FINDING BENEFITS IN NEGATIVE EVENTS: GROWTH, EMOTIONAL CONTAGION, AND REACTIVITY IN THE CHILDREN OF ILL PARENTS

By

Maggie Stoeckel

Submitted to the Faculty of the College of Arts and Sciences

Of American University

In Partial Fulfillment of

The Requirements for the Degree

Doctor of Philosophy

In

Clinical Psychology

Chair:

Carol Weissbrod, Ph.D.

Tyler Calabrese, Psy.D.

James Gray, Ph.D.

Kathleen Gunthert, Ph.D.

Dean of the College of Arts and Sciences

Date

2015

American University

Washington, D.C. 20016
FINDING BENEFITS IN NEGATIVE EVENTS: GROWTH, EMOTIONAL
CONTAGION, AND REACTIVITY IN THE CHILDREN OF ILL PARENTS

BY

Maggie Stoeckel

ABSTRACT

While the limited body of work examining the child response to parental illness has focused upon the detrimental effects of this life experience, other literature suggests that some individuals perceive growth as a result of negative events. Growth following negative experiences has been shown to predict lower depression and greater wellbeing. In addition, reactivity to others’ distress may make individuals more vulnerable to internalizing symptoms and decreased quality of life in the face of a negative event. The current study builds on prior work by exploring the impact of perceived growth, emotional contagion, and reactivity on wellbeing in the college-age children of ill parents.

Participants included a total of 71 undergraduates with a parent who suffered from a non-psychological illness while they were growing up. Each participant completed self-report measures to assess perceived growth, emotional contagion, internalizing symptoms, and life satisfaction. Participants also provided information about parental illness characteristics as well as family quality of life variables. Participants then watched a series of emotion-eliciting film clips, during which their pulse rate and finger temperature were recorded. Participants reported their physiological reactivity and emotional experience before and after each film clip.
Contrary to the hypotheses, growth and emotional contagion were not correlated with participant depression, anxiety, and life satisfaction. With the exception of positive versus negative ratings, reactivity was also not correlated with the outcome variables. However, several parental illness characteristics were significantly associated with participant depression, anxiety, and life satisfaction. Specifically, parental involvement, degree of current stress due to parental illness, and recovery status of ill parent were associated with participant depression. Frequency of symptoms and parental involvement were significantly associated with participant anxiety, while familial support, parental involvement, and degree of current stress due to parental illness were correlated with participant life satisfaction. Further, a number of parental illness characteristics (event centrality, impact of illness, illness severity, degree of stress at illness onset, frequency of symptoms, hospitalizations, and incapacitation) were correlated with participant growth. These findings contribute to the limited body of literature exploring the child experience of parental illness and have implications for intervention planning in this vulnerable population.
# TABLE OF CONTENTS

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

LIST OF TABLES ..................................................................................................v

Chapter

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

II. MAJOR RESEARCH QUESTIONS AND HYPOTHESES.................................22

III. METHOD..........................................................................................................25

IV. RESULTS..........................................................................................................31

V. DISCUSSION......................................................................................................41

APPENDIX A: DEMOGRAPHICS AND PARENTAL HEALTH INFORMATION QUESTIONNAIRE.................................................................50

APPENDIX B: PRE-FILM CLIP SELF-REPORT....................................................56

APPENDIX C: POST-FILM CLIP SELF-REPORT..................................................57

APPENDIX D: IMPACT OF ILLNESS SCALE.......................................................58

APPENDIX E: POSTTRAUMATIC GROWTH INVENTORY ..................................59

APPENDIX F: THE EMOTIONAL CONTAGION SCALE.....................................60

APPENDIX G: CES-D............................................................................................61

APPENDIX H: BAI.................................................................................................62

APPENDIX I: SATISFACTION WITH LIFE SCALE.............................................63

APPENDIX J: FILM CLIPS....................................................................................64

REFERENCES .......................................................................................................65
**LIST OF TABLES**

Table

1. Descriptive Statistics of the Major Outcome Variables .................. 31
2. Parental Illness Frequencies and Percentages ............................... 32
INTRODUCTION

The limited body of research exploring parental illness has focused primarily on the negative effects of this experience on adolescents and children (Armistead, Klein, & Forehand, 1995; Armsden & Lewis, 1994). While these negative effects certainly cannot be denied, other work has suggested that some individuals report growth following traumatic life events (Park, Cohen, & Murch 1996; Tedeschi & Calhoun, 1996). Researchers have speculated that negative changes and positive growth can co-occur in response to stressors (Calhoun & Tedeschi, 2001). The purpose of the current study was to explore the overall positive and negative effects of parental illness on college-age adolescents. Given the pattern of results in prior work, growth in response to parental illness could serve a protective role in the children of ill parents. For the purposes of the current study, growth was defined as perceived posttraumatic growth, entailing participant reported positive changes within the following domains: relationships with others, identifying and/or exploring new possibilities, personal strength, spirituality, and appreciation of life.

Additionally, existing literature has demonstrated that individuals high in emotional contagion and reactivity (i.e., the tendency to “catch” the emotions of others) may be vulnerable to experiencing significant distress in response to others’ difficulties (Doherty, 1997). In a study of facial mimicry, liking, and emotional contagion, McIntosh (2006) highlights the often adaptive nature of mimicry due to its links to emotional contagion, establishing rapport, helping behaviors, and interpretation of others’ emotions. However, it appears that “catching” the emotions of others can at times be maladaptive and increase an individual’s vulnerability to internalizing symptoms (Doherty, 1997;
Klimes-Dougan & Bolger, 1998). College-age adolescents high in emotional contagion and reactivity therefore may be particularly susceptible to the negative effects of parental illness on wellbeing. In summary, the current study explored the impact of perceived posttraumatic growth, emotional contagion, and reactivity on wellbeing within the college-age children of ill parents. In addition, a number of variables related to parental illness characteristics and family quality of life were examined due to their demonstrated importance in existing literature (Compas et al., 1994; Stanescu & Romer, 2011; Stoeckel, Weissbrod, & Ahrens, in press).

**Overall Impact of Parental Illness**

National caregiving surveys suggest that 17 to 28 percent of unpaid primary caregivers that give care to adults living in the home are either emerging or young adults (Levine et al., 2005). The psychological burden of growing up with and/or caring for an ill parent can have detrimental effects on a number of key developmental processes in emerging and young adulthood, such as individuation from the family of origin, fostering intimate relationships, and establishing economic independence (Dellmann-Jenkins & Blankemeyer, 2009). Existing literature suggests that the children of parents with an illness are vulnerable to a variety of psychosocial adjustment issues. In comparison to the children of healthy parents, the children of parents with a range of illnesses have been shown to exhibit higher rates of depression, anxiety, and behavioral problems, as well as lower self-esteem and social competence (Armistead et al., 1995; Armsden & Lewis, 1994; Korneluk & Lee, 1998; Siegel, Mesagno, Rams, Christ, Banks, & Moynihan, 1992).
While work in this area is limited, some studies have explored the significance of the child’s perception of their experience with parental illness as it relates to wellbeing. Overall, these studies suggest that variables related to the child’s experience of parental illness are powerful predictors of child wellbeing in response to this difficult life event. For example, in a sample of preadolescent, adolescent, and adult children of parents with cancer, Compas et al. (1994) examined child report of parent illness severity and stress experienced due to parental illness. Findings indicate that variables related to the child’s subjective experience of parental illness (i.e., subjective illness severity and stress) were better predictors of child internalizing symptoms than more objective characteristics of parental illness (i.e., duration, stage, and prognosis). In addition, adolescent child perception of family variables has been found to be significant in determining child wellbeing in response to parental illness. Stanescu and Romer (2011), for example, asked the adolescent children of parents with a traumatic brain injury (TBI) to complete the Family Crisis Oriented Personal Scales and the Family Assessment Device. The authors report that adolescents with higher levels of psychological symptoms described their families as 1) less responsive to their needs and less emotionally expressive, 2) less involved and/or interested in family members’ activities, 3) less able to accept new roles and responsibilities as a result of parental illness, and 4) low in communication and openness. Given these patterns of results, the child’s perception of certain variables related to parent illness and the family system should be taken into consideration in conceptualizing the child’s response.
Growth in Response to Negative Events

Existing literature has been heavily focused on the detrimental effects of parental illness on children and adolescents. In addition, the majority of work related to negative life events tends to be devoted to the damaging impact these events can have on the individuals who experience them. Other work, however, indicates that some individuals may report positive changes in response to difficult or traumatic life events (Park, Cohen & Murch 1996; Tedeschi & Calhoun, 1996). These positive changes have been studied under a variety of different names, including positive benefits, benefit finding, finding meaning, posttraumatic growth, stress-related growth, personal growth, positive adjustment, and gratitude. While the current study employed the term perceived *posttraumatic growth*, the literature reviewed throughout the document may use other related terms.

Prior studies in the growth literature suggest that individuals may report at least some positive benefits in response to certain negative events, such as rape (Burt & Katz, 1987), incest (Silver, Boon, & Stones, 1983), bereavement (Nolen-Hoeksema & Davis, 2002), cancer (Taylor, 1983), heart attacks (Aflleck, Tennen, & Croog, 1987), chronic illness (Affleck & Tennen, 1996), disasters (Thompson, 1985), and combat (Sledge, Boydstun, & Rabe, 1980). According to Calhoun and Tedeschi (2001), positive benefits tend to fall into three major categories: changed sense of self (e.g., “I am stronger because of my negative experience”), changed relationships (“I feel closer to my community”), and changed philosophy of life (“Life has a purpose”). These three categories will be explained in further detail below.
More specifically, Oltjenbruns (1991) found that ninety-three percent of adolescents reported positive benefits in response to grief, including the cultivation of a deeper appreciation of life, strengthened emotional bonds with others, as well as greater emotional strength. Children suffering from cancer have also reported benefits in regard to their perceptions of illness-related burden (Currier, Hermes, & Phipps, 2009).

