recommended by the information they receive.

Outcomes of Receiving Information in an Intergenerational Context

The intergenerational nature of the communication between a midlife adult and their adult child or aging parent may impact whether or not the information recipient enacts the message’s health behavior recommendations. Intergenerational communication has a rich potential for misunderstanding and miscommunication, as individuals who lived through different time periods hold different communicative assumptions, skills, needs, and experiences (Williams & Nussbaum, 2001). As mentioned, the dyadic partner with the greatest impact on health behaviors changes across the lifespan (see Umberson et al., 2010). For example, parents have the most influence on health behaviors during childhood (i.e., intergenerational), but the peer-peer relationship (i.e., intragenerational) is increasingly important during adolescence (Umberson et al., 2010). Further, romantic partners exert the most influence on health behaviors during adulthood (i.e., intragenerational), and the adult child-aging parent relationship (i.e., intergenerational) appears to have the most influence on health behaviors in older adults (Umberson et al., 2010). Information recipients may thus respond differently to health information received from a family member versus information received from a peer not only because of something like relational closeness, but also due to the intergenerational nature of the contact. Future work should thus examine how the intergenerational nature of a midlife adult’s sharing of health information with a child or aging parent influences the information recipient’s intentions to engage in desired health behavior.
Important to note is that interpersonal communication about health or sharing of health information may not always occur as a result of viewing new health information. Indeed, Hendriks and colleagues (2014) argue that interpersonal communication about health topics may occur without exposure to health information, and Seo and Matsaganis (2013) allow for the idea that people might first happen upon health information from conversations with family members and friends, which may then prompt an individual to seek information about that health topic (as such, interpersonal communication would be an antecedent to information seeking, as opposed to information receiving being an antecedent to interpersonal conversations). Interestingly, conversations about health topics (e.g., binge drinking) in the absence of a health message may actually promote unhealthy intentions (e.g., Hendriks, van den Putte, de Bruijn, & Vreese, 2014). Future research should thus examine the relationship between health information seeking, information sharing, and perceptions of responsibility.

**Information Sharing versus Information Selection**

The results of this dissertation suggest that the dissemination of health information that may benefit an overweight or obese individual is motivated by a family member’s perceptions of responsibility to do so. Arguably, information selection occurs before information sharing, as an individual must select information to read before deciding to share that information with a family member. It is thus also important to consider whether perceptions of responsibility may also lead to information seeking, and future work should examine this relationship. This section reviews both message characteristics and psychological motives that influence health information selection and sharing and argues for the role of responsibility in these behaviors.

**Message Characteristics**
Past research has examined message characteristics that make health information more likely to be selected and shared with others, including information quality and utility, emotional valence, and novelty. Information quality and utility is viewed as a key predictor of audience selection and sharing of messages (Berger, 2014; Capella et al., 2014; Knobloch-Westerwick, 2015). For example, research on selection has shown that antismoking messages were more likely to be selected if they have strong arguments (Kim, Capella, & Emry, 2013), and Kim (2015) found that health news stories with efficacy information, which was used to operationalize the practical value of the information in the message, were more frequently selected to be viewed. Likewise, research on sharing has shown that articles with practically useful information are more likely to be retransmitted (Berger & Milkman, 2012; Milkman & Berger, 2014), and Kim (2015) found that health news stories with efficacy information were more frequently shared.

The selection and sharing of messages also appears likely to be influenced by the emotional valence of the information, which follows the theory of emotional social sharing (Rimé, 1995). For example, messages are more likely to be selected if they have positive emotional valence (Kim et al., 2013; Kim, 2015). Likewise, past research has shown that messages are more likely to be shared if they had positive emotional valence (Kim et al., 2013; Kim, 2015; Milkman & Berger, 2014), and emotional health appeals in health campaigns lead to interpersonal communication about the campaign (Hafstad & Aaro, 1997). Dunlop, Cotter, and Perez (2014) also found that highly emotional messages stimulated interpersonal communication among family and friends of smokers. Messages with death-related words are unlikely to be selected or shared (Kim et al., 2013); however, Wong, Harvell, and Harrison (2013) found that loss-framed messages were more likely to stimulate interpersonal communication.
Novelty also impacts the likelihood that a message is selected and shared. For example, Lee (2008) found that articles with unusual information prompted selective exposure. Further, individuals are more likely to share news articles (Berger & Milkman, 2012), antismoking messages (Kim et al., 2013), health news stories (Kim, 2015) that were viewed as novel. Similarly, individuals are more likely to share a summary of a scientific discovery if it was perceived to be interesting (Milkman & Berger, 2014).

Additional content characteristics that may influence whether a message is selected and retransmitted include audio/visual features that are psychologically or physiologically arousing (Berger & Milkman, 2012; Morgan, Palmgreen, Stephenson, Hoyle, & Lorch, 2003; Berger, 2011), exemplars (Kim, 2015), and tropes (i.e., instances of figurative language that is used to portray an idea) as opposed to more literal messages (Hoeken, Swanepoel, Saal, & Jansen, 2009). In addition to message features that broadly impact the likelihood that the information will be shared, research has also examined specific psychological drivers of sharing information.

