POSITIVE EMOTIONS IN RESPONSE TO PARENTAL ILLNESS: THE IMPACT OF DISPOSITIONAL GRATITUDE ON DEPRESSION AND ANXIETY IN THE CHILDREN OF PARENTS WITH AN ILLNESS

By
Maggie Stoeckel

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Chair:

Carol Weissbrod, Ph.D.

Anthony Ahrens, Ph.D.

Brian Yates, Ph.D.

Dean of the College of Arts and Sciences

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American University
Washington, D.C. 20016
The current study explored the adolescent child response to parental illness by examining the potential impact of dispositional gratitude, family variables, and objective and subjective characteristics of parental illness on adolescent child depression and anxiety. 136 college students (72 healthy parents, 64 ill parents) were asked to complete a series of self-report measures examining dispositional gratitude, family quality of life, depression, and anxiety. Results indicate that in comparison to the healthy parent group, the ill parent group experienced lower family quality of life and trended towards higher anxiety levels. Within the ill parent group, chronic onset of parental illness was associated with higher depression scores than acute onset, number of parental hospitalizations was directly associated with anxiety scores, and parental involvement was inversely associated with anxiety scores. Parental health status moderated the relationship between dispositional gratitude and adolescent child anxiety and depression.
# TABLE OF CONTENTS

ABSTRACT........................................................................................................ ii  

LIST OF TABLES............................................................................................... iv  

Chapter  

I. INTRODUCTION.......................................................................................... 1  

II. PURPOSE OF THE CURRENT STUDY AND HYPOTHESES..15  

III. METHOD................................................................................................... 19  

IV. RESULTS.................................................................................................. 27  

V. DISCUSSION............................................................................................... 43  

VI. LIMITATIONS AND FUTURE DIRECTIONS........................................... 54  

APPENDICES.................................................................................................. 57  

REFERENCES................................................................................................. 68
LIST OF TABLES

Table
1. Means of Major Outcome Variables Within Healthy and Ill Parent Groups….27
2. Intercorrelations of Major Outcome Variables………………………………….28
3. Intercorrelations for Research Question # 2…………………………………….29
4. Intercorrelations of Major Outcome Variables in Healthy Parent Group………32
5. Intercorrelations of Major Outcome Variables in Ill Parent Group………………33
6. Interaction of Parental Health Status and Dispositional Gratitude on Anxiety…34
7. Interaction of Parental Health Status and Dispositional Gratitude on Depression.35
8. Interaction of Parental Health Status and Depression on Anxiety……………….35
9. Interaction of Parental Health Status and FQOL on Anxiety…………………..36
INTRODUCTION

In addition to the usual obstacles of childhood and adolescence, many children must cope with the stress of growing up with, and sometimes caring for, an ill parent. Parental illness poses a number of psychological, economic, and social difficulties that can have a negative impact on child functioning. Past research shows that the children of physically or psychologically ill parents are significantly more susceptible to a number of psychosocial adjustment issues, including anxiety, depression, low self-esteem, and decreased social competence (Armistead, Klein, & Forehand, 1995; Siegel, Mesagno, Rams, Christ, Banks & Moynihan, 1992).

Conventional wisdom suggests that having an ill parent can be detrimental to a child's psychological health. In a review of the relevant research, however, Korneluk and Lee (1998) found that the presence of parental illness does not always lead to child maladjustment. Therefore, one might wonder whether there are specific conditions or traits that make certain children of ill parents either more or less vulnerable to depression and anxiety. For example, existing findings suggest that the child’s subjective experience of parental illness and family variables may play a role in child vulnerability to psychopathology (Compas et al., 1994; Howes, Hoke, Winterbottom & Delafield, 1994; Kotchick, Summers, Forehand & Steele, 1997; Stanescu & Romer, 2011). In addition, literature in the field of positive psychology suggests that certain individuals may respond to negative life events with positive emotions, such as hope, optimism, and dispositional gratitude (Frederickson, Tugade, Waugh & Larkin, 2003; Nolen-Hoeksema & Davis, 2002; Oltjenbruns, 1991). The current study examines dispositional gratitude, characteristics of parental illness, and family variables, and their potential role in the
underlying mechanisms of adolescent child vulnerability to depression and anxiety in response to parental illness.

*Parental Illness and Child Psychosocial Functioning*

*Overall impact.* Due to constant advances in medical technology in modern society, individuals suffering from a variety of illnesses are living longer and becoming less dependent on hospital-based care. As a result, in-home medical care for an ill parent has become a more commonplace feature of ordinary life (Cole & Reiss, 1993). Data from the National Long-Term Care Survey (Houser, Gibson & Redfoot, 2010) indicates that 90 percent of older adults receiving care in the community are cared for by family members, while only a small percentage are receiving exclusively formal medical services. In many cases, children may become the de facto leaders of the household, leading to immense responsibility and risks to development and psychological wellbeing. A 2003 national survey conducted in the United Kingdom gathered data on 6,178 young caregivers under the age of 18. Two thirds of the 6,178 young caregivers were caring for a parent; furthermore, 29 percent of these young caregivers were 5 to 10 years of age (Becker, 2003-2004). One potential risk to the children of ill parents is that these children will be "parentified," taking on more responsibility than appropriate in order to compensate for their parents' deficiencies (Bauman, Silver, Berman & Gamble, 2009).

Growing up with an ill parent, regardless of whether or not the child takes on caregiving responsibilities, may also lead to higher levels of depression, anxiety, and behavioral problems, as well as lower levels of self-esteem and social competence than the children of healthy parents (Armsden & Lewis, 1994; Korneluk & Lee, 1998; Siegel et al., 1992). Other studies suggest that the children of parents with chronic pain are
generally maladjusted and have poorer social skills and higher reports of somatic concerns and headaches relative to the children of non-ill parents (Mikail & von Baeyer, 1990). Therefore, the children of ill parents are clearly a population in need of attention, and further research is necessary to illuminate the mechanisms of the relationship between parental illness and child psychosocial functioning.

Dimensions of the illness. Past work with families in which one or more parents suffer from an illness emphasizes the negative impact of a number of objective characteristics of parental illness on child functioning. Rolland (1987), for example, presents a psychosocial typology of illness to describe the various characteristics of parental illness that could influence the resulting impact on child wellbeing. First, Rolland (1987) differentiates between acute versus progressive course of onset of illness. Conditions occurring over longer periods may allow for gradual family adjustment to parental illness, while acute onset illnesses could require more urgent mobilization of “crisis-management skills.” Second, one must consider the course of a disease over time, such as episodic, constant, or progressive. It is possible that each of these three categories of illness could have a differentiating impact on child functioning. Third, prognosis may play a significant role in family adjustment to illness. It is important to note whether or not an illness led (or will lead) to a parent's eventual passing.

One last characteristic to consider is the degree of incapacitation due to illness. Various conditions may be categorized according to the extent to which a parent is unable to function with regards to cognition, sensation, movement, energy, and disfigurement. Rolland's (1987) model is a useful tool in attempting to conceptualize the interacting objective characteristics of parental illness. The hypotheses presented with regards to this
model, however, should be considered preliminary, and further research is necessary to better understand the role of objective characteristics of parental illness in relation to child wellbeing.

**Child perception of experience with parental illness.** Research has been conducted involving *parent* perceptions of *child* illness severity, illness prognosis, and stress experienced in response to child illness (Frydman, 1980; Thompson, Gustafson, Hamlett & Spock, 1992). Unfortunately, little work has been done to formally operationalize *child* perception of *parental* illness severity and subjective stress due to parental illness. Most studies have relied upon parent or clinician reported illness severity (Armistead et al., 1995; Rolland, 1987). Existing work in this area, however, suggests that subjective characteristics of parental illness, such as child perception of stress and illness severity, could be equally significant, or even more significant, predictors of child psychosocial functioning.

Compas et al. (1994), for example, examined symptoms of anxiety and depression in preadolescent, adolescent, and adult children of parents with cancer. Children were asked, "How bad do you think your parent's illness is?" and rated it on a 4-point Likert scale ranging from "not bad" to "very bad." In order to examine perceived stress, younger children were asked, "How upsetting is your parent's illness for you?" and rated it on a 4-point Likert scale ranging from "not upsetting" to "extremely upsetting." For young adult children, the question was phrased "How stressful is your experience with cancer at this time?" Responses to these questions were found to be better predictors of resulting psychopathology than actual severity (i.e., duration, stage, prognosis) of parental illness. Other studies of parental illness support the notion that child perception of the severity or
stressfulness of the illness contributes significantly to reported psychological dysfunction (Howes et al., 1994; Kotchick et al., 1997). Given these findings, there is a need to further explore the roles of child ratings of parent illness severity and perceived stress, with the hope that one day these variables will be operationalized in the context of child response to parental illness.

Interestingly, research suggests that children tend to experience negative effects in response to parental illness whether the illness is psychological or physical in nature. Although some research has revealed mixed results (Ireland & Pakenham, 2010), most work in this area suggests that the effects of psychological and physical parental illness on children are comparable. For example, Hirsch, Moos, and Reischl (1985) examined psychosocial adjustment in the adolescent children of depressed, arthritic, and healthy parents. The children of both depressed and arthritic parents reported significantly higher rates of psychopathology in comparison to the children of healthy parents. Particularly interesting was the finding that the children of depressed and arthritic parents did not differ significantly from each other in symptoms of depression, anxiety, somatization, obsessive-compulsive rumination, and interpersonal sensitivity. Anderson and Hammen (1993) found a similar pattern of results in a comparison of the children of parents with unipolar depression, bipolar disorder, medical illness, or no illness. This suggests that reduction in child functioning in response to parental illness is not due to the type of illness per se, but rather simply due to the presence of an illness.

Stanescu and Romer (2011) highlight the significance of child perception of family variables in a study of family functioning and adolescent psychological wellbeing in families with a parent who has suffered from a traumatic brain injury (TBI). The
adolescent children of brain-injured parents completed the Youth Self-Report questionnaire to measure psychological wellbeing as well as the Family Crisis Oriented Personal Scales and the Family Assessment Device to measure family functioning. Results indicate that family dysfunction as a whole was associated with adolescent psychological symptoms. More specifically, four major sub-dimensions of family functioning were correlated with adolescent child mental health: affective responsiveness, affective involvement, roles, and communication. Increased adolescent psychological symptoms were found in families characterized by 1) lower responsiveness and less expression of feelings, 2) lower involvement, interest, and value placed on family members' activities, 3) lower ability to accept new roles and responsibilities, and 4) decreased communication and openness. Similar patterns of results have been found in prior examinations of the significance of family variables in the psychological wellbeing of the children of ill parents (Power, 1985; Rost, 1992).

A range of illnesses, from physical to psychological, can be defined by a variety of objective characteristics. Given that this range of conditions can cause distress for a child, it is possible that the child's perception of experiencing parental illness is equally, if not more, powerful than the category of illness per se. Additionally, research shows that in the children of parents with either a psychological or medical illness, poor family functioning and lack of cohesion is associated with lowered levels of child psychosocial adjustment (Hirsch, Moos & Reischl, 1985; Stanescu & Romer, 2011). Therefore, a number of variables within the household, such as perceived family quality of life, disruption of parenting, reduced parental support, and changes in family routine could potentially be related to child depression and anxiety in response to parental illness.
The Impact of Parental Illness and Caregiving on Emerging Adults

While the literature discussed above focuses primarily on the impact of parental illness on young children, older children are also affected by this unfortunate situation. Because of their age, older children are more likely than younger children to take on major caregiving responsibilities, both practical and psychological. National caregiving surveys suggest that 17 to 28 percent of unpaid primary caregivers to older adults living in the home are either emerging or young adults (Levine et al., 2005). Thus, college-age emerging and young adults are an important population to address.