Furthermore, recent studies suggest that both adolescents and young adults may endorse posttraumatic growth as a result of illness in childhood (Barakat, Alderfer, & Kazak, 2006; Devine, Reed-Knight, Loiselle, Fenton, & Blount, 2010). In this light, it appears that adolescents and young adults have the capacity to reflect on negative events in childhood and to explore ways in which these events have impacted their psychological functioning. Within the context of the current study, it was therefore of interest to examine posttraumatic growth in response to parental illness in a young adult (i.e., college-age) sample.

**The impact of growth on wellbeing.** Existing literature suggests that growth following negative life events can have a significant impact on psychological wellbeing. Frederickson, Tugade, Waugh, and Larkin (2003) explored this concept in a study of college students’ responses to the September 11th attacks. While there were considerable reports of distress, many also reported positive feelings, such as gratitude, interest, and love. The authors found that trait resilient individuals were more likely than non-trait resilient individuals to experience these positive emotions, and that these positive emotions allowed them to thrive following the attacks, as evidenced by a lowering in depressive symptoms. Therefore, it appears that within certain individuals (i.e., those
with trait resiliency), positive changes and emotions in response to negative life events may buffer against the potentially detrimental effects of these experiences.

Helgeson, Reynolds, and Tomich (2006) conducted a meta-analysis of prior work exploring the potential impact of benefit finding following negative events on wellbeing. The meta-analysis included the results of 87 cross-sectional studies reported in 77 studies, with benefit finding defined as the “positive effects that result from a traumatic event.” Measures of benefit finding included the Posttraumatic Growth Inventory, Stress Related Growth Scale, Benefit Finding Scale 1, Benefit Finding Scale 2, and the Perceived Benefits Scale. Traumatic events included health problems, war-terrorism (including the September 11th attacks), caregiving, cancer, bereavement, abuse, and natural disaster. The authors acknowledge that due to the lack of longitudinal data, they are unable to make causal claims regarding the relationship between benefit finding and wellbeing. Despite this caveat, Helgeson et al. (2006)’s work certainly provides an informative overview of this topic and could perhaps motivate future research.

Overall, results of the authors’ meta-analysis reveal that benefit finding was correlated with less depression, more positive wellbeing, and more avoidant and intrusive thoughts about the event. While seemingly contradictory at first glance, the authors speculate that an increase in avoidant and intrusive thoughts could be an indication that an individual is working through a negative event and moving toward growth. Furthermore, contemplation and consideration may be vital steps in processing life experiences. Benefit finding was unrelated to measures of anxiety, distress, quality of life, and subjective reports of physical health. Helgeson et al. (1996) have a number of possible explanations for these null findings. First, anxiety may tap into components of
both depression and avoidant and intrusive thoughts, thus obscuring the effect of benefit finding on anxiety. Second, measures of distress and quality of life may have been composed of a combination of various constructs, making it difficult to accurately assess the influence of benefit finding on each separate variable. Third, the meta-analysis included only one measure of physical health (i.e., subjective report of disruption of daily activity), and this measure could have been unreliable or invalid.

More recently, Morrill et al. (2008) explored the impact of posttraumatic growth on the relationship between posttraumatic symptoms and wellbeing. Not surprisingly, results indicate that more posttraumatic stress symptoms were associated with greater depression and lower quality of life. Interestingly, posttraumatic growth moderated the relationship between posttraumatic stress symptoms and wellbeing. More specifically, growth following a negative event appeared to serve as a buffer between stress symptoms and measures of depression and quality of life. The authors hypothesized that finding positive meaning in response to a negative life event (e.g., being diagnosed with cancer) can be protective and thus indirectly influence depressive symptoms and quality of life.

Rinaldis, Pakenham, and Lynch (2010) found a similar pattern of results in a study of benefit finding and quality of life in cancer patients. Participants were asked to complete a series of measures of benefit finding and psychological distress. Benefit finding was conceptualized as existing across three major domains: personal growth, interpersonal growth, and acceptance. Findings suggest that benefit finding, across all three domains, was predictive of greater quality of life and lower psychological distress. This study speaks to the perhaps protective role of benefit finding and thus has a number of clinical implications.
Research examining the potential positive responses of children to parental illness is limited, at best. Some work, however, suggests that some children may report positive benefits as a result of having grown up with an ill parent. Pakenham, Bursnall, Chiu, Cannon, and Okochi (2006), for example, found that young caregivers between the ages of 10 and 25 self-reported feeling more mature as a result of parental illness. Similarly, Johnston (1992) found that the children of chronically ill parents may become more independent, more tolerant, and more helpful as a result of coping with this negative life experience. In a recent study, Stoeckel, Weissbrod, and Ahrens (in press) explored the impact of dispositional gratitude on depression and anxiety in the adolescent children of ill parents. Dispositional gratitude has been defined as the tendency to notice and appreciate the positive and was explored within the domains of sense of abundance, simple appreciation, and appreciation of others (Watkins, Woodward, Stone, & Kolts, 2003). Results of this study suggest that in comparison to the adolescent children of healthy parents, the association of dispositional gratitude with lower depression and anxiety was stronger in the adolescent children of ill parents. Therefore, the positive emotion of dispositional gratitude may have been a uniquely significant coping mechanism in the ill parent group. Combined, these limited findings suggest that there may be some potential for growth in the children of ill parents, and that this growth could be protective in some capacity.

**Conceptualizing negative event-related growth.** One of the most commonly used measures for negative event-related growth is the Posttraumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996). In their work, Tedeschi and Calhoun (1996) discuss
three broad categories of potential growth following negative life events: changes in self-perception, changes in interpersonal relationships, and a changed philosophy of life.

Some individuals have reported positive changes in the self in response to traumatic events. For example, parents of ill and high-risk children have identified emotional growth as a consequence of coping with their issues (Affleck, Allen, Tennen, McGrade, & Ratzan, 1985). In response to their difficulties, cancer patients may report feeling stronger and more self-assured, while many survivors of the sinking of a cruise ship reported feeling more “experienced about life” (Collins et al., 1990; Joseph, 2011). It appears that one common positive response to traumatic events or difficult life experiences is a feeling of being stronger as a result. Tedeschi and Calhoun (1996) speculate that while some individuals respond to difficulties with feelings of vulnerability and helplessness, others may experience increases in self-reliance and autonomous coping skills.

Existing literature also suggests that individuals endorse a number of positive changes in interpersonal relationships as a result of facing negative events. In a study of parents with chronically ill children, Affleck et al. (1985) found that 20 percent of parents reported benefits in regards to interpersonal relationships, such as closer bonds with family members, emotional growth in relationships, and an appreciation of how precious their child is. A similar pattern of results has been observed in studies of individuals grieving the death of a parent or other loved one (Malinak, Hoyt, & Patterson, 1979; Nolen-Hoeksema & Davis, 2002). In a discussion of perspective taking following victimization, Collins et al. (1990) hypothesize that positive changes in relationships may
come out of an increased sensitivity to others’ feelings and a focus on improving existing bonds.

The third dimension of growth following negative events discussed by Tedeschi and Calhoun (1996) is a changed philosophy of life. For example, survivors of the sinking of a cruise ship tended to report that they “no longer took life for granted” and that they “lived each day to the fullest” (Joseph, 2011). Mothers of ill newborns reported having a better perspective on life (Affleck et al., 2005), while bereaved individuals described having a greater appreciation of their own existence (Malinak et al., 1979). In addition, women with cancer have reported a change in their priorities as a result of their illness, such as “taking life easier” and “enjoying life more” (Taylor, 1983). Studies of changes in religiosity and spirituality following negative events have produced somewhat mixed findings. Some individuals have reported feeling less religious, less spiritual, and more cynical as a result of traumatic life events, while others have described a strengthening in their religious beliefs as an attempt to better understand tragedy (Schwartzberg & Janoff-Bulman, 1991). Despite these mixed results, it appears that positive changes in philosophy of life can help individuals find meaning in negative life events.

**Correlates of negative-event related growth.** In the meta-analysis described above, Helgeson et al. (1996) examined a number of moderating factors in the relationship between benefit finding in response to negative life events and wellbeing, including the nature of the stressor and the amount of time passed since the onset of the trauma. The authors report that benefit finding was positively correlated with disease severity and perceived stress associated with the event. Time passed since the onset of the
trauma was also a significant moderator between benefit finding and wellbeing. More specifically, benefit finding was more likely to be associated with a positive outcome if greater time had passed since the onset of the trauma. Finally, the benefit finding measure used appeared to be important, as more well-established measures of benefit finding (i.e., the Posttraumatic Growth Inventory and the Stress Related Growth Scale) were more likely to reveal a significant relationship between benefit finding and positive outcomes.

In studies of posttraumatic growth in response to illness, many have found that perceived illness severity is more likely to be associated with posttraumatic growth than objective illness severity (Cordova, Cunningham, Carlson, & Andrykowski, 2001; Devine et al., 2010). For example, Devine et al. (2010) asked young adults to reflect on their experiences with childhood cancer by administering the Posttraumatic Growth Inventory, the Impact of Event Scale, and a series of questions regarding objective and subjective illness characteristics. Findings indicate that greater perceived illness severity, as opposed to objective illness severity (e.g., number of hospitalizations, stage of cancer, etc.) was predictive of greater posttraumatic growth. The authors speculate that this finding speaks to the significance of exploring individuals’ subjective experiences of traumatic stressors.

A series of other variables have been shown in existing literature to be correlated with greater posttraumatic growth in response to life stressors such as illness. For instance, perceived stressfulness of illness has been found to be a significant correlate, with greater levels of reported stressfulness associated with greater posttraumatic growth (Stanton, Bower, & Low, 2006). In a review of the growth literature, Calhoun & Tedeschi (1999) indicate that higher levels of social support and more time since the
stressor tend to predict greater posttraumatic growth. Additionally, Devine et al. (2010) report that young adults who experienced childhood illness were more likely to endorse posttraumatic growth if they had fully recovered from their illness. Finally, in a recent study of responses to negative events, Boals and Schuettler (2011) explored the association between event centrality and posttraumatic growth. Results indicate that event centrality was positively correlated with growth, with events central to one’s identity tending to results in greater amounts of posttraumatic growth. Taken together, the findings described above suggest that a number of variables should be considered as potential predictors of posttraumatic growth in response to parental illness.