**Psychological Motives**

Berger (2014) discusses five key functions of information sharing, including impression management, emotion regulation, information acquisition, social bonding, and persuading others. Impression management motives include sharing information for self-enhancement, identity-signaling, and filing conversational spaces. Emotion regulation motives include sharing information in order to generate social support, vent, facilitate sense making, reduce dissonance, take vengeance, and encourage rehearsal. Information acquisition motives include seeking advice and resolving problems, and social bonding motives include reinforcing shared views and reducing loneliness and social exclusion. Finally, persuading others motives include the desire to persuade another individual to, for example, adopt a particular health behavior. As mentioned,
examining the psychological motives of midlife adults for sharing health information with family members is beyond the scope of this dissertation; however, future work should do so.

In addition to these psychological motives, some research has examined demographic variables that make someone more likely to share information. For example, Milkman and Berger (2014) found that men were more likely to share the same scientific discoveries than women, but this finding was largely driven by the fact that men perceived the same messages as more comprehensible, interesting, and useful than women. Additionally, Caucasians were less likely to share the same scientific discoveries than individuals of other ethnic and racial backgrounds, but the data again suggest that these racial differences are driven by differences in the content of the scientific discovery; Caucasians perceived the same messages and less comprehensible, emotional, and less likely to reflect positively on them as the sender (Milkman & Berger, 2014). This dissertation advances research in this area by examining additional motives that might lead an individual to share health information with others, including perceptions of responsibility. As mentioned, the results of this dissertation suggest that responsibility is an important driver of intentions to share information. Additionally, responsibility predicted physical activity mavenism, which is associated with information seeking. Thus, responsibility may be an additional perception that motivates information selection and sharing, and examining this motive in more detail seems warranted.

Limitations and Future Directions

The contributions of this dissertation to communication science should be considered in light of some limitations, including several related to the study sample and study design.

Study Sample
This study has limited external validity given the defined parameters of the participant sample. Participants were only included in this study if they met the strict inclusion criteria, including being between the ages of 35 and 65, having an adult child over 18 who was overweight or obese, having an aging parent over 65 who was overweight or obese, having completed at least high school, and residing in Pennsylvania. Participants were also recruited through AMT. As mentioned, AMT participants respond with a comparable response rate to participants recruited via offline techniques (Mason & Suri, 2012), and Berinksy and colleagues (2012) note that AMT provides high-quality data, and participants from AMT are appropriate for academic research. However, this AMT service provides a convenience sample, and additional research should therefore attempt to include a population-based representative sample in order to better understand how these relationships work in a more generalizable sample, including individuals of different education and ethnic/cultural backgrounds.

**Education.** The socioeconomic status of the study sample, including the exclusion of individuals who had not completed high school, may limit the generalizability of the results, specifically those related to perceptions of responsibility. Markus and colleagues (2001) note that there are “strikingly different understandings of what responsibility is, what its consequences and antecedents are, and very importantly, who the person is who has responsibility, acts responsibly, or is responsible” (p. 250). For example, Markus and colleagues (2001) found that for high-school educated respondents, being responsible “is not only contingent on the judgments of others, but is also constrained by situations and respondents’ perceived limitations in affecting those situations” (p. 363). College-educated respondents, on the other hand, described a sense of responsibility that was more proactive, achievement-oriented, and self-focused (Markus et al., 2001). Indeed, more highly educated individuals were likely to express feeling in control of their
responsibilities and having the ability to impact situations according to their own needs, desires, and abilities (Markus et al. 2001).

Lower education levels are also relate to health disparities, as, for example, lower parental education is associated with a higher prevalence of childhood obesity (Frederick, Snellman, & Putnam, 2014; Singh, Siahpush, & Kogan, 2010). Additionally, individuals of lower socioeconomic status, including lower education, are less likely to increase physical activity in response to health behavior recommendations than those of higher socioeconomic status (Frederick et al., 2014; Iannotti & Wang, 2013). This may be due to the fact that these low socioeconomic status individuals live in areas that have poor built environments (Singh et al., 2010) and poor neighborhood social conditions (Singh et al., 2010), thus decreasing their agency to enact the recommended positive health behavior changes to prevent or reverse obesity.

Importantly, individuals of lower socioeconomic status, including lower education levels, are also more likely to rely on interpersonal sources of health information compared to those of high socioeconomic status (Cheong, 2007; Risker, 1995; Vanderpool, Kornfeld, Finney Rutten, & Squiers, 2009). Viswanath (2006) notes that these communication inequalities are likely due to differences in access to popular sources of health information (e.g., the Internet; Kontos, Bennett, & Viswanath, 2007; Lorence & Park, 2007) and differences in the processing of health information due to lower health literacy scores. Thus, perceptions of responsibility may be one mechanism through which these health disparities occur, as socioeconomic status may directly influence perceptions of responsibility and indirectly influence information sharing among family members via responsibility. Future work should therefore consider these theoretical relationships across different education levels and should also examine whether the accuracy of the shared information varies by, for example, health literacy and education levels.
Ethnic/Cultural background. The lack of ethnic/cultural diversity in the sample may also limit the generalizability of the results. Some empirical evidence suggests that the NAM is applicable across cultural groups (e.g., Milfont, Sibley, & Duckitt, 2010); however, future work should aim to determine if this also holds for the theoretical relationships proposed by this dissertation. Indeed, perceptions of responsibility may differ across individuals of different ethnic and cultural backgrounds, and responsibility may function differently across these groups in terms of information sharing among family members. For example, in some cultures women are viewed as the gatekeepers to child and familial health and are viewed as responsible for encouraging men to be healthy (e.g., De Brún, McCarthy, McKenzie, & McGloin, 2013); however, in other cultures, women are expected to defer to the authority of their husbands across many domains, including health behaviors (e.g., Galanti, 2003). As such, cultural differences may impact an individual’s perceptions of responsibility for sharing health information and subsequent intentions and behaviors to do so.