A number of key developmental processes could potentially be disrupted if an emerging adult carries the psychological burden of caring for his or her ill parent. One pivotal task of emerging adulthood is to differentiate one's self from the family of origin, a process that involves establishing independent yet functional relationships with parents and siblings (Dellmann-Jenkins & Blankemeyer, 2009). Emerging young adults who are successful in differentiating are better able to make independent, competent decisions and accept responsibility for their actions. The transition to young adulthood is marked by the fulfillment of a number of individualistic qualities that cannot be fully met without successful differentiation from parents and siblings (Arnett, 2001). This process is usually triggered by the emerging adult moving away from home and living independently (White, 1994). Therefore, the task of differentiation can potentially be disrupted if an emerging adult is obligated to stay in the home and care for his or her suffering parent.

A second vital task of emerging adulthood that can potentially be disrupted by the caregiver role is establishing intimate relationships. The establishment of close emotional
relationships with friends, dating partners, spouses, and children is seen as the second phase of development (Erikson, 1980). Individuation from the family of origin sets the groundwork for this second stage. Close friendships can serve as buffers against emotional distress, particularly during the pivotal developmental periods of adolescence and emerging adulthood. Unfortunately, the emerging adult children of ill parents report that time normally spent with friends is typically devoted to caregiving. Caregiving also takes time away from an emerging adult's ability to date and maintain romantic relationships. Consequently, young adults who have devoted much of their childhood to caring for an ill parent may postpone marriage and having children (Dellmann-Jenkins, Blankemeyer & Pinkard, 2001).

A third important task characteristic of emerging adulthood is the achievement of economic independence. Emerging adults are usually exploring possible career paths and contemplating potential avenues for becoming financially differentiated from the family. College students may take different courses to learn more about their intended line of work. Unfortunately, young caregivers report studying less than desired and missing classes in order to devote time to taking care of an ill parent (Dellmann-Jenkins et al., 2001). The time and emotional energy put into family obligations can have a negative impact on career goals. A young adult concerned about parental illness may put his or her career on hold, pass up a promotion, miss work frequently, or turn down an opportunity to relocate (Dellman-Jenkins, Blankemeyer & Pinkard, 2000). The need to care for an ill parent can slow a young caregiver's development by hindering both career progress and the establishment of financial independence.
Emerging and young adulthood is characterized by a number of significant developmental milestones. These milestones can be disrupted by the obligation to care for an ill parent or other family member, often resulting in maladjustment and psychological difficulties lasting into adulthood. The current study does not directly address the notion of child as caregiver, primarily because the participants are full-time college students. However, it will be important to consider the psychological burden of growing up with an ill parent and the potential effects on development through adolescence and emerging adulthood.

_Protective Psychology_

_Positive traits and psychological wellbeing._ As portrayed by the literature described above, negative life events (such as parental illness) have the potential to be harmful to children. Are there certain factors that could limit these negative effects? Positive psychologists examine human strengths and the ways in which characteristics can be cultivated in pursuit of wellbeing (Seligman, 2000). As the field of positive psychology has continued to evolve, researchers have sought to explore and better define various constructs of wellbeing (Peterson, Ruch, Beermann, Park & Seligman, 2007; Ryff, 1989). For example, in an article on adaptive mental mechanisms, Vaillant (2000) uses the Defensive Function Scale of the DSM-IV as a metric for positive mental health. According to this metric, the mature end of the Defensive Function Scale encompasses positive psychology-related concepts such as altruism, humor, and anticipation. According to the DSM-IV (APA, 1994), these concepts qualify as involuntary mental mechanisms that may allow one to cope in times of distress. In this light, positive
psychological characteristics could serve as a buffer against negative events and limit the likelihood of symptomatology.

Other work suggests that certain positive traits and behaviors can contribute to the reduction of a variety of symptoms of mental illness. For example, Schwartz, Meisenhelder, Ma and Reed (2003) conducted a study of altruistic social interest behaviors in members of the Presbyterian Church throughout the United States. Participants were asked questions related to altruistic social interest, physical functioning, bodily pain, social functioning, psychological distress and wellbeing, vitality, general health perceptions, and religious coping. Results of the study suggest that altruistic helping behaviors are associated with better mental health. Altruism was more closely associated with better mental health than other factors examined in the study, such as stressful life events, demographic variables, and psycho-spiritual methods of reducing worry (i.e., prayer). The authors propose that altruism may facilitate a response shift, forcing a person to see outside of the self-focused nature of anxiety and depression. This work highlights the unique benefits of altruism and the impact on overall wellbeing.

Other concepts in the field of positive psychology have been examined with regards to mental health. Increased levels of thankfulness, for example, have been found to be associated with decreases in major depression, generalized anxiety disorder, phobia, bulimia nervosa, and nicotine dependence (Kendler et al., 2003). In a thorough review of the literature, Wood, Froh and Geraghty (2010) discuss the link between gratitude, a life orientation toward the positive, and wellbeing. In addition, Scheier and Carver (1985) conducted a longitudinal study of dispositional optimism in a population of college undergraduates. Four weeks before the end of the semester, participants were asked to
complete the Life Orientation Test (LOT) to assess dispositional optimism. Towards the end of the semester, participants were asked to complete the LOT for a second time, as well as the Self-Consciousness Scale and a 39-item physical symptom checklist (e.g., blurred vision, muscle soreness, fatigue, dizziness). Results of the study suggest that individuals high in optimism reported fewer physical symptoms over the course of the four weeks than did individuals low in optimism. Scheier and Carver (1985) speculate that dispositional optimism may have allowed certain participants to successfully cope with various physical symptoms, resulting in positive wellbeing.

It is also important to address the function of positive psychological traits in a young population. Research suggests that in comparison to children low in dispositional optimism, children high in dispositional optimism tend to perform better in academics and athletics, cope with adverse events in more adaptive ways, feel less angry, and are less likely to abuse substances (Puskar, Sereika, Lamb, Tusaie-Mumford & McGuiness, 1999; Scheier & Carver, 1993; Seligman, 1991). Similarly, hope appears to be correlated with high self-esteem and lower levels of depression in children (Snyder, Feldman, Taylor, Schroeder & Adams, 2000).

The above work suggests that positive psychological traits contribute to the lessening of psychopathology and contribute to overall wellbeing. Further exploration into the field of positive psychology is necessary to better understand the underlying mechanisms of these adaptive constructs, as well as their potential role in adjusting to negative life events such as parental illness.

Positive emotions and negative events. While difficult life events have clear downsides, research shows that certain individuals manage to turn these events into
positive changes (Frederickson et al., 2003; Nolen-Hoeksema & Davis, 2002; Oltjenbruns, 1991). In a discussion of benefit-finding in adverse events, Affleck and Tennen (1996) state that many people report responding to threatening circumstances, such as chronic illness, with the development of patience, tolerance, empathy, and courage. More specifically, bereavement studies suggest that in times of loss, some adults may experience developmental changes for the better by focusing on the present, increasing empathy for others, building relationships with family members, and finding the positive in loss.

Research suggests that this ability to find benefits in loss occurs across many different kinds of events, ranging from traumas to natural disasters to personal losses. Thus, it appears that the ability to find benefits exists within certain individuals and is not isolated to specific situations (Nolen-Hoeksema & Davis, 2002). Similar results have been observed in studies of adolescents' response to grief. Oltjenbruns (1991) found that ninety-three percent of adolescents identified positive benefits from experiencing grief, such as having a deeper appreciation of life, strengthened emotional bonds with others, and greater emotional strength.

In this light, research has been done on the role of positive emotions in response to the September 11th attacks. Research suggests that in addition to negative emotions, many people responded to this crisis by experiencing various positive emotions. For example, Frederickson et al. (2003) found that while there were considerable reports of distress, many experienced feelings of gratitude, interest, and love following the attacks. Participants with preexisting high trait resilience tended to more frequently experience these positive emotions. Additionally, further analyses suggest that the experience of
positive emotion was a key factor in allowing resilient individuals to thrive following September 11th. Therefore, it appears that certain individuals respond to negative events with positive emotions, such as gratitude. Consequently, these positive responses can lessen an individual's vulnerability to psychopathology and contribute to overall wellbeing.

Research examining the potentially positive responses of children to parental illness is limited. However, the existing literature purports that certain constructive reactions to parental illness may result in improved outcomes for children and adolescents. Consistent with past research, Pakenham, Bursnall, Chiu, Cannon and Okochi (2006) found that young caregivers between the ages of 10 and 25 years reported higher somatic complaints and lower life satisfaction in comparison to the children of healthy parents. However, Pakenham et al. (2002) also found that the children of ill parents reported higher levels of perceived maturity. Given that the children of ill parents are often delegated caregiving responsibilities, these children may develop a sense of self-efficacy due to the skills they are forced to acquire. Therefore, these children may feel mature because they are taking on tasks not otherwise appropriate for youths their age.

In an examination of the perils and promises of long-term parental illness, Johnston (1992) suggests that the children of chronically ill parents are forced to become more independent, more tolerant, and more helpful. Responses of this nature may allow children to properly adapt to frightening or confusing changes within the family structure due to a parent's condition. Families who focus on small gains and specific positive events may be able to cope more positively with parental illness (Beavers, 1982).
The general consensus in existing work is that in the face of difficult life events, individuals can have a variety of responses, ranging from negative to positive. Those individuals who respond positively may be less vulnerable to the deleterious effects of potentially damaging circumstances, such as parental illness. The question still remains as to the relationship between dispositional gratitude and internalizing symptoms in the children of ill parents.

*Dispositional gratitude.* Dispositional gratitude is a relatively new construct in the field of positive psychology. While gratitude is sometimes described as an emotion or a moral affect (McCullough, Emmons, Kilpatrick & Larson, 2001; Wood, Maltby, Stewart, Linley & Joseph, 2008), *dispositional gratitude* refers specifically to a life orientation towards noticing and appreciating the positive (Wood, Froh & Geraghty, 2010). This construct can be broken down into three components: simple appreciation, sense of abundance, and appreciation for others (Watkins, Woodward, Stone & Kolts, 2003). Positive psychologists speculate that dispositional gratitude is distinct from other constructs, such as optimism, hope, and trust. In addition, research suggests that this life orientation towards appreciating the positive is incompatible with the negative triad of beliefs that often lead to depression (Wood et al., 2010). Similarly, studies of the Big Five personality traits suggest that dispositional gratitude is correlated with lower levels of anxiety and depression and higher levels of emotional and social functioning (Wood, Joseph & Maltby, 2008). Given the construct's relative novelty and its apparent association with decreased levels of psychopathology, it is of interest to explore the relationship of dispositional gratitude to child functioning in situations where children must deal with situational stressors, such as parental illness.
PURPOSE OF THE CURRENT STUDY AND HYPOTHESES

The major aim of the current study was to examine the association of dispositional gratitude, family variables, and parent illness characteristics with depression and anxiety in college-age children of ill parents versus those with healthy parents. The following hypotheses were made regarding the potential outcomes of the study:

1) The adolescent children of ill parents will have higher levels of depression and anxiety than the adolescent children of healthy parents.