**Posttraumatic growth in children.** As depicted in the review above, posttraumatic growth is an emerging construct often investigated under the guise of many names (e.g., posttraumatic growth, stress-related growth, benefit-finding). Despite the burgeoning number of studies with adults, systematic evaluation of the construct of posttraumatic growth in children is limited.

In an effort to provide a backdrop for the conceptualization of posttraumatic growth in children, Kilmer (2006) looks to existing research on child resilience. Some have speculated that although similar in some respects, posttraumatic growth and resilience are distinct constructs (Cryder, Kilmer, Tedeschi, & Calhoun, 2006). Resilience is considered to be a dynamic developmental process reflecting competence in response to life challenges. Posttraumatic growth, on the other hand, refers to a process of growth through which individuals are profoundly transformed by a traumatic experience (Kilmer, 2006). Despite this distinction, the child resilience literature can inform our conceptualization of child posttraumatic growth and the factors influencing whether or
not this growth occurs in response to negative life events, such as parental illness. For instance, research suggests that the quality of parental support and involvement may serve a protective function in children exposed to adversity (Masten, Best, & Garmezy, 1990). Furthermore, factors related to both familial and social context and resources have been found to be predictive of positive child adjustment (Yates & Masten, 2004; Masten, 2001). Therefore, in the context of the present study, it is important to explore various factors related to participants’ family and social environments.

Age and developmental stage may also be important factors to consider in the current study. Cryder et al. (2006), for example, point out that children may respond to negative life events based on their developmental stage and cognitive and emotional capabilities. Children may also vary based on the extent to which they are capable of attending to and reporting their internal experiences. For example, some have found a positive relationship between age and posttraumatic growth in an adolescent population (Milam, Ritt-Olsen, & Unger, 2004). This suggests that a particular level of cognitive maturity may be necessary to find meaning, identify changes, and explicitly express these changes following a traumatic event. Therefore, the child’s age at onset of parental illness, as well as the duration of parental illness, may inform our understanding of the college-age child experience of growing up with an ill parent.

**Difficulties in the measurement of growth.** It is important to note that there has been some disagreement about the measurement of growth. Many have questioned whether self-reported growth actually reflects genuine growth, as well as whether the measures used to assess growth are valid. The controversies in the growth literature are briefly outlined below.
Some have argued that perceived growth following adversity is actually a motivated positive illusion. For example, McFarland and Alvaro (2000) examined this argument in a sample of college students. Participants described a negative event suffered by either themselves or by one of their acquaintances. They then rated the victim’s (either self or acquaintance) post-event and pre-event standing on several attributes. Attributes included a variety of adjectives, such as kind, tolerant, good-natured, and appreciative of others. Results reveal that when reporting on their own experience of a negative life event, participants reported greater pre-event to post-event improvement after severe negative events than after mild negative events. However, the opposite effect was true if participants were reporting on an acquaintance’s experience of a negative event. In addition, in comparison to victims of mild events, victims of severe events tended to recollect their pre-event attributes as more negative. This pattern of results is consistent with Taylor’s (1983) cognitive adaptation model, whereby individuals create self-enhancing illusions to help alleviate distress. Perhaps people downgrade their pre-negative life event functioning so as to feel more positive about their current level of functioning.

McMillen and Cook (2003) conducted an informative study of the positive-by-products of spinal cord injury and their correlates. Spinal cord injury victims, as well as proxy informants, were interviewed 18-36 months post injury. The primary outcome measures included the Perceived Benefits Scales and the Symptom Checklist 90-Revised. Results indicate that correlations between spinal cord injury victim report and proxy report of positive by-products were low. Positive by-products were also not related to psychopathology. Taken together, the authors concluded that perceived benefits
following an injury may be different from other kinds of outcomes. Further, given that loved ones did not notice participant perceived benefits, the validity of these benefits should be questioned.

Others have argued that perceived growth is actually a reflection of a coping process. For instance, Frazier, Tennen, Gavian, Park, Tomich, and Tashiro (2009) examined perceived growth using a prospective design. At Time 1, college student participants completed a series of measures meant to assess the domains of the Posttraumatic Growth Inventory (PTGI). These domains included relationship quality, meaning, life satisfaction, gratitude, and religiosity-spirituality. At both Time 1 and Time 2, participants completed a measure of distress. At Time 2, participants also completed the PTGI and an assessment of positive reinterpretation coping. Results reveal that perceived posttraumatic growth (i.e., PTGI) was unrelated to measures of actual growth from pre- to post-trauma. Interestingly, perceived posttraumatic growth was strongly correlated with positive reinterpretation coping. There was no relationship between measures of actual growth and coping. These findings suggest that retrospective reports of growth may measure something different than measures of actual change from before to after a traumatic event. Given the association of PTGI scores with positive reinterpretation coping, perhaps perceived growth reflects a coping process as opposed to genuine growth.

Interest in positive benefits following negative life events is on the rise. Simultaneously, many researchers continue to question the meaning of self-reported growth, as well as the validity of our measures. These questions should be taken into consideration in interpreting the current study’s results.
Emotional Contagion

Researchers have long conjectured that emotions are contagious (Darwin, 1872/1965; Jung, 1968). Emotions may pass from one individual to another through a number of pathways, such as projection, fantasy, or learning (Doherty, 1997). Hatfield, Cacioppo, and Rapson (1994) define emotional contagion as “a tendency to automatically mimic and synchronize expressions, vocalizations, postures, and movements with those of another person’s” and therefore “converge emotionally.” This basic affective process can be compared to the cognitive and affective processes commonly ascribed to empathy. Empathy is similar to emotional contagion in that it refers to incidences in which an individual has an emotional experience congruent with that of another person. However, emotional contagion is distinct from empathy in that it focuses specifically on the affective pathway to this emotional congruence (Hatfield, Cacioppo, & Rapson, 1994).

Doherty (1997) developed the Emotional Contagion (EC) Scale, in an effort to more concretely assess emotional contagion. The purpose of the EC Scale is to measure individual differences in susceptibility to “catching” the emotions of others in the environment. Thus, this 15-item scale assesses an individual’s tendency to mimic five emotions: love, happiness, fear, anger, and sadness. The results of Doherty’s (1997) validation study reveal that emotional contagion is more strongly associated with the affective components of empathy than the cognitive components. This is consistent with Hatfield, Cacioppo, and Rapson’s (1994) conceptualization of emotional contagion as it relates to empathy. Doherty (1997) points out that while there are many existing empathy scales, the EC scale is unique in that it captures emotional contagion by a) focusing on affective processes and b) providing information about the congruence between the
emotional stimulus and the emotional response (i.e., “If someone I’m talking with begins to cry, I get teary-eyed.”).

**Emotional contagion and wellbeing.** There have been no studies to date examining the relationship between emotional contagion, as assessed by the EC scale, and wellbeing. However, limited research has explored the association of empathy with depression. While emotional contagion and empathy are distinct from one another, there are enough similarities between these two constructs that a brief discussion of the literature on empathy and depression informs the present study.

In a recent paper, O’Connor, Berry, Lewis, Mulherin, and Crisostomo (2007) took a unique look at the function of empathy in individuals suffering from depression. The authors state that although depression is frequently classified as a “disorder of the self,” it may in some cases be more accurately described as a “disorder of concern for others.” Depressed people often have disturbances in their affect-directed, automatic interpretations of others’ pain and suffering. These disturbances may lead depressed individuals to place unrealistic blame on themselves in response to the hardships of others. O’Connor et al. (2007) hypothesize that depressed individuals may be characterized by an “overly active and automatic moral system,” leading them to be over-reactive and consequently experience significant empathic distress in response to others’ pain. The authors speculate that although depressed individuals tend to be characterized as self-focused, there are also often distortions in the ways they react to and take on the distress of others.

Research from a developmental perspective suggests that the early presence of empathy and guilt-proneness can place individuals at risk for later depression (Zahn-
The ability to respond to the distress of others appears in early infancy, and this sensitivity to others’ emotions can continue over the lifespan (O’Connor et al., 2007). In a study of the children of depressed mothers, Klimes-Dougan and Bolger (1998) found that adolescents high in empathy were at greater risk for depression later in life if they were over-involved, self-blaming, distressed, and if they experienced difficulty regulating negative affect. Similarly, Gawronski and Privette (1997) found that nurses, counselors, and social workers high in empathy were more prone than individuals low in empathy to develop reactive depression in response to patients’ distress. Therefore, it appears that there is a link between empathy and vulnerability to depression. It will be important in future research to explore whether this association exists in regard to emotional contagion and internalizing symptoms to further our understanding of this related construct.

**Physiological reactivity.** In a discussion of emotional contagion and the development of the EC Scale, Doherty (1997) described a variety of ways in which emotional responses may be expressed (i.e., cognitively, physiologically, and behaviorally). While the EC Scale is effective in measuring individuals’ subjective report of emotional contagion, there are a host of other methods for gathering physiological evidence of this response. Objective measures of physiological arousal, for example, could assess an individual’s level of reactivity in emotion-eliciting situations. A variety of methods have been used to capture physiological reactivity to emotional stimuli, such as films or script imagery. Common assessment methods include heart rate, pulse rate, finger temperature, skin conductance, and blood pressure (see Kreibig, Wilhelm, Roth, & Gross, 2010 for a review).
Emotion-eliciting films are one of the most commonly used techniques for inducing emotion in laboratory settings. Fernandez, Pascual, Soler, Elices, Portella, and Fernandez-Abascal (2012), for example, conducted a study to explore whether a series of film clips could provoke objective, concretely measurable physiological responses. Participants in this study viewed a set of film clips meant to elicit the following emotions: anger, fear, sadness, disgust, amusement, tenderness, and neutral state. Skin conductance and heart rate were used as objective measures of physiological reactivity. Participants also reported their subjective responses to each clip using the Self Assessment Manikans, a questionnaire meant to assess affective valence, arousal, and emotional control. Results suggest that skin conductance was significantly increased after viewing fear clips, and heart rate was significantly increased after viewing both fear and anger clips. In addition, there was a significant convergence between objective and subjective report of reactivity. This suggests that there is incremental validity in gathering both objective and subjective measures of individuals’ reactions to the emotions of others.