Additionally, the results of this dissertation suggest responsibility is related to anticipated emotions, including anticipated regret, guilt, pride, and hope. Some past research indicates that there are differences in the self-regulatory role of anticipated emotions between collectivistic and individualistic cultures. For example, self-conscious emotions such as guilt and pride are based upon the self (Tracy & Robins, 2004a). Individuals from individualistic versus collectivistic cultures may differ in their construal of the self (Markus & Kitayama, 1991), so the function of these emotions may be sensitive to cultural differences (Tracy & Robins, 2007). Thus, future work should determine if cultural differences in responsibility to share health information also differ with respect to the anticipated emotions that are associated with perceiving responsibility.

Study Design
Cross-sectional, observational data. The results are based on cross-sectional, observational data and, as such, this dissertation cannot draw conclusions regarding the causality of the effects. Future work could therefore, for example, conduct an experiment that randomizes participants to perceive different levels of responsibility by strategically designing messages that manipulate message features of responsibility communication.

Health information topic. The health message presented in this dissertation focused on the benefits of engaging in outdoor physical activity; therefore, the results are context specific and may not be generalizable across different health behaviors. Indeed, the topic of a particular health message may impact the relative importance of information sharing and conversations about a health or political campaign (Cho, Shah, McLeod, McLeod, Scholl, & Gotlieb, 2009; Hardy & Schedufele, 2009). Future work should therefore determine whether the relationship between responsibility and information sharing intentions functions the same for other health and obesity-related behaviors.

Measures. The study design is also limited by some of the measures. First, this dissertation conceptualized agency as having three operational subcomponents, including knowledge, ability, and self-efficacy; however, the measurement analysis revealed that these items instead formed one composite measure for agency. Future work should therefore examine the operationalization of agency and the posited subscales in more detail. For example, this dissertation measured knowledge as the participants’ subjective perceptions of knowledge, however, objective assessments of knowledge may also be used. Parmenter and Wardle (1999) measured nutrition knowledge via items that looked at the understanding of terms (e.g., fibre, cholesterol), awareness of dietary recommendations; knowledge of food sources related to the advice (e.g., which foods contain which nutrients); using the information to make dietary
choices; and awareness of diet-disease associations. Future work on knowledge about information sharing could thus assess a more objective measure of awareness of different channels for sharing information and understanding how to use these channels.

A second measurement limitation related to the measures this dissertation used for obligation and responsibility. This dissertation conceptualized obligation and responsibility as distinct concepts; however, the analysis revealed that operationally the measures used for obligation and responsibility did not capture their conceptual uniqueness. This limited the ability to analyze the hypotheses related to obligation and responsibility. Future work should thus focus on determining whether these two concepts are in fact conceptually different, and, if so, how to operationalize them as such.

Finally, the ordering of the measures may have impacted the results. For example, the ordering of the scale items may be particularly important in terms of anticipated regret. Abraham and Sheeran (2003, Study 2) and Abraham and Sheeran (2004, Study 2) conducted experimental studies that examined the relationship of anticipated regret and intentions to exercise by randomizing participants to respond to the anticipated regret items either before or after being presented with the intention items. Abraham and Sheeran (2003) found that participants who completed the anticipated regret items prior to the intention items had a stronger intention-behavior relationship. Similarly, Abraham and Sheeran (2004) found that those who completed the anticipated regret items prior to the intention items intended to exercise more often than those who completed the intention items first. This highlights potential limitations that may result from a particular ordering of scales, and future work should examine this is more detail.

**Single-study design.** This dissertation was a single-study design and did not include a replication component. Replication is critically important in social scientific research, and there
is a long tradition of promoting replication broadly in the social sciences (see, e.g., Asendorpf et al., 2013; Kline, 2009; Koole & Larkens, 2012; Schmidt, 2009), as well as specifically within communication (see, e.g., Benoit & Holbert, 2008; Boster, 2002; Jackson & Jacobs, 1983; Kelly, Chase, & Tucker, 1979; O’Keefe, 2015). Replications are important because they allow more definitive statements about the nature of the relationships studied in the social sciences by enhancing the certainty (i.e., reliability) of the results.

