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A Longitudinal Exploration of Stress-Related Growth Following Relationship Dissolution

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A LONGITUDINAL EXPLORATION OF STRESS-RELATED GROWTH
FOLLOWING RELATIONSHIP DISSOLUTION

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The developmental age spanning the years of 18-25 is uniquely primed to the experiences of stress-related growth, due to the emphasis on growth, change and exploration (Aldwin, Levenson, & Kelly, 2009; Arnett, 2000, 2004). In particular, this developmental stage is characterized by many new romantic relationships and breakups in the process of learning about relationships. Recent research on posttraumatic growth has focused on distress and growth following romantic relationship dissolution (Hebert & Popadiuk, 2008; Tashiro & Frazier, 2003; Lewandowski & Bizzoco, 2007). The current study utilized a longitudinal design to assess stress-related growth following relationship dissolution in college students. Participants in romantic relationships were recruited and assessed at two time points, approximately 2½ months apart. Results indicated that following relationship breakup, participants reported a high degree of both distress and perceived growth. However, variables measured at Time 1 were not related to distress and growth measured at Time 2. The results are consistent with research which suggests that growth may be the result of self-enhancement biases or positive illusions (Fraizer & Kaler, 2009). Contrary to previous research, a measure of actual growth was unrelated to distress, perceived growth, or whether the individual actually experienced a breakup or not. Implications for future research and therapeutic interventions are discussed.

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CHAPTER ONE

INTRODUCTION

During emerging adulthood, romantic relationships take on new importance.

Emerging adulthood is most commonly identified as occurring between ages 18 and 25.

According to developmental theories, the two most important tasks of young adulthood

are, "to love and to work," (Erikson, 1950 as cited in Broderick & Blewitt, 2006, p. 369).

During this life stage, emerging adults work on several developmental tasks, but the

overall themes are two-fold: develop a successful career and couple with a partner

(Broderick & Blewitt, 2006). Erikson's stage theory identifies Intimacy versus Isolation

as the major psychosocial 'crisis' of young adulthood (Broderick & Blewitt, 2006). The

Family Life Cycle theory also emphasizes the tasks of developing intimate relationships

and creating a career path during the young adulthood stage (Carter & McGoldrick,

1999).

More recently, Arnett (2000) proposed that emerging adulthood is a unique stage

characterized by exploration and change in the areas of love, work, and worldviews.

During this stage, Arnett proposes that romantic relationships are focused on exploration,

specifically, "Given the type of person I am, what kind of person do I wish to have as a

partner through life?" (p. 473). Since multiple theories identify love relationships as an

important goal of college-aged young adults, it follows that some growth or development

would be expected to occur in these areas during this time period (Carter & McGoldrick,

1999).

In addition to traditional developmental theories, the Self-Expansion model

proposed by Aron and Aron (1997) suggests similar interpersonal development. The

self-expansion model proposes that the central human motivation is self-expansion or growth (Aron & Aron, 1997; Aron, Aron, & Norman, 2001). Aron and his colleagues proposed that an essential way of achieving this self-expansion is through intimate relationships where one can include another person in the self (Aron & Aron, 1997; Aron et al., 2001). Young adulthood is characterized by many new romantic relationships and therefore, following the self-expansion model, this stage of life could also be a period of tremendous personal growth.

Because relationships are a key developmental task and a source of growth during the emerging adulthood stage, distress develops when relationships are unsuccessful or abruptly end. Relationships are a high-stakes task for emerging adults, as developmental theorists and emerging adults alike view it as a process of searching and preparing for a long-term relationship. Therefore, setbacks can be very painful and disruptive. Relationship dissolution has been reported to be a very stressful and traumatic life event, causing many young people to seek counseling or outside help. In fact, relationship issues are one of the most common presenting problems at college student counseling centers (Benton, Robertson, Tseng, Newton, & Benton, 2003).

Non-marital breakups result in many clinical problems, including depression, anxiety, substance abuse, and, most notably, PTSD-like symptoms (Anders, Frazier, & Frankfurt, 2009; Spitzer, Abraham, Reschke, Michels, Siebel, & Frankfurt, 2009). However, relationship dissolution, by definition, cannot qualify for a diagnosis of PTSD regardless of symptoms because the breakup is not a life-threatening event. Criterion A1 of the diagnostic criteria of Posttraumatic Stress Disorder requires that an individual experience or witness an event which threatens injury or death (American Psychiatric

Association, 2000). However, recent research has established that events failing to meet criterion A1, often referred to as "low magnitude" events, such as break-ups, may also result in PTSD symptoms (Spitzer et al., 2000). In fact, previous research has found no differences in PTSD symptoms between A1 and non-A1 events (Spitzer et al., 2000; Anders et al., 2009), and one study has found more PTSD symptoms with non-A1 events (Long, Elhai, Schweinle, Gray, Grubaugh, & Frueh, 2008). Furthermore, when investigators ask participants to list traumatic events, unconstrained by a list of previously identified A1 events, they frequently report relationship conflict and relationship dissolution, and rate these events as the most distressing (Anders et al., 2009; Park, Cohen, & Murch, 1996). Following relationship dissolution, study participants have reported symptoms of PTSD, including intense fear, helplessness, horror, re-experiencing, avoidance, numbing and increased arousal (Anders et al., 2009). Researchers have also observed symptoms associated with disorders commonly co-morbid with PTSD, including depression, anxiety and substance abuse (Tashiro, Frazier, & Berman, 2006).

There may also be a positive, developmentally appropriate response to the loss of an important intimate relationship: self-reflection and growth. Potential positive outcomes of growth include the ability to prevent future break-ups, make better partner choices, and learning how to better handle close relationships. Posttraumatic growth theory hypothesizes that struggles with trauma and life losses, such as a stressful breakup, can promote positive changes and new meaning in one's life (Calhoun & Tedeschi, 2001). However, with the exception of only a few studies (Hebert & Popadiuk, 2008; Lewandowski & Bizocco, 2007; Tashiro & Frazier, 2003), most research regarding non-

marital breakups has focused only on the distress caused by breakups rather than positive changes that may occur as the result of struggling with the loss. The few studies of stress-related growth following the dissolution of a relationship have shown that individuals report a substantial degree of personal growth, including growth in self and in understanding of relationships (Hebert & Popadiuk, 2008; Lewandowski & Bizocco, 2007; Tashiro & Frazier, 2003). These studies have focused entirely on retrospective self-reports, either qualitatively or quantitatively.

Because the data accumulated has been in the form of retrospective self-reports, questions have been raised as to whether growth is actually occurring (Frazier & Kaler, 2006). Rather, some theorists propose that growth may be the result of either (1) self-enhancement biases or (2) positive illusions (Frazier & Kaler, 2006; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000). Self-enhancement biases are conscious efforts that individuals make to appear to be coping well (Baumeister & Twenge, 2003) possibly because they believe others in their social network want to hear that they are doing better following the stressor (Linley & Joseph, 2004). Positive illusions typically operate outside of conscious awareness and are unrealistically optimistic beliefs about the self (Taylor et al., 2000), which may serve the purpose of alleviating some of the negative feelings following a breakup. It could be that positive illusions about the self and the experience allow those who have suffered a painful breakup to cope more effectively, with little actual growth occurring.

Therefore, the purpose of the present study is to examine stress-related growth in a developmental period which may already be primed for exploration and growth. A prospective short-term longitudinal study can test the concept of posttraumatic growth

following relationship dissolution by assessing actual growth over time that is less subject to re-interpretation of negative events (Tashiro et al., 2006). Because relationship breakup is a relatively common, yet very disruptive experience for young adults, it provides a rare opportunity to examine posttraumatic growth prospectively that is simply not possible with other traumatic events. This research could contribute to the larger body of research on stress-related growth since relationship dissolution is one of the few stressful losses that lends itself to this type of design (Tashiro et al., 2006). To determine whether growth occurs following the dissolution of a romantic relationship, participants will be assessed at two time points in a longitudinal format to answer the following research question: Does stress-related growth following the dissolution of an important romantic relationship occur during emerging adulthood?

This study conceptualizes relationship dissolution in emerging adults as a unique growth experience encouraged by the developmental demands of this stage (Arnett, 2000, 2004; Tashiro et al., 2006). By combining developmental theories with new advances in trauma research and the burgeoning studies of posttraumatic growth, the present study can further our understanding of posttraumatic growth following non-marital relationship dissolution during the emerging adulthood stage. This perspective has implications for many research areas including our understanding of young adult development, posttraumatic growth in general, and the specific processes of growth following relationship dissolution. Additionally, the study could have important implications for counseling individuals in this developmental stage who experience stress-related growth.

There are numerous organizing frameworks for understanding the links between intimate relationships and growth. Theories propose that we enter relationships as a method of growing or expanding the self (self-expansion model; Aron & Aron, 1997), that we learn and grow through experimenting with relationships in young adulthood (developmental theories; Arnett, 2000; Carter & McGoldrick, 1999), and that we experience stress-related growth when a significant relationship ends (posttraumatic or stress-related growth theory; Calhoun & Tedeschi, 2001). It is clear that growth and exploration are central themes of the developmental stage spanning 18-25 years and that relationships play a key role in this growth (Arnett, 2000, 2004).

Developmental Context

Arnett (2000, 2004) recently proposed that emerging adulthood is a unique stage characterized by exploration and change, specifically in the areas of love, work, and

worldviews. A variety of possible options are often tried on and changed, from one career path to another or from one intimate relationship to another, which is considered to be natural and a supported part of this stage. The over-arching goal of this life stage appears to be becoming an adult, which is often demarcated by concrete achievements such as a stable career, a house, a college degree, marriage, children, etc. The exploration and growth that so strongly characterizes the stage of emerging adulthood is a way of exploring and making attempts to achieve these adult markers.

The unique period of exploration during ages 18-25 of years is a relatively recent developmental phenomenon. A variety of socio-historical developments including the popularization of higher education, the post-industrial environment, the development of birth control pills, the postponement of marriage, and the women's movement have all contributed to the expansion of young adulthood (Arnett, 2000). Emerging adulthood is sandwiched between adolescence and adulthood. Adolescence is characterized by much more control, simply due to the fact that adolescents typically live with their parents and must attend high school. Adulthood is typically fraught with responsibilities, frequently including a spouse, children, a mortgage, and a job. The era between adolescence and adulthood is unique in that exploration is encouraged and complete self-responsibility is delayed (Arnett, 2000). Some may argue that the concept of emerging adulthood may be limited, in that it is most relevant for those who enter higher education. However, those who do not enter higher education still explore careers and romantic relationships. Additionally, over two thirds of young adults enter college after high school and one third of college graduates enter graduate school (Arnett, 2000).

Arnett (2004) posits five distinguishing characteristics of emerging adulthood: (1) identity exploration, (2) an era of instability, (3), a self-focused stage, (4) the feeling of being caught in between adolescence and adulthood, and (5) an age of possibilities and opportunities. Despite the recent extension of this development stage, its tasks are not new. Famous developmental theorists, like Erikson, have long stated that the two most important tasks of young adulthood are, "to love and to work," (1950, as cited in Broderick & Blewitt, 2006, p. 369). However, at that time, Erikson was likely referring to an earlier age group. Erikson's stage theory identifies "Intimacy versus Isolation," as the major psychosocial 'crisis' of young adulthood, with love as the potential positive outcome and fear of intimacy as the potential negative outcome (Erikson, 1950). Arnett's concept of emerging adulthood is also consistent with family developmental theorists, such as Carter and McGoldrick (1999), who characterized young adulthood with the stage of, "Leaving home: Single young adulthood," during which individuals differentiate from their families of origin, develop intimate relationships, and create a career path for themselves.

Romantic relationship exploration. The theme for young adult development, which Arnett ties together well, is that there is a great deal of exploration during this stage for the primary purposes of finding and securing a successful career and finding a suitable romantic partner. Of particular interest to this study is exploration in the realm of romantic relationships. Arnett proposes that romantic relationships are focused on exploration, specifically, "Given the type of person I am, what kind of person do I wish to have as a partner through life?" (2004, p. 473). Because we have a society which makes preference-based choices regarding romantic relationships, there is a great deal of

learning and exploring to do. Young adults have to answer the questions about what type of partner they are, what type of partner they want to have throughout life, and how they can make their relationship work (Arnett, 2000). The question of who one wishes to marry is a new question which gained prominence in recent centuries as contemporary marriage has become increasingly based on personal choice, individual satisfaction, and feelings of romantic love (Coontz, 2006; Fowers, 2000; Swidler, 2001).

In addition to romantic love gaining prominence in marriage, the when of marriage has changed dramatically in the past fifty years. In 1950, the average age for marriage was 20 for women and 22 for men, with parenthood coming roughly one year later. In the 1970's, the figure had changed only slightly to 21 for women and 23 for men. From the 1970's to the year 2009, a dramatic social shift occurred and the typical age of marriage for women is now 26 and 28 for men (U.S. Census Bureau, 2009). The later age of marriage, coupled with the focus on individual preference and choice has contributed to the creation of the emerging adulthood stage (Arnett, 2000). By no means is marriage considered less important by today's generation, they just have a longer period of time to make choices about marriage and prepare for it. Therefore, relationships in emerging adulthood are extremely important, as they are the training grounds for later marriage.

Romantic relationships and self-expansion. The emerging adulthood stage focuses on romantic relationships as one area of growth and exploration (Arnett, 2000). The self-expansion model enhances this developmental perspective, by suggesting that the central human motivation is self-expansion or growth and that one key mode of self-expansion is through interpersonal relationships (Aron, Aron, & Norman, 2001). Romantic

relationships offer the experience of growth because one can experience knowledge gains, new experiences, extended identities and other resources (Aron et al., 2001). Self-expansion in the context of a relationship is associated with increased relationship quality (Aron et al., 2001). A second component of the self-expansion model posits that growth may occur when a relationship deepens and one begins to include the other in the self, such that one is able to include new identities and perspectives from the partner in one's own self-concept (Aron et al., 2001). Therefore, relationships are critically important during emerging adulthood partly because they offer personal growth and help to constitute one's identity over time. When a romantic relationship ends, tremendous distress occurs because one loses an important emotional connection and key opportunities for growth and development.