Kreibig et al. (2010) examined individuals’ cardiovascular, electrodermal, and respiratory response patterns to fear- and sadness-inducing film clips. As participants viewed the series of clips, a broad range of measures was taken to assess physiological arousal in the domains of cardiovascular, electrodermal, and respiratory functioning. The authors also collected participants’ subjective emotional experience and facial behavior in response to the films as control measures. Results suggest that response patterns to fear-inducing films, as compared to a neutral emotional state, were characterized by increased physiological arousal, as evidenced by increased heart rate, blood pressure, skin conductance, and respiratory rate. Response patterns to sadness-inducing films, as
compared to a neutral emotional state, were characterized by a more mixed profile, with decreases in heart rate and respiratory rate, minimal changes in blood pressure, and increases in skin conductance level. Both fear- and sadness-inducing films were characterized by increased sympathetic nervous system activity, as evidenced by decreased finger temperature. Physiological response patterns were confirmed by participants’ self-reported emotional experiences and facial behavior.

Combined, the studies described above show that film clips are a vital method for the assessment of physiological reactivity to emotional stimuli. Response patterns may differ across various emotions, suggesting that it would be beneficial to examine a range of induced emotions. Furthermore, the results illuminate the utility of employing multiple measures of physiological reactivity, as well as measures of self-reported emotional experience. Given the demonstrated association of empathy with lower wellbeing (Gawronski & Privette, 1997; Klimes-Dougan & Bolger, 1998), it is possible that individuals high in emotional reactivity will be more susceptible to internalizing symptoms and lower quality of life. Physiological arousal could serve as a measure of emotional reactivity in conjunction with a self-report measure of emotional contagion.

The Current Study

While the limited body of work examining the child response to parental illness has focused upon the detrimental effects of this life experience ((Armistead et al., 1995; Armsden & Lewis, 1994), other literature suggests that some individuals experience benefits and growth as a result of negative events (Park et al., 1996; Tedeschi & Calhoun, 1996). Growth following negative experiences has been shown to be predictive of lower depression and greater positive wellbeing (Helgeson et al., 2006). In addition, reactivity
to others’ distress may make some individuals more vulnerable to internalizing symptoms and decreased quality of life in the face of a negative event (Klimes-Dougan & Bolger, 1998). The current study builds on prior work by exploring the impact of perceived posttraumatic growth, emotional contagion, and reactivity on various aspects of wellbeing in the college-age children of parents with an illness. In addition, several variables related to family quality of life and parental illness characteristics were examined to explore their impact on the major outcome variables.
MAJOR RESEARCH QUESTIONS AND HYPOTHESES

1. Is growth following parental illness correlated with college-age child internalizing symptoms and life satisfaction?
   - It was hypothesized that growth in response to parental illness would be associated with lower internalizing symptoms and greater life satisfaction.

2. In addition, are emotional contagion and physiological reactivity correlated with college-age child internalizing symptoms and life satisfaction?
   - It was hypothesized that emotional contagion and physiological reactivity would be associated with higher internalizing symptoms and lower life satisfaction.

3. Does growth moderate the relationship between emotional contagion and physiological reactivity and the major outcome variables (depression, anxiety, and life satisfaction)?
   - It was hypothesized that growth would serve as a “buffer” between emotional contagion and physiological reactivity and the major outcome variables. This hypothesis is based on existing literature which suggests that the experience of positive benefits following a negative life event may be protective against negative outcomes. Previous work also reveals that individuals with heightened emotional reactivity may be particularly vulnerable to internalizing symptoms. Taken together, the purpose of this research question it to examine whether perceived growth serves as a buffer against a specific vulnerability factor (i.e., emotional reactivity) in the sample.
4. Is impact of parental illness (as measured by the Impact of Illness Scale) correlated with college-age child internalizing symptoms and life satisfaction?
   o It was hypothesized that impact of illness would be associated with higher internalizing symptoms and lower life satisfaction.

5. Does the impact of parental illness (as measured by the Impact of Illness Scale) moderate the relationship between emotional contagion and physiological reactivity and the major outcome variables (depression, anxiety, and life satisfaction)?
   o It was hypothesized that the impact of illness would increase the influence of emotional contagion and reactivity on the major outcome variables. More specifically, with increasing impact of illness, emotional contagion and reactivity would be positively correlated with depression and anxiety, and negatively correlated with life satisfaction. This hypothesis is based on existing literature which suggests that increased illness severity may make individuals more vulnerable to negative outcomes (e.g., heightened depression and anxiety and lowered life satisfaction). Perhaps with increased illness impact, individuals will be less emotionally and physiologically available to regulate reactivity to environmental stimuli. Therefore, the association of emotional contagion and reactivity with the outcome variables may be stronger in participants who perceive parental illness as highly impactful.

6. Are the following variables correlated with growth: event centrality, impact of illness, perceived severity of parental illness, stressfulness of parental illness, peer
and familial support, amount of time passed since onset of parental illness, and recovery status of the ill parent?

- It was hypothesized that the first six variables listed above would be positively correlated with growth. It was hypothesized that individuals whose parents had fully recovered from illness would report greater growth.

7. Are the following variables correlated with the major outcome variables (depression, anxiety, and life satisfaction):

- Subjective severity of parental illness (i.e., self-reported severity)
- Objective severity of parental illness (i.e., frequency of symptoms, number of hospitalizations, degree of incapacitation)
- Nature of parental illness (chronic, acute, or chronic with acute flare-ups)
- Peer and familial support
- Parental involvement
- Initial stressfulness of parental illness
- Current stressfulness of parental illness
- Amount of time passed since onset of parental illness
- Duration of parental illness
- Recovery status of ill parent
METHOD

Participants

The current study included a total of 71 predominantly Caucasian undergraduates who reported having a parent with a non-psychological illness (mean age 19 years; 29 males, 42 females; 71.8 % Caucasian, 8.5 % African-American, 5.6 % Hispanic or Latino(a), 1.4 % Native American, 9.9 % Asian or Pacific Islander, 2.8 % Multi-racial). In order to determine eligibility, all interested participants completed an initial screening tool (see details below). In addition, all participants were required to be at least 18 years of age and speak English.

Procedure

Approval to recruit participants was obtained from the American University Institutional Review Board. Participants were recruited through flyers distributed throughout the psychology department, as well as via the internet (i.e., Today @ AU and the psychology department’s research participation website). Undergraduates who expressed interest in the current study received an initial screening tool via an online Survey Monkey link. The purpose of this initial screening tool was to establish whether or not the individual was eligible for participation. Interested participants were asked to report 1) the illness (or illnesses) from which one or more of their parents suffered while they were growing up and 2) whether or not these illnesses impacted them while growing up. Interested participants were considered eligible if 1) their parent’s illness was included on the Demographics and Parental Health Information Questionnaire (see Appendix A), and 2) they reported that they were impacted by their parent’s illness growing up.
Eligible participants were contacted by the principal investigator to set up a 1.5-hour appointment in a psychology laboratory in the Asbury Building at American University. First, participants completed all self-report measures (Demographics and Parental Health Questionnaire, Impact of Illness Scale, Post Traumatic Growth Inventory (PTGI), Emotional Contagion Scale (EC), Center for Epidemiologic Studies Depression Scale (CES-D), Beck Anxiety Inventory (BAI), and Satisfaction with Life Scale (SWLS)) via Survey Monkey.

Second, participants watched a series of four film clips meant to elicit a range of emotions (happiness, sadness, fear, and disgust). Participants viewed one of two possible video sets, and viewing was counterbalanced within each set. The emotional content of these clips has been validated in a previous study (Gabert-Quillen, Bartolini, Abravanel, & Sanislow, 2013; see Appendix J for list of clips). During each film clip, a pulse oximeter and a stress thermometer were attached to the participant’s non-dominant hand to assess physiological reactivity. The principal investigator, sitting to the participant’s side, recorded changes in pulse rate as displayed on the pulse oximeter. Recordings were made at 15-second intervals. A pre- and post-viewing finger temperature was recorded for each of the four film clips.

Immediately before and after each film clip, participants completed a brief self-report measure of subjective emotional reactivity. Participants were also guided through a pre-recorded meditation sequence before the next film clip began. Therefore, the following sequence occurred a total of four times for each of the four film clips: 1) brief self-report measure, 2) film clip, 3) brief self-report measure, 4) meditation sequence.
At the conclusion of the study, participants were entered into a raffle to win a $50 gift card and received 1.5 course credits if desired. It should be noted that approximately three-quarters of the way into data collection, the study was closed to female students in order to equalize the number of participants in the male versus female groups. At this time, male participants were offered either 1.5 course credits or $10 in return for their participation. These changes were approved by the American University Institutional Review Board. Statistical analyses indicate that there were no significant differences in the major outcome variables for participants who received 1.5 course credits versus those who received cash.

**Measures**

**Demographics and Parental Health Information Questionnaire.** This questionnaire was created by the principal investigator (see Appendix A). 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 and family quality of life.

**Post Traumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996).** This scale examines the variety of possible benefits that may be “discovered or construed” by individuals who have experienced negative events (Tedeschi & Calhoun, 1996; see Appendix E). The PTGI consists of 21 items, each falling into one of five possible areas of perceived benefit: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. In the current study, the PTGI demonstrated strong internal consistency, with a Cronbach’s alpha value of .90. Each of the individual subscales also demonstrated substantial internal consistency (Relating to Others, $\alpha = .85$;...
New Possibilities, $\alpha = .78$; Personal Strength, $\alpha = .81$; Spiritual Change, $\alpha = .77$; Appreciation of Life, $\alpha = .70$.

**Emotional Contagion Scale (EC).** (Doherty, 1997). The EC Scale is a 15-item self-report measure of susceptibility to others’ emotions (see Appendix F). Respondents were asked to report on a four-point Likert scale (Never, Rarely, Often, or Always) the frequency with which they experience a variety of affective responses to others (e.g., “If someone I’m talking with begins to cry, I get teary-eyed”). In the current study, the EC Scale demonstrated strong internal consistency, with a Cronbach’s alpha value of .80.