Schmidt (2009) classifies replications by differentiating between two types of replications: direct and conceptual. A direct replication occurs when a new research study repeats all of the relevant aspects of an original study. In other words, a direct replication occurs when everything in the original study is exactly the same, except that a new, independent sample of the same size is taken from the same population (Cumming, 2008). The chance that a given original empirical finding will occur again in a direct, independent, and explicitly replicated subsequent study is inherently unpredictable (Miller, 2009; Miller & Schwarz, 2011). For example, a given research study is prone to idiosyncrasies in both procedural details and the means through which the experimenter interacts with participants, suggesting that different researchers might obtain different results due to some particular detail associated with the original study (Koole & Larkens, 2012). Direct replications can therefore confirm or disconfirm an original set of findings (LeBel & Peters, 2011) and “provide the strongest tests of the robustness of an original finding” (Koole & Larkens, 2012, p. 609).

Direct replications, while important, are not enough to establish generalizability of any given effect or moderating effect. Even if the results are seen in one study and directly replicated, there is no guarantee that these results will replicate with other messages, other behaviors, and so forth. A conceptual replication thus tests the hypotheses of an original study using a different
study design (Schmidt, 2009). In doing so, conceptual replications promote generalizability. Indeed, “a study that keeps some features of the original and varies others can give a converging perspective, ideally both increasing confidence in the original finding and starting to explore variables that influence it” (Cumming, 2013, p. 4). In order to more fully establish the claims made by this dissertation, future work should therefore focus on both directly and conceptually replicating the findings. Doing so will enhance the reliability of the results and pave the way for future work in this area.

**Additional Dyadic Relationships of Influence**

Finally, this dissertation examined a midlife adult’s perceptions of responsibility to share information with their child and aging parent and was thus focused on the adult-child relationship throughout the lifespan. However, additional dyadic relationships are important across the lifespan as well. Indeed, the dyadic partner with the greatest impact on health behaviors changes across the lifespan (see Umberson et al., 2010 for a review). A growing body of research suggests that parents exert the most influence during childhood, and the parent-child relationship is the most important dyadic relationship for the child (Umberson et al., 2010). The peer-peer relationship is increasingly important during adolescence, and romantic partners exert the most influence on health behaviors during adulthood (Umberson et al., 2010). Further, the adult child-aging parent relationship has the most influence on health behaviors in older adults (Umberson et al., 2010). As mentioned, the intergenerational nature of the communication between a midlife adult and their child or aging parent holds inherent complexities and thus opportunities for misunderstanding and miscommunication (Williams & Nussbaum, 2001). The intragenerational nature of information sharing between, for example, peers, romantic partners, or siblings, thus presents a unique communicative interaction with different challenges. Future
work should thus examine factors that motivate health information sharing in intergenerational and intragenerational situations.

**A Look Forward Towards Shaping Health Policy**

Social ties can influence positive health outcomes through behavioral changes, psychosocial changes, and physiological changes (Umberson & Montez, 2010). As such, social ties, including family members, friends, and romantic partners, may help prevent or reverse adverse health outcomes (Umberson & Montez, 2010), including obesity. Health policy that focuses on the influence of social ties may thus be a cost-effective strategy to enhance population health and well-being (McGinnis, Williams-Russo, & Knickman, 2002; Mechanic & Tanner, 2007). Midlife adults may be particularly effective as influential social ties, as they have the largest number of familial ties. Indeed, despite a considerable amount of diversity in middle-aged adults’ family ties (Fingerman et al., 2013), midlife adults of all backgrounds tend to have the greatest number of family ties (Antonucci & Akiyama, 1987; Fingerman & Birditt, 2003; Lang, 2004). Middle-aged adults have ties to family members in generations below and above them, and they also have ties to family members in their own generations, including their partner, siblings, and cousins (Fingerman et al., 2013). By contrast, younger adults often have ties to their family of origin, but are interested in fostering ties with individuals outside of the family, finding mates, and having children (Charles & Carstensen, 2010; Fingerman et al., 2013). Older adults at the end of life have often lost their parents and may have also outlived other family members, including spouses, siblings, and even children (Fingerman et al., 2013). Strategically designing messages targeted towards midlife adults to increase their dissemination of health messages to family members may thus prove useful. As mentioned, however, the influence of such individuals may differ based on individual characteristics, including health mavenism.
Importantly, however, policy should be hesitant to place too much responsibility on midlife adults, especially those who lack agency. Indeed, Umberson and colleagues (2010) note: “We should also be aware that policy efforts to alter social ties in ways that promote health for one group may undermine health for others. For example, policies that urge adults to play a key role in altering the health habits of family members…may place stress on caregivers that ultimately undermines the caregiver’s own healthy lifestyle as well as the caregiver’s ability to participate in and maintain their social ties” (p. 13). Further, the combination of smaller family sizes, which limits the number of family members caring for aging parents, as well as an aging population, suggests that the multigenerational demands of family ties may be more pronounced in the future (Umberson & Montez, 2010). Finally, social ties can influence health not only in positive, but also in negative, ways (Umberson & Montez, 2010). For example, negative health behaviors, including obesity-related behaviors, may lead to a social contagion effect and spread throughout a network (Smith & Christakis, 2008). Likewise, midlife adults who share health information with their family members could share misleading or inaccurate information. Individuals with influence, such as midlife adults, “also have the potential to provide a daunting obstacle should they be so inclined as to oppose proponents of change” (Boster et al., 2011, p. 193). Thus, this dissertation may serve as an initial first step to thinking about and examining how health policy may be shaped to capitalize on the influence of midlife adults in shaping the health of their family members.