2) Within the adolescent children of ill parents, the following variables will predict depression and anxiety:
   - Child's rating of severity of parent illness
   - Child's categorization of degree of incapacitation of parent illness
   - Child's rating of parental involvement
   - Whether the illness was chronic or acute
   - Whether the ill parent was the primary caregiver
   - Number of parental hospitalizations due to illness
   - Child rating of stress experienced due to parental illness
   - Child rating of how upset they were due to parental illness

3) Dispositional gratitude will be a partial mediator between parental health status and depression and anxiety. Therefore, dispositional gratitude will mediate the association of parental health status with internalizing symptoms; however, parental health status will also have a separate impact on depression and anxiety distinct from the influence of dispositional gratitude.
• More specifically, having an ill parent may, on average, increase levels of dispositional gratitude and consequently decrease levels of depression and anxiety.

4) The impact of parental illness on the following variables will be moderated by adolescent child gender:

   a) depression,
   
   b) anxiety, and
   
   c) dispositional gratitude

5) Within the adolescent children of ill parents, child age at onset of parental illness will influence levels of dispositional gratitude.

   The current study considered two demographic factors, child gender and child age at onset of parental illness, due to the apparent importance of these variables in existing literature on both dispositional gratitude and reaction to parental illness. Past work suggests that women express more gratitude than men in response to receiving a gift (Kashdan, Mishra, Breen & Froh, 2009). Additionally, adolescent girls have been shown to experience the greatest levels of distress in response to parental illness (Armistead & Forehand, 1995; Compas et al., 1994). On one hand, female children could potentially be more likely to experience dispositional gratitude either before or in response to parental illness. On the other hand, research suggests that adolescent girls report significantly more symptoms of distress than adolescent boys in response to having an ill mother or father (Grant & Compas, 1994). Given these trends, female children could be particularly vulnerable to depression and anxiety growing up in a household with an ill parent,
regardless of other child characteristics or family variables. Therefore, it was important to examine the effect of gender on both dispositional gratitude and internalizing symptoms.

In addition, child age at onset of parental illness could influence a child's ability to experience dispositional gratitude. Research suggests that 8- to 10-year-olds are able to differentiate between the emotions of gratitude, pride, and guilt, and to understand the interrelationship of thought, affect, and action (Graham, 1988). It is the overall consensus in the gratitude literature that gratitude does not appear regularly until middle childhood and that gratitude is a capacity that develops as children's cognitive and emotional systems grow (Klein, 1957). Gleason and Weintraub (1976) found that 80 percent of children 10 years of age or older would express gratitude in response to receiving candy from an adult. On the contrary, only 21 percent of children age 6 or younger expressed thanks in response to this gift. It thus appears that the link between positive outcomes and expressions of gratitude is made between ages 7 and 10. It is important to note that Gleason and Weintraub (1976) did not directly measure children’s ability to experience dispositional gratitude. However, when combined with the speculations made in the existing literature mentioned above, these findings suggest that child age at onset of parental illness could impact a child's ability to develop dispositional gratitude, either before onset of parental illness or in response to parental illness.

For statistical purposes, participants were defined as falling into one of two groups with regards to child age at onset of illness, based on Graham’s (1988) exploration of child development of dispositional gratitude. The first group consisted of adolescent children who were younger than 8-years-old at onset of parental illness. The
second group consisted of adolescent children who were 8-years-old or older at onset of parental illness.
METHOD

Participants

Before data collection, a power analysis was conducted to account for the several anticipated statistical tests (effect size 0.2, alpha 0.005, power 0.8, number of predictors 10). Results of this power analysis suggested that 136 total participants would be sufficient to find an effect. Therefore, the current study included a total of 136 predominantly Caucasian undergraduates at American University with a mean age of 19 years (72 males, 64 females; 72.1 % Caucasian, 4.4 % African-American, 6.6 % Hispanic or Latino(a), 0.7 % Native American, 6.6 % Asian or Pacific Islander, 8.8 % Multi-racial). Approximately six months into data collection, the study’s sample of participants was disproportionately female. The study was then closed to female undergraduates in order to recruit exclusively male undergraduates, thereby amending the imbalance.

Participants reported a mean family income of $80,000 to $100,000, with the following distribution of combined average yearly income of primary household: 9.6 % < $25,000, 5.1 % $25 to 40,000, 6.6 % $40 to 60,000, 11.8 % $60 to 80,000, 17.6 % $80 to 100,000, 17.6 % $100 to 150,000, and 30.9 % > $150,000. In order to be eligible for the study, participants were required to be at least 18 years of age and speak English.

Participants were divided into two groups: those with healthy parents (72 healthy parents; 39 males, 33 females) and those with either one or two ill parents (64 ill parents; 33 males, 31 females). If a participant had two ill parents, the participant was asked to indicate which parent suffered from a more severe illness. The remainder of the Demographics and Parental Health Information Questionnaire (Appendix A) focused on the parent reportedly suffering from a more severe illness. Parents were designated as
either healthy or ill according to participant categorization of parental illness on Question # 20 of the Demographics and Parental Health Information Questionnaire (Appendix A). The incapacitation scale used for Question # 20 was based on existing work examining the assessment of severity of diseases and the corresponding treatment implications (Tallarida, Murray & Eiben, 1979). This scale provides an assessment of the degree of incapacitation and disruption of normal activity caused by parental illness. Participants who categorized their parent's illness as 3 (a condition which may interfere with normal activity and which is incapacitating for intermittent periods of time) or higher were placed in the ill parent group. Participants who reported that their parents were healthy or categorized their parent's illness as 2 (a condition whose symptoms do not occur with regularity and do not interfere with normal activity) or lower were placed in the healthy parent group.

**Measures**

*Demographics and Parental Health Information.* This questionnaire was created by the principal investigator. In the first section, participants responded to questions related to age, sex, ethnicity, and family income. In the second section, participants responded to questions related to various aspects of parental illness. Questions included the following variables:

- Child's rating of severity of parent illness
- Child's categorization of degree of incapacitation of parent illness
- Child's rating of parental involvement
- Child age at onset of parental illness
- Whether the illness was chronic or acute
• Whether the ill parent was the primary caregiver
• Number of parental hospitalizations due to illness
• Child rating of stress experienced due to parental illness
• Child rating of how upset they were due to parental illness

Participants also answered whether or not they would have described their parents as grateful when they were growing up. Finally, participants were given space to describe their experience with parental illness in a free response format.

*The Gratitude Questionnaire (GQ-6)* (McCullough, Emmons & Tsang, 2002). The Gratitude Questionnaire is a 6-item questionnaire used to measure an individual's level of dispositional gratitude. Respondents are asked to indicate the extent to which they either agree or disagree with statements such as "I have so much in life to be thankful for" or "Long amounts of time can go by before I feel grateful to something or someone" on a 7-point Likert scale. The GQ-6 has demonstrated strong internal consistency in a number of past studies, with Cronbach's alpha values from .76 to .84 (McCullough et al., 2002). The GQ-6 has shown significant correlations with positive affect ($r = .31$), life satisfaction ($r = .53$), negative affect ($r = - .31$) and depression ($r = - .30$), while also proving to be distinct from measures of other constructs such as happiness, optimism, and hope (Froh et al., 2011; McCullough et al., 2002). In the current study, GQ-6 demonstrated respectable internal consistency, with a Cronbach’s alpha of .75.

*The Gratitude, Resentment, and Appreciation Test revised short form (GRAT)* (Watkins, Woodward, Stone, & Kolts, 2003). The Gratitude, Resentment, and Appreciation Test (short form) is a 16-item scale measuring dispositional gratitude.
Respondents are asked to indicate the extent to which they either agree or disagree with statements such as "Life has been good to me" or "I really don't think that I've gotten all the good things that I deserve in life" on a 9-point Likert scale. The GRAT consists of three subscales: Sense of Abundance (Ab), Simple Appreciation (SA), and Appreciation of Others (AO). The sum of these three scales represents an individual's cumulative level of dispositional gratitude. The GRAT has demonstrated sound internal consistency in existing work, both overall (Cronbach's $\alpha = .92$) and for each of the three subscales (Ab = .88; SA = .90; AO = .76). The GRAT has also been shown to be positively correlated with positive affect and negative correlated with negative affect and depression (Watkins, Woodward et al., 2003). In the present study, the GRAT appeared to have acceptable internal consistency (overall Cronbach’s $\alpha = .86$; Ab = .85; SA = .78; AO = .78). The GQ-6 and the GRAT were chosen for the purposes of the current study because they are the two most commonly used measures of dispositional gratitude and have typically demonstrated high inter-correlation (Wood, Maltby, Stewart & Joseph, 2008). In the current study, the GQ-6 and the GRAT were significantly correlated with one another ($r = .655, p < .001$).

*The Positive and Negative Affect Schedule (PANAS)* (Watson, Clark & Tellegen, 1988). Studies have found dispositional gratitude to be correlated with positive affect. For instance, McCullough, Emmons & Tsang (2002) found the GQ-6 to be positively correlated with the Positive Affect scale of the Positive and Negative Affect Schedule ($r = .31, p < .01$). In the current study, positive affect will be controlled for in order to account for potential overlap between this construct and dispositional gratitude. The PANAS consists of 20 total items and is comprised of two mood scales, one measuring
positive affect (10 items) and one measuring negative affect (10 items). In the current study, respondents were asked to indicate on a 5-point Likert scale the extent to which they generally feel a certain emotion (e.g., "interested" or "guilty"). After completing the scale, the investigator calculates an individual's score for a) positive affect and b) negative affect. The PANAS has shown to have high internal consistency in past studies (Cronbach’s alpha levels of .86 to .90 for the Positive Affect Scale and .84 to .87 for the Negative Affect Scale (Watson et al., 1988). The current study showed similar results, with a Cronbach’s alpha level of .84 for the Positive Affect scale and .87 for the Negative Affect Scale.

Family Quality of Life Scale (FQOL) (Hoffman, Marquis, Poston, Summers & Turnbull, 2006). A number of factors could influence an individual's levels of depression and anxiety, including family quality of life. The current study included The Family Quality of Life Scale (FQOL), which has been used to assess various facets of functioning and cohesion in families with and without disabled family members (Summers, Marquis, Mannan, Turnbull, Fleming, Poston, Wang & Kupzyk, 2007; Zuna, Selig, Summers & Turnbull, 2009). Although originally designed for families who have children with disabilities, the content of the scale is highly relevant to the proposed study and has strong psychometric properties. The scale measures an individual's family quality of life by asking respondents a series of questions related to family interaction, parenting, emotional wellbeing, physical/material wellbeing, and disability-related support. In the current study, 4 questions related to disability-related support were removed from the scale because they would not necessarily be applicable to all participants. The validity and reliability of this form of the FQOL has been confirmed in studies of families without
disabilities (Zuna, Selig, Summers & Turnbull, 2009). Respondents reported on a 5-point Likert scale the extent to which they were dissatisfied or satisfied with a series of 21 family-related issues. Examples include "My family enjoys spending time together," "My family members have friends or others who provide support," or "My family members help the children with schoolwork and activities." The FQOL has been shown to have strong psychometric properties, with Cronbach’s alpha levels ranging from .80 to .90 in past work (Hoffman et al., 2006). The FQOL also demonstrates convergent validity with relevant measures, such as the Family Adaptability, Partnership, Growth, Affection, and Resolve Scale--APGAR ($r = .68, p < .001$) and the Family Resource Scale ($r = .60, p < .001, n = 60$) (Hoffman, Marquis, Poston, Summers & Turnbull, 2006). The current study demonstrated sound internal consistency (Cronbach’s $\alpha = .93$). Because the current study was not focused on the subscales, a total FQOL mean item score was used as an outcome measure.