Researchers study self-expansion by measuring self-concept size, specifically, by counting the number of "domains of self" participants list. Following this theory, a study was conducted in which self-descriptions were collected from individuals who were or were not in romantic relationships. Sedikides (1992) found that those in a relationship included significantly more domains of self (as cited in Aron et al., 2001). In another study of self-expansion, participants completed measures of their self-concept every two weeks (Aron et al., 1995). Participants who began romantic relationships during the course of the study had significantly greater self-concept expansion than those who did not. Additionally, those participants had significantly greater self-concept change when the relationship began compared to their own self-concept change during other periods in the investigation (Aron et al., 1995).

In a series of three studies on the implications for the self-concept after a self-expanding relationship has ended, researchers demonstrated a negative correlation between self-expansion in the relationship and self-concept post-dissolution, such that the greater the self-expansion during the relationship, the smaller the self-concept post-dissolution (Lewandowski, Aron, Bassis, & Kunak, 2006). This effect remained after controlling for inclusion of other in the self, a measure that is closely associated with relationship quality. However, two of the three studies were conducted with retrospective reports of relationships which had already ended, and the third study used an experimental design in which participants imagined their own relationship dissolution. These studies are limited because of the obvious problems with retrospective self-reports on relationships which ended an average of two months prior to the study. A longitudinal design would surely allow greater explanation of how self-expansion may increase or constrict following relationship dissolution.

In addition to expanding the self-concept, a positive, committed relationship allows individuals to grow in other ways. Crowell, Treboux, and Waters (2002) have demonstrated that 20% of individuals who were identified as having an insecure attachment had become more secure in their attachment over a period of time in a committed relationship. During emerging adulthood, relationships represent the potential of a long-term committed relationship, as well as a key way of growing and learning about oneself.

Summary of developmental literature. The emerging adulthood stage is characterized by exploration, change, and growth. Romantic relationships are critically important during emerging adulthood for three reasons: (1) they represent the potential of

a long-term relationship and many young adults hope their relationship will result in marriage, (2) a tremendous amount of personal growth occurs during relationships, and (3) when the relationships end, their importance lies in the fact that they are the training ground for future long-term relationships, such as marriage (Arnett, 2000; Aron et al., 2001). For these reasons, when a relationship is unsuccessful or abruptly ends during this stage, young adults may feel intense distress. Relationships are a high-stakes task for emerging adults, as developmental theorists and emerging adults alike view it as a process of searching and preparing for a long-term relationship, an opportunity for personal development, and a key personal attachment. Therefore, setbacks can be very painful and disruptive.

Trauma

Because developing important close relationships is a key goal for this developmental stage, significant distress occurs when these relationships are unsuccessful. Numerous studies have documented that breakups are very distressing (Field, Diego, Pelaez, Deeds, & Delgado, 2009; Lewandowski et al., 2003; Sprecher, Felmlee, Metts, Fehr, & Vanni, 1998; Tashiro & Frazier, 2003). The distress following romantic relationship breakups has recently been investigated with the assistance of brain imaging techniques (Kross, Berman, Mischel, Smith, & Wager, 2011; Najib, Loberbaum, Kose, Bohning, & George, 2004). Using fMRI studies, Kross et al. demonstrated that thinking of a recent romantic relationship breakup resulted in brain activity in the same locations as when a participant experiences actual physical pain, suggesting that the brain experiences intense emotional pain and physical pain similarly.

A breakup cannot technically qualify as a trauma by the diagnostic criteria of Posttraumatic Stress Disorder because it is not a life-threatening event (American Psychiatric Association, 2000). Trauma continues to be re-conceptualized by clinicians and researchers, as it has become apparent that trauma-like symptoms may result from experiences that do not meet the stringent criteria for Posttraumatic Stress Disorder (PTSD) (Spitzer et al., 2000). Criterion A1 of the diagnostic criteria of Posttraumatic Stress Disorder requires that an individual experience or witness an event which threatens injury or death (American Psychiatric Association, 2000). Commonly cited A1 events are robbery, rape, abuse, assault, natural disasters, and life-threatening illnesses (Anders et al., 2009). Counter to the traditional diagnostic criteria, recent research has found that events that do not meet criterion A1, often referred to as "low magnitude" events, such as divorce, may also result in PTSD symptoms (Spitzer et al., 2000). Commonly cited non-A1 events are relationship dissolution, job loss, relationship conflict, and non-life threatening illnesses (Anders et al., 2009). Researchers have not found differences in PTSD symptoms between A1 and non-A1 events (Spitzer et al., 2000; Anders et al., 2009).

In a study of 895 adult women, Anders et al., (2009) found that the most common non-A1 event reported was relationship conflict. Additionally, the non-A1 events were just as likely to result in a PTSD symptom pattern as the A1 events, and the non-A1 events resulted in significantly more severe symptoms. In another study of 430 college students, participants with non-A1 events reported higher PTSD rates, severity of symptoms and re-experiencing scores as compared to those participants with A1 events (Gold, Max, Soler-Baillo, & Sloan, 2005). Research demonstrating that PTSD diagnoses

are just as probable following non-A1 events as A1 events has been replicated numerous times (Long et al., 2008; Mol et al., 2005; Shapinsky, Rapport, Henderson, & Axelrod, 2005).

When researchers constrain participants to events that are traditionally considered to qualify for a diagnosis of PTSD, unexpected death of a loved one is consistently the number one event reported that leads to PTSD symptoms (Breslau, Kessler, Chilcoat, Schultz, Davis & Andreski, 1998; Frazier, Anders, et al., 2009). The loss of an important attachment is very distressing, and this is likely to be just as true if that loss is due to death or relationship dissolution. In fact, no significant differences were found when comparing the posttraumatic stress symptoms of participants who reported death of a loved one or loss of a relationship as their most traumatic event (Frazier, Berg, & Sherr, 2007, as cited in Berman, Tashiro, & Frazier, 2008).

The dissolution of romantic relationships is perceived as a very stressful life event and is one of the most frequently experienced types of stressful event (Tashiro et al., 2006). In a study by Park et al. (1996) on stress-related growth, when participants were asked to list the most stressful experience that occurred in the past year, "problems with romantic relationships" (p. 77) were the most frequently listed problem above illnesses, accidents, deaths, family troubles and academic problems. Relationship dissolution is one of most common presenting problems at college counseling centers (Benton et al., 2003). In a qualitative study regarding college student break-ups, students reported breakups as major life "disruptions" which included the loss of hopes and "an entire social network" (Hebert & Popadiuk, 2008, p. 6). After relationship dissolution, all of the PTSD symptoms, excluding criteria A1, have been recorded (Anders et al., 2009;

Chung, et al., 2002). This includes intense fear, helplessness, re-experiencing, avoidance, numbing and increased arousal. Additionally, symptoms of disorders commonly co-morbid with PTSD, including depression, anxiety and substance abuse have been observed following relationship dissolution (Field et al., 2009; Tashiro et al., 2006).

In addition to acute symptoms being quite severe and often of a clinical-level, symptoms of posttraumatic stress, depression, and anxiety can also be long lasting after a breakup. Relationship commitment and duration are positively associated with chronic distress (Sprecher et al.1998). In a study of relationship break-up, the majority of the 60 university student respondents (72%) scored above the "high" cut-off point on the Impact of Events Scale, which was normed on patients seeking therapy for exposure to a stressful event (Chung et al., 2002; Sundin & Horowitz, 2002). These symptoms extended for a period longer than three months, which qualifies as chronic traumatic stress according to the DSM-IV (APA, 2002; Chung et al., 2002). The chronicity of distress following relationship breakup has been replicated in a third study of 88 university students, where the average time since breakup was seven months and symptoms of intrusion and avoidance were still severe and similar to clinical samples (Chung et al., 2003). In another study, researchers suggest that breakup distress may take the form of "complicated bereavement," which they describe as an "intense and prolonged period of grief following a loss," and the results of their study support their hypothesis (Field et al., 2009, p. 705). Following their results, the authors of this study go on to suggest that breakup distress should be considered for addition to the DSM-V.

Because severe and long-lasting symptoms following relationship breakups have been well-documented, research has turned to examining specific predictors of who will

suffer from posttraumatic symptoms. Specifically, the use of escape-avoidance and accepting responsibility coping strategies were significant predictors of symptoms of intrusion (Chung et al., 2003). It is unclear whether these coping styles cause the symptoms or if these symptoms may cause one to use those coping strategies. Additionally, negative self-esteem and neuroticism significantly predicted symptoms of avoidance, total general health, and total impact of the breakup (Chung et al., 2002). However, all the measurement was done at one time point, post-breakup, so again, we are unable to ascertain whether the low self-esteem is another outcome of the distress and breakup or if it is actually a predictor of the likelihood of experiencing symptoms.

The diagnostic criteria of PTSD are in need of re-conceptualization. In its current state, criterion A1 restricts many events which meet all of the other criteria of the diagnosis. Either the subsequent criteria of re-experiencing, avoidance, and hypervigilance are not restrictive enough, or A1 is too restrictive (Long et al., 2008). A great deal of research demonstrates that relationship dissolution can result in significant distress and a PTSD-like symptom pattern.

Posttraumatic Growth

Although a breakup can be a very stressful experience, it can also offer tremendous opportunities for growth and change. Individuals may come out of the experience knowing themselves better and feeling stronger. Posttraumatic growth is a term that Calhoun and Tedeschi (2001, 2006) use to describe personal growth that occurs as a result of struggling with traumatic or stressful events. Lewandowski and Bizzoco (2007) define growth as, "a cognitive process in which a person actively strives to improve the self through the discovery of new knowledge and perspectives," (p. 41).

Calhoun and Tedeschi (2001) summarize research on stress-related growth, which includes many major life events such as military combat, breast cancer, deaths of relatives, sexual assaults, and divorce. Researchers have identified three areas in which growth commonly occurs: changed sense of self, changed relationships, and changed philosophy of life (Calhoun & Tedeschi, 2001, 2006). The most commonly reported changes of the self following trauma include an increased sense of vulnerability, a stronger appreciation of one's life, greater independence, and viewing the self as stronger for going through the loss (Calhoun & Tedeschi, 2001). Calhoun and Tedeschi (2001) report that changes in relationships may include increased connectedness, a stronger sense of compassion for others, and an increased ability to express emotions. In regards to changed philosophy of life, studies have found that individuals report greater meaning in their lives and that spirituality or religiosity has increased in importance in their lives (Calhoun & Tedeschi, 2001). Calhoun and Tedeschi (2001) report that the degree of growth increases with the magnitude of the distress following the trauma. Additionally, posttraumatic growth theorists have argued that true growth will take time to emerge (Tedeschi & Calhoun, 1995) and researchers suggest using samples with a stressor that is 1 year or older so as to avoid a typical period of distress and loss following the trauma (Miller, 2010).

Because of the nature of traumatic events, almost all research on posttraumatic growth has been retrospective, leaving some researchers to question whether real growth is actually occurring. If actual growth is not occurring, the common finding of it following stressful events could be due to two different phenomena: (1) self-enhancement biases or (2) positive illusions (Frazier & Kaler, 2006; Taylor et al., 2000). A self-

enhancement bias is the well-documented social psychological phenomenon that individuals are consciously motivated to present positive information about themselves and minimize negative information (Baumeister & Twenge, 2003). Self-enhancement biases may be utilized because individuals believe others in their social network want to hear that they are doing better following the stressor (Linley & Joseph, 2004; Wortman, 2004). Individuals may worry that members of their social network will actually react negatively to reports of distress (Wortman, 2004). Additionally, theorists have argued that there may be a cultural script in the United States that people believe good things come from negative life events (Linley & Joseph, 2004). Therefore, people may feel pressure from this cultural script to present themselves as doing well, even if they know they are not. In contrast, positive illusions typically operate outside of conscious awareness and are unrealistic optimistic beliefs (Taylor et al., 2000), including that people typically see themselves as better off than others, are very optimistic about their own future, and believe they have more control over situations than they actually do. Positive illusions following a stressful event may serve the purpose of alleviating some of the negative feelings following a trauma (Frazier & Kaler, 2006). It could be that positive illusions about the self and the experience allow those who have suffered a painful breakup to cope more effectively, with little actual growth occurring.

In a recent study of 122 university students, the veracity of posttraumatic growth was challenged by assessing typical growth domains pre-trauma and administering a standard growth measure: the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) post-trauma (Frazier, Tennen et al., 2009). Frazier, Tennen et al. (2009) found that the relationship between perceived and actual growth (pre- to post-trauma)

was a small, yet significant, correlation of .22 and that 25% of those who experienced a

trauma did experience reliable actual growth. However, the authors highlighted

important differences between perceived and actual growth including that perceived

growth was related to positive reinterpretation coping; suggesting that participants

reinterpreted the events to have a positive meaning post-trauma as a means of coping.

Frazier, Tennen et al. (2009) replicated the positive association between distress and

perceived growth, but, in contrast to previous research, demonstrated that actual growth

is negatively correlated with distress (Calhoun & Tedeschi, 2001). Unfortunately,

Frazier, Tennen et al. (2009) chose to exclude 162 participants because they rated their

distress caused by the trauma as lower than a four on a five point scale. By only

including highly stressful events, they may have inadvertently included fewer participants

who experienced actual growth. In a study of the moderators of the relationship between

perceived and actual growth, which used the same dataset as the Frazier, Tennen, et al.

(2009) study, researchers found that more distress and less satisfaction with life post-

trauma moderated the relationship between perceived and actual growth, such that it

resulted in less accurate reports of perceived growth (Gutney, Frazier, Tennen, Tashiro,

& Tomich, 2009). These results further call into question the well-researched finding that

growth increases as level of distress increases (Gunty et al., 2009). Perceived growth

may increase with increased distress, however, actual growth appears to be more likely to

occur when the distress does not overwhelm the individual's coping strategies. It is

possible that the relationship between distress and growth is an inverse u-shaped curve;

with more distress leading to more growth to a point, and then the growth decreasing

because the distress has overwhelmed the individual's ability to cope. These results have

three important implications: (1) it may not be valid to assess posttraumatic growth with self-report, retrospective measures, (2) more longitudinal studies of growth are needed, and (3) actual growth needs to be distinguished from optimism and reinterpretation coping strategies.