Conclusions

Little empirical work within communication has examined midlife individuals. Indeed, Fingerman, Birditt, Nussbaum, and Ebersole (2013) note, “Adulthood, like a good story, has a beginning, middle, and an end. Like many good stories, however, the beginning and the end of
adulthood are more clearly explicated than the middle” (p. 97). These midlife individuals are in a prime position to positively impact the health of their family members, including their children and aging parents. It is thus important to study this population and determine what factors lead these midlife adults to attempt to influence their family members’ health through, for example, sharing health information. This dissertation examined a variety of factors that predict such intentions, focusing specifically on whether a midlife adult’s perceptions of responsibility to share information about the benefits of outdoor physical activity with their overweight or obese child or aging parent influenced their intentions to do so. The results provide initial empirical evidence that perceptions of responsibility not only predict information sharing intentions, but responsibility is in fact the largest predictor of information sharing intentions. Examining the intergenerational nature of these exchanges is also important, as Williams and Nussbaum (2001) note, “we must explore how and why we interact with others of differing ages in diverse contexts” (p. x). The results of this dissertation have important theoretical implications for advancing health, interpersonal, lifespan, and intergenerational communication.
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Appendix A
Informed Consent

The Pennsylvania State University
Title of Project: Responsibility and Health Information Sharing
Principal Investigator: Amber Worthington
Graduate Student
Communication Arts & Sciences
Pennsylvania State University
234 Sparks Building
University Park, PA 16802-5101
E-Mail: akw155@psu.edu

1. Purpose of the Study: The purpose of this study is to gather information about midlife adult's perceptions of responsibility for sharing information about physical activity with their family members.

2. Procedures to be followed: You will be asked to complete an online questionnaire.

3. Benefits:
   a. You might learn more about the benefits of outdoor physical activity for health.
   b. Your participation in this research will help to inform our current understanding of whether a midlife adult's perceptions of responsibility motivate them to share health information with their family members.

4. Duration: It will take about 45 minutes to complete the study.

5. Statement of Confidentiality: Only the individual in charge, and her advisor, will know your identity. If this research is published, no information that would identify you will be written. All data related to this study will only be accessible to the principal investigator and her advisor for this study, and it will be kept in locked drawers and secured computers belonging to the principal investigator at her university office and/or private residence. Since the study is an online survey sent through the Internet and your email, your confidentiality will be kept to the degree permitted by the technology used.

6. Right to Ask Questions: Please contact Amber Worthington at akw155@psu.edu with questions, complaints, or concerns about this research. You can also call this number if you feel this study has harmed you. If you have any questions, concerns, or problems about your rights as a research participant or would like to offer input, please contact The Pennsylvania State University’s Office for Research Protections (ORP) at (814) 865-1775. The ORP cannot answer questions about research procedures. All questions about research procedures can only be answered by the research team.

7. Compensation: You will receive $5.44. If you do not wish to participate in this study, select "I Do Not Agree" to exit the survey.
8. Voluntary Participation: You do not have to participate in this research. You can end your participation at any time by exiting the online survey. You do not have to answer any questions you do not want to answer.

Please print a copy of this form for your records, if you are about to participate in the online portion of this study.

You must be 18 years of age or older to consent to participate in this research study. If you consent to participate in this research study and to the terms above, please click on the link "I agree". Completion and return of the questionnaire will be considered your consent to participate in this study.

☐ I Agree (1)
☐ I Do Not Agree (2)

If I Do Not Agree Is Selected, Then Skip To End of Survey
The Benefits of Exercising Outdoors
By GRETCHEN REYNOLDS date published FEBRUARY 21, 2013 12:01 AM

While the allure of the gym — climate-controlled, convenient and predictable — is obvious, especially in winter, emerging science suggests there are benefits to exercising outdoors that can’t be replicated on a treadmill, a recumbent bicycle or a track.

You stride differently when running outdoors, for one thing. Generally, studies find, people flex their ankles more when they run outside. They also, at least occasionally, run downhill, a movement that isn’t easily done on a treadmill and that stresses muscles differently than running on flat or uphill terrain. Outdoor exercise tends, too, to be more strenuous than the indoor version. In studies comparing the exertion of running on a treadmill and the exertion of running outside, treadmill runners expended less energy to cover the same distance as those striding across the ground outside, primarily because indoor exercisers face no wind resistance or changes in terrain, no matter how subtle.

The same dynamic has been shown to apply to cycling, where wind drag can result in much greater energy demands during 25 miles of outdoor cycling than the same distance on a stationary bike. That means if you have limited time and want to burn as many calories as possible, you should hit the road instead of the gym.

But there seem to be other, more ineffable advantages to getting outside to work out. In a number of recent studies, volunteers have been asked to go for two walks for the same time or distance — one inside, usually on a treadmill or around a track, the other outdoors. In virtually all of the studies, the volunteers reported enjoying the outside activity more and, on subsequent psychological tests, scored significantly higher on measures of vitality, enthusiasm, pleasure and self-esteem and lower on tension, depression and fatigue after they walked outside.