**Center for Epidemiologic Studies Depression Scale (CES-D)** (Radloff, 1977). The Center for Epidemiologic Studies Depression Scale is a 20-item self-report measure used to assess depressive symptoms. Respondents are asked to report, on a 4-point Likert scale ranging from "rarely or none of the time" to "most or all of the time," how often they have felt a number of ways during the past week. Example items include "I felt that I could not shake off the blues even with help from my family or friends" and "I felt hopeful about the future." The CES-D has shown to be a reliable measure across a number of types of depressive symptoms, with Cronbach's alpha values ranging from .85 to .90 in past research (Radloff, 1977). The current study showed strong internal consistency, with a Cronbach’s alpha level of .89.
Beck Anxiety Inventory (BAI) (Beck & Steer, 1990). The Beck Anxiety Inventory is a self-report measure of anxiety. The questionnaire is composed of 21 common symptoms of anxiety, such as "numbness or tingling," "feelings of choking," and "scared." Respondents are asked to indicate, on a 4-point Likert scale ranging from "not at all" to "severely," how much they have been bothered by each of the symptoms during the past month. The BAI has sound psychometric properties, with Cronbach's alpha values ranging from .92 to .94 in existing literature (Beck & Steer, 1990). The current study appeared to have sound internal consistency (Cronbach’s $\alpha = .92$).

Procedure

Approval to recruit participants was obtained from the American University Institutional Review Board. A description of the study was placed on the American University Psychology Department Research Opportunities website. Participants were also recruited via fliers posted throughout the American University campus and distributed in various undergraduate classes. Individuals wishing to participate were asked to contact the principal investigator to set up a 30-minute appointment to come into a laboratory in the Asbury building at American University. The entire study was completed on a computer via the Survey Monkey website. After the informed consent process, participants completed a series of self-report questionnaires related to demographics, parental illness, dispositional gratitude, positive and negative affect, family quality of life, depression, and anxiety. All participants completed the seven self-report measures in the following order: Demographics and Parental Health Information Questionnaire, the GQ-6, the GRAT, the PANAS, the CES-D, and the BAI. Upon completing the study, participants were given the opportunity to ask questions and
address any concerns. As compensation, participants were entered into a raffle to win a $50 Target gift card and received 1.0 course credit if desired.
RESULTS

Preliminary Analyses

All major outcome variables were normally distributed with homogeneity of variances. See Table 1 below for means of the major outcome variables within the healthy parent group and the ill parent group. Table 1 also includes the most recent reported mean GRAT and GQ-6 scores in the late adolescent population (Froh, Fan, Emmons, Bono, Huebner & Watkins, 2011), as well as the published cutoff scores for the CES-D (Radloff, 1977) and the BAI (Beck & Steer, 1990). While there are no published cutoff scores for the FQOL scale, evaluations of the instrument suggest that mean item scores are typically 4 or higher (Hoffman, Marquis, Poston, Summers & Turnbull, 2006).

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Healthy Parent Group (N = 72)</th>
<th>Ill Parent Group (N = 64)</th>
<th>Means/ Cutoff Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAT</td>
<td>115.53 SD = 15.24</td>
<td>110.23 SD = 19.32</td>
<td>100.92</td>
</tr>
<tr>
<td>GQ-6</td>
<td>35.46 SD = 4.99</td>
<td>34.63 SD = 5.18</td>
<td>28.39</td>
</tr>
<tr>
<td>CES-D</td>
<td>14.86 SD = 8.44</td>
<td>15.83 SD = 11.23</td>
<td>16</td>
</tr>
<tr>
<td>BAI</td>
<td>9.69 SD = 8.51</td>
<td>13.11 SD = 11.83</td>
<td>10</td>
</tr>
<tr>
<td>FQOL</td>
<td>4.16 SD = 0.54</td>
<td>3.87 SD = 0.82</td>
<td>4</td>
</tr>
</tbody>
</table>

Note. Means and Cutoff Scores listed for each measure are based on published means and cutoffs in existing literature. See corresponding citations above.

The information displayed above is meant to provide a sense of how the current study’s sample compares to the general population. The current study’s sample appears to be generally above average in gratefulness and does not, on average, qualify for clinical
depression. There are differences between the healthy versus ill parent groups in regard to anxiety and family quality of life; these differences will be explored further in the analyses below.

Preliminary Pearson correlations were done across the entire sample to examine the associations of the major outcome variables. See Table 2 below for intercorrelations. The association of dispositional gratitude with lower depression and anxiety levels exists even when controlling for positive affect (as measured by the PANAS).

Table 2

*Intercorrelations of Major Outcome Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>GQ-6</th>
<th>GRAT</th>
<th>CES-D</th>
<th>BAI</th>
<th>FQOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>GQ-6</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAT</td>
<td>0.655*</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CES-D</td>
<td>-0.359*</td>
<td>-.484*</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAI</td>
<td>-0.178**</td>
<td>-0.330*</td>
<td>0.565*</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>FQOL</td>
<td>0.518*</td>
<td>0.660*</td>
<td>-0.528*</td>
<td>-0.391*</td>
<td>---</td>
</tr>
</tbody>
</table>

*Note. *p < .001, **p < .05 N = 136*

Scores on the major outcome variables did not vary significantly according to race/ethnicity or combined average yearly income of primary household (Appendix A); therefore, there was no need to control for these variables.

*Research Question # 1*

It was hypothesized that the adolescent children of ill parents would exhibit higher levels of depression and anxiety than the adolescent children of healthy parents.
Two one-way ANOVAs were conducted to examine the impact of parental health status on a) depression and b) anxiety. Results of the first ANOVA revealed no significant differences between the two groups in levels of depression, $F(1,134) = .326, p = .569$.

Results of the second ANOVA indicated a trend in levels of anxiety between the two groups, $F(1,134) = 3.792, p = .054$, with the adolescent children of ill parents ($M = 13.11, SD = 11.83$) tending to score higher on the BAI than the adolescent children of healthy parents ($M = 9.69, SD = 8.51$).

An additional one-way ANOVA was conducted to examine the impact of parental health status on family quality of life. Results of this test revealed that the adolescent children of ill parents ($M = 3.87, SD = 0.82$) reported significantly lower family quality of life than the adolescent children of healthy parents ($M = 4.16, SD = 0.54$) on the FQOL scale, $F(1,134) = 5.566, p = .015$.

**Research Question # 2**

It was hypothesized that a series of variables related to child experience of parental illness, both objective and subjective, would be predictive of depression and anxiety. Pearson’s product-moment correlations were done to examine the relationship between this series of variables and a) depression and b) anxiety. See Table 3 below for display of intercorrelations.

Table 3

*Intercorrelations for Research Question # 2*

<table>
<thead>
<tr>
<th>Variable</th>
<th>CES-D</th>
<th>BAI</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness Severity</td>
<td>0.214</td>
<td>0.162</td>
<td>64</td>
</tr>
</tbody>
</table>
### Table of Pearson Correlation Coefficients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parental Involvement</th>
<th>Course of Onset</th>
<th>Primary Caregiver vs. not Primary Caregiver</th>
<th>Hospitalizations</th>
<th>Stress</th>
<th>Feeling Upset</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.203</td>
<td>-0.330*</td>
<td>-0.176</td>
<td>-0.073</td>
<td>0.157</td>
<td>0.157</td>
</tr>
<tr>
<td></td>
<td>-0.341*</td>
<td>-0.228</td>
<td>-0.164</td>
<td>0.262**</td>
<td>0.210</td>
<td>0.114</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. *p < .01, **p< .05

Results of the first set of Pearson correlations indicate that course of onset of parental illness was correlated with adolescent child depression scores. According to the results of this Pearson correlation, chronic illness was associated with higher depression scores than acute illness, \( r(64) = -0.330, p < .01 \). As displayed above, no other variables related to child experience of parental illness were significantly correlated with adolescent child depression.

Results of the second set of Pearson correlations suggest that greater parental involvement was associated with lower adolescent child anxiety, \( r(58) = -0.341, p < .01 \), and higher number of hospitalizations due to parental illness was associated with higher adolescent child anxiety, \( r(63) = 0.262, p < .05 \). As displayed above, no other variables related to child experience of parental illness were significantly correlated with adolescent child anxiety.

Two Spearman rank order correlations were conducted to examine the relationship between adolescent child categorization of degree of parental incapacitation due to illness and a) depression and b) anxiety. The results of these correlations were not
significant, CES-D: $r_s(64) = -.189, p = .136$; BAI: $r_s(64) = -.203, p = .107$; therefore, there does not appear to be a relationship between degree of parental incapacitation and internalizing symptoms.

**Research Question # 3**

One of the goals of the current study was to examine the relationship between dispositional gratitude, parental health status, and depression and anxiety. It was hypothesized that dispositional gratitude would partially mediate the relationship between parental health status and internalizing symptoms. Baron and Kenny’s (1986) four-step model of mediation was used to test this hypothesis.

The first set of linear regressions focused on the influence of dispositional gratitude on the relationship between parental health status and depression. According to Baron and Kenny (1986), the first step in establishing mediation is to demonstrate that the independent variable (parental health status) affects the mediator (dispositional gratitude). Thus, dispositional gratitude scores were regressed on parental health status. The results of regressing GQ-6 scores on parental health status were not significant. The results of regressing GRAT scores on parental health status were *trending* toward significance, $\beta = -5.293, t(135) = -1.78, p = .077; R^2 = .023, F(1, 135) = 3.18, p = .077$.

Given that the relationship between the independent variable (parental health status) and the mediator (dispositional gratitude) was not statistically significant, the subsequent Baron and Kenny (1986) steps for testing mediation were not conducted. Thus, dispositional gratitude did not appear to mediate the relationship between parental health status and depression.
The second set of linear regressions was to be focused on the influence of dispositional gratitude on the relationship between parental health status and anxiety. However, as described above, the relationship between the independent variable (parental health status) and the mediator (dispositional gratitude) was only trending toward significance. Therefore, dispositional gratitude did not appear to mediate the relationship between parental health status and anxiety.

Baron and Kenny (1986) also describe the potential for one variable to moderate the relationship between a predictor variable and an outcome variable. To look for possible moderating effects (i.e., interaction), two sets of correlations of the major outcome variables were conducted: one for the healthy parent group and one for the ill parent group. See Tables 4 and 5 below for intercorrelations of the major outcome variables within the healthy parent group and the ill parent group.