Posttraumatic growth has particular importance during the emerging adulthood stage. In a review of studies linking posttraumatic growth to a developmental context, Aldwin, Levenson, and Kelly (2009) found that stress-related growth is most likely to occur in young adults. Not only are younger adults more likely to report stress-related growth, but the growth they report is qualitatively different: younger adults are more likely to report redirecting their lives as a result of stress or trauma, whereas older adults are more likely to report changes in family relationships (Aldwin et al., 2009). Stress-related growth is found in every age group, however, the experience of stress-related growth is most likely to occur during young adulthood, perhaps due to the emphasis on growth, change, and flexibility during this period (Arnett, 2000, 2004).

Posttraumatic Growth Following Relationship Dissolution

Growth in partners following divorce has been found in the same three areas typical of posttraumatic growth: changed sense of self, changed relationships, and changed philosophy of life (Tashiro et al., 2006). Researchers identify two pathways for growth following relationship dissolution: the crisis-growth pathway and the stress-relief pathway (Tahsiro et al., 2006). The crisis-growth pathway occurs when the divorce is perceived as a very painful, stressful, and even traumatic, and therefore, individuals grow as a result of coping with the associated distress (Tashiro et al., 2006). The stress-relief pathway occurs when the divorce is not primarily seen as a disruptive or painful life

event but rather is perceived as an escape from a stressful or painful relationship (Tashiro et al., 2006). Therefore, when the relationship ends, the individual is freed from constraints and is able to more fully realize his or her potential. Studies regarding breakups have found some support for the stress-relief theory of dissolution. Specifically, Sprecher (1994) found that the most commonly cited positive emotions that occurred after relationship dissolution were happiness and relief.

Three studies have examined stress-related growth following the dissolution of a non-marital relationship (Hebert & Popadiuk, 2008; Tashiro & Frazier, 2003; Lewandowski & Bizzoco, 2007). Tashiro and Frazier (2003) assessed the crisis-growth pathway following relationship dissolution in 92 college students who had experienced a breakup in the past nine months. They found that students reported approximately five positive changes that resulted from the breakup. These changes included: person positives ("I am more self-confident"), other positives ("I now know what I want in a woman"), relational positives ("I learned many relationship skills that I can apply in the future (e.g., the importance of saying sorry)"), and environment positives ("I believe friend's and family's opinions count: will seek them out in future relationships") (p. 120). It seems particularly important that many participants reported that they learned things which they believe will allow them to be more successful in future relationships.

Developmental theories have long posited that developing adult-like relationships, such as marriage, may come from a process of engaging in numerous relationships in young adulthood which have varying degrees of success (Tashiro et al., 2006). Other interesting findings of the study by Tashiro and Frazier (2003) included that women reported more growth than men did, Agreeableness on the Big Five was positively related

to growth, and those who attributed the breakup to environmental factors reported more growth than those who attributed the breakup to themselves. It is important to note that the gender findings related to growth have received mixed support and often fail to be replicated (Berman et al., 2008).

Hebert and Popadiuk (2008) conducted in-depth interviews with 11 college students who had experienced a breakup in the past 12 months. The authors found that the participants collectively reported 69 changes since their breakup and that 64 of those changes were positive and only five were negative. The most commonly cited positive changes were, "(a) learning something relevant for future romantic relationships, (b) gaining inner strength and an ability to handle future stressful events, (c) feeling more independent or free, (d) gaining maturity and self-awareness, and (e) shifting priorities" (p. 5). The authors used grounded theory to create a model with three phases: (1) "Experiencing a loss," (2) "pulling apart," and (3) "moving beyond" with a core category of "moving self forward" (p. 5). In the "experiencing a loss," phase, participants reported relationship dissolution to be very disruptive, involving the loss of social networks and identities associated with the relationship or partner. Every single participant reported learning something which they believed would later help them in their future relationships. The authors noted that the growth resembles developmental growth, but that the distressing nature of the breakup may spur growth at a more rapid rate.

In a third study of college student growth following relationship dissolution, Lewandowski and Bizzoco (2007) focused on low quality relationships and the stress-relief pathway of growth. A retrospective study was conducted with 155 participants who had experienced a breakup an average of 11 weeks prior to the study. The authors

found support for the stress-relief pathway by regressing stress-related growth on pre-dissolution self-expansion. Lewandowski and Bizzocco (2007) interpreted this significant finding to mean that the relationship was seen as holding the individual back and not allowing them to grow and so an influx of growth occurred following the dissolution of the relationship. This influx of growth could be conceptualized as a "rediscovery of self" that was lost during the constricting relationship (p. 50). Additionally, the authors included a measure of coping styles and demonstrated that positive reinterpretation and acceptance coping were correlated with growth. Because the study was retrospective, it is possible that positive reinterpretation coping may have inflated measures of growth in the results. The authors cautioned, "this study cannot establish whether participants' positive views of their dissolution experience represent their true experience or their perspective on the events that transpired," (p. 49).

These three studies provide good preliminary evidence of stress-related growth following relationship dissolution. However, the studies were all limited due to their retrospective self-report methods. In Lewandowski and Bizocco's (2007) study, it seems logical to presume that individuals would be motivated to report their relationship quality as negative after the relationship has ended. The growth reported may be influenced by self-enhancement biases or positive illusions and self-reported growth needs to be compared with actual growth in longitudinal designs (Frazier, Tennen et al., 2009). Young adult romantic relationships are an important area to study because these may be the training ground for future long-term relationships or marriages.

Factors that may affect stress-related growth following relationship dissolution.

Many factors have been hypothesized to affect the degree of stress-related growth following relationship dissolution. The availability of social support and the ability to examine positive ramifications of the breakup have been identified as factors that may increase stress-related growth (Berman et al., 2008). Additionally, degree of satisfaction in the relationship, level of commitment, length of the relationship, degree of self-expansion available in the relationship, personality factors, gender, and positive re-interpretation of the breakup have all been theorized to affect the degree of stress-related growth (Aron et al., 2001; Berman et al., 2008; Sprecher et al., 1998). The present study will focus on a few of these factors and so they will be reviewed below.

Relationship satisfaction. The correlation between relationship satisfaction and growth is highlighted by the self-expansion model (Aron & Aron, 1997). The theory proposes that individuals will only be satisfied in a relationship to the degree to which the relationship provides them opportunities to self-expand by engaging in new experiences together, learning from one another, etcetera (Aron et al., 2001). Sprecher et al. (1998) found that individuals who were in relationships which they rated highly on satisfaction experienced a great deal more distress at the time of the breakup. Stress-related growth has been shown to be positively related to the level of distress that an event causes (Calhoun & Tedeschi, 2001). Therefore, when a relationship is highly satisfying, a great deal of distress likely occurs at dissolution, and this creates the opportunity for a high degree of stress-related growth.

Commitment and relationship length. Commitment has been shown to be related to couple well-being (Drigotas, Rusbult, & Verette, 1999). Interdependence theory posits that those who are more invested in a relationship (as measured by things like

commitment and relationship length) will experience more upset when the relationship ends (Kelley & Thibaut, 1978). Commitment leads to cognitive interdependence, or a representation of the self in the relationship (Angew, Van Lange, Rusbult, & Langston, 1998). Therefore, when a breakup occurs, the loss of this cognitive interdependence is likely to be very distressing. Sprecher et al. (1998) found that degree of commitment prior to a breakup and relationship length were related to greater distress at the time of breakup. Therefore, dissolution of relationships in which there was a high level of commitment and greater relationship length could be associated with increased potential for stress-related growth (Calhoun & Tedeschi, 2001).

Dispositional optimism. Scheier, Carver, and Bridges (1994) distinguish optimism from trait anxiety, self-mastery, and self-esteem and find it to be a stable personality characteristic. Reports of growth during relationships or breakups could be the result of dispositional optimism. Optimists may be more likely to use a strategy such as positive reinterpretation coping when evaluating the aftermath of their relationship breakup. Some researchers have suggested that stress-related growth does not actually occur, rather, that people just positively reinterpreted their losses, enabling them to say, "This happened for a reason," (Frazier & Kaler, 2006; Frazier, Tennen et al., 2009). In a sample of 88 university students who had experienced a breakup in the past two years, the third most common coping strategy used was positive reappraisal, suggesting that this is a fairly common way of handling the distress associated with a breakup (out of eight possible coping strategies; Chung et al., 2003). In a similar study of 155 university students, Lewandowski and Bizzoco (2007) found that one of the most common coping strategies was positive reinterpretation and that this coping style was correlated with

degree of stress-related growth. The association between growth and positive reinterpretation coping may be due to the conscious process of self-enhancement biases or an unconscious positive illusion. Some theorists have posited that positive reinterpretation may ultimately lead to actual stress-related growth (Calhoun & Tedeschi, 2006). It is likely that it is not an either-or option, but rather that a combination of positive re-appraisal occurs, as well as, a degree of actual stress-related growth. Research is needed to parcel out whether stress-related growth occurs above and beyond simple positive re-interpretation of the negative event.

Summary of Research and Hypotheses

The developmental age spanning the years of 18-25 is uniquely primed to the experiences of stress-related growth, due to the emphasis on growth, change and exploration (Aldwin et al., 2009; Arnett, 2000, 2004). Additionally, this developmental stage is characterized by new romantic relationships and breakups in the process of learning about relationships. Recent research on posttraumatic growth has focused on distress and growth following romantic relationship dissolution (Hebert & Popadiuk, 2008; Tashiro & Frazier, 2003; Lewandowski & Bizzoco, 2007). However, all of the studies have been retrospective in nature, a design that may have particular biases in the study of relationship dissolution and stress-related growth, as individuals may be very motivated to both discuss their previous relationship negatively as well as interpret themselves as better off since their breakup. Therefore, a longitudinal prospective design of stress-related growth following relationship dissolution is needed to examine previous findings without the bias of retrospective self-report.

Frazier, Tennen et al. (2009) recently introduced a longitudinal approach to test whether perceived stress-related growth is correlated with actual stress-related growth. Prior to their work, stress-related growth has always been measured post-trauma and thus, subject to the biases of retrospective self-reports. In a recent study, Frazier, Tennen et al. (2009) found a small correlation (.22) between perceived stress-related growth and actual stress-related growth, measured by the Current Standing version of the Posttraumatic Growth Inventory. The present study will attempt to replicate this previous finding. Therefore, the following hypothesis is offered:

1. Perceived stress-related growth will be positively correlated with actual stress-related growth.

Previous research suggests that satisfaction and commitment in a relationship will be positively associated with stress following relationship dissolution (Sprecher et al., 1998). All research on this has been retrospective in nature, and, therefore, previous findings require replication with a prospective longitudinal design. Therefore, the second hypothesis is:

2. A. Satisfaction during the relationship will be positively related to actual stress-related growth.

B. Commitment during the relationship will be positively related to actual stress-related growth.

Previous research on stress-related growth suggests that distress will be positively associated with stress-related growth (Calhoun & Tedeschi, 2001). However, more recent research directly contrasts this perspective (Gutney et al., 2009, Miller, 2010) and raises the question whether, true to form for many stress-performance pathways, can

there be too much stress? Therefore, the following hypothesis regarding the relationship between stress and growth is offered:

3. Distress will be related to actual stress-related growth following relationship dissolution in an inverse u-shaped curve with more distress leading to more growth to a point and then increasing amounts of distress will be associated with less growth.

Figure 1.

Some questions about the validity of retrospective reports of stress-related growth have been raised (Frazier, Tennen et al., 2009). Optimists may be more likely to use self-enhancement biases or positive illusions when examining the aftermath of their breakup experience.   Positive reinterpretation coping is often associated with stress-related growth following relationship dissolution (Lewandowski & Bizocco, 2007). Distress likely leads to actual growth, although perceived growth may be over-reported due to the influence of optimism. Dispositional optimism will be examined in the current study as a moderator of the relationship between distress and perceived growth. Therefore, the following hypothesis is offered:

4. Dispositional Optimism will moderate the relationship between distress at the time of breakup and perceived stress-related growth, such that it augments the relationship between distress and perceived stress-related growth.