**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 (see Appendix G). Respondents were 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." In the current study, the CES-D demonstrated strong internal consistency, with a Cronbach’s alpha value of .88.

**Beck Anxiety Inventory (BAI)** (Beck & Steer, 1990). The Beck Anxiety Inventory is a self-report measure of anxiety (see Appendix H). The questionnaire is composed of 21 common symptoms of anxiety, such as "numbness or tingling," "feelings of choking," and "scared." Respondents were 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. In the current study, the BAI demonstrated strong internal consistency, with a Cronbach’s alpha value of .91.
Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larson, & Griffin, 1985). The present study used the SWLS as a measure of quality of life (see Appendix I). Respondents were asked to indicate, on a 7-point Likert scale ranging from “strongly disagree” to “strongly agree,” the extent to which they agreed or disagreed with a series of five statements (i.e., “The conditions of my life are excellent”). The SWLS does not assess satisfaction in specific domains, such as health or finances, but rather assesses life satisfaction as a whole. In the current study, the SWLS scale demonstrated strong internal consistency, with a Cronbach’s alpha value of .83.

The Impact of Illness Scale. This scale was created by the principal investigator (see Appendix D) and is based on The Caregiver Strain Questionnaire (CGSQ) (Brannan, A.M., Heflinger, C.A. & Bickman, L. (1997). Participants were asked to rate whether or not (“Yes” or “No”) they experienced a number of different items related to growing up with an ill parent (e.g., “It was inconvenient” or “It was a financial burden”). The purpose of this questionnaire was to capture the overall salience of parental illness in participants’ lives while they were growing up. The Impact of Illness Scale demonstrated strong internal consistency in the current study, with a Cronbach’s alpha value of .84.

Physiological and Subjective Reactivity. Physiological reactivity was assessed via pulse rate (using a pulse oximeter) and finger temperature (using a stress thermometer). The pulse oximeter and stress thermometer were attached to the participant’s non-dominant hand while viewing the series of film clips. Pulse rate was recorded at 15-second intervals, and a standard deviation was calculated for each film clip. Each participant’s total standard deviations (i.e., the sum of the standard deviations for each of the four film clips) was recorded and used as a measure of physiological reactivity.
reactivity. Finger temperature was recorded before and after viewing each film clip, and a difference score was recorded for each of the four clips. The sum of these four difference scores was recorded for each participant and used as an additional measure of physiological reactivity.

Subjective reactivity was assessed using a brief self-report measure based on a scale used in a previous study of emotional reactivity to film clips (Gabert-Quillen et al., 2013). Participants completed this self-report measure before and after watching each clip (see Appendix B and C). This data was used to calculate a “total emotions before” score and a “total emotions after” score. These two scores were then used to calculate a difference score, which was meant to capture self-reported emotional reactivity. Difference scores were also calculated for the two final items on the self-report measure (positive vs. negative and level of arousal) and used as additional indicators of subjective emotional reactivity.
RESULTS

Preliminary Analyses

All major outcome variables were normally distributed. See Table 1 for descriptive statistics. Scores on the major outcome variables did not vary significantly according to gender, race/ethnicity, or combined average yearly income of primary household. Given that there were no differences, analyses were collapsed across gender, race/ethnicity, and combined average yearly income.

Table 1

Descriptive Statistics of the Major Outcome Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min.</th>
<th>Max.</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Contagion</td>
<td>23</td>
<td>69</td>
<td>49.30</td>
<td>8.58</td>
</tr>
<tr>
<td>PTGI</td>
<td>0</td>
<td>98</td>
<td>46.32</td>
<td>20.95</td>
</tr>
<tr>
<td>Impact of Illness</td>
<td>4</td>
<td>26</td>
<td>19.55</td>
<td>3.75</td>
</tr>
<tr>
<td>CES-D</td>
<td>0</td>
<td>43</td>
<td>16.10</td>
<td>9.81</td>
</tr>
<tr>
<td>BAI</td>
<td>0</td>
<td>63</td>
<td>14.03</td>
<td>10.63</td>
</tr>
<tr>
<td>SWLS</td>
<td>8</td>
<td>35</td>
<td>23.04</td>
<td>6.87</td>
</tr>
</tbody>
</table>

Note. N = 71

Results reveal that 38 % of parental illnesses were chronic, 25.4 % were acute, and 36.6 % were chronic with acute flare-ups. The most commonly reported parental illnesses were cancer (38 % of the sample), heart disease (12.7 % of the sample), and diabetes (8.5 % of the sample). See Table 2 for parental illness frequencies and percentages. Preliminary analyses indicate that there were no significant differences in the major outcome variables across parental illness type.
Table 2

*Parental Illness Frequencies and Percentages*

<table>
<thead>
<tr>
<th>Illness</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td>2</td>
<td>2.8</td>
</tr>
<tr>
<td>Blood Disorder</td>
<td>2</td>
<td>2.8</td>
</tr>
<tr>
<td>Cancer</td>
<td>27</td>
<td>38</td>
</tr>
<tr>
<td>Crohn’s Disease</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Diabetes</td>
<td>6</td>
<td>8.5</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td>2</td>
<td>2.8</td>
</tr>
<tr>
<td>Genetic Disease</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>9</td>
<td>12.7</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Kidney Disease</td>
<td>2</td>
<td>2.8</td>
</tr>
<tr>
<td>Lung Disease</td>
<td>2</td>
<td>2.8</td>
</tr>
<tr>
<td>Lupus</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Multiple Sclerosis</td>
<td>3</td>
<td>4.2</td>
</tr>
<tr>
<td>Parkinson’s</td>
<td>2</td>
<td>2.8</td>
</tr>
<tr>
<td>Stroke</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Thyroid Problem</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>9.9</td>
</tr>
</tbody>
</table>

**Research Question # 1**

A bivariate correlation was conducted to examine the association of participant reported post-traumatic growth with participant depression, anxiety, and life satisfaction. Results reveal that growth was not significantly associated with depression, $t(69) = -.038$, $p = .756$, anxiety, $t(69) = 0.00$, $p = .998$, or life satisfaction, $t(69) = .124$, $p = .304$.

An additional bivariate correlation was conducted to examine the association of each of the five subscales of the post-traumatic growth inventory with participant depression, anxiety, and life satisfaction. Results reveal that higher scores on the Spiritual Change subscale were associated with lower depression scores, $t(69) = -.270$, $p < .05$, and
greater life satisfaction, \( t(69) = .243, p < .05 \). In addition, higher scores on the Appreciation of Life subscale were associated with greater life satisfaction, \( t(69) = .241, p < .05 \).

**Research Question # 2**

A bivariate correlation was conducted to examine the association of emotional contagion and reactivity with participant depression, anxiety, and life satisfaction. Results reveal that emotional contagion was not significantly associated with depression, \( t(69) = .041, p = .732 \), anxiety, \( t(69) = .126, p = .296 \), or life satisfaction, \( t(69) = .121, p = .313 \), in the sample. The first physiological measure of reactivity, pulse rate, was not significantly associated with depression, \( t(69) = -.144, p = .231 \), anxiety, \( t(69) = .011, p = .931 \), or life satisfaction, \( t(69) = .121, p = .315 \). The second physiological measure of reactivity, finger temperature, was also not significantly associated with depression, \( t(69) = .084, p = .488 \), anxiety, \( t(69) = .157, p = .191 \), or life satisfaction, \( t(69) = -.184, p = .124 \). Additional analyses were conducted examining physiological reactivity within each affective category of film clip (i.e., sad, fear, disgust, and happy). Even when broken down by affective category of film clip, the physiological measures of reactivity were not significantly associated with the major outcome variables.

Given these insignificant findings, an independent samples t-test was conducted to examine group differences in the two physiological measures of reactivity, as well as the three self-report measures of reactivity, across the two film sets. Results reveal that there were no significant differences in finger temperature, \( t(69) = .559, p = .578 \), total emotions difference scores, \( t(69) = -.895, p = .374 \), positive versus negative ratings, \( t(69) = .181, p = .857 \), or self-reported physiological arousal, \( t(69) = .117, p = .908 \), across the
two film sets. However, there was a significant difference between participants in Film Set 1 versus Film Set 2 in regard to pulse rate, $t(69) = -2.165, p < .05$. Therefore, a series of three linear regressions were conducted to examine the association of pulse rate with depression, anxiety, and life satisfaction while controlling for film set. Even when controlling for film set, the association of pulse rate with the major outcome variables was not significant, depression: $\beta = -.108, t(69) = -.883, p = .380$; anxiety: $\beta = .041, t(69) = .327, p = .745$; life satisfaction; $\beta = .102, t(69) = .820, p = .415$.

Analyses were also conducted to examine the associations of the three self-report measures of emotional reactivity with the major outcome variables. Participant reported total emotions difference scores were not correlated with depression, $t(69) = .214, p = .074$, anxiety, $t(69) = .222, p = .063$, or life satisfaction, $t(69) = -.209, p = .081$. Further, participant reported physiological arousal was also not correlated with depression, $t(69) = -.214, p = .073$, anxiety, $t(69) = -.211, p = .077$, or life satisfaction, $t(69) = -.008, p = .946$.

However, participant ratings of feeling positive versus negative following film clips were significantly associated with depression, $t(69) = -.416, p < .001$, anxiety, $t(69) = -.238, p < .05$, and life satisfaction, $t(69) = .262, p < .05$. Greater positive versus negative difference scores were associated with lower depression and anxiety, as well as higher life satisfaction. Further analyses were conducted to examine these associations when broken down by affective category of film clip (i.e., sad, fear, disgust, and happy). Results reveal that participant ratings of feeling positive versus negative following clips meant to elicit disgust, $t(69) = -.258, p < .05$, and happiness, $t(69) = -.343, p < .001$, were significantly associated with depression. Greater positive versus negative difference
scores in response to the target emotions of disgust and happiness were associated with lower depression scores. Participant ratings of feeling positive versus negative following clips meant to elicit happiness, \( t(69) = .246, p < .05 \), were significantly associated with life satisfaction. Greater positive versus negative difference scores in response to the target emotion of happiness were associated with greater life satisfaction. When broken down by affective category of film clip, there was no longer an association between positive versus negative difference scores and anxiety.