Table 4

*Intercorrelations of Major Outcome Variables in Healthy Parent Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>GQ-6</th>
<th>GRAT</th>
<th>CES-D</th>
<th>BAI</th>
<th>FQOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>GQ-6</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAT</td>
<td>0.627*</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CES-D</td>
<td>-0.216</td>
<td>-0.418*</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAI</td>
<td>0.118</td>
<td>-0.049</td>
<td>0.383*</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>FQOL</td>
<td>0.493*</td>
<td>0.574*</td>
<td>-0.469*</td>
<td>-0.091</td>
<td>---</td>
</tr>
</tbody>
</table>

*Note. *p < .001  N = 72
Table 5

*Intercorrelations of Major Outcome Variables in Ill Parent Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>GQ-6</th>
<th>GRAT</th>
<th>CES-D</th>
<th>BAI</th>
<th>FQOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>GQ-6</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>GRAT</td>
<td>0.680*</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>CES-D</td>
<td>-0.477*</td>
<td>-0.526*</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>BAI</td>
<td>-0.392*</td>
<td>-0.481*</td>
<td>0.676*</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>FQOL</td>
<td>0.545*</td>
<td>0.574*</td>
<td>-0.565*</td>
<td>-0.517*</td>
<td>---</td>
</tr>
</tbody>
</table>

Note. *p < .001  
N = 64

A comparison of the data displayed above revealed noteworthy differences in the intercorrelations between the two groups, specifically in relation to the association of dispositional gratitude and anxiety scores. Given these differences, all of the above variables were centered (as described by Aiken & West, 1991), and interaction terms were calculated to account for the apparent interaction effect of parental health status. Next, two linear regressions (one for the GQ-6 and one for the GRAT) including main effects and interactions effects were conducted. The main effects (GQ-6 or GRAT and parental health status) were entered in the first step and the interaction of the two in the second step. Parental health status moderated the relationship between dispositional gratitude, as measured by both the GQ-6 and the GRAT, and anxiety, GQ-6: $\beta = -1.096$, $t(132) = -3.311$, $p = .001$; GRAT: $\beta = -.267$, $t(132) = -2.771$, $p = .006$. More specifically, the association of increased dispositional gratitude and decreased anxiety was stronger in the ill parent group than the healthy parent group. See Table 6 for main effects of parental
health status and dispositional gratitude and the interaction effect of parental health status and dispositional gratitude when regressed on anxiety scores.

Table 6

*Interaction of Parental Health Status and Dispositional Gratitude on Anxiety*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\beta$</th>
<th>Std. Error</th>
<th>$t$-Statistic</th>
<th>$p$-value</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GQ-6 Model:</strong> Parental Health Status (PHS)</td>
<td>3.136</td>
<td>1.741</td>
<td>1.801</td>
<td>.074</td>
<td>1, 133</td>
</tr>
<tr>
<td>GQ-6</td>
<td>-.335</td>
<td>.172</td>
<td>-1.951</td>
<td>.053</td>
<td>1, 133</td>
</tr>
<tr>
<td>PHS * GQ-6</td>
<td>-1.096</td>
<td>.331</td>
<td>-3.311</td>
<td>.001</td>
<td>1, 132</td>
</tr>
<tr>
<td><strong>GRAT Model:</strong> Parental Health Status (PHS)</td>
<td>2.438</td>
<td>1.692</td>
<td>1.441</td>
<td>.152</td>
<td>1, 133</td>
</tr>
<tr>
<td>GRAT</td>
<td>-.184</td>
<td>.049</td>
<td>-3.792</td>
<td>&lt; .001</td>
<td>1, 133</td>
</tr>
<tr>
<td>PHS * GRAT</td>
<td>-.267</td>
<td>.096</td>
<td>-2.771</td>
<td>.006</td>
<td>1, 132</td>
</tr>
</tbody>
</table>

To follow up on this analysis, two linear regressions (one for the GQ-6 and one for the GRAT) were conducted to test whether parental health status similarly moderated the relationship between adolescent child dispositional gratitude and depression. Results suggest that parental health status moderated the relationship between adolescent child GQ-6 scores and depression scores, GQ-6: $t(132) = -2.158$, $p = .033$; however, this interaction effect was not significant in regard to the GRAT, GRAT: $t(132) = -0.845$, $p = .400$. See Table 7 below for main effects of parental health status and dispositional gratitude and the interaction effects of parental health status and dispositional gratitude when regressed on depression scores.
Table 7
*Interaction of Parental Health Status and Dispositional Gratitude on Depression*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>p-value</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>GQ-6 Model:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Health Status (PHS)</td>
<td>.391</td>
<td>1.592</td>
<td>.245</td>
<td>.807</td>
<td>1, 133</td>
</tr>
<tr>
<td>GQ-6</td>
<td>-.692</td>
<td>.157</td>
<td>-4.408</td>
<td>&lt; .001</td>
<td>1, 133</td>
</tr>
<tr>
<td>PHS * GQ-6</td>
<td>-.668</td>
<td>.310</td>
<td>-2.158</td>
<td>.033</td>
<td>1, 132</td>
</tr>
<tr>
<td>GRAT Model:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Health Status (PHS)</td>
<td>-.490</td>
<td>1.505</td>
<td>-3.25</td>
<td>.745</td>
<td>1, 133</td>
</tr>
<tr>
<td>GRAT</td>
<td>-.275</td>
<td>.043</td>
<td>-6.358</td>
<td>&lt; .001</td>
<td>1, 133</td>
</tr>
<tr>
<td>PHS * GRAT</td>
<td>-.074</td>
<td>.088</td>
<td>-8.45</td>
<td>.400</td>
<td>1, 132</td>
</tr>
</tbody>
</table>

Although not directly related to Research Question # 3, further examination of differential Pearson correlations in Tables 4 and 5 and additional analyses reveal two other significant interaction effects. First, parental health status moderated the relationship between adolescent child depression and anxiety, $\beta = .326, t(132) = 2.174, p = .031$. Specifically, the relationship between lower depression scores and lower anxiety scores was stronger in the ill parent group than the healthy parent group. See Table 8 for main effects of parental health status and depression scores and the interaction effect of parental health status and depression when regressed on anxiety scores.

Table 8
*Interaction of Parental Health Status and Depression on Anxiety*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>p-value</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Health Status (PHS)</td>
<td>2.849</td>
<td>1.454</td>
<td>1.959</td>
<td>.052</td>
<td>1, 133</td>
</tr>
<tr>
<td>CES-D</td>
<td>.585</td>
<td>.074</td>
<td>7.898</td>
<td>&lt; .001</td>
<td>1, 133</td>
</tr>
<tr>
<td>PHS * CES-D</td>
<td>.326</td>
<td>.150</td>
<td>2.174</td>
<td>.031</td>
<td>1, 132</td>
</tr>
</tbody>
</table>
Second, parental health status moderated the relationship between family quality of life and anxiety scores, $\beta = -.286$, $t(132) = -2.380$, $p = .019$. The association of increased family quality of life with decreased anxiety was more significant in the adolescent children of ill parents than those of healthy parents. See Table 9 for main effects of parental health status and family quality of life scores and the interaction effect of parental health status and family quality of life when regressed on anxiety scores.

Table 9
Interaction of Parental Health Status and FQOL on Anxiety

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\beta$</th>
<th>Std. Error</th>
<th>$t$-Statistic</th>
<th>$p$-value</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Health Status (PHS)</td>
<td>1.816</td>
<td>1.672</td>
<td>1.086</td>
<td>.280</td>
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<td>FQOL</td>
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<td>.057</td>
<td>-4.585</td>
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<tr>
<td>PHS * FQOL</td>
<td>-.286</td>
<td>.120</td>
<td>-2.380</td>
<td>.019</td>
<td>1, 132</td>
</tr>
</tbody>
</table>

Parental health status did not appear to moderate the relationship between family quality of life and depression, $\beta = -.017$, $t(132) = -.155$, $p = .877$. The interaction of parental health status with anxiety when regressed on depression was only trending towards significance, $\beta = -.261$, $t(132) = 1.842$, $p = .068$.

Research Question # 4

The impact of adolescent child gender was also considered in the current study. It was hypothesized that the impact of parental illness on a number of outcome variables (depression, anxiety, and dispositional gratitude) would differ based on adolescent child gender. A series of two-way ANOVAs was conducted to examine the impact of parental health status and child gender on a) depression, b) anxiety, and c) dispositional gratitude.
Results of the first two-way ANOVA revealed no significant effect of parental health status, $F(1,134) = .370, p = .544$, or child gender, $F(1,134) = 1.311, p = .254$, on levels of depression. There was no significant interaction between parental health status and child gender, $F(1,134) = 1.343, p = .249$.

Results of the second two-way ANOVA revealed a significant effect of child gender on levels of anxiety. Females ($M = 14.16, SD = 10.90$) scored significantly higher than males ($M = 8.76, SD = 9.10$) on the BAI, $F(1,134) = 9.873, p < .01$. The adolescent children of ill parents trended towards higher levels of anxiety than the adolescent children of healthy parents, $F(1,134) = 3.792, p = .054$. However, there was no significant interaction between parental health status and child gender on anxiety, $F(1,134) = .001, p = .978$.

A pair of two-way ANOVAs (one for GRAT, one for GQ-6) was also conducted to examine the effect of parental health status and child gender on dispositional gratitude. Results suggest that female participants ($M = 36.22, SD = 3.82$) scored significantly higher than male participants ($M = 34.04, SD = 5.82$) on the GQ-6, $F(1,134) = 6.384, p = .01$. With regards to scores on the GRAT, female participants ($M = 116.08, SD = 16.35$) trended towards scoring significantly higher than male participants ($M = 110.33, SD = 18$), $F(1,134) = 3.760, p = .055$. However, there appeared to be no significant effect of parental health status on dispositional gratitude and no significant interaction of parental health status and adolescent child gender on dispositional gratitude.

**Research Question # 5**

It was hypothesized that child age at onset of parental illness would influence dispositional gratitude. Research suggests that the capacity to experience dispositional
gratitude does not fully develop until about age 8. Therefore, it is possible that early onset of parental illness (before the child is 8 years old) could impede a child’s ability to develop gratitude in response to illness. However, results of a pair of one-way ANOVAs (one for GRAT, one for GQ-6) indicated no significant effect of child age at onset of parental illness on levels of dispositional gratitude, GQ-6: $F(1,103) = .268, p = .606$; GRAT: $F(1,103) = .498, p = .482$.

Child age at onset of parental illness was also regressed as a continuous variable on adolescent child dispositional gratitude (for both the GRAT and the GQ-6). However, child age of onset did not appear to predict adolescent child dispositional gratitude, nor was it significantly correlated with any of the other major outcome variables.

**Exploratory Analyses**

Existing work suggests that parental illness can have a negative impact on child wellbeing whether the illness is physical or psychological in nature (Hirsch et al., 1985). For example, Anderson and Hammen (1993) found no significant differences between the children of unipolar mothers and medically ill mothers in regard to chronic problems with behavior, academic performance, or social competence. According to an independent samples t-test, there do not appear to be significant differences between the adolescent children of physically ill parents versus those of psychologically ill parents in regard to dispositional gratitude, GQ-6: $t(62) = -1.018, p = .313$; GRAT: $t(62) = -1.772, p = .081$, depression, $t(62) = 1.447, p = .153$, or anxiety, $t(62) = 1.501, p = .138$. Between group differences in GRAT scores was *trending* toward significance. However, there was a significant difference between these two groups in family quality of life: in comparison to the adolescent children of physically ill parents, the adolescent children of mentally ill
parents reported greater FQOL scores, \( t(62) = -2.963, p = .004 \). Given the potentially wide range of parental illness severity across both physical and psychological illness, it is difficult to draw conclusions from these findings.