Of course, those studies were small-scale, short-term — only two walks — and squishy in their scientific parameters, relying heavily on subjective responses. But a study last year of older adults found, objectively, that those who exercised outside exercised longer and more often than those working out indoors. Specifically, the researchers asked men and women 66 or older about their exercise habits and then fitted them all with electronic gadgets that measured their activity levels for a week. The gadgets and the survey showed that the volunteers who exercised outside, usually by walking, were significantly more physically active than those who exercised indoors, completing, on average, about 30 minutes more exercise each week than those who walked or otherwise exercised indoors.

Studies haven’t yet established why, physiologically, exercising outside might improve dispositions or inspire greater commitment to an exercise program. A few small studies have found that people have lower blood levels of cortisol, a hormone related to stress, after exerting themselves outside as compared with inside. There’s speculation, too, that exposure to direct sunlight, known to affect mood, plays a role.

But the take-away seems to be that moving their routines outside could help reluctant or inconsistent exercisers. “If outdoor activity encourages more activity, then it is a good thing,” says Jacqueline Kerr, a professor at the University of California, San Diego, who led the study of older adults. After all, “despite the fitness industry boom,” she continues, “we are not seeing changes in national physical activity levels, so gyms are not the answer.”
The Benefits of Exercising Outdoors for Young Adults
By GRETCHEN REYNOLDS date published July 21, 2016 12:01 AM

While the allure of the gym — climate-controlled, convenient, and predictable — is obvious, especially in winter, emerging science suggests there are benefits to exercising outdoors that can’t be replicated on a treadmill, an indoor bicycle, or a track.

You stride differently when walking or running outdoors, for one thing. Generally, studies find, people flex their ankles more when they walk or run outside. They also, at least occasionally, walk or run downhill, a movement that isn’t easily done on a treadmill and that stresses muscles differently than walking or running on flat or uphill terrain. Outdoor exercise tends, too, to be more strenuous than the indoor version. In studies comparing the exertion of walking or running on a treadmill and the exertion of walking or running outside, treadmill users expended less energy to cover the same distance as those striding across the ground outside, primarily because indoor exercisers face no wind resistance or changes in terrain, no matter how subtle.

The same dynamic has been shown to apply to cycling, where wind drag can result in much greater energy demands during 25 miles of outdoor cycling than the same distance on a stationary bike. That means if you have limited time and want to burn as many calories as possible, you should hit the road instead of the gym.

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Of course, those studies were small-scale, short-term — only two walks — and squishy in their scientific parameters, relying heavily on subjective responses. But a study last year of younger adults found that those who exercised outside exercised longer and more often than those working out indoors. Specifically, the researchers asked men and women 18 to 35 about their exercise habits and then fitted them all with electronic gadgets that measured their activity levels for a week. The gadgets and the survey showed that the volunteers who exercised outside, usually by walking, were significantly more physically active than those who exercised indoors, completing, on average, about 30 minutes more exercise each week than those who walked or otherwise exercised indoors.

Studies haven’t yet established why, physiologically, exercising outside might improve dispositions or inspire greater commitment to an exercise program. A few small studies have found that people have lower blood levels of cortisol, a hormone related to stress, after exerting themselves outside as compared with inside. There’s speculation, too, that exposure to direct sunlight, known to affect mood, plays a role.

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The Benefits of Exercising Outdoors for Older Adults
By GRETCHEN REYNOLDS  date published July 21, 2016 12:01 AM

While the allure of the gym — climate-controlled, convenient, and predictable — is obvious, especially in winter, emerging science suggests there are benefits to exercising outdoors that can’t be replicated on a treadmill, an indoor bicycle, or a track.

You stride differently when walking or running outdoors, for one thing. Generally, studies find, people flex their ankles more when they walk or run outside. They also, at least occasionally, walk or run downhill, a movement that isn’t easily done on a treadmill and that stresses muscles differently than walking or running on flat or uphill terrain. Outdoor exercise tends, too, to be more strenuous than the indoor version. In studies comparing the exertion of walking or running on a treadmill and the exertion of walking or running outside, treadmill users expended less energy to cover the same distance as those striding across the ground outside, primarily because indoor exercisers face no wind resistance or changes in terrain, no matter how subtle.

The same dynamic has been shown to apply to cycling, where wind drag can result in much greater energy demands during 25 miles of outdoor cycling than the same distance on a stationary bike. That means if you have limited time and want to burn as many calories as possible, you should hit the road instead of the gym.

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Of course, those studies were small-scale, short-term — only two walks — and squishy in their scientific parameters, relying heavily on subjective responses. But a study last year of older adults found that those who exercised outside exercised longer and more often than those working out indoors. Specifically, the researchers asked men and women 66 or older about their exercise habits and then fitted them all with electronic gadgets that measured their activity levels for a week. The gadgets and the survey showed that the volunteers who exercised outside, usually by walking, were significantly more physically active than those who exercised indoors, completing, on average, about 30 minutes more exercise each week than those who walked or otherwise exercised indoors.