Additional analyses were conducted to examine the associations of emotional contagion with the two physiological measures of reactivity. The association of emotional contagion with the two physiological measures of reactivity was not significant, pulse rate: \( t(69) = -.047, p = .700 \); finger temperature: \( t(69) = -.102, p = .395 \). The association of emotional contagion with pulse rate was still not significant when controlling for film set, \( \beta = -.005, t(69) = -.041, p = .967 \). Further, the two physiological measures of reactivity were not significantly correlated with one another, \( t(69) = -.055, p = .646 \). Once again, this association remained insignificant when controlling for film set, \( \beta = -.041, t(69) = -.329, p = .743 \).

**Research Question # 3**

The purpose of this research question was to examine whether posttraumatic growth moderated the relationship between emotional contagion and reactivity and the major outcome variables. The main effect of growth on the major outcome variables was not significant, depression: \( t(69) = -.038, p = .756 \), anxiety: \( t(69) = 0.00, p = .998 \), life satisfaction: \( t(69) = .124, p = .304 \). To test for interaction effects, nine setwise regressions were performed, with three main outcome variables (depression, anxiety, and life satisfaction).
satisfaction) and three main predictors (emotional contagion, pulse rate, and finger temperature).

Results of the first three regressions, with depression as the outcome variable, reveal that growth did not moderate the relationship between the three predictors and participant depression scores, emotional contagion: $\beta = -.118, t(68) = -.959, p = .341$; pulse rate: $\beta = .085, t(68) = .501, p = .618$; finger temperature: $\beta = -.012, t(68) = -.100, p = .921$. Even when controlling for film set, the interaction of growth and pulse rate on depression was not significant, $\beta = .100, t(68) = .585, p = .561$.

Results of the next three regressions, with anxiety as the outcome variable, reveal that growth did not moderate the relationship between the three predictors and participant anxiety scores, emotional contagion: $\beta = -.089, t(68) = -.725, p = .471$; pulse rate: $\beta = .052, t(68) = .301, p = .764$; finger temperature: $\beta = -.116, t(68) = -.946, p = .348$. Even when controlling for film set, the interaction of growth and pulse rate on anxiety was not significant, $\beta = .065, t(68) = .374, p = .709$.

Results of the final three regressions, with life satisfaction as the outcome variable, reveal that growth also did not moderate the relationship between the three predictors and participant life satisfaction scores, emotional contagion: $\beta = -.072, t(68) = -.589, p = .558$; pulse rate: $\beta = -.107, t(68) = -.633, p = .529$; finger temperature: $\beta = -.005, t(68) = -.041, p = .967$. Even when controlling for film set, the interaction of growth and pulse rate on life satisfaction was not significant, $\beta = -.114, t(68) = -.666, p = .508$.

Additional analyses were conducted to examine the association of posttraumatic growth with emotional contagion and reactivity. There was a significant correlation
between posttraumatic growth and emotional contagion, \( t(69) = .354, p < .01 \), with greater growth associated with greater emotional contagion. There was also a significant correlation between posttraumatic growth and finger temperature, \( t(69) = -.276, p < .05 \). Specifically, individuals with greater self-reported posttraumatic growth tended to exhibit more change in finger temperature in response to emotion eliciting film clips. The association of posttraumatic growth with the second physiological measure of reactivity, pulse rate, was not significant, \( t(69) = -.168, p = .162 \). This association remained insignificant when controlling for film set, \( \beta = -.200, t(69) = -1.634, p = .107 \).

**Research Question # 4**

A bivariate correlation was conducted to examine the association of participant reported impact of parental illness (as measured by the Impact of Illness Scale) with participant depression, anxiety, and life satisfaction. Results reveal that impact of illness was significantly associated with depression, \( t(69) = .243, p < .05 \), and anxiety, \( t(69) = .288, p < .05 \). Specifically, greater participant reported impact of parental illness was associated with higher levels of participant depression and anxiety. Impact of illness was not significantly associated with life satisfaction, \( t(69) = -.117, p = .330 \).

**Research Question # 5**

The purpose of this research question was to examine whether impact of parental illness moderated the relationship between emotional contagion and reactivity and the major outcome variables. As stated above, there was a significant main effect of impact of illness on depression and anxiety. The main effect of impact of illness on life satisfaction was not significant. To test for interaction effects, nine setwise regressions were performed, with three main outcome variables (depression, anxiety, and life satisfaction).
satisfaction) and three main predictors (emotional contagion, pulse rate, and finger temperature).

Results of the first three regressions, with depression as the outcome variable, reveal that impact of illness did not moderate the relationship between the three predictors and participant depression scores, emotional contagion: $\beta = .114, t(68) = .859, p = .393$; pulse rate: $\beta = -.063, t(68) = -.332, p = .741$; finger temperature: $\beta = -.038, t(68) = -.319, p = .750$. Even when controlling for film set, the interaction of impact of illness and pulse rate on depression was not significant, $\beta = -.015, t(68) = -.080, p = .937$.

Results of the next three regressions, with anxiety as the outcome variable, reveal that impact of illness did not moderate the relationship between the three predictors and participant anxiety scores, emotional contagion: $\beta = .142, t(68) = 1.091, p = .279$; pulse rate: $\beta = -.013, t(68) = -.071, p = .943$; finger temperature: $\beta = .013, t(68) = .113, p = .910$. Even when controlling for film set, the interaction of impact of illness and pulse rate on anxiety was not significant, $\beta = .029, t(68) = .152, p = .880$.

Results of the final three regressions, with life satisfaction as the outcome variable, reveal that impact of illness also did not moderate the relationship between the three predictors and participant life satisfaction scores, emotional contagion: $\beta = -.132, t(68) = -.975, p = .333$; pulse rate: $\beta = -.011, t(68) = -.055, p = .957$; finger temperature: $\beta = .006, t(68) = .054, p = .957$. Even when controlling for film set, the interaction of impact of illness and pulse rate on life satisfaction was not significant, $\beta = -.038, t(68) = -.191, p = .849$. 

38
Research Question # 6

A bivariate correlation was conducted to examine the association of growth with a series of variables related to the participant experience of parental illness. Results reveal that event centrality, $t(69) = .496$, $p < .001$, impact of illness, $t(69) = .551$, $p < .001$, perceived illness severity, $t(69) = .459$, $p < .001$, degree of stress experienced at the onset of parental illness, $t(69) = .380$, $p < .001$, frequency of symptoms, $t(69) = .391$, $p < .001$, number of hospitalizations, $t(69) = .391$, $p < .001$, and degree of incapacitation due to illness, $t(69) = .441$, $p < .001$, were significantly associated with growth. Specifically, higher participant reported growth was correlated with greater event centrality, impact of parental illness, perceived illness severity, participant stress experienced at onset of parental illness, frequency of symptoms, hospitalizations, and incapacitation due to illness.

Research Question # 7

A bivariate correlation was conducted to examine the association of a series of parental illness characteristics and family variables with depression, anxiety, and life satisfaction.

Results pertaining to depression reveal that participant reported degree of parental involvement, $t(69) = -.381$, $p < .001$, degree of stress experienced currently due to parental illness, $t(69) = .402$, $p < .001$, and recovery status of ill parent, $t(69) = .238$, $p < .05$, were significantly associated with participant depression scores. Specifically, lower parental involvement and greater current stress due to parental illness were associated with greater participant depression. Participants who reported that their parent had not fully recovered from their illness were more likely to have higher levels of depression.
Results pertaining to anxiety reveal that participant reported frequency of ill parent’s symptoms, $t(69) = .251, p < .05$, and parental involvement, $t(69) = -.413, p < .001$, were significantly associated with participant anxiety scores. Specifically, greater frequency of ill parent’s symptoms and lower parental involvement were associated with greater participant anxiety.

Results pertaining to life satisfaction reveal that participant reported familial support, $t(69) = .285, p < .05$, parental involvement, $t(69) = .408, p < .001$, and degree of stress experienced currently due to parental illness, $t(69) = -.351, p < .01$, were significantly associated with participant life satisfaction. Specifically, greater familial support, greater parental involvement, and lower stress experienced currently due to parental illness were associated with greater participant life satisfaction.
DISCUSSION

The life stressor of growing up with an ill parent can have detrimental effects on child wellbeing (Armistead, Klein, & Forehand, 1995). However, other work indicates that some individuals report experiencing growth in response to negative events (Park, Cohen, & Murch 1996; Tedeschi & Calhoun, 1996). In addition, existing literature demonstrates that those high in emotional contagion and reactivity may be particularly likely to experience distress in response to others’ difficulties (Doherty, 1997). The purpose of the current study was to examine the impact of perceived posttraumatic growth, emotional contagion, and reactivity on various aspects of college-age child wellbeing in response to having grown up with an ill parent. Several variables related to family quality of life and parental illness features were also analyzed, given their demonstrated significance in prior studies of the child experience of parental illness (Compas et al., 1994; Stanescu & Romer, 2011; Stoeckel, Weissbrod, & Ahrens, in press).

It was hypothesized that perceived growth would serve a protective role in the sample, correlating with lower depression and anxiety and greater life satisfaction. It was also hypothesized that perceived growth would moderate the relationship between emotional contagion and reactivity and the major outcome variables. However, the results in regard to these hypotheses were not significant. There are several potential explanations for these results. No studies to date have assessed posttraumatic growth in a sample of college-age children of ill parents. Previous studies of this construct have assessed growth in response to discrete, isolated events, such as natural disasters or death of a loved one (Affleck & Tennen, 1996). Parental illness, on the other hand, tends to be
chronic and often occurring over long periods of time. Therefore, growth within the context of parental illness is distinct from life stressors typically studied in existing literature. Posttraumatic growth may be more difficult to assess in the current study’s sample, given the often longer term nature of illness, and therefore may not clearly predict outcomes.