Descriptive statistics indicate that cancer was the most commonly reported physical illness in the current study, representing 11.8 percent of the ill parent sample. Diabetes (6.5% of the ill parent sample), high blood pressure (6.5% of the ill parent sample), high cholesterol (6.5% of the ill parent sample), and heart disease (5.6% of the ill parent sample) were the next most commonly reported physical illnesses. Independent samples t-tests indicate that there were no significant differences in the major outcome variables between the adolescent children of parents with cancer and the adolescent children of parents with:

a) diabetes, GQ-6: \( t(21) = .244, p = .810 \); GRAT: \( t(21) = .911, p = .373 \); FQOL: \( t(21) = -.219, p = .829 \); CES-D: \( t(21) = .941, p = .357 \); BAI: \( t(21) = -.420, p = .679 \),

b) high blood pressure, GQ-6: \( t(21) = -.247, p = .807 \); GRAT: \( t(21) = .206, p = .839 \); FQOL: \( t(21) = -.525, p = .605 \); CES-D: \( t(21) = -.603, p = .553 \); BAI: \( t(21) = -.594, p = .559 \),

c) high cholesterol, GQ-6: \( t(21) = -.086, p = .932 \); GRAT: \( t(21) = .572, p = .573 \); FQOL: \( t(21) = .200, p = .843 \); CES-D: \( t(21) = -.832, p = .415 \); BAI: \( t(21) = .646, p = .525 \), and

d) heart disease, GQ-6: \( t(20) = .523, p = .607 \); GRAT: \( t(20) = 2.070, p = .052 \); FQOL: \( t(20) = .581, p = .568 \); CES-D: \( t(20) = -.635, p = .533 \); BAI: \( t(20) = .022, p = .982 \).
The comparison of GRAT levels in the adolescent children of parents with cancer to the adolescent children of parents with heart disease was trending toward significance, \( t(20) = 2.070, p = .052 \). However, the small sample sizes of each group listed above yield small statistical power; therefore, these findings should be viewed with caution.

On the Demographics and Parent Health Information questionnaire, participants with an ill parent were asked whether they would describe their ill parent as grateful (“Yes” or “No”). Based on this response, participants were divided into two groups: those who responded “Yes” and those who responded “No.” A total of 53 participants responded “Yes” and 11 responded “No.” An independent samples t-test found significant differences between the “Yes” group and the “No” group in adolescent child dispositional gratitude, GQ-6: \( t(62) = 2.450, p = .017 \); GRAT: \( t(62) = 3.423, p = .001 \). More specifically, those who considered their ill parent to be grateful reported higher levels of dispositional gratitude (GQ-6: \( M = 35.32, SD = 4.62 \); GRAT: \( M = 113.72, SD = 16.45 \)) than those who did not consider their ill parent to be grateful (GQ-6: \( M = 31.27, SD = 6.59 \); GRAT: \( M = 93.45, SD = 23.92 \)).

In a study of adolescent functioning in response to parental illness, Grant and Compas (1994) found that adolescent girls experienced significantly more symptoms of depression and anxiety in response to maternal illness than in response to paternal illness. The authors speculate that as a result of maternal illness, adolescent girls experience heightened family responsibilities and feel obligated to take on the tasks typically designated to their primary caregiving mothers. In the current study, independent samples t-tests were conducted to explore the impact of parent gender and primary care giving responsibilities on adolescent child depression and anxiety. The first independent samples
t-test compared the adolescent children of ill mothers to the adolescent children of ill fathers and found no significant differences between the two groups in levels of depression, $t(107) = .626, p = .533$, or anxiety, $t(107) = .630, p = .530$. Additional independent samples t-tests were conducted within the female participant group, CES-D: $t(48) = .951, p = .346$; BAI: $t(48) = .176, p = .861$, as well as in the male participant group, CES-D: $t(57) = -.146, p = .884$; BAI: $t(57) = .627, p = .533$, and found no significant differences in depression or anxiety between the adolescent children of ill mothers versus fathers.

The second independent samples t-test compared the group of adolescent children who indicated that their ill parent was the primary caregiver to the group of adolescent children who indicated that their ill parent was not the primary caregiver. Results indicate that, as one would expect, the adolescent children of ill primary caregivers reported significantly lower family quality of life than the adolescent children of ill non-primary caregivers, $t(62) = 2.398, p = .019$.

On the Demographics and Parental Health Information Questionnaire (Appendix A), participants were asked to rate the severity of a) maternal illness and b) paternal illness. Descriptive statistics indicate that 72 participants reported having two healthy parents, 21 participants reported having one healthy parent and one ill parent, and 43 participants reported having two ill parents. As described in the Method section, participants with two ill parents were instructed to focus their responses on the Demographics and Parental Health Information Questionnaire (Appendix A) on the parent reportedly suffering from a more severe illness. However, independent samples t-tests were conducted to explore any potential differences between the group of
participants with two ill parents and the group of participants with one ill parent group.

Results of these analyses indicate that there were no significant differences between these two groups in dispositional gratitude, GQ-6: \( t(62) = .607, p = .546 \); GRAT: \( t(62) = -.740, p = .462 \), FQOL, \( t(62) = -1.753, p = .088 \), depression, \( t(62) = -.599, p = .551 \), or anxiety, \( t(62) = .756, p = .453 \).
DISCUSSION

Past research suggests that growing up with an ill parent can have detrimental effects on a child’s wellbeing (Armistead et al., 1995; Siegel et al., 1992). Other work, however, illuminates that certain individuals may respond to negative events by experiencing positive emotions, such as hope, optimism, and gratitude (Frederickson et al., 2003; Nolen-Hoeckema & Davis, 2002; Oltjenbruns, 1991). The purpose of the current study was to explore the adolescent child response to parental illness by examining the potential association of dispositional gratitude, parental illness characteristics, and family variables with adolescent child vulnerability to depression and anxiety.

It was hypothesized that in comparison to the adolescent children of healthy parents, the adolescent children of ill parents would exhibit increased levels of depression and anxiety. Contrary to this hypothesis, there were no significant differences between the two groups in depression scores. The adolescent children of ill parents trended toward higher anxiety levels than the adolescent children of healthy parents; however, this finding was not statistically significant. These results are inconsistent with existing literature suggesting that the children of ill parents are vulnerable to a number of psychological concerns, including heightened depression and anxiety (Armistead et al., 1995; Hirsch et al., 1985). While these findings are surprising, they could be explained by a series of factors.

First, the population studied may present a potential sampling issue. Participants in the current study were all college students living away from home. Existing literature, on the other hand, has typically relied on samples of children living in the home, either
due to young age or an obligation to take on the caregiving role (Armistead et al., 1995; Dellmann-Jenkins & Blankemeyer, 2009). Given this variation in context, it may be difficult to compare the adolescent children of ill parents in the current study to those featured in previous work. Additionally, it is possible that the children of ill parents who are suffering from depression and anxiety are not, in fact, making it to college. Perhaps the majority of adolescent children experiencing the detrimental effects described in existing literature are not those typically found in a university sample. Therefore, the current study’s population of undergraduates at a well-known, four-year university may not be reflective of the typical adolescent child experience of parental illness in regard to internalizing symptoms.

Second, the act of attending college and living away from home may represent a moderating variable. Perhaps the achievement of being accepted to college and living independently fosters resiliency in the adolescent children of ill parents. This resiliency could then buffer against the ill parent group’s initial vulnerability to depression and anxiety. The moderating effect of college attendance could make the ill parent group in the current study look quite different from the ill parent groups typically studied in previous work.

Lastly, the grouping system used in the current study could raise issues of validity. Participants were placed into groups (ill versus healthy parent) based on the reported categorization of degree of incapacitation due to parental illness. Participants who categorized their parent's illness as 3 (a condition which may interfere with normal activity and which is incapacitating for intermittent periods of time) or higher on this scale were placed in the ill parent group. Participants who reported that their parents were
healthy or categorized their parent's illness as 2 (a condition whose symptoms do not occur with regularity and do not interfere with normal activity) or lower were placed in the healthy parent group. This system was used to account for potential variation between somewhat mild illnesses (e.g., eczema) and other more life-threatening illnesses (e.g., breast cancer). Unfortunately, it is possible that this system did not, in fact, account for the vast variation across the range of parental illnesses in the current study. As described in the exploratory analyses, there did not appear to be significant differences in the major outcome variables across the most commonly reported parental illnesses. However, given the relatively small number of participants in each subcategory of the ill parent group, it is hard to draw definitive conclusions from this analysis. Future studies should consider other systems of creating ill versus healthy parent groups, or simply sample the children of parents with one or two comparable illnesses.

It was also hypothesized that within the ill parent group, certain characteristics of parent illness and family variables would be associated with depression and anxiety levels. Adolescent child report of onset of parental illness (chronic vs. acute) was found to be a significant predictor of adolescent child depression. More specifically, the adolescent children of parents with a chronic illness reported higher depression levels than the adolescent children of parents with an acute illness. This finding speaks to Rolland’s (1987) psychosocial typology of illness, through which he describes the various characteristics of parental illness (i.e., onset, prognosis, degree of incapacitation) that could influence the resulting impact on child wellbeing. Rolland (1987) speculates that conditions occurring over time may allow for gradual family adjustment to parental illness, while acute onset illnesses could require more urgent mobilization of “crisis-
management skills.” Despite this speculation, in the context of the current study it appears that chronic parental illness may make a child more vulnerable to depressive symptoms. Although the family system could superficially adjust to the circumstances, the children of chronically ill parents may experience an internal struggle to cope with the long-lasting, constant burden of their parent’s condition. This line of reasoning is consistent with existing literature suggesting that increased illness demands and disruption to family functioning can lead to lower psychological wellbeing and greater behavioral, academic, and social problems in the children of chronically ill parents (Anderson & Hammen, 1993; Armistead et al., 1995; Lewis, Hammond & Woods, 1993).

Furthermore, number of parental hospitalizations and parental involvement were significant predictors of adolescent child anxiety. First, greater number of parental hospitalizations due to illness was associated with higher adolescent child anxiety. This is consistent with past work suggesting that the child’s perception of variables related to parental illness is significantly related to internalizing symptoms (Howes et al., 1994; Kotchick et al., 1997). Coping with the hospitalization of one’s parent can increase a child’s perception of the severity of parental illness, thereby increasing stress and subsequent levels of anxiety.

Second, greater parental involvement was predictive of lower adolescent child anxiety. On the Demographics and Parental Health Information Questionnaire, participants rated the extent to which their ill parent was involved in a number of areas in their lives, including academics, peer relationships, and extracurricular activities (Appendix A). Each participant was then given a total parental involvement score based on the sum of these ratings. As stated above, results suggest that those who perceived
their ill parent as involved in their lives were less likely to suffer from anxiety symptoms. This finding is consistent with past research suggesting that family dysfunction as a whole is correlated with child vulnerability to psychological symptoms in families with an ill parent (Power, 1985; Rost, 1992; Stanescu & Romer, 2011). Similarly, divorce literature suggests that certain family variables, such as the parent-child relationship both during and after divorce, may be significantly correlated with child adjustment to this life stressor (Hess & Camara, 1979; Summers, Forehand, Armistead & Tannenbaum, 1998). The association of greater parental involvement with lower anxiety in the current study sheds light on the importance of the child’s perception of family functioning. If a child experiences his or her parent as involved, despite illness, the child may be less likely to develop elevated anxiety symptoms.