Figure 2.
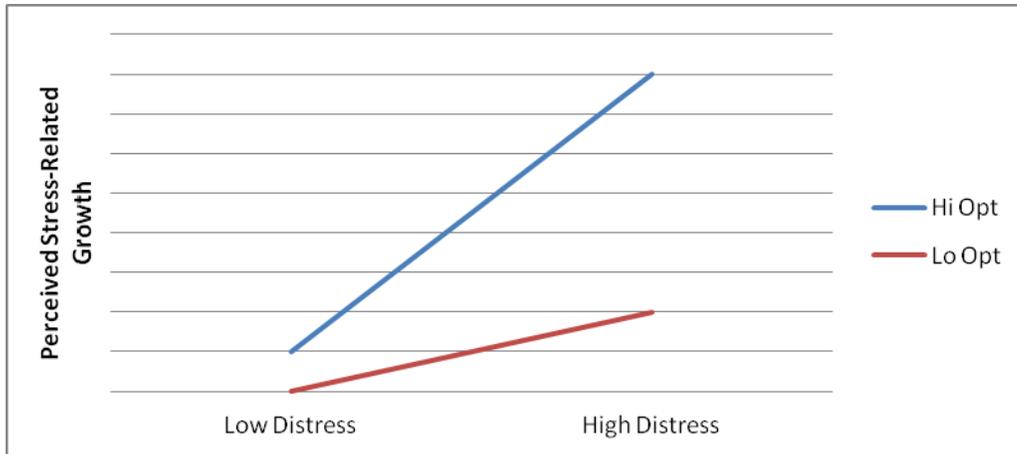
It has been theorized that there are two pathways leading to stress-related growth following relationship dissolution: the stress-relief pathway and the crisis-growth pathway (Tashiro et al., 2006). The stress-relief pathway has received much less attention and has only been examined in one retrospective study (Lewandowski & Bizzoco, 2007). A low-quality or constricting relationship is particularly difficult to examine retrospectively because most participants will have negative feelings about the breakup which may be generalized to the relationship or partner, and, as a result, reporting the relationship to be more negative than it actually was. Therefore, it is important to prospectively examine how relationship quality may be a distinguishing factor between the two types of stress-related growth: the stress-relief pathway and the crisis-growth pathway. Relationship quality may be a moderator between distress and stress-related growth, such that relationship quality sets the stage for how strongly distress affects

growth. Therefore, the following two hypotheses regarding relationship quality are offered:

5. Relationship quality, as measured by satisfaction, will moderate the relationship between distress at the time of the breakup and actual stress-related growth.
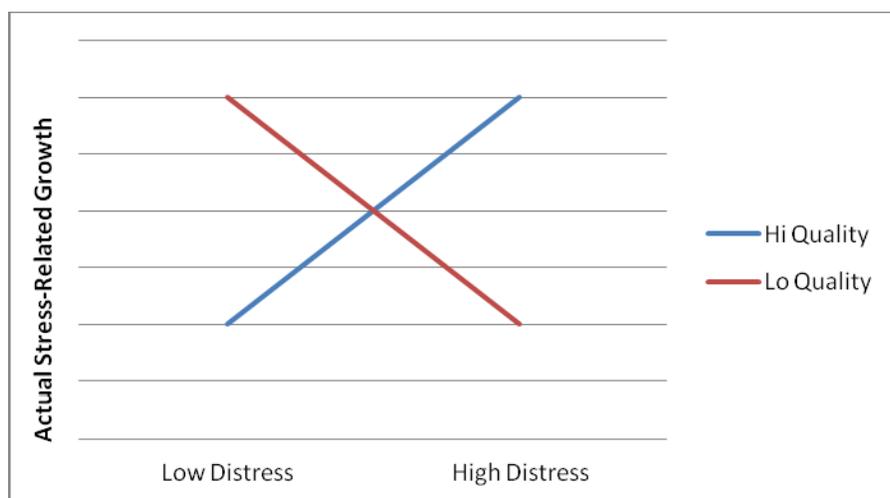
Figure 3.

6. Self-expansion in the relationship will moderate the relationship between distress at the time of the breakup and actual stress-related growth.

Figure 4.
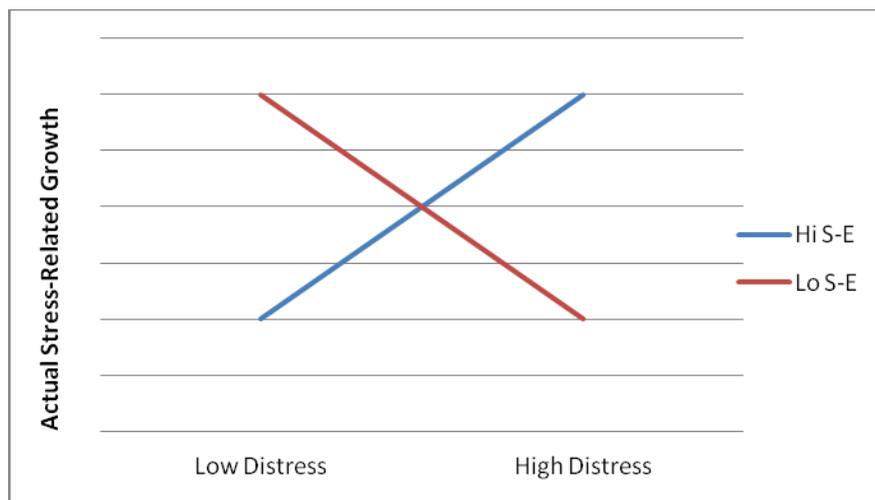
Sample

Participants were 599 undergraduate students recruited from two large

universities in South Florida (one private and one public). To be included in the study,

participants were required to be in a romantic relationship that had been between 2 weeks

and 2 years in length. Of the 599 students in the original sample, 551 returned to

complete time 2 questionnaires, resulting in a 92% retention rate. Only a subset of the

original sample was used in the current study. Specifically, only those who had ended

their relationship by Time 2. The resulting sample for the present study was 100

participants. Of the sample, 71% were female, 26% male, and 2% transgendered. The

ethnicity of the sample was 7% African American, 6% Asian American, 4% Biracial,

63% Hispanic, 16% European American, and 4% missing or "other". The average age

of the sample was 20.48. The majority of the sample identified as heterosexual (91%).

At time 1, 80% defined their relationship as exclusive. The mean relationship length at

time 1 was 9.55 months ($SD = 8.35$). A summary of the demographic characteristics of

the participants can be seen in Table 1.

Measures

Table 2 describes which measures were administered by at Times 1 and 2.

Demographic questionnaire. Demographic information was gathered from the

participants at time 1 including gender, ethnicity, sexual identity, and length of current

relationship.

Relationship follow-up questionnaire. At Time 2, the follow-up questionnaire

for those participants who had broken up included questions regarding the date of the

break-up, which partner initiated the breakup, an open-ended question for the participant to write the reason for the breakup, whether the participant engaged in contact with the ex-partner since the breakup, and if the individual had begun a new relationship since the breakup.

Distress. Distress at the time of breakup was measured at Time 2 by the Impact of Events Scale (Sundin & Horowitz, 2002). The Impact of Events Scale is a fifteen item scale which assesses the level of distress in the past seven days on a four-point Likert scale. The scale measures intrusion and avoidance. Sample items include, "I thought about it when I didn't mean to," and, "I avoided letting myself get upset when I thought about it or was reminded of it." It was originally validated on two samples: one of patients in psychotherapy who had experienced serious life events and stress symptoms and a second sample of students who had examined their first cadaver. The authors report an alpha of 0.86 for intrusion and .82 for avoidance (Sundin & Horowitz, 2002). The scale has been used previously in studies of relationship dissolution and has performed well (Chung et al., 2002). For the purpose of the current study, the researcher modified the instrument instructions, requesting that participants respond to the questions about the distress they experienced in the past seven days regarding their recent breakup. In the current study, Cronbach's alphas were .81 and .91 for avoidance and intrusion, respectively.

Relationship satisfaction. Satisfaction in the relationship was measured at Time 1 with the Rusbult Investment Model Scale – Satisfaction Subscale (Rusbult, Martz, & Agnew, 1998), which is a five-item measure of satisfaction on an eight-point Likert scale. The scale has five facet items before the actual items. The facet items serve the purpose

of preparing participants to answer the actual items by increasing comprehension of the concept. The facet items are used to increase reliability and validity but are not used in the actual scoring of the subscale. Sample actual items include, "My relationship is much better than others' relationships," and "My relationship is close to ideal." The authors report an alpha of 0.92 for the satisfaction subscale. The authors also report convergent validity with well-established measures of relationship satisfaction including the Dyadic Adjustment Scale (Spanier, 1976) and the Inclusion of Other in the Self Scale (Aron, Aron, & Smollan, 1992). In the current study, Cronbach's alpha for the scale was .92.

Relationship commitment. Commitment in the relationship was measured at Time 1 with the Rusbult Investment Model Scale – Commitment Subscale (Rusbult et al., 1998). The subscale contains seven items rated on an eight-point Likert scale. Sample items include, "I want our relationship to last for a very long time," and "It is likely that I will date someone other than my partner within the next year," which is a reverse-scored item. The authors report an alpha of .91 for the commitment subscale. Additionally, the commitment subscale significantly predicted breakup status in a longitudinal study conducted by the scale authors (Rusbult et al., 1998). In the current study, Cronbach's alpha was .91.

Stress-related growth. Stress-related growth was measured by the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996). This measure was used at Time 2 for those participants who experienced a break-up during the course of the study. Participants responded to items based on the degree to which they have changed as a result of their recent breakup. The scale includes 21 items with a five-point Likert response set. Although the inventory has a five factor structure (Taku, Cann, Calhoun &

Tedeschi, 2008), previous researchers have frequently used a single summary score (Tashiro & Frazier, 2003; Frazier et al., 2009). In order to remain consistent with the literature, I used the same practice in the present study. Sample items include: "I changed my priorities about what is important in life," and "I am more likely to try to change things which need changing." The authors report good internal consistency (α = .90) and acceptable test-retest reliability over a 2 month period (r = .71) (Calhoun & Tedeschi, 1996). In the current study, Cronbach's alpha was .96.

Actual Growth measure. Actual growth (as opposed to perceived growth) was measured by the "current standing" version of the Posttraumatic Growth Inventory (C-PTGI; Frazier, Tennen et al., 2009). This instrument contains the same items as the original PTGI, however, the items have been changed to reference participants' current feelings. For example, the item, "I have a greater sense of closeness with others," was changed to, "I have had a sense of closeness with others." The authors report alphas .77 or greater for Times 1 and 2 (Frazier, Tennen et al., 2009). The C-PTGI significantly correlated with other measures of the five domains of posttraumatic growth: personal strength, positive changes in relationships, changes in priorities, greater life appreciation, and greater spirituality (Frazier, Tennen et al., 2009). Similar to the PTGI, I used a single summary score in analyses, as has been done in previous research studies (Tashiro & Frazier, 2003; Frazier, Tennen et al., 2009). I administered the measure at Time 1 and Time 2 and actual growth was assessed by computing change scores from T1 to T2. In the current study, Cronbach's alphas were .84 and .92 for Time 1 and Time 2, respectively.

Optimism. Optimism was measured at Time 2 with the Life Orientation Test - Revised (LOT-R; Scheier et al., 1994). The LOT-R assesses general expectancies for positive versus negative outcomes. It contains 10 items, six of which are scored and four of which serve as fillers. The response set is a five-point Likert scale and the authors reported an alpha of 0.78 (Scheier et al., 1994). Additionally, the authors demonstrated that it measures optimism distinguishable from other related concepts including neuroticism, anxiety, self-mastery, and self-esteem. Sample items include, "In uncertain times, I usually expect the best," and "If something can go wrong for me, it will." In the current study, Cronbach's alpha was .65.

Self-Expansion. I measured degree of self-expansion at Time 1 with the Self-Expansion Questionnaire. The Self-Expansion Questionnaire (Lewandowski & Aron, 2002) is a 14-item scale which measures the degree to which the person feels their relationship allows them to self-expand or grow. It has a seven-point Likert scale response set. The authors report alpha coefficients ranging from .87 to .92 in three different studies (Lewandowski & Aron, 2002; Lewandowski & Bizzoco, 2007). Sample items include, "How much does being with your partner result in your having new experiences?" and, "How much does your partner increase your knowledge?" The scale has been used in previous studies of stress-related growth following relationship dissolution and researchers have demonstrated a relation to level of growth (Lewandowski & Bizzoco, 2007). In the current study, Cronbach's alpha was .94.

PTSD Screen. At Time 2, I included the PTSD Symptom Scale (PSS) as a screening of other traumatic events and PTSD symptoms (Foa, Riggs, Dancu, & Rothbaum, 1993). The scale includes a checklist of fifteen traumatic events, 17 items

which assess PTSD symptoms on a 4-point Likert scale, and 9 items which assess whether symptoms have interfered with functioning. The scale includes three subscales which directly match the PTSD criteria: hyper-vigilance, arousal, and avoidance. The authors report a Cronbach's alpha of .91and test-retest reliability of .74 over a one-month period. Additionally, the authors report concurrent validity with other well-validated scales including the Impact of Events scale (Sundin & Horowitz, 2002) and the Beck Depression Inventory (Beck, Ward, Mednelson, Mock & Erbaugh, 1961). The authors recommend the following procedure for determining whether a diagnosis is present: the presence of one symptom of re-experienceing, three symptoms of avoidance, and two symptoms of arousal. When comparing PSS results to individuals diagnosed with PTSD by the Structured Clinical Interview for the DSM-III-R (SCID; Spitzer, Williams, & Gibbon, 1987), the PSS correctly identified the PTSD status of 86% of the subjects, such that the PSS was slightly more restrictive with diagnoses than the SCID. In the current study, Cronbach's alpha was .94.

Procedure

Participants were recruited through online psychology department subject pools and professors at the two universities. The students completed the study in order to obtain class credit. The measures were offered online and participants were able to complete the measures at their leisure. Participants were provided with a consent form detailing the nature, purpose, and potential risks and benefits of the research. The consent form also informed students of their right to withdraw their participation at any time.

Time 1 of the study took place at the beginning of the Spring semester 2011. Participants were required to complete the measures by the last week in February. Time 2 of the study took place approximately three weeks prior to the end of the Spring 2011 semester and students were again offered three weeks from the opening of the study to complete the measures. The amount of time between Time 1 and Time 2 ranged from one month to two and half months. Students were offered an opportunity to enter a drawing for one of ten $100 gift cards for completing the Time 2 measures in order to increase the participation rate. Additionally, e-mail addresses, phone numbers, and physical addresses were obtained at Time 1 to allow the researcher to contact the participants for Time 2 completion. Participants were called after their participation in Time 1, at which time they were thanked for their participation and reminded of Time 2 of the study. If participants did not complete Time 2 one week after the e-mail invitation was sent, they were called to remind them of the study up to three times.

CHAPTER FOUR
RESULTS

Preliminary Analyses

Of the 100 participants who experienced a breakup between Time 1 and Time 2, 49% reported that they initiated the breakup, while 20% reported their partner did, and 30% reported the breakup was mutual. The majority of the participants (68%) reported that they had contact with their ex-partner since the breakup and 21% reported that they had started a new relationship since the breakup. The mean relationship length at time 1 was 9.55 months ($SD = 8.35$). At the time of completing the second survey, the mean number of days since breakup was 28.74 ($SD = 17.05$). All relationship status results were tested as predictors of the dependent variables, actual and perceived stress-related growth, but none were statistically significant predictors. Gender did significantly predict perceived stress-related growth, $R^2 = .081$, $F(1,95) = 8.24$, $p = .005$, with women reporting more growth than men.