Further, an unidentified third variable may make an individual more or less likely to experience growth in response to parental illness. Frederickson et al. (2003), for example, found that college students high in trait resiliency were more likely than individuals low in trait resiliency to respond to the 9/11 attacks with positive emotions. These positive emotions buffered against subsequent depressive symptoms. It is possible that the current study failed to assess an important third variable, such as trait resiliency, that could aid in our understanding of the variables of interest. Future work is necessary to understand the nature of posttraumatic growth in response to a long-term stressor (i.e., parental illness), as well as the mechanisms through which growth occurs.

Additional analyses were conducted to more closely examine the subscales of the PTGI. Results reveal that certain subscales were significantly associated with participant depression and life satisfaction. Specifically, higher scores on the Appreciation of Life subscale were associated with greater life satisfaction. In addition, higher scores on the Spiritual Change subscale were associated with lower depression and greater life satisfaction. These results are in part consistent with a previous study, which also found that scores on the Appreciation of Life and Spiritual Change subscales of the PTGI were positively correlated with scores on the SWLS (Frazier et al., 2009). Interestingly, Frazier et al. (2009) found a positive correlation between Spiritual Change scores and distress.
However, their study used the Depression Anxiety Stress Scales as an outcome measure, which calculates a total distress score. Given the findings in the current study, it is possible that spirituality serves a uniquely protective role in regard to depressive symptoms within the college-age children of ill parents.

Another aim of the current study was to examine the association of emotional contagion and reactivity with the major outcome variables. Contrary to the hypothesis, neither emotional contagion nor physiological reactivity was correlated with participant depression, anxiety, and life satisfaction. The results pertaining to emotional contagion are inconsistent with previous literature which suggests that the tendency to “catch” the emotions of others may make individuals more vulnerable to negative outcomes (Doherty, 1997; Klimes-Dougan & Bolger, 1998). Rather, the current study’s findings demonstrate that when tested empirically, the construct of emotional contagion is not necessarily linked to internalizing symptoms. It is also surprising that physiological measures of reactivity were not correlated with the outcome variables. However, some studies have also failed to find an association between physiological measures and self-report (Schwerdtfeger, 2004). Feldman et al. (1999) found in a meta-analytic review that there was little evidence for significant associations between autonomic reactivity and self-reported emotionality. For instance, this meta-analytic review revealed that the mean correlation between heart rate change in response to a stressor and anxiety was only \( r = 0.15 \). Therefore, physiological arousal assessed in vivo in response to film clips may not be comparable to self-reported arousal and internalizing symptoms.

Two of the three self-report measures of emotional reactivity were not correlated with the major outcome variables. However, participant ratings of feeling positive versus
negative following film clips were significantly associated with depression, anxiety, and life satisfaction. Specifically, individuals with greater positive versus negative difference scores were more likely to report lower depression and anxiety and higher life satisfaction. Thus, it appears that individuals who reported the greatest change in their emotional valence in response to film clips were most likely to have greater overall wellbeing. Our findings are consistent with existing literature, which suggests that individuals with major depressive disorder are characterized by reduced emotional reactivity to both positive and negatively valenced stimuli (Bylsma, Morris, & Rottenberg, 2007). Perhaps reactivity to emotionally evocative stimuli is an indicator of an individual’s availability to experience affective environmental stimuli and possibly an indicator of psychological health.

Additional analyses were conducted to examine these associations when broken down according to affective category of film clip (i.e., sad, fear, disgust, and happy). Greater change in positive versus negative ratings in response to the target emotions of disgust and happiness were associated with lower depression scores. In addition, greater change in positive versus negative ratings in response to the target emotion of happiness were associated with greater life satisfaction. Taken together, perhaps individuals with lower depression scores are more emotionally available to react to stimuli evoking the target emotions of disgust and happiness. The association between positive versus negative difference scores and anxiety disappeared when analyses were broken down according to affective category of film clip. Given these mixed findings, the results pertaining to self-reported ratings of feeling positive versus negative following film clips are puzzling and therefore call for further investigation in future research.
Interestingly, perceived posttraumatic growth was positively correlated with emotional contagion, as well as finger temperature. Specifically, individuals who reported greater growth scores tended to have greater self-reported emotional contagion scores and greater finger temperature change in response to emotion eliciting film clips. To my knowledge, no studies to date have explored the association of posttraumatic growth with emotional contagion and/or physiological measures of reactivity. Given the findings in the current study, perhaps individuals who are more emotionally reactive are also more likely to grow in response to negative life stressors. These findings are in line with a previous study of suicide bombing attack survivors, which found that three subscales of the PTGI (Relating to Others, Appreciation of Life, and New Possibilities) were positively correlated with self-reported hyperarousal. The ability to make meaning in a negative event may go hand-in-hand with the tendency to take in and react to emotional stimuli. One possible mechanism of this association could be an active response style when coping with negative life events or emotional stimuli. It is also possible that individuals who experience heightened physiological symptoms in response to a negative life event are more likely to report growth.

A number of notable findings were revealed in regard to parental illness features and family quality of life. First, although impact of illness did not moderate the relationship between emotional contagion and reactivity and the major outcome variables, there was a significant main effect of impact of illness on participant internalizing symptoms. Specifically, greater impact of illness was associated with higher levels of participant depression and anxiety. These findings are consistent with previous studies suggesting that the child’s perception of the severity of parental illness is
predictive of child psychological functioning (Compas et al., 1994; Howes, Hoke, Winterbottom, & Delafield, 1994). Given that it demonstrated strong internal consistency in the current study, the Impact of Illness Scale (designed by the principal investigator) may be considered a reliable assessment of the overall effect of parental illness.

Beyond the overall impact of illness, a number of specific illness features were found to be significantly associated with participant depression, anxiety, and life satisfaction. Specifically, lower parental involvement and greater current stress due to parental illness were associated with greater participant depression. Further, participants who reported that their parent had not fully recovered from their illness were more likely to have higher depression levels. Results pertaining to anxiety reveal that lower parental involvement and greater frequency of ill parent symptoms were associated with greater participant anxiety. Results also reveal that greater parental involvement, greater familial support, and lower current stress due to parental illness were associated with greater participant life satisfaction. Taken together, these results are consistent with 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). The current study clearly demonstrates the significance of illness features, as well as characteristics of the family environment, in the college-age child adjustment to parental illness. Given that parental involvement was a significant predictor of all three of the major outcome variables, this appears to be a particularly important aspect of family quality of life in coping with parental illness.

Finally, several features of parental illness were also found to be significantly associated with posttraumatic growth. Specifically, greater event centrality, impact of
illness, perceived illness severity, participant stress experienced at onset of parental illness, frequency of parental illness symptoms, number of hospitalizations due to illness, and incapacitation due to illness were correlated with greater posttraumatic growth. These findings are consistent with previous studies suggesting that growth is more likely to occur in response to a life stressor such as parental illness with greater event centrality, greater stress, and greater perceived illness severity (Boals & Schuettler, 2011; Helgeson et al., 1996).

The current study’s results provide useful information about the college-age child experience of parental illness. Despite its strengths, there are several limitations to this research that should be addressed. The current study relied on a convenience sample of college students at a single university. It is therefore difficult to generalize these findings to the greater population. Further, given that all participants were enrolled in college, it is possible that we are examining a particularly high functioning sample of children of ill parents. Perhaps those who are most negatively impacted by parental illness are not capable of attending college and were therefore not included in the current study.

Due to the correlational nature of the study and the fact that all data were collected at one time, it is impossible to establish causal relationships between the variables of interest. It is also impossible to establish the direction of the relationship between the variables of interest. Given that participants provided a retrospective report of parental illness features and family variables, recall bias could affect the results. For instance, a participant with heightened current depressive symptoms may recall his or her parent’s illness as more severe. A prospective, longitudinal approach would greatly
improve upon these limitations and provide significant information about the impact of parental illness across the lifespan.

Given the large number of variables analyzed in the current study, the risk of Type I error must be considered. Some of the unexpected and/or puzzling findings (e.g., those involving positive versus negative ratings) could simply be a result of the vast number of analyses conducted in this project. It is also possible that a variety of unknown third variables influenced the results. An investigation of additional third variables could potentially illuminate the underlying mechanisms of the experience of parental illness in childhood.

Finally, a prospective design would also assist in better understanding the nature of perceived posttraumatic growth. Some argue that self-reported posttraumatic growth may be illusory and that scores on the PTGI do not correlate with actual growth or third party report. Others suggest that perceived growth is a reflection of positive reinterpretation coping (McFarland & Alvaro, 2000; Frazier et al., 2009; Taylor, 1983). This is not to say that growth in response to negative life stressors is not real; rather, without the use of a prospective research design it is difficult to accurately assess the construct validity of the PTGI. We must continue to be skeptical about the notion of perceived growth and aim to build on previous studies using prospective designs with multiple informants.

There is still much to be learned about the child experience of growing up with an ill parent and the impact of this life stressor on psychological functioning. The current study’s findings are promising in that they demonstrate the association of various illness features and characteristics of family life with college-age child wellbeing. Parental
involvement, for example, may be protective against depression and anxiety and lead to greater life satisfaction. Moving forward, clinicians should take these findings into account in developing psychosocial interventions for children and families coping with illness.
APPENDIX A

DEMOGRAPHICS AND PARENTAL HEALTH

INFORMATION QUESTIONNAIRE

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. While you were living in your childhood home, did your mother have any of the illnesses listed below? If yes, in your own opinion, how severe was each illness? Please use the following scale:

   1) = Not severe
   2) = Mildly severe
   3) = Moderately severe
   4) = Very severe
   5) = Extremely severe

<table>
<thead>
<tr>
<th>Condition</th>
<th>Check if present</th>
<th>Severity Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crohn’s Disease</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. If you responded "other" above, from what illness did your mother suffer during your life?

____________

8. While you were living in your childhood home, did your father have any of the illnesses listed below? If yes, how severe was each illness? Please use the following scale:

1 = Not severe  
2 = Mildly severe  
3 = Moderately severe  
4 = Very severe  
5 = Extremely severe

<table>
<thead>
<tr>
<th>Condition</th>
<th>Check if present</th>
<th>Severity Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood Disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crohn's Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emphysema</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epilepsy (Seizures)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genetic Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glaucoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lupus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple Sclerosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osteoporosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parkinson's</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thyroid Problem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuberculosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. If you responded "other" above, from what illness did your father suffer during your life?