According to the results, neither adolescent child rating of severity of parental illness nor adolescent child categorization of degree of incapacitation due to illness was significantly correlated with adolescent child levels of depression and anxiety. Additionally, adolescent child ratings of stress experienced, as well as the extent to which they felt upset, due to parental illness were not correlated with internalizing symptoms. These results are surprising in light of past research suggesting that variables related to the child’s subjective experience of parental illness are powerful predictors of resulting psychopathology (Compas et al., 1994; Howes et al., 1994; Kotchick et al., 1997). However, while certain variables related to the child’s subjective experience were not correlated with depression and anxiety, other factors (i.e., course of onset, number of hospitalizations, parental involvement) were significant predictors of adolescent child internalizing symptoms. Given these mixed findings, both in existing literature and in the
current study, future research should continue to explore the potential association of characteristics of parental illness, as well as family factors, with child functioning in response to parental illness.

It was initially hypothesized that dispositional gratitude would partially mediate the relationship between parental health status and adolescent child depression and anxiety. Consistent with past research suggesting that the experience of positive emotions is related to fewer psychological symptoms (Kendler et al., 2003; Scheier & Carver, 1985; Schwartz et al., 2003), increased dispositional gratitude was correlated with lower depression and anxiety across the entire sample. However, there did not appear to be a mediating relationship between dispositional gratitude, parental health status, and adolescent child internalizing symptoms.

Literature to date has not yet directly explored the theoretical notion of dispositional gratitude as a mediator between parental health status and child depression and anxiety. Hypothesis # 3 was based on existing literature suggesting that certain individuals respond to negative events by experiencing positive emotions, such as hope, optimism, and dispositional gratitude, and that these positive emotions may allow individuals to thrive (Frederickson et al., 2003; Nolen-Hoeksema & Davis, 2002; Oltjenbruns, 1991). Frederickson et al. (2003) found that a subset of individuals responded to the 9/11 attacks by experiencing positive emotions, which in turn reduced vulnerability to depression. Additionally, research shows that some children may respond to parental illness with positive changes, such as increased helpfulness, independence, and tolerance, and focusing on positive gains may allow for higher child functioning in response to parental illness (Beavers, 1982; Johnston, 1992).
Given the research described above, the purpose of the current study was to explore whether children respond to parental illness with dispositional gratitude and are then consequently less likely to experience increased levels of depression and anxiety. However, according to the results of the current study, it is possible that this novel concept was not in fact accurate. More specifically, the current findings suggest that not all children respond to parental illness by experiencing dispositional gratitude. There may be moderating variables within the ill parent group that could make some individuals more likely to experience dispositional gratitude in response to the negative event of parental illness. Frederickson et al. (2003) found that individuals high in trait resiliency were more likely than individuals low in trait resiliency to respond to the 9/11 attacks with positive emotions, and that these positive emotions buffered against depression. In an extension of the current study, one might examine the role of trait resiliency as a moderating variable in the adolescent child response to parental illness. It is possible that resilient children may be more likely than non-resilient children to experience dispositional gratitude following parental illness and that this positive emotion could buffer against internalizing symptoms. If this were to be the case, this would suggest that resiliency plays a protective purpose, and that children should be encouraged to foster this trait throughout development.

Although the results did not support the original hypothesis, a series of additional analyses reveal the moderating effect of parental health status on anxiety and depression. The association of greater dispositional gratitude with lower anxiety scores was stronger in the ill parent group than in the healthy parent group. Parental health status also moderated the effect of dispositional gratitude (as measured by the GQ-6, not the GRAT).
on depression scores; the effect of greater GQ-6 scores on lower depression scores was stronger in the ill parent group than in the healthy parent group.

As described above, in periods of heightened stress or in coping with significant life stressors (i.e., death of a loved one, traumatic events), some individuals may respond by experiencing positive emotions (Frederickson et al., 2003; Nolen-Hoeksema & Davis, 2002; Oltjenbruns, 1991). Given that the association of increased dispositional gratitude with decreased internalizing symptoms was stronger in the ill parent group than in the healthy parent group, it is possible that dispositional gratitude was engaged as a protective mechanism in coping with a negative life event (i.e., parental illness). However, it is also possible that within the ill parent group, those with adaptive coping mechanisms tended to experience lower levels of depression and consequently experienced higher levels of dispositional gratitude. The current study’s reliance on non-experimental methods and the lack of manipulation of variables of interest make it difficult to establish the definitive direction of causality. Furthermore, I cannot establish temporal precedence due to the use of measures administered at one time only. More specifically, I do not have information about variables of interest (i.e., dispositional gratitude, internalizing symptoms) or potential moderating variables (i.e., trait resiliency, coping mechanisms) both before and after onset of parental illness. In their study of the 9/11 attacks, Frederickson et al. (2003) were better equipped to establish temporal precedence because they gathered pre-crisis assessments of trait resiliency and post-crisis assessments of positive emotions and depression. In the context of the current study, it is unclear whether variables of interest manifested themselves in response to parental illness or simply existed within the adolescent child prior to this negative life event. Without this
information, it is even more plausible that gratitude comes later in the process rather than earlier. Frederickson et al.’s (2003) model, suggests that dispositional gratitude may have served as a buffer against the potentially negative effects of coping with the negative life event of parental illness, but the data are also consistent with the possibility that in the current study, effective coping yielded subsequent gratitude.

Two major demographic variables, adolescent child gender and child age at onset of parental illness, were analyzed in the current study to examine the potential moderating effect on internalizing symptoms as well as on dispositional gratitude. Female participants reported significantly higher anxiety scores than male participants. This is consistent with existing literature suggesting that adolescent girls report more symptoms of distress than adolescent boys in response to having an ill mother or father (Grant & Compas, 1994). Furthermore, female participants reported significantly higher dispositional gratitude levels than male participants. This finding is in line with a prior study showing that women express more gratitude than men in response to receiving a gift (Kashdan et al., 2009). Surprisingly, there were no gender differences in depression scores. This finding is inconsistent with existing literature suggesting that by the age of 15, females are likely to report greater symptoms of depression than their male counterparts (Nolen-Hoeksema & Girgus, 1994). However, other work suggests that university students may be an exception to this rule, with some studies observing no gender differences in depression in college populations (Gladstone & Koenig, 1994; Hammen & Padesky, 1977). Therefore, it is possible that the apparent lack of gender differences in depression in the current study could have been a result of the unique nature of a university sample.
Given that the ability to experience dispositional gratitude seems to develop around age 8 (Graham, 1988; Klein, 1957), it was hypothesized that child age at onset of parental illness would influence participants’ reported levels of dispositional gratitude. Contrary to this hypothesis, adolescent child age at onset of parental illness was not predictive of adolescent child dispositional gratitude. One possible explanation for this finding is that participants may not have accurately reported age at onset of parental illness. Specifically, accuracy of memory for onset of parental illness may have varied based on the severity and/or type of illness. For example, a child may have a vivid memory of the day his mother was diagnosed with pancreatic cancer. He may remember the fear, confusion, and anger he experienced in hearing that his mother was going to need to go through chemotherapy to treat a life-threatening illness. Another child, on the other hand, may not have a clear memory of the day his mother was diagnosed with high blood pressure. This child may have been comforted by the knowledge that his mother’s illness was manageable and that her life was not in danger as long as she maintained a healthy lifestyle. There may not have been as clear of a “start point” for his mother’s illness. Unlike the child of a parent with cancer, the child of a parent with high blood pressure may not experience fear, confusion, anger, and other intense emotions in response to his parent’s diagnosis. Without these emotional responses, it could be more difficult to retain a vivid memory of the exact date of diagnosis.

An examination of the existing literature on children’s memory for stressful life events reveals that a variety of factors may influence one’s ability to accurately recall these events. For example, some work suggests that accuracy of memory may differ based on personal relevance of the stressor. For instance, a child’s memory may be
heightened for threatening stressors as opposed to non-threatening stressors (Goodman, Rudy, Bottoms & Aman, 1990). This finding is in line with the inference described above. Other factors shown to be involved in accuracy of children’s memory for stressful life events include knowledge of the stressor (Reder, 1985), attachment style (Reese & Fivush, 1993), and the format in which questions about the event are asked (Goodman, Quas, Batterman-Faunce, Riddlesberger & Kuhn, 1997). Given the patterns observed in previous work, adolescent children’s memory for age at onset of parental illness could have varied significantly depending on a range of factors.

This potential for variation in accuracy of memory could be one reason for the apparent lack of correlation between child age at onset of parental illness and dispositional gratitude. In an extension of the current study, it might be useful to gather information regarding the factors described above, as well as the duration of parental illness. Duration of illness could impact a child’s ability to experience dispositional gratitude if, for example, parental illness continued long into the child’s adolescence, thus extending his or her ability to experience dispositional gratitude.
LIMITATIONS AND FUTURE DIRECTIONS

The current study highlights the significance of the adolescent child experience of parental illness and begins to explore some unanswered questions. A few lingering questions remain, however, and there are certain limitations of the work that should be addressed.

First, as described above, while I may extrapolate correlational relationships from the results, it is impossible within the context of the current study to establish causal relationships between the variables of interest. Second, this study relied on a convenience sample of college students at a single university. Future work should seek to sample individuals who are more representative of the general population. It would also be informative to sample younger children, or even to consider conducting a longitudinal study to examine the effects over time of growing up with an ill parent. The current study did not find a significant effect of child age at onset of parental illness on internalizing symptoms or dispositional gratitude. However, it is possible that these outcomes variables are differentially related at various ages across the lifespan.

As mentioned in the introduction, the current study did not directly examine the effect of caregiving on child development. Existing literature suggests that 17 to 28 percent of unpaid primary caregivers to older adults living in the home are either emerging or young adults (Levine et al., 2005). The burden of this caregiving role has also been shown to have a number of negative effects on emerging adult development, particularly with regards to differentiation from the family, romantic relationships, and economic independence (Dellmann-Jenkins & Blankemeyer, 2009). Given these trends, it
would be useful in future studies to specifically address the impact of the caregiving role on the developing child or emerging adult.

As briefly described in the introduction, the majority of existing literature on the child response to parental illness relies on parent or clinician report (Armistead et al., 1995; Rolland, 1987), as opposed to child report. In order to better understand the child’s perception of the categorization of parental illness as well as other objective qualities of parental illness, it would be interesting to compare child report to parent and/or clinician reports. For example, how does child perception of degree of incapacitation due to illness compare to physician report of incapacitation? This could be one area for exploration in subsequent studies.

As indicated in the exploratory analyses, in comparison to the adolescent children of physically ill parents, the children of mentally ill parents reported greater family quality of life. It would be interesting to delve deeper into this finding and explore the child experience of growing up with a parent who is mentally ill versus physically ill. Exploratory analyses found no significant differences in the major outcome variables between the subgroups within the adolescent children of physically ill parents. However, it is possible that the range of parent illnesses reported could have obscured subtle differences within these subgroups, or that these differences may not be concretely obvious in the scope of the current study. One adjustment for future work would be to identify a few major physical and mental illnesses of interest and increase the number of participants within each subgroup so as to raise statistical power.

In exploring the adolescent child response to parental illness, the current study focused primarily on the ill parent. For example, on the Demographics and Parental
Health Information questionnaire (Appendix A), participants indicated the extent to which they perceived their ill parent as involved in a number of areas in their lives. Thus, the current study is limited in that I am missing information about the healthy parent.