According to the scoring of the PTSD Symptom Scale (PSS) (Foa et al., 1993), a diagnosis is warranted if there is one symptom of re-experiencing, three symptoms of avoidance, and two symptoms of arousal. These criteria mirror the diagnostic criteria of the DSM IV. Although a clinical diagnosis would never be made on the basis of a questionnaire, that formula suggests that 35 of 100 participants in the current study could be seen as having PTSD as a result of an event in their life. The mean total score on the PSS was 10.62 ($SD = 11.52$). This procedure for identifying PTSD was tested as a predictor of the dependent variable, actual stress-related growth, but, it was not a statistically significant predictor. PSS total score significantly predicted perceived stress-related growth, $R^2 = .065$, $F (1, 97) = 6.79$, $p = .008$. PSS total was also significantly

correlated with distress ($r = .604$, $p < .001$) and optimism ($r = -.326$, $p < .01$). Pearson

correlations were conducted for all covariates, predictor, moderator, and outcome

variables. Results can be seen in Table 3.

Assumptions

Statistical analyses were performed using SPSS 17.0 (SPSS Inc., Chicago, IL).

Preliminary analyses were performed to assess whether the assumptions for regression

were met. The skewness and kurtosis values for each dependent variable were examined,

and values were within standard tolerance levels. Additionally, internal consistencies of

the scales were calculated and ranged from .65 to .95, suggesting reliable measurement.

Descriptive statistics for all variables, including reliability calculations, are presented in

Table 4.

<div align="center">Primary Analyses</div>

**Hypothesis 1: Perceived stress-related growth will be positively
correlated with actual stress-related growth.**

I computed actual stress-related growth by calculating sum scores for the Current

Standing Version of the Posttraumatic Growth Inventory at Times 1 and 2. The Time 1

total score was subtracted from Time 2 total score to compute the actual stress-related

growth score. A linear regression (*Regression Equation: Actual Stress-Related Growth = b_0 +
b_1Perceived Stress-Related Growth + e*) was conducted to evaluate the prediction of actual

stress-related growth from perceived stress-related growth. Perceived stress-related

growth accounted for .7% of the variance in actual stress-related growth. This was not

statistically significant ($R^2 = .007$, $F(1, 97) = .72$, $p = .397$). The two constructs were

unrelated. The mean actual stress-related growth score is -4.71 ($SD = 10.71$), a negative

score, meaning participants scored higher on the current standing scale at Time 1 than they did at Time 2, despite a mean score on the PTGI at Time 2 of 45.55 (SD = 26.53) suggesting participants perceived a great deal of growth in themselves. Additionally, the CPTGI score at Time 1 was significantly positively correlated with the CPTGI score at Time 2 for all participants, indicating participants' scores on the scale were stable throughout the course of the study (r = .564, p < .001). In view of the lack of correlation between the measures of actual and perceived stress-related growth, I pursued a more in-depth examination by computing correlations between the five subscale scores of each measure, following the procedure conducted by Frazier et al. (2009). Correlations can be seen in Table 5. None of the change scores of the subscales of the CPTGI were related to the subscales of the PTGI, further demonstrating the lack of relationship between these two constructs.

Because of the lack of a relationship between actual and perceived stress-related growth, I investigated whether Current Standing Version of the Posttraumatic Growth Inventory changed differently from Time 1 to Time 2 for those who had experienced a breakup and those who had not. For this analysis, I used the full sample of 551 participants who completed both Times 1 and 2. Therefore, a mixed design ANOVA was conducted with CPTGI scores at Times 1 and 2 as the within subjects factor and whether a breakup occurred (n = 100) or not (n= 422) as the between subjects factor. There was no statistically significant breakup by time interaction on CPTGI I (growth) scores (F (1, 518) = .17, p = .684), suggesting that reported actual growth did not differ as a function of relationship break-up. Additionally, when Pearson correlations were conducted for all

covariates, predictor, moderator, and outcome variables (see Table 3), the measure of actual growth was not related to any key variables.

The notion of actual growth is a recent development in the literature and has only been used in one study, in which there was also a similar construct validity problem, as the scale demonstrated a very small negative change from one time point to the next (Frazier et al., 2009). Additionally, in the present study, the actual stress-related growth measure could not distinguish between those who had experienced a relationship break-up and those who had not. All of the proposed hypotheses were tested with actual stress-related growth and were non-significant (See Appendix K). Perceived stress-related growth, as measured by the PTGI, has been used in a number of studies (Helgeson et al., 2006). Given the evident lack of construct validity for the CPTGI, for the remaining hypotheses, I replaced actual stress-related growth with perceived stress-related growth, as the latter appears to be a more usable measure. Because gender and PSS total score were significant predictors of perceived stress-related growth, they were included as covariates in all regression analyses in which perceived stress-related growth was the outcome variable.

Hypothesis 2: Satisfaction and commitment during the relationship will be positively related to perceived stress-related growth.

A linear regression (*Regression Equation: Perceived Stress-Related Growth* = b_0+ $b_1Satisfaction + b_2Commitment + e$) was conducted to evaluate the prediction of perceived stress-related growth from satisfaction and commitment, while controlling for PSS total score and gender. Satisfaction and commitment accounted for 1.3% of the variance in

perceived stress-related growth. This was not statistically significant ($\Delta R^2 = .013$, F Change (2, 90) = .69, $p = .506$). Additionally, this ΔR^2 effect size is considered small (Ferguson, 2009).

Hypothesis 3: Distress will be related to perceived stress-related growth in an inverse u-shaped curve with more distress leading to more growth to a point and then increasing distress will be associated with less growth.

A linear regression (*Linear Equation: Perceived Stress-Related Growth= b_0 + b_1Distress + e*) was conducted to evaluate the prediction of perceived stress-related growth from distress, while controlling for PSS total score and gender. Distress accounted for 7.4% of the variance in perceived stress-related growth. This is statistically significant ($\Delta R^2 = .074$, F Change (1, 92) = 8.36, $p = .005$). Additionally, this ΔR^2 effect size is considered strong (Ferguson, 2009).

Therefore, quadratic and cubic functions were computed and the linear, quadratic, and cubic functions were entered into a hierarchical regression to predict perceived stress-related growth. The quadratic function (*Quadratic Equation: $Y = b_0 + b_1x_1 + b_2x_1^2$ + e*) did not explain significantly more variance than the linear equation ($\Delta R^2 = .000$, F Change (1, 91) = .03, $p = .871$). The cubic function (*Cubic Equation: $Y = b_0 + b_1x_1 + b_2x_1^2 + b_3x_1^3$ + e*) did not explain significantly more variance than the quadratic equation ($\Delta R^2 = .031$, F Change(1, 90) = .03, $p = .063$). The cubic function graph can be seen in Figure 5. Therefore, the linear equation was retained. The results can be seen in Table 6.

Hypothesis 4: Dispositional optimism will moderate the relationship between distress at the time of breakup and perceived stress-related growth, such that it augments the relationship between distress and perceived stress-related growth.

The Life Orientation Test – Revised (Scheier et al., 1994) from Time 1 was used as the measure of dispositional optimism. The total score from the Impact of Events scale (Sundin & Horowitz, 2002) from Time 2 was used as the measure of distress at the time of the breakup. The Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996) total score from Time 2 was used as the measure of perceived growth. In order to test the moderation analysis, the two predictors were centered and an interaction term was created by multiplying the centered predictor values. Gender and PSS total score were entered into the equation as covariates. The interaction of optimism and distress was not statistically significant ($\Delta R^2 = .025$, F Change $(1, 90) = 2.87$, $p = .094$). Additionally, this ΔR^2 effect size is considered small (Ferguson, 2009).

Hypothesis 5: Relationship quality, as measured by satisfaction, will moderate the relationship between distress at the time of breakup and perceived stress-related growth.

The Rusbult Investment Model Scale – Satisfaction subscale (Rusbult et al., 1998) total score obtained at Time 1 served as the measure of satisfaction. The Impact of Events scale (Sundin & Horowitz 2002) total score obtained at Time 2 served as the measure of distress. In order to test the moderation analysis, the two predictors were centered and an interaction term was created by multiplying the centered predictor values. A moderation analysis was then performed to evaluate the prediction of

perceived stress-related growth from the interaction of distress and satisfaction, while controlling for PSS total score and gender. The interaction of satisfaction and distress was not statistically significant ($\Delta R^2 = .003$, F Change $(1, 89) = .30$, $p = .586$). Additionally, this ΔR^2 effect size is considered small (Ferguson, 2009).

Hypothesis 6: Self-expansion in the relationship will moderate the relationship between distress at the time of the breakup and perceived stress-related growth.

The Self-Expansion Questionnaire (Lewandowski & Aron, 2001) total score obtained at Time 1 served as the measure of self-expansion in the relationship. The Impact of Events scale (Sundin & Horowitz, 2002) total score obtained at Time 2 served as the measure of distress. In order to test the moderation analysis, the two predictors were centered and an interaction term was created by multiplying the centered predictor values. A moderation analysis was then performed to evaluate the prediction of perceived stress-related growth from the interaction of distress and self-expansion, while controlling for PSS total score and gender. The interaction of self-expansion and distress was not statistically significant ($\Delta R^2 = .011$, F Change $(1, 90) = 1.18$, $p = .279$). Additionally, this ΔR^2 effect size is considered small (Ferguson, 2009).

CHAPTER FIVE

DISCUSSION

The purpose of this study was to further explore the experiences of stress-related growth following relationship dissolution during emerging adulthood. Emerging adulthood is a developmental period which may be uniquely primed for experiences of exploration and growth (Arnett, 2000). Previous research has documented stress-related growth following relationship breakups (Hebert & Popadiuk, 2008; Tashiro & Frazier, 2003; Lewandowski & Bizzoco, 2007); however, the present study was the first to do so with a longitudinal design. Therefore, I was able to assess whether indicators measured prior to the breakup (satisfaction, commitment, optimism, and self-expansion) were meaningfully related to distress and growth following the breakup. Additionally, I sought to advance the debate on whether stress-related growth actually occurs (Frazier et al., 2009; Frazier & Kaler, 2006) by including measures of both perceived and "actual" stress-related growth (Frazier et al., 2009) and optimism.

Demographic Variables, Correlations, and Covariates

Participants in the present study reported substantial degrees of both distress and growth following relationship breakups. Inconsistent with previous studies, many relationship variables, including length of relationship, days since breakup, and initiator status did not predict growth in the present study (Miller, 2010; Tashiro & Frazier, 2003). All previous studies which demonstrated a relationship between these variables and growth were retrospective in nature and therefore, the correlations in those studies may have been due to a self-enhancement bias, positive illusion, or concurrent measurement. Another possible explanation for the inconsistent findings is the amount of time between

the breakup and assessment of growth, with previous studies including breakups that occurred over one year ago and the present study including breakups that occurred no more than 2 months prior to data collection. Additional research is needed to further explore this inconsistent finding. However, consistent with previous studies, gender was a significant predictor of growth, with women reporting more growth.

A participant variable which has not been examined in previous studies of stress-related growth following relationship breakup is posttraumatic stress symptoms due to previous traumas. I included this measure in the current study because previous trauma may affect how individuals experience new traumas and their aftermath, including likelihood of growth. In fact, a sizable body of previous research demonstrates that those who experience multiple traumas have a higher risk of developing PTSD and depression (Little, Grills-Taquechel, Asxom, Bye, & Buck, 2011; McTeague et al., 2010; Suliman et al., 2009). Authors have recommended that measures of previous trauma be included, even in studies where the focus is on a single event (Green et al., 2000). However, previous trauma and associated symptoms have rarely been included in studies of posttraumatic growth and never in studies of growth following relationship breakup. At the time of study design, it was expected that PTSD symptoms from other events may impact distress and growth of the breakup and therefore it could be used as a screening tool or covariate. However, it was not possible to use as a screening tool as a large percentage, 35%, of the sample met the scale's cutoff for a diagnosis of PTSD.

In the current study, scores on the PTSD Symptom Scale (PSS; Foa et al., 1993) were significantly positively correlated with distress and growth following the breakup and negatively correlated with optimism at Time 1. The correlation of this scale with

distress is consistent with previous research that demonstrated a linear relationship between the number of interpersonal traumas and distress (Green et al., 2000). The correlation between the PSS and growth demonstrates that growth may be affected by cumulative trauma similar to symptoms of distress, such that multiple traumas may be more likely to produce intense distress and subsequent growth. A previous traumatic event and PTSD symptoms may predispose an individual to perceive their breakup as more stressful, perhaps because it overrides their coping ability or the relationship was a source of support for dealing with the symptoms. These hypotheses regarding the relationship between multiple traumas and posttraumatic growth should be explored in future studies.

Actual and Perceived Stress-Related Growth

The present study used a newly developed measure of actual growth (C-PTGI), which the authors suggested could be used for distinguishing between perceived and actual growth (Frazier et al., 2009). In one previous study, there was a small correlation between perceived and actual stress-related growth and the current study attempted to replicate that finding (Frazier et al., 2009). The hypothesis that perceived and actual stress-related growth would be related was not supported. Upon further examination of the data, it appeared that most participants had slightly lower or very similar scores on the C-PTGI (Frazier et al., 2009) at Times 1 and 2. Because the correlation of the PTGI and C-PTGI was not replicated and participants actually reported a decrease in growth from Times 1 to 2, further measures were taken to examine the construct validity of actual stress-related growth as measured by the C-PTGI. Specifically, a mixed design ANOVA demonstrated that change scores on the C-PTGI were not a function of whether

individuals experienced a breakup during the study or not. This appears to provide further evidence that the C-PTGI is a stable measure across time, and may be measuring a trait, rather than a state, given the consistency of scores across several weeks. Traits are defined as habitual and stable patterns of thought, emotion and behavior over time (Costa & McCrae, 2006), whereas states are affected by the environment and expected to change over time. This appears to be a consistent construct validity problem of the scale, as in a previous study by Frazier et al. (2009), the scale also demonstrated a very small negative change from one time point to the next. Because of the construct validity problems with the C-PTGI, it appears that the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996) remains the best available measure of stress-related growth and caution should be taken when interpreting the C-PTGI as a measure of actual growth.