Studies haven’t yet established why, physiologically, exercising outside might improve dispositions or inspire greater commitment to an exercise program. A few small studies have found that people have lower blood levels of cortisol, a hormone related to stress, after exerting themselves outside as compared with inside. There’s speculation, too, that exposure to direct sunlight, known to affect mood, plays a role.

But the take-away seems to be that moving their routines outside could help reluctant or inconsistent exercisers. “If outdoor activity encourages more activity, then it is a good thing,” says Jacqueline Kerr, a professor at the University of California, San Diego, who led the study of older adults. After all, “despite the fitness industry boom,” she continues, “we are not seeing changes in national physical activity levels, so gyms are not the answer.”
Appendix E
Randomized Figural Rating Scale

Male

Female
Appendix F
Attributions of Solution Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can impact whether my child loses weight with physical activity by sharing this information with him/her.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My sharing this information with my child can cause him/her to lose weight with outdoor exercise.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have the ability to influence whether my child loses weight with exercise by sharing this information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix G
Obligation Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel a moral obligation to share this information with my child/parent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I should make sure to share this information with my child/parent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that it is important to share this information with my child/parent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>I think it would be morally unacceptable not to share this information with my child/parent.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>It would go against my principles if I did not pass along this information to my child/parent.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *Italicized items were not used in the data analysis.*
## Appendix H
### Generative Concern Measure

Please indicate the extent to which you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I try to pass along the knowledge that I have gained through my experiences.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think I would like the work of a teacher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>I feel as though I have made a difference to many people.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have made and created things that have had an impact on other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>I try to be creative in most things that I do.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think that I will be remembered for a long time after I die.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others would say that I have made unique contributions to society.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have important skills that I try to teach others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have made many commitments to many different</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
kinds of people, groups, and activities in my life.

*Other people say that I am a very productive person.*

I have a responsibility to improve the neighborhood in which I live.

People come to me for advice.

I feel as though my contributions will exist after I die.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other people say that I am a very productive person.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>I have a responsibility to improve the neighborhood in which I live.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>People come to me for advice.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>I feel as though my contributions will exist after I die.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

*Note: Italicized items were not used in the data analysis.*
Appendix I
Psychological Reactance Measure

Please indicate the extent to which you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am uncomfortable when I am told what I am obligated to do for my child/parent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I do not like being told that I have a duty to share health information with my child/parent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It irritates me when messages tell me about my obligation to my child/parent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I dislike being told that I have an obligation to share health information with my child/parent.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix J
Agency Measures (Knowledge, Choice, and Self-Efficacy)

Knowledge:

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>I am aware of how to share this information with my child/parent.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>I understand how to share this information with my child/parent.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Choice:

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>I am able to choose whether or not I pass along this information to my child/parent.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>It is my choice if I share this information with my child/parent.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>I can decide if I share this information with my child/parent.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Self-Efficacy:

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am able to share this information with my child/parent in the near future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am capable of passing this information along to my child/parent soon.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is easy for me to share this information with my child/parent in the near future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am confident that I could share this information with my child/parent soon.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking responsibility for my child/parent's physical activity by sharing this information soon is possible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is easy for me to take responsibility for my child/parent's physical activity by sharing this information in the near future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Italicsized items were not used in the data analysis.
Appendix K
Responsibility Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel a personal responsibility to share this information with my child/parent in the near future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It's up to me to share this information with my child/parent soon.</td>
<td>o</td>
<td>o</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel it is my responsibility to share this information with my child/parent in the near future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix L
Attitudes Measure

I think that sharing this information with my child/parent about the benefits of exercising outdoors in the near future is:

<table>
<thead>
<tr>
<th></th>
<th>1 (1)</th>
<th>2 (2)</th>
<th>3 (3)</th>
<th>4 (4)</th>
<th>5 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmful:Beneficial</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Unpleasant:Pleasant</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Boring:Interesting</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Unimportant:Important</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Undesirable:Desirable</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Unhealthy:Healthy</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Appendix M
Subjective Norms Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most people who are important to me think that I should share this information with my child/parent in the near future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most people whose opinion I value think that I ought to share this information with my child/parent soon.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is expected of me that I share this information with my child/parent soon.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix N
Personal Descriptive Norms Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most people who are important to me have already shared this type of information with their children/parents.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Most people whose opinion I value have already shared this type of information with their children/parents.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Most people who are important to me have already shared this type of information with their children/parents.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
Appendix O
Personal Injunctive Norms Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most people whose opinion I value would approve of my sharing this information with my child/parent soon.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most people who are important to me would endorse my sharing this information with my child/parent soon.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most people who are important to me would support that I share this information with my child/parent in the near future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix P  
Societal Descriptive Norms Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A majority of people in the United States have already shared this type of information with their children/parents.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A majority of people in the United States have already passed along this type of information to their children/parents.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A majority of people in the United States have already decided to share this type of information with their children/parents.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix Q
Societal Injunctive Norms Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A majority of people in the United States approve of parents sharing this type of information with their children/parents.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>A majority of people in the United States endorse parents sharing this type of information with their children/parents.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>A majority of people in the United States support that parents share this type of information with their children/parents.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Appendix R
Information Sharing Intentions Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about sharing the information you just read about the benefits of exercising outdoors with your child/parent:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I intend to share this information with my child/parent soon.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I mean to pass this information along to my child/parent in the near future.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I have it in my mind to share this information with my child/parent soon.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I will share this information with my child/parent in the near future.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Appendix S