Existing literature suggests that the strength of the non-ill parent-child relationship can be a significant factor in the child response to parental illness (Lewis, Woods, Hough & Bensley, 1989; Lewis et al., 1993). Lewis et al., (1989) for example, found that higher quality of the non-ill parent-child relationship was correlated with higher child functioning in response to the other parent’s illness. One possible extension of the current study would be to gather information about the non-ill parent and examine the impact of this relationship on the major outcome variables.

In summary, the current study represents an informative step in better understanding the adolescent child experience of parental illness. While certain characteristics of parental illness (chronic illness, greater number of hospitalizations), as well as parental involvement, were correlated with adolescent child internalizing symptoms, the child response to parental illness does not seem to be inherently negative. Certain variables, such as increased levels of dispositional gratitude, may have served as buffers against internalizing symptoms. These findings are promising and speak to the need to continue to explore the potentially protective factors within the children of ill parents.
APPENDIX A

DEMOGRAPHICS AND PARENTAL HEALTH INFORMATION

1. Please enter your assigned ID: ______

2. What is your age? _______

3. Gender: M F

4. What do you consider your ethnicity/race to be?
   a. Caucasian or White
   b. African-American or Black
   c. Hispanic or Latino(a)
   d. Native American
   e. Asian or Pacific Islander
   f. Multi-racial

5. What is the combined average yearly income of your primary household?
   g. < $25,000
   h. $25,000-$40,000
   i. $40,001-$60,000
   j. $60,001-$80,000
   k. $80,001-$100,000
   l. $100,001-$150,000
   m. > $150,000

6. Growing up, how many individuals (including yourself) lived in your primary household? ______

7. List all individuals in household:
   i. ____________  iv. ____________
   ii. ____________  v. ____________
   iii. ____________  vi. ____________

8. Did you grow up in a two-parent household?
   Yes    No

9. If NO, what age were you when either your mother or your father left the household?
   ______

10. Is your mother deceased?
    Yes    No
11. If YES, what age were you when she died? 
_____

12. Is your father deceased? 
Yes  No

13. If YES, what age were you when he died? 
_____

14. Growing up, was your mother diagnosed with any of the illnesses listed below? If yes, in your own opinion, how severe was each illness on a scale from 1 (not severe at all; very manageable) to 10 (extremely severe; extremely difficult to manage)?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Check if present</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td></td>
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<tr>
<td>Blood Disorder</td>
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<tr>
<td>Cancer</td>
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<tr>
<td>Emphysema</td>
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<tr>
<td>Epilepsy (Seizures)</td>
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<tr>
<td>Fibromyalgia</td>
<td></td>
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<tr>
<td>Genetic Disease</td>
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<tr>
<td>Glaucoma</td>
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<tr>
<td>Heart Disease</td>
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<tr>
<td>Hepatitis</td>
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<tr>
<td>High Blood Pressure</td>
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<tr>
<td>High Cholesterol</td>
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<tr>
<td>HIV/AIDS</td>
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<tr>
<td>Kidney Disease</td>
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<tr>
<td>Lung Disease</td>
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<tr>
<td>Lupus</td>
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<tr>
<td>Meningitis</td>
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<tr>
<td>Mental Illness</td>
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<tr>
<td>Multiple Sclerosis</td>
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<tr>
<td>Osteoporosis</td>
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<td>Stroke</td>
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<tr>
<td>Thyroid Problem</td>
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<tr>
<td>Tuberculosis</td>
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<tr>
<td>Ulcers</td>
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<tr>
<td>Other</td>
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</tbody>
</table>

15. If you responded "other" above, from what illness did your mother suffer during your life?  ____
16. Growing up, was your father diagnosed with any of the illnesses listed below? If yes, how severe was each illness on a scale from 1 (not severe at all; very manageable) to 10 (extremely severe; extremely difficult to manage)?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Check if present</th>
<th>Severity</th>
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<tbody>
<tr>
<td>Arthritis</td>
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<tr>
<td>Blood Disorder</td>
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<tr>
<td>Ulcers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. If you responded "other" above, from what illness did your mother suffer during your life?

_______

If NO to #14-17, participant is finished with questionnaire.

18. If both of your parents suffered from an illness, in your opinion which parent suffered from a more serious illness?

a) Mother
b) Father
Instructions for Items # 19-32:

The following questions refer to the parent that experienced an illness when you were growing up. If both parents suffered from illnesses, please answer the following questions for the parent that you indicated in question #18 as experiencing a more serious illness.

19. In your opinion, what was the most serious illness that your parent suffered from?

_______

20. Which of the following categories best describes the illness mentioned in #19? Note that examples are meant only as a guide; your parent's illness may not be explicitly stated as an example but still fall under this category.

1) Mild disease or condition with symptoms which are not progressive and which cause only a mild degree of discomfort or incapacity. (Examples: Mild headache, hay fever)

2) A more severe disease or condition whose symptoms differ in degree from the 1) classification; the symptoms do not occur with regularity and do not interfere with normal activity. (Example: Severe headache)

3) A chronic disease or condition more serious than 2) which may interfere with normal activity and which is incapacitating for intermittent periods of time. (Examples: Bronchial asthma, grand mal epilepsy)

4) A chronic disease or condition which is completely incapacitating (confining a patient to bed) but which is usually not considered life-threatening or life-shortening. (Example: Rheumatoid arthritis)

5) A disease or condition which is serious enough to shorten life expectancy but which is not considered life-threatening. (Examples: Hypertension, chronic pulmonary disease)

6) A disease or condition which is considered life-threatening (death in 1 to 2 yr) but which is not a medical emergency. (Example: Congestive heart failure)

7) A disease or condition which is considered a medical emergency and which will terminate life within 1 yr or less. (Examples: Acute lymphatic leukemia, severe cardiac arrhythmia)

21. Overall, how involved was the parent mentioned in #18 in the following areas related to your life when you were growing up?

(scale of 1-10, 1=not involved at all, 10=very involved)
a) Academic/school issues/homework ______
b) Extracurricular activities ______
c) Your health issues ______
d) Your emotional issues ______
e) Financial issues ______
f) Job-related issues ______
g) Relationship with siblings ______
h) Relationship with friends ______

22. How old were you when your parent became sick from the illness mentioned in #19? ______

23. How old was your parent when he/she became sick from the illness mentioned in #19? ______

24. Did the parent fully recover from the illness mentioned in #19?
   Yes   No

25. If no, did this illness lead to your parent's eventual passing?
   Yes   No

26. Would you consider your parent's illness to be:
   a) chronic/long-lasting
   b) acute/not long-lasting

27. Would you consider the parent mentioned in #17 to be your primary caregiver?
   Yes   No

28. How many times was your parent hospitalized due to his or her illness (if you are not exactly sure, please make your best estimate)? ______

29. On a scale from 1 (not stressful at all) to 10 (extremely stressful), how stressful has your experience of your parent's illness been for you?
   ______
30. On a scale from 1 (not upsetting at all) to 10 (extremely upsetting), how upsetting has your experience of your parent's illness been for you? __________

31. When you were growing up, would you have described your parents as grateful? Yes  No

32. In your own words, please take a moment to describe your experience with your parent's illness when you were growing up.
APPENDIX B

GQ-6

Using the scale below as a guide, please write a number beside each statement to indicate how much you agree with it.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>neutral</td>
<td>strongly agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. I have so much in life to be thankful for. _____

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

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

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

5. When I look at the world, I don’t see much to be grateful for. _____

6. I am grateful to a wide variety of people. _____
APPENDIX C

OPINION QUESTIONNAIRE

Please provide your honest feelings and beliefs about the following statements which relate to you. There are no right or wrong answers to these statements. We would like to know how much you feel these statements are true or not true of you. Please try to indicate your true feelings and beliefs, as opposed to what you would like to believe. Respond to the following statements by circling the number that best represents your real feelings. Please use the scale provided below, and please choose one number for each statement (i.e. don't circle the space between two numbers), and record your choice in the blank preceding each statement.

1
I strongly disagree

2
I disagree somewhat

3
I feel neutral about the statement

4
I mostly agree with the statement

5
I strongly agree with the statement

_____ 1. I couldn't have gotten where I am today without the help of many people.

_____ 2. Life has been good to me.

_____ 3. There never seems to be enough to go around and I never seem to get my share.

_____ 4. Oftentimes I have been overwhelmed at the beauty of nature.

_____ 5. Although I think it's important to feel good about your accomplishments, I think that it's also important to remember how others have contributed to my accomplishments.

_____ 6. I really don't think that I've gotten all the good things that I deserve in life.

_____ 7. Every Fall I really enjoy watching the leaves change colors.

_____ 8. Although I'm basically in control of my life, I can't help but think about all those who have supported me and helped me along the way.

_____ 9. I think that it's important to "Stop and smell the roses."

_____ 10. More bad things have happened to me in my life than I deserve.

_____ 11. Because of what I've gone through in my life, I really feel like the world owes me something.

_____ 12. I think that it's important to pause often to "count my blessings."

_____ 13. I think it's important to enjoy the simple things in life.

_____ 14. I feel deeply appreciative for the things others have done for me in my life.

_____ 15. For some reason I never seem to get the advantages that others get.

_____ 16. I think it's important to appreciate each day that you are alive.

APPENDIX D
THE PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past week. Use the following scale to record your answers.

<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></td>
<td>very slightly or not at all</td>
<td>a little</td>
<td>moderately</td>
<td>quite a bit</td>
<td>extremely</td>
</tr>
</tbody>
</table>

___ interested ___ irritable
___ distressed ___ alert
___ excited ___ ashamed
___ upset ___ inspired
___ strong ___ nervous
___ guilty ___ determined
___ scared ___ attentive
___ hostile ___ jittery
___ enthusiastic ___ active
___ proud ___ afraid

APPENDIX E
Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

**During the Past Week:**

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarely or none of the time (less than 1 day)</td>
<td>Some or a little of the time (1-2 days)</td>
<td>Occasionally or a moderate amount of time (3-4 days)</td>
<td>Most or all of the time (5-7 days)</td>
<td></td>
</tr>
</tbody>
</table>

1. I was bothered by things that usually don’t bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not get “going.”
APPENDIX F

BAI

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

<table>
<thead>
<tr>
<th>Not At All</th>
<th>Mildly but it didn’t bother me much.</th>
<th>Moderately-it wasn’t pleasant at times.</th>
<th>Severely-it bothered me a lot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Numbness or tingling
2. Feeling hot
3. Wobbliness in legs
4. Unable to relax
5. Fear of worst happening
6. Dizzy or lightheaded
7. Heart pounding/racing
8. Unsteady
9. Terrified or afraid
10. Nervous
11. Feeling of choking
12. Hands trembling
13. Shaky / unsteady
14. Fear of losing control
15. Difficulty in breathing
16. Fear of dying
17. Scared
18. Indigestion
19. Faint / lightheaded
20. Face flushed
21. Hot/cold sweats
REFERENCES


Tallarida, Ronald J.; Murray, Rodney B.; and Eiben, Carl, "A scale for assessing the severity of diseases and adverse drug reactions: Application to drug benefit and risk" (1979). *Department of Pharmacology and Experimental Therapeutics Faculty Papers*. Paper 1. http://jdc.jefferson.edu/petfp/1Thompson, R.J.,