Satisfaction, Commitment, and Perceived Stress-Related Growth

Satisfaction and commitment in the relationship, measured at Time 1, were unrelated to perceived stress-related growth at Time 2. Satisfaction and commitment were also unrelated to distress following the breakup. It is surprising that how happy and committed individuals are in a relationship would be unrelated to their distress and subsequent growth following the breakup of that relationship. This result suggests that, in the current study, participants perceived just as much growth when the previous relationship was bad as when it was good. This may mean that people perceive growth following breakups from all types of relationships. Significant distress may occur following a breakup because the breakup is a setback in the emerging adult's developmental progress, whether the relationship was of high quality or not.

Another explanation for the null finding in this hypothesis may be related to the measurement of these constructs. Satisfaction and commitment measurements have been criticized due to their simplistic nature and the theory that these measures may be obtaining nothing more than a simple "thumbs up or thumbs down" about the relationship (Fowers & Owenz, 2010). Satisfaction measures have also been criticized for the frequency of ceiling effects, in which most participants rate their satisfaction as very high on the scale, not allowing differences in dependent variables to be meaningfully linked to the measure. In the current study, values of skew for satisfaction and commitment were within standard tolerance levels (less than 1 indicating little problem and less than 2 indicating some skew but still acceptable) (Miles & Shelvin, 2001). However, the values of skew for satisfaction (Skewness = -.85, SE Skew = .24) and commitment (Skewness = -1.01, SE Skew = .24) still indicated negative skew. Some researchers have suggested that a skew value which is greater than twice the standard error may significantly differ from normality (Miles & Shelvin, 2001). Although satisfaction and commitment fall within the standard tolerance levels, they are still negatively skewed and this may have affected the ability to detect relationships between these variables and growth following relationship dissolution.

The null finding of this hypothesis demonstrates that, in the current study, Time 1 variables of relationship quality were not meaningfully related to Time 2 variables of distress and growth. Previous studies have demonstrated that relationship quality had significant ties to distress and growth following breakup, however these studies were retrospective in nature, measuring both relationship factors and distress or growth post-dissolution (Lewandowski & Bizzoco, 2007; Sprecher et al., 1998). The correlations

between these variables may be due to self-enhancement bias or positive illusions (Frazier & Kaler, 2006). The finding that these relationship variables measured at Time 1 are not meaningful related to distress or growth at Time 2 provides further support for those who have argued that posttraumatic growth may not be a valid construct and instead may be the result of self-enhancement biases or positive illusions (Frazier & Kaler, 2006; Taylor et al., 2000). Self-enhancement bias is the conscious process of presenting positive information about oneself and minimizing negative information (Baumeister & Twenge, 2003). Because of self-representation concerns, individuals may feel the need to describe positives that came out of a negative experience to appear to be coping well or because they believe others expect them to have found benefits from their experience (Frazier & Kaler, 2006; Linley & Joseph, 2004). In addition, individuals may unconsciously use positive illusions of the self and the experience to cope more effectively with the trauma and overcome feelings of distress (Frazier & Kaler, 2006; Taylor et al., 2000). These biases may explain why retrospective measures correlate with one another, whereas relationships variables measured at Time 1 do not show a relationship to distress and growth measured at Time 2.

Distress and Stress-Related Growth

It has been documented in several studies that distress is correlated with perceived stress-related growth (Calhoun & Tedeschi, 2001). The presence of this relationship supports the traditional definition of posttraumatic growth which states that the struggle with losses or traumatic events is what produces the growth (Calhoun & Tedeschi, 2001). This correlation was replicated in the present study. The mean distress score, as measured by the Impact of Events Scale (Sundin & Horowitz, 2002) was 36.06 (*SD* =

17.73). This mean score exceeds the cutoff score of 33 recommended by Creamer, Bell, and Failla (2003), based on Posttraumatic Stress Disorder symptoms to yield a sensitivity of .91 and a specificity of .82. The mean level of distress reported in the present study is similar to the mean score on this scale in studies of other traumatic events, including following a severe earthquake ($M = 32.99$; Xu & Liao, 2011), following cardiac surgery for patients and their partners ($M = 21.2$; 38.1, respectively; Bunze, Roethy, Znoj, & Laederarch-Hofman, 2008), and following a motor vehicle accident (M = 33.26; Beck et al., 2008). However, it is lower than the mean score on this scale in other studies of more severe traumatic events, such as following a sexual assault ($M = 61.22$; Shakespeare-Finch & Armstrong, 2010) and war exposure ($M = 58.1$; Morina & von Collani, 2006).

I hypothesized that distress would be related to perceived stress-related growth in a non-linear fashion, specifically, in an inverse u-shape curve with more distress leading to more growth to a point but greater distress being associated with less growth. However, this hypothesis was not supported. The data suggested a linear relationship such that the more an individual suffers with a difficult event, the more opportunity he or she has to grow and change from it. The relationship between distress and growth may be spurious due to the influence of a third variable, such as the participant's tendency to reflect on his or her experience. Perhaps those who are most likely to reflect on their lost relationship would both feel more distress as a result of its loss (and their rumination) and increased capacity to grow from reflecting on the negatives of the relationship. This is consistent with Izard and Ackerman's (2000) theory of social function of discrete emotions which posits that sadness may serve the purpose of slowing one's cognition

down in order to facilitate deeper reflections on the cause of sadness and allow plans for future change in behaviors and relationships to avoid sadness.

An alternative explanation is that the correlation of these two variables may provide further evidence that reports of stress-related growth are due to self-presentation biases or positive illusions (Frazier & Kaler, 2006; Linley & Joseph, 2004; Taylor et al., 2000). Because the two variables were measured at the same time point, individuals may have been motivated by cognitive dissonance to present a coherent picture of breakup, distress, and growth, thereby convincing themselves that they are doing well (Festinger, 1957). If individuals are experiencing a great deal of distress and little growth following their breakup, they may experience cognitive dissonance regarding their behaviors in the relationship or decision to end the relationship; therefore, by changing their cognitions through the use of self-enhancement biases or positive illusions, they are able to reduce the dissonance (Festinger, 1957; Taylor et al., 2000).

The level of perceived growth reported merely an average of one month following the breakup also provides evidence of a likely self-presentation bias (Mean time since breakup = 28 days, SD = 17 days). Researchers and theorists argue that true growth will take time to emerge because distress and grieving occurs first, followed by adjustment and then growth (Miller, 2010; Tedeschi & Calhoun, 1995). The presence of perceived growth so quickly after the relationship breakup, when theorists suggest the participants should still be grieving, lends itself to the interpretation that a self-presentation bias is at work.

Moderation of Distress and Perceived Stress-related Growth by Optimism

I hypothesized that optimism would moderate the relationship between distress and perceived stress-related growth. Dispositional optimism, measured by the LOT-R, examines the expectation of positive outcomes, which was expected to moderate the relationship between distress and growth (Scheier et al., 1994). Several studies have demonstrated a positive correlation between optimism and posttraumatic growth (Helgeson, Reynolds, & Tomich, 2006; Miller, 2010, Prati & Pietratoni, 2009). In the present study, optimism did not moderate the relationship between distress and perceived stress-related growth. Optimism at Time 1 was significantly positively correlated with growth at Time 2, a finding which replicates the main effects of optimism found previously. Optimists may be more likely to use a strategy such as positive reinterpretation coping when evaluating the aftermath of their relationship breakup.

Moderation of Distress and Perceived Stress-related Growth by Satisfaction

As stated above, basic relationship variables such as commitment and satisfaction demonstrated no relationship with distress following relationship breakup or growth. Even though a direct effect was not found, satisfaction may have still served as a moderator of relationship between distress and growth. Testing satisfaction as a moderator of distress and growth was intended to be a test of the two pathways leading to growth following relationship dissolution: the stress-relief pathway and the crisis-growth pathway (Tashiro et al., 2006). Those ending high-quality relationships were thought to experience a great deal of distress and thus grow as a result of their struggle (crisis-growth), while those ending low-quality relationships were thought to experience little distress but high growth because they were no longer constrained by the relationship

(stress-relief). However, the hypothesis of moderation of distress and perceived stress-related growth by satisfaction was not supported. Testing satisfaction as a moderator provides further evidence that there was no relationship between variables measured at Time 1 and distress and growth measured at Time 2.

Moderation of Distress and Perceived Stress-related Growth by Self-Expansion

In a previous study of growth following relationship breakup, ending a relationship characterized by less self-expansion was associated with more growth post-dissolution (Lewandowski & Bizzoco, 2007). Self-expansion was tested as a moderator as an additional test of the two forms of growth following relationship dissolution: stress-relief and crisis-growth (Tashiro et al., 2006). Relationships which were low on self-expansion were predicted to have low distress and high growth because an influx of growth could occur following the relationship breakup (stress-relief). The crisis-growth pathway would occur when individuals were high in self-expansion and thus experienced a great deal of distress following the breakup and grew as a result of struggling with the distress. However, this moderation hypothesis was not supported. Previous research which found a relationship between self-expansion in the relationship and growth was retrospective in nature (Lewandowski & Bizzoco, 2007). In such situations, participants may have been more motivated by self-enhancement biases to reinterpret their previous relationship as constraining and therefore be happy about the dissolution of it. In the present study, there was no main effect for self-expansion either (self-expansion and growth were not correlated), further demonstrating that the relationship between these two variables that exists in retrospective studies was not found in a longitudinal design.

Future Directions for Research

In the current study, the C-PTGI was used as a measure of actual growth in an effort to provide further evidence of the validity of perceived stress-related growth. However, the C-PTGI suffers from the severe construct validity problems reviewed above. The difficulty in developing measures that can assess actual growth over time may provide further evidence that actual growth is not occurring and it is merely the result of a self-enhancement bias (Frazier & Kaler, 2006). Therefore, if the construct of stress-related growth is to be maintained, other methods need to be explored in order to provide better evidence for perceived stress-related growth. For example, investigators could obtain reports of perceived growth from significant others (friends, family) to assess the participant's perception of perceived growth. A previous study attempted to use significant others' to corroborate participants' reports of growth following breast cancer and found that there was little relationship between participants and significant others on the positive effects of breast cancer (Helgeson, 2010). There was greater corroboration for the negative effects of the disease, not the supposed growth.

The inability of an alternative form of measurement to capture stress-related growth suggests that actual growth may not commonly occur, but rather the use of self-enhancement biases or positive illusions are a common coping mechanism following distressing events. If actual growth does occur, it is clear that the typical methods of assessing this construct (self-report, retrospective) are inadequate (Frazier et al., 2009; Frazier & Kaler, 2006).

If researchers continue to examine stress-related growth following relationship dissolution, sampling should expand beyond college students, particularly to include older individuals with increased relationship commitment. The majority of studies on

stress-related growth following relationship dissolution, including this one, have been conducted with college student samples (Hebert & Popadiuk, 2008; Lewandowski & Bizocco, 2007; Tashiro & Frazier, 2003). College student samples are purposive samples for these research questions as romantic relationships are a central focus of this developmental stage (Arnett, 2000). However, research has demonstrated that posttraumatic growth is most likely to occur during this development stage (Aldwin et al., 2009), so findings may be less pronounced in other samples. Additionally, because relationships are the most transitory and fleeting during this stage, relationships which are longer in length may have a different relationship to stress-related growth. Stress-related growth following divorce may be quite different than growth following non-marital relationship breakup, so future studies should include previously married couples as a target population.

The current investigation was the first to study stress-related growth following relationship dissolution which included a measure of other traumas and associated PTSD symptoms. The results suggest that PTSD symptoms from other traumas are positively correlated with distress and growth. Future studies of stress-related growth should include a measure of previous traumas and associated symptoms, as growth and distress may be more meaningfully tied to the previous trauma, not the current stressor under investigation in many studies. Not including a measure of previous trauma and associated symptoms could result in conclusions that are unfounded.

Implications for Practice

The present study has several implications for counselors, particularly those working with college students for whom relationship breakup is a common presenting

problem (Benton et al., 2003). Because relationship breakup is such a normative event, college counselors may not view the event with the severity that the student does. It is important to note that, in the present study, relationship breakup was frequently associated with high levels of intrusion and avoidance symptoms in the past seven days, similar to Posttraumatic Stress Disorder. Additionally, relationship breakups appear to be very disruptive and distressing regardless of the relationship quality. The present study is consistent with previous research which documents the cumulative nature of traumas, such that multiple traumas increase the likelihood for the development of PTSD and depression symptoms (Little, Grills-Taquechel, Asxom, Bye, & Buck, 2011; McTeague et al., 2010; Suliman et al., 2009). Because previous experiences of trauma have an effect on how individuals cope with current stressors, a comprehensive trauma history should be taken and conceptualized when a client is seeking assistance for a response to a single event such as a relationship breakup (Green et al., 2000).

Because the mean score on the PTGI was also high (M = 45.55), it is valuable to recognize that many clients perceive growth experiences following a breakup as well. However, based on the results of the current study, which call into question the veracity of stress-related growth, I am inclined to agree with previous authors who have written that emphasizing the notion of posttraumatic growth without proper evidence may have negative effects for individuals experiencing life disruptions or traumas (Held, 2004; Wortman, 2004). Calhoun and Tedeschi (2001) recommend that clinicians not address growth following a stressor until the client does so, so as not to move too quickly and minimize the client's pain. The results of the current study suggest that stress-related growth following relationship dissolution is more likely the result of

self-enhancement biases or positive illusions. Self-enhancement biases serve the

individual by allowing him or her to reduce cognitive dissonance and cope with the

distress. However, these biases have a downside, too and may lead to underestimating

risks, such as divorce risks or likelihood of entering another similar relationship.

Therefore, it may not be beneficial to encourage the idea of stress-related growth,

because (1) people may not experience it and (2) if people do experience it, it may really

be the result of a cognitive strategy like the self-enhancement bias (Baumeister &

Twenge, 2003; Campbell & Sedikides, 1999).

Limitations

The design of the present study had limitations. The study relied completely on

self-reports from individuals. This limits the degree of confidence in the results due to

possible response biases. Because other reporters were not included in the study, I do not

have an external verification of the veracity of participant responses. Participants may

not report the truth or they may be self-deceiving and not know the truth, introducing the

response biases of self-deception or impression management. Additionally, there is a

population bias because only college students were sampled, rather than all emerging

adults aged 18-25. Additionally, although the longitudinal design was an extension of

previous research, it could not have established causality because there was insufficient

control of extraneous variables.