Anticipated Regret and Anticipated Guilt Measure

If I did not share the information I just read about the benefits of exercising outdoors with my child/parent, I would feel:

<table>
<thead>
<tr>
<th></th>
<th>Not at all (1)</th>
<th>. (2)</th>
<th>. (3)</th>
<th>. (4)</th>
<th>Very much (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regret</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Guilty</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
### Appendix T
Anticipated Pride and Hope Measure

If I did share the information I just read about the benefits of exercising outdoors with my child/parent, I would feel:

<table>
<thead>
<tr>
<th></th>
<th>Not at all (1)</th>
<th>. (2)</th>
<th>. (3)</th>
<th>. (4)</th>
<th>Very much (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proud</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
</tr>
<tr>
<td>Hopeful</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
</tr>
</tbody>
</table>
Appendix U
Physical Activity Mavenism Measure

Please indicate the extent to which you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like introducing new exercises to others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like helping people by providing them with information about physical activity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others think of me as a good source of information when it comes to new information about exercise.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like to acquire new information about physical activity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like to be knowledgeable about physical activity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I like to be aware of the most up-to-date physical activity information so I can help others by sharing when it is relevant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If someone asked me about an exercise issue I was unsure of, I would know how to help them find the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
answer.

Being knowledgeable enough about physical activity so that I could teach someone else is important to me.

People often seek me out for answers when they have questions about physical activity.
Appendix V
Regret and Guilt Measure

When I think about the responsibility that I have had to share health information about physical activity with my child/parent in the past, I currently feel:

<table>
<thead>
<tr>
<th></th>
<th>Not at all (1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>Very much (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regret</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guilty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix W
Self-Blame Measure

Please indicate the extent to which you agree or disagree with the following statements when thinking about the responsibility you have to share health information about physical activity with your child/parent:

<table>
<thead>
<tr>
<th>I feel I am to blame for my child/parent's current physical activity.</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am at fault for my child/parent's current levels of exercise.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If my child/parent gets sick because they do not exercise, I am to blame.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is my fault if my child/parent gets sick because they aren't active.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix X
Obesity Stigma Beliefs Measure

Please indicate the extent to which you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think that obese people are unfairly treated.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Being a family member of someone who is obese carries a social stigma.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Most people will take an obese person's opinions less seriously.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Most people will think less of a person who is obese.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Most people think that obese individuals have character flaws.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Most people feel that being obese is a sign of personal failure.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Most employers would pass over the application of an obese person in favor of someone else.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Most people would not hire an obese person to take care of their children.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Most people would be</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>
reluctant to date an obese person.

Most people would not want their children to marry an obese person.
Appendix Y  
Modified Responsibility Measure

Please indicate the extent to which you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither agree nor disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel a personal responsibility to share this information with my child/parent in the near future.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>It’s up to me to share this information with my child/parent soon.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel it is my responsibility to share this information with my child/parent in the near future.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel a moral obligation to share this information with my child/parent.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel that I should make sure to share this information with my child/parent.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel that it is important to share this information with my child/parent.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Appendix Z
Modified Attributions of Solution Measure

How responsible do you think the following individuals or groups are for SOLVING the fact that your child is overweight or obese?

<table>
<thead>
<tr>
<th></th>
<th>Not at all responsible (1)</th>
<th>. (3)</th>
<th>. (4)</th>
<th>. (5)</th>
<th>Very much responsible (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Me (Q6.18_1)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Amber K Worthington  
Curriculum Vitae

EDUCATION

<table>
<thead>
<tr>
<th>Degree</th>
<th>Field and Institution</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>Communication Arts and Sciences, Pennsylvania State University</td>
<td>2017</td>
</tr>
<tr>
<td>MA</td>
<td>Communication Arts and Sciences, Pennsylvania State University</td>
<td>2013</td>
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<tr>
<td>BS</td>
<td>Health and Exercise Science, Magna Cum Laude, Wake Forest University</td>
<td>2011</td>
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SELECTED PUBLICATIONS


SELECTED TEACHING EXPERIENCE

**Undergraduate Instructor, Pennsylvania State University**

- Communication and Aging (CAS 421), 1 section  
  Fall 2015
- Health Communication: Designing Health Messages (CAS 253), 1 section  
  Fall 2014
- Research Methods (CAS 204), 1 section  
  Spring 2014
- Effective Speech: Group Communication Emphasis (CAS 100B), 1 section  
  Summer 2013
- Effective Speech: Public Speaking (CAS 100A), 7 sections  
  Fall 2011-Spring 2013

**Undergraduate Teaching Assistant, Pennsylvania State University**

- Research Methods (CAS 204), Jon F. NussBaum, 5 lab sections  
  Fall 2012, 2013
- Communication Theory (CAS 202), Michael L. Hecht, 2 lab sections  
  Spring 2013