__________

10. If both of your parents suffered from an illness, in your opinion which parent was more negatively affected by the illness?

a) Mother
b) Father

Instructions for remainder of the questionnaire:

The following questions refer to the parent that experienced an illness when you were in your childhood home. If both parents suffered from illnesses, please answer the following questions for the parent that you indicated in question #10 as being more negatively affected by the illness. In addition, all of the following questions will ask you to reflect on your experience while living in your childhood home (i.e., prior to college).

11. In your opinion, what was the most serious illness that your parent suffered from? The remaining questions will refer to this illness.

__________

13. Please rate the severity of this on the scale below. Your answer to this question should correspond with your answer in either question # 6 or # 8 above.

1  =  Not severe
2  =  Mildly severe
3 = Moderately severe
4 = Very severe
5 = Extremely severe

14. Please indicate the degree to which you agree or disagree with the following statement: “I feel that my parent’s illness has become a central part of my life story.”

1) Strongly agree
2) Agree
3) Neutral
4) Disagree
5) Strongly disagree

15. Please indicate how frequently you observed your parent having symptoms on a scale from 1 (never) to 5 (a great deal):

1) Never
2) Rarely
3) Occasionally
4) A moderate amount
5) A great deal

16. Please indicate the number of hospitalizations your parent experienced due to illness while you were living at home:

1) 0
2) 1-5
3) 6-10
4) Over 10

17. Please indicate the degree of incapacitation your parent experienced due to illness on the scale below:

1) None; symptoms due not interfere with normal daily functioning
2) Mild; symptoms interfere with normal daily functioning about 25 % of the time
3) Moderate; symptoms interfere with normal daily functioning about 50 % of the time
4) Severe; symptoms interfere with normal daily functioning about 75 % of the time
5) Very severe; symptoms interfere with normal daily functioning 100% of the time
18. Would you describe your parent’s illness as chronic (long-developing) or acute (sudden)?
   a) chronic
   b) acute
   c) chronic with acute flare-ups

19. Please indicate the quality of your peer support while growing up, on a scale from 1 (poor) to 5 (excellent).
   1) Poor
   2) Fair
   3) Good
   4) Very good
   5) Excellent

20. Please indicate the quality of your familial support while growing up, on a scale from 1 (poor) to 5 (excellent).
   1) Poor
   2) Fair
   3) Good
   4) Very good
   5) Excellent

21. Overall, how satisfied were you with your parent’s involvement in the following areas related to your life? Please use the following scale:

   1 = Not at all satisfied
   2 = Slightly satisfied
   3 = Moderately satisfied
   4 = Very satisfied
   5 = Extremely satisfied

   a) Academic/school issues/homework ______
   b) Extracurricular activities ______
   c) Your health needs ______
   d) Your emotional needs ______
   e) Household routines (e.g., meals, bedtime etc.)
   f) Relationship with other family members ______
   g) Relationship with friends ______
22. Please indicate the degree of stress you experienced at the initial onset of your parent’s illness on a scale from 1 (none) to 5 (severe stress):

1) None  
2) Mild stress  
3) Moderate stress  
4) Severe stress  
5) Very severe stress

23. Please indicate the degree of stress you experience currently due to your parent’s illness on a scale from 1 (none) to 5 (very severe stress):

1) None  
2) Mild stress  
3) Moderate stress  
4) Severe stress  
5) Very severe stress

24. How many years have passed since the initial onset of your parent’s illness?
   a) Less than 1 year  
   b) 1-6 years  
   c) 6-10 years  
   d) Over 10 years

25. Please indicate the duration of your parent’s illness (i.e., total number of years):
   a) Less than 1 year  
   b) 1-6 years  
   c) 6-10 years  
   d) Over 10 years

26. Has your parent fully recovered from his or her illness?
   a) Yes  
   b) No
Please answer all of the following questions about how you feel right now.

Using the scale below, please indicate the greatest amount of EACH emotion you are experiencing currently.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all/None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extremely/A great deal</td>
</tr>
</tbody>
</table>

___ Anger

___ Anxiety

___ Tenderness

___ Sadness

___ Worry

___ Fear

___ Happiness

___ Disgust

___ Joy

___ Calm

Using the scales below, please rate how you feel currently by circling the appropriate number.

1  2  3  4  5

1  2  3  4  5

Negative  Neutral  Positive

Relaxed  Neutral  Aroused
APPENDIX C

POST-FILM CLIP SELF-REPORT

*Please answer all of the following questions about how you felt while watching the film.*

Using the scale below, please indicate the greatest amount of EACH emotion you experienced while watching the film.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all/None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Extremely/A great deal</td>
</tr>
</tbody>
</table>

___ Anger ___ Fear
___ Anxiety ___ Happiness
___ Tenderness ___ Disgust
___ Sadness ___ Joy
___ Worry ___ Calm

Using the scales below, please rate how you felt while viewing the film by circling the appropriate number.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>Neutral</td>
<td>Positive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Relaxed</td>
<td>Neutral</td>
<td>Aroused</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D

IMPACT OF ILLNESS SCALE

Listed below you will see a series of things children may report in response to growing up with an ill parent. Please indicate whether or not each of the statements applies to your experience as it relates to growing up with an ill parent (by selecting “Yes” or “No”):

1) It was inconvenient. Yes or No
2) It was restrictive. Yes or No
3) It disrupted my personal routine. Yes or No
4) It disrupted the family routine. Yes or No
5) I have made personal adjustments. Yes or No
6) I have made emotional adjustments. Yes or No
7) I have made social adjustments. Yes or No
8) I have done things to compensate for my ill parent’s shortcomings. Yes or No
9) My parent’s behavior was upsetting. Yes or No
10) It was a financial strain. Yes or No
11) It felt overwhelming. Yes or No
12) It felt burdensome. Yes or No
13) I was the primary caregiver for my ill parent. Yes or No
APPENDIX E

POSTTRAUMATIC GROWTH INVENTORY

Listed below are 21 areas that are sometimes reported to have changed after negative life events. Please mark the appropriate indicating how much you feel you have experienced change in the area described in response to having grown up with an ill parent. The 0 to 5 scale is as follows:

0 = I did not experience this change as a result of my crisis
1 = I experienced this change to a very small degree
2 = a small degree
3 = a moderate degree
4 = a great degree
5 = a very great degree as a result of my crisis

1) My priorities about what is important in life
2) an appreciation for the value of my own life
3) I developed new interests
4) A feeling of self-reliance
5) A better understanding of spiritual matters
6) Knowing that I can count on people in times of trouble
7) I established a new path for my life
8) A sense of closeness with others
9) A willingness to express my emotions
10) Knowing I can handle difficulties
11) I’m able to do better things with my life
12) Being able to accept the way things work out
13) Appreciating each day
14) New opportunities are available which wouldn’t have been otherwise
15) Having compassion for others
16) Putting effort into my relationships
17) I’m more likely to try to change things which need changing
18) I have a stronger religious faith
19) I discovered that I am stronger than I thought I was
20) I learned a great deal about how wonderful people are
21) I accept needing others
APPENDIX F

THE EMOTIONAL CONTAGION SCALE

*Please indicate the frequency with which you experience the following affective responses to others. The 1 to 4 scale is as follows:*

1 = Never
2 = Rarely
3 = Often
4 = Always

1. If someone I’m talking with begins to cry, I get teary-eyed.

2. Being with a happy person picks me up when I’m feeling down.

3. When someone smiles warmly at me, I smile back and feel warm inside.

4. I get filled with sorrow when people talk about the death of their loved ones.

5. I clench my jaws and my shoulders get tight when I see the angry faces on the news.

6. When I look into the eyes of the one I love, my mind is filled with thoughts of romance.

7. It irritates me to be around angry people.

8. Watching the fearful faces of victims on the news makes me try to imagine how they might be feeling.

9. I melt when the one I love holds me close.

10. I tense when overhearing an angry quarrel.

11. Being around happy people fills my mind with happy thoughts.

12. I sense my body responding when the one I love touches me.

13. I notice myself getting tense when I’m around people who are stressed out.


15. Listening to the shrill screams of a terrified child in a dentist’s waiting room makes me feel nervous.
APPENDIX G

CES-D

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>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>
</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 H

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
APPENDIX I

SATISFACTION WITH LIFE SCALE

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number in the line preceding that item. Please be open and honest in your responding.

1 = Strongly Disagree
2 = Disagree
3 = Slightly Disagree
4 = Neither Agree or Disagree
5 = Slightly Agree
6 = Agree
7 = Strongly Agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with life.
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.
APPENDIX J

FILM CLIPS

Video Set 1

<table>
<thead>
<tr>
<th>Title</th>
<th>Target Emotion</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall-E</td>
<td>Happiness</td>
<td>3:15</td>
</tr>
<tr>
<td>My Girl</td>
<td>Sadness</td>
<td>2:33</td>
</tr>
<tr>
<td>The Ring</td>
<td>Fear</td>
<td>2:45</td>
</tr>
<tr>
<td>Van Wilder</td>
<td>Disgust</td>
<td>3:07</td>
</tr>
</tbody>
</table>

Video Set 2

<table>
<thead>
<tr>
<th>Title</th>
<th>Target Emotion</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remember The Titans</td>
<td>Happiness</td>
<td>6:08</td>
</tr>
<tr>
<td>The Shawshank Redemption</td>
<td>Sadness</td>
<td>4:14</td>
</tr>
<tr>
<td>Psycho</td>
<td>Fear</td>
<td>5:12</td>
</tr>
<tr>
<td>The Fly</td>
<td>Disgust</td>
<td>1:05</td>
</tr>
</tbody>
</table>

The emotional content of all clips has been validated in the study listed below. Permission has been granted from the authors to use these clips in the current study.

REFERENCES


Fredrickson, B.L., Tugade, M.M., Waugh, C.E., & Larkin, G.R. (2004). What good are positive emotions in crises? A prospective study of resilience and positive emotions following the terrorist attacks on the United States on September 11th,