The present study attempted to further previous research by including a measure

of actual growth, the Current Standing Version of the Posttraumatic Growth Inventory

(Frazier, Tennen et al., 2009). However, this measure was not found to be a valid

measure of change over time, as most participants showed a decrease from Time 1 to

Time 2 and participants did not differ on the measure based on whether they experienced a breakup or not. Because this measure was not valid, the longitudinal design relied on the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996), the standard measure of perceived growth that has been used in numerous studies previously. Therefore, the current study was limited in its ability to extend previous research on perceived and actual stress-related growth.

It could be suggested that the study was limited because the participants had experienced the breakup too recently to report many significant changes or "growth" from the event. For example, Miller (2010) suggests using samples with a breakup that is 1 year or older so as to avoid the "normative grieving period." Additionally, research has demonstrated that after one year, individuals have had sufficient time to adjust to the dissolution (Bursik, 1991). Posttraumatic growth theorists have argued that true growth takes time to emerge (Tedeschi & Calhoun, 1995). The average time since breakup in the present study was merely 28 days (SD = 17 days), which researchers may criticize and point to this potential limitation as the reason why many previous findings in retrospective research were not replicated in the current prospective study. However, the level of growth reported in the present study (M = 45.55, SD = 26.53) merely an average of one month following the breakup, when theorists suggest the participants should still be grieving, is consistent with other possible explanations of stress-related growth, like a self-presentation bias or positive illusion (Frazier & Kaler, 2004).

Summary and Conclusion

The present study adds to the growing body of literature suggesting that breakups can be incredibly distressing and that people frequently report something like stress-

related growth, although the results call into question whether it is actual growth or merely a cognitive strategy like self-enhancement bias or positive illusions. The study findings, both significant and non-significant, indicate that the relationships of some variables to growth following relationship dissolution may appear different in a longitudinal, rather than retrospective design. This adds to the debate regarding whether previous studies have documented posttraumatic growth or something like positive reinterpretation (Frazier & Kaler, 2006). Because no Time 1 variables were meaningfully related to the Time 2 variables of distress and growth, it appears more likely that reported growth is actually a self-enhancement bias or positive illusion (Frazier & Kaler, 2004; Taylor et al., 2000). Additionally, individuals reported a great deal of growth in a short interval of time following their breakup, suggesting that they were reporting positive illusions or self-enhancement biases, not growth which is expected to take time to emerge (Calhoun & Tedeschi, 2006).

The current study documented high levels of distress and posttraumatic growth, however the measure of actual growth was found to have construct validity problems. The study provided evidence that the Current Standing Version of the Posttraumatic Growth Inventory is not a viable measure of actual growth. Therefore, I believe the results are consistent with previous studies which suggest that the current measurement and methods used to assess stress-related growth are inadequate (Frazier et al., 2009; Frazier & Kaler, 2006). Because it appears more likely that these measures are capturing self-enhancement biases or positive illusions, they are contributing to the inconsistent and confusing findings within the field of stress-related growth (Linley & Joseph, 2004; Wortman, 2004). If researchers continue to study stress-related growth, care needs to be

taken to develop measures which adequately distinguish actual growth from these self-presentation biases and illusions.

Finally, the study also included a covariate which is infrequently assessed in studies of posttraumatic growth, a measure of posttraumatic symptoms due to previous traumas (Foa et al., 1993). In the current study, this covariate was correlated with distress, optimism, and growth. It may be that the distress and growth reported from a current stressor is actually due to a previous trauma or the additive effects of multiple traumas (Little, Grills-Taquechel, Asxom, Bye, & Buck, 2011; McTeague et al., 2010; Suliman et al., 2009). Therefore, studies which do not include a measure of previous traumas and symptoms may lead to invalid conclusions (Green et al., 2000).

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Figure 1
Hypothesis 3: Relationship between Distress and Actual Stress-Related Growth

Figure 2

Hypothesis 4: Optimism as a Moderator of the Relationship between Distress and Actual Stress-Related Growth

Figure 3

Hypothesis 5: Relationship Quality as a Moderator of the Relationship between Distress and Actual Stress-Related Growth
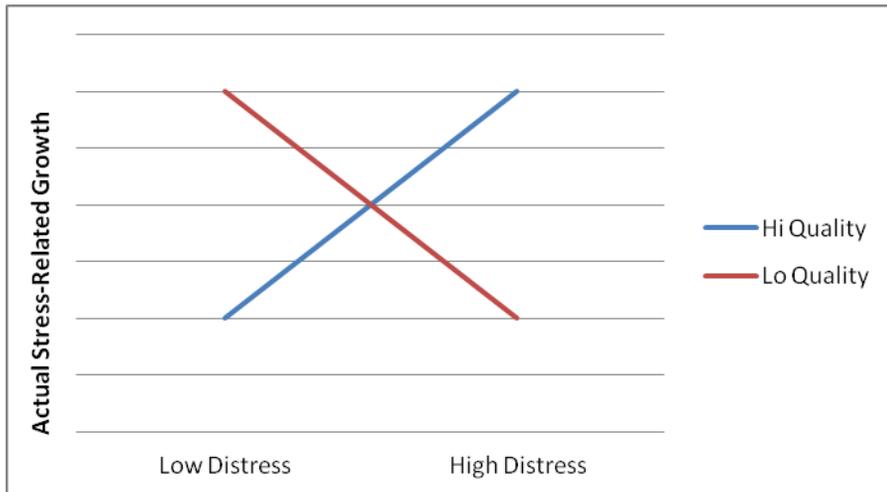
Figure 4

Hypothesis 6: Self-Expansion as a Moderator of the Relationship between Distress and Actual Stress-Related Growth
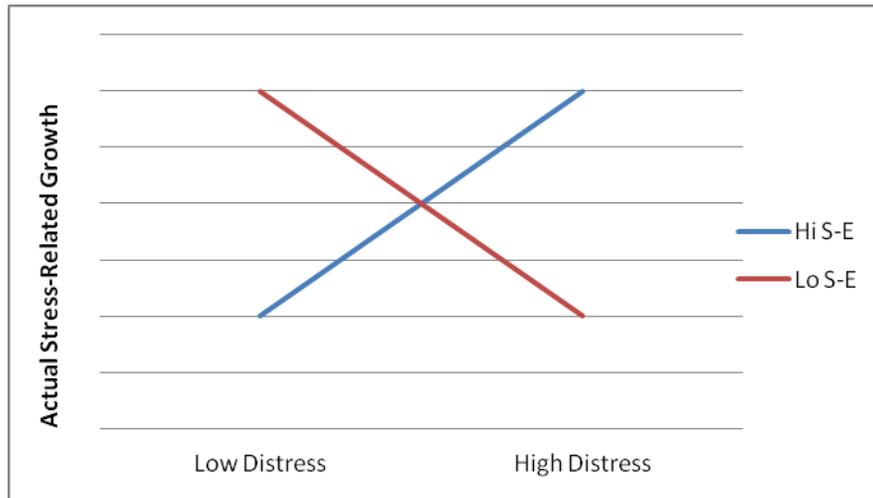
Figure 5

Hypothesis 3: The Cubic Function of Distress Predicting Perceived Growth
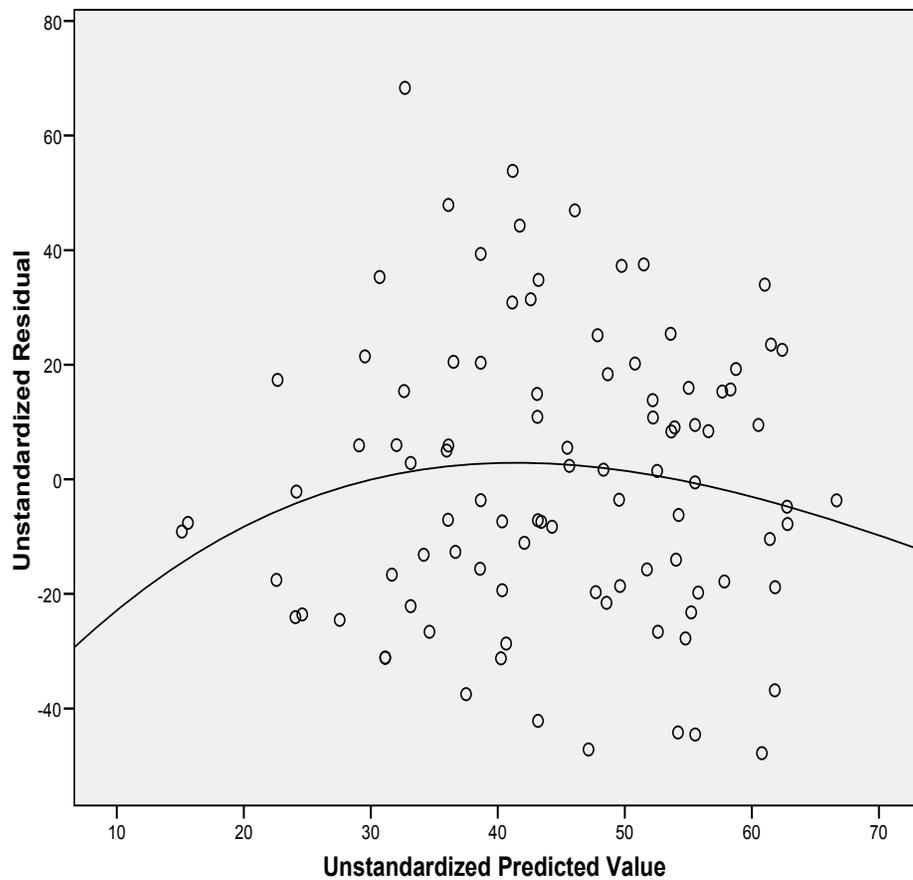
TABLES

Table 1
Demographic Characteristics of Participants (N = 100)

Characteristic	M	SD	
Relationship Length (in months)	9.55	8.35	
Days Since Breakup	28.74	17.05	

Characteristic	n	%	
Ethnicity			
African American/Black	7	7%	
Asian American/Pacific Islander	6	6%	
Biracial/Multiethnic	4	4%	
Hispanic/Latino	63	63%	
Non-Hispanic White	16	16%	
Other	3	3%	
Gender			
Male	26	26%	
Female	71	71%	
Transgender	2	2%	

Table 2

Measures by Time Point

Time 1	Time 2
Demographic Questionnaire (Owenz, 2010)	Relationship Follow-up Questionnaire (Owenz, 2010)
Rusbult Investment Model Scale – Satisfaction Subscale (Rusbult et al., 1998)	Impact of Events Scale (Sundin & Horowitz, 2002)
Rusbult Investment Model Scale – Commitment Subscale (Rusbult et al., 1998)	Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996)
Current Standing Version of the PTGI (C-PTGI; Frazier et al., 2009)	Current Standing Version of the PTGI (C-PTGI; Frazier et al., 2009)
Self-Expansion Questionnaire (Lewandowski & Aron, 2001)	PTSD Symptom Scale (Foa, Riggs, Dancu, & Rothbaum, 1993)
Life Orientation Test- Revised (Scheier et al., 1994)	

Table 3
Pearson Correlations for Covariates, Predictor, Moderator, and Outcome Variables

Variable	2	3	4	5	6	7	8	9	10
1. CPTGI	-.01	.02	-.05	-.02	-.03	.06	-.01	.03	-.03
2. PTGI	--	.33**	-.11	-.15	.07	.03	-.08	-.23*	.29**
3. IES	--	--	.08	.04	-.04	-.17	.10	-.26*	.60***
4. SAT	--	--	--	.67***	.09*	-.18	.51***	.22***	-.10
5. COM	--	--	--	--	.20***	.04	.50***	.16***	-.07
6. Length	--	--	--	--	--	.28**	.09*	-.02	.17
7. Breakup	--	--	--	--	--	--	-.21*	.01	-.02
8. SEQ	--	--	--	--	--	--	--	.12**	-.01
9. LOT	--	--	--	--	--	--	--	--	-.32**
10. PSS	--	--	--	--	--	--	--	--	--

CPTGI = Actual Growth Score (Time 2- Time 1)
PTGI = Perceived Growth Score (Time 2)
IES = Measure of Distress (Time 2)
SAT = Relationship Satisfaction (Time 1)
COM = Relationship Commitment (Time 1)
Length = Relationship Length (Time 1)
Breakup = Days since Breakup at Time 2
SEQ = Measure of Self-Expansion in the Relationship (Time 1)
LOT = Measure of Dispositional Optimism (Time 1)
PSS = Measure of PTSD symptoms as a result of other life event (Time 2)
$*p < .05, **p < .01, ***p < .001$

Table 4

Descriptive Statistics for Predictor, Moderator, and Outcome Variables

Variable	*M*	*SD*	*n*	*Cronbach's Alpha*
PSS	10.62	11.52	90	.943
CPTGI T1	4.04	.52	100	.845
CPTGI T2	3.93	.66	100	.921
CPTGI Change	-4.71	10.71	100	n/a
PTGI	45.55	26.53	99	.963
SEQ	43.92	17.39	100	.945
SAT	28.34	9.70	98	.922
LOT	13.60	3.71	100	.656
COM	39.25	13.74	100	.916
IES	36.06	17.73	99	.917

PSS = PTSD Symptom Scale
CPTGI T1= Current Posttraumatic Growth Inventory – Time 1
CPTGI T2 = Current Posttraumatic Growth Inventory – Time 2
CPTGI Change = Current Posttraumatic Growth Inventory Change Score from Time 1 to Time 2
PTGI = Posttraumatic Growth Inventory – Measure of Perceived Growth
SEQ = Self-Expansion Questionnaire
SAT = Relationship Satisfaction
LOT = Life Orientation Test – Measure of Dispositional Optimism
COM = Relationship Commitment

Table 5

Pearson Correlations for CPTGI Subscale Change Scores and PTGI Subscales

	CPTGI Subscale Change Scores					
PTGI Scores	Total	Spirit	Relate	Strength	Possib.	Appr.
Total	-.013	-.081	.072	-.021	.032	-.014
Spiritual	-.085	.048	-.033	-.125	.022	-.155
Relate	-.144	-.163	-.047	-.113	-.083	-.102
Strength	.092	-.014	.172	.047	.108	.094
Possibilities	.078	-.069	.108	.072	.091	.065
Appreciation	.045	-.074	.124	.031	.042	.041

Table 6

Hierarchical Regression Analyses of Hypothesis 3: Prediction of Perceived Stress-Related Growth from Distress

	B	SE	β	R^2	ΔR^2
Step 1				.112	.112*
PSS	.44	.24	.18		
Gender	-15.71	6.05	-.26		
Step 2				.186	.074*
PSS	.01	.28	.01		
Gender	-17.03	5.85	-.28		
Distress Linear	7.47	2.58	.32		
Step 3				.186	.000
PSS	.02	.28	.01		
Gender	-17.08	5.88	-.28		
Distress Linear	8.68	7.92	.38		
Distress Quadratic	-.00	.01	-.06		
Step 4				.217	.031**
PSS	.01	.28	.00		
Gender	-17.92	5.82	-.29		
Distress Linear	38.79	17.83	1.67		
Distress Quadratic	-.07	.04	-3.42		
Distress Cubic	.00	.00	2.15		

*p < .01, **p< .10

Appendices

Appendix A. Demographic Questionnaire

Name: _____

E-mail Address: _____

Phone Number: _____

Physical Address: _____

_____

Age: _____

Gender (Select One): Male   Female   Transgender

Which best describes racial and or/ethnic identity?

African American/Black, Asian American/Pacific Islander, Biracial/Multiethnic,

Hispanic/ Latino, Native American, White/ European American

Other, Please Specify: _____

Which best describes your sexual orientation?

Exclusively straight/heterosexual, Mostly straight/heterosexual, Bisexual, Mostly

Lesbian, Mostly gay, Exclusively lesbian, Exclusively gay, I prefer not to label myself

Length of Current Relationship: _____

Is your current romantic relationship exclusive? (In other words, are you not dating other

people?

Yes   No

Appendix B. Relationship Follow-up Questionnaire

Date of Break-up:_____

Which partner initiated the breakup?

I did.   My partner did.   We both did.

Please briefly state your understanding of the reason for the breakup:_____

_____

_____

Have you had contact with your ex-partner since the breakup? Yes   No

Have you begun a new relationship since the breakup?   Yes   No

Appendix C. Impact of Events Scale

Indicate how frequently each of these comments were true for you during the past seven days REGARDING YOUR RECENT RELATIONSHIP BREAKUP.

REMEMBER, YOU ARE TO ANSWER THESE QUESTIONS BASED ON HOW YOU HAVE BEEN FEELING SINCE THE END OF YOUR ROMANTIC RELATIONSHIP

Score using one of these four choices: (0) Not at all (1) Rarely (3) Sometimes (5) Often

1. I thought about it when I didn't mean to.

2. I avoided letting myself get upset when I thought about it or was reminded of it.

3. I tried to remove it from memory.

4. I had trouble falling asleep or staying asleep because of thoughts about it that came into my mind.

5. I had waves of strong feelings about it.

6. I had dreams about it.

7. I stayed away from reminders of it.

8. I felt as if it hadn't happened or wasn't real.

9. I tried not to talk about it.

10. Pictures about it popped into my head.

11. Other things kept making me think about it.

12. I tried not to think about it.

13. I was aware that I still had a lot of feelings about it, but I didn't deal with them.

14. Any reminder brought back feelings about it.

15. My feelings about it were kind of numb.

Appendix D. Rusbult Investment Model Scale – Satisfaction Subscale

Satisfaction Level Facet and Global Items

1. Please indicate the degree to which you agree with each of the following statements regarding your current relationship (circle an answer for each item).

    (a) My partner fulfills my needs for intimacy (sharing personal thoughts, secrets, etc.) — Don't Agree At All | Agree Slightly | Agree Moderately | Agree Completely

    (b) My partner fulfills my needs for companionship (doing things together, enjoying each other's company, etc.) — Don't Agree At All | Agree Slightly | Agree Moderately | Agree Completely

    (c) My partner fulfills my sexual needs (holding hands, kissing, etc.) — Don't Agree At All | Agree Slightly | Agree Moderately | Agree Completely

    (d) My partner fulfills my needs for security (feeling trusting, comfortable in a stable relationship, etc.) — Don't Agree At All | Agree Slightly | Agree Moderately | Agree Completely

    (e) My partner fulfills my needs for emotional involvement (feeling emotionally attached, feeling good when another feels good, etc.) — Don't Agree At All | Agree Slightly | Agree Moderately | Agree Completely

2. I feel satisfied with our relationship (please circle a number).

    0   1   2   3   4   5   6   7   8
    Do Not Agree   Agree   Agree
    At All   Somewhat   Completely

3. My relationship is much better than others' relationships.

    0   1   2   3   4   5   6   7   8
    Do Not Agree   Agree   Agree
    At All   Somewhat   Completely

4. My relationship is close to ideal.

    0   1   2   3   4   5   6   7   8
    Do Not Agree   Agree   Agree
    At All   Somewhat   Completely

5. Our relationship makes me very happy.

    0   1   2   3   4   5   6   7   8
    Do Not Agree   Agree   Agree
    At All   Somewhat   Completely

6. Our relationship does a good job of fulfilling my needs for intimacy, companionship, etc.

    0   1   2   3   4   5   6   7   8
    Do Not Agree   Agree   Agree
    At All   Somewhat   Completely

Appendix E. Rusbult Investment Model Scale – Commitment Subscale

Commitment Level Items

1. I want our relationship to last for a very long time (please circle a number).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

2. I am committed to maintaining my relationship with my partner.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

3. I would not feel very upset if our relationship were to end in the near future.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

4. It is likely that I will date someone other than my partner within the next year.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

5. I feel very attached to our relationship--very strongly linked to my partner.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

6. I want our relationship to last forever.

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

7. I am oriented toward the long-term future of my relationship (for example, I imagine being with my partner several years from now).

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

Appendix F. Posttraumatic Growth Inventory

Answer the Following Questions

Indicate for each of the following statements the degree to which the change reflected in the question is
true in your life as a result of your RECENT BREAKUP, using the following scale:
REMEMBER, YOU ARE TO ANSWER THESE QUESTIONS BASED ON HOW YOU HAVE
BEEN FEELING SINCE THE END OF YOUR ROMANTIC RELATIONSHIP

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

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

Appendix G. Current Standing Version of Posttraumatic Growth Inventory

Current Standing Version of PTGI

Used in Frazier, P., Tennen, H., *Gavian, M., Park, C., Tomich, P., & Tashiro, T. (2009). Does self-reported post-traumatic growth reflect genuine positive change? Psychological Science, 20, 912-919.

Indicate for each of the following statements the degree to which the statement applies to you, using the following scale. When answering each question think about how you have felt in the PAST 2 WEEKS.

0 = **Not at all**
1 = To a **very small** degree
2 = To a **small** degree
3 = To a **moderate** degree
4 = To a **great** degree
5 = To a **very great** degree

1. I know my priorities about what is important in life

2. I try to change things that need changing

3. I appreciate the value of my own life

4. I have a feeling of self-reliance

5. I have an understanding of spiritual matters

6. I clearly see that I can count on people in times of trouble

7. I have a sense of closeness with others

8. I know that I can handle difficulties

9. I am willing to express my emotions

10. I am able to accept the way things

11. I appreciate each day

12. I have compassion for others

13. I'm able to do good things with my life

14. I watch for new opportunities

15. I put effort into my relationships

16. I have a strong religious faith

17. I am aware of how strong I am

18. I know how wonderful people are

19. I am developing new interests

20. I accept needing others

21. I am establishing a new path for my life

Appendix H. Life Orientation Test – Revised

LOT-R

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

 A = I agree a lot
 B = I agree a little
 C = I neither agree nor disagree
 D = I DISagree a little
 E = I DISagree a lot

1. In uncertain times, I usually expect the best.
[2. It's easy for me to relax.]
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
[5. I enjoy my friends a lot.]
[6. It's important for me to keep busy.]
7. I hardly ever expect things to go my way.
[8. I don't get upset too easily.]
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad.

Note:

Items 2, 5, 6, and 8 are fillers.   Responses to "scored" items are to be coded so that high values imply optimism. Researchers who are interested in testing the potential difference between affirmation of optimism and disaffirmation of pessimism should compute separate subtotals of the relevant items.

Appendix I. Self-Expansion Questionnaire

<u>Self-Expansion Questionnaire</u>

Lewandowski, G. W., Jr., & Aron, A. (2002, February). *The self-expansion scale: Construction and validation.* Paper presented at the Third Annual Meeting of the Society of Personality and Social Psychology, Savannah, GA.

INSTRUCTIONS: Answer each question according to the way you personally feel, using the following scale. Please place your answer in the space next to each item.

1	2	3	4	5	6	7
Very Much						Not Very Much

_____ 1) How much does being with your partner result in your having new experiences?

_____ 2) When you are with your partner, do you feel a greater awareness of things because of him or her?

_____ 3) How much does your partner increase your ability to accomplish new things?

_____ 4) How much does being with your partner make you more appealing to potential future mates?

_____ 5) How much does your partner help to expand your sense of the kind of person you are?

_____ 6) How much do you see your partner as a way to expand your own capabilities?

_____ 7) Do you often learn new things about your partner?

_____ 8) How much does your partner provide a source of exciting experiences?

_____ 9) How much do your partner's strengths as a person (skills, abilities, etc.) compensate for some of

your own weaknesses as a person?

_____ 10) How much do you feel that you have a larger perspective on things because of your partner?

_____ 11) How much has being with your partner resulted in your learning new things?

_____ 12) How much has knowing your partner made you a better person?

_____ 13) How much does being with your partner increase the respect other people have for you?

_____ 14) How much does your partner increase your knowledge?

Appendix J. PTSD Symptom Scale (PSS) (Foa, Riggs, Dancu, & Rothbaum, 1993)

PTSD Symptom Scale (PSS)

Below is a list of traumatic events or situations. Please mark YES if you have experienced of witnessed
the following events or mark NO if you have not had that experience.

1. Serious accident, fire or explosion.
2. Natural disaster (tornado, flood, hurricane, major earthquake).
3. Non-sexual assault by someone you know (physically attacked/injured).
4. Non-sexual assault by a stranger.
5. Sexual assault by a family member or someone you know.
6. Sexual assault by a stranger.
7. Military combat or a war zone.
8. Sexual contact before you were age 18 with someone who was 5 or more years older than you.
9. Imprisonment.
10. Torture.
11. Life-threatening illness.
12. Other traumatic event.

If you selected, 'other traumatic event,' please describe the event here:

If you answered yes to more than one question above, which event was the worst?

Please check Yes or No regarding the worst traumatic event.

(If you did not experience any of the traumatic events, skips this section).
1. Were you physically injured?
2. Was someone else physically injured?
3. Did you think your life was in danger?
4. Did you think someone else's life was in danger?
5. Did you feel helpless?
6. Did you feel terrified?

Below is a list of problems that people sometimes have after experiencing a traumatic event. Please rate on a scale from 0-3 how much or how often these following things have occurred to you:

0 Not at all
1 Once per week or less/ a little bit/ one in a while
2 2 to 4 times per week/ somewhat/ half the time
3 3 to 5 or more times per week/ very much/ almost always

1. Having upsetting thought or images about the traumatic event that come into your head when you did not want them to

2. Having bad dreams or nightmares about the traumatic event

3. Reliving the traumatic event (acting as if it were happening again)

4. Feeling emotionally upset when you are reminded of the traumatic event

5. Experiencing physical reactions when reminded of the traumatic event (sweating, increased heart rate)

6. Trying not to think or talk about the traumatic event

7. Trying to avoid activities or people that remind you of the traumatic event

8. Not being able to remember an important part of the traumatic event

9. Having much less interest or participating much less often in important activities

10. Feeling distant or cut off from the people around you

11. Feeling emotionally numb (unable to cry or have loving feelings)

12. Feeling as if your future hopes or plans will not come true

13. Having trouble falling or staying asleep

14. Feeling irritable of having fits or anger

15. Having trouble concentrating

16. Being overly alert

17. Being jumpy or easily startled

Please mark YES or NO if the problems above interfered with the following:

1. Work ⎬ Yes ⎬ No
2. Household duties ⎬ Yes ⎬ No
3. Friendships ⎬ Yes ⎬ No
4. Fun/leisure activities ⎬ Yes ⎬ No

5. Schoolwork ⎬ Yes ⎬ No
6. Family relationships ⎬ Yes ⎬ No
7. Sex life ⎬ Yes ⎬ No
8. General life satisfaction ⎬ Yes ⎬ No
9. Overall functioning ⎬ Yes ⎬ No

Appendix K. Non-significant Hypotheses with Actual Stress-Related Growth as the Outcome Variable

Hypothesis 2: Satisfaction and commitment during the relationship will be positively related to actual stress-related growth.

A linear regression (*Regression Equation:* $y = b_0 + b_1 x_1 + b_2 x_2 + e$) was conducted to evaluate the prediction of actual stress-related growth from satisfaction and commitment. Satisfaction and commitment accounted for 1.0% of the variance in actual stress-related growth. This was not statistically significant ($R^2 = .010$, $F(2,95) = .470$, $p = .626$).

Hypothesis 3: Distress will be related to actual stress-related growth in an inverse u-shaped curve with more distress leading to more growth to a point and then increasing distress will be associated with less growth.

A linear regression (*Linear Equation:* $y = b_0 + b_1 x_1 + e$) was conducted first to evaluate the prediction of actual stress-related growth from distress. Distress accounted for .6% of the variance in actual stress-related growth. This was not statistically significant ($R^2 = .006$, $F(1,97) = .597$, $p = .441$).

Hypothesis 5: Relationship quality, as measured by satisfaction, will moderate the relationship between distress at the time of breakup and actual stress-related growth.

The Rusbult Investment Model Scale – Satisfaction subscale (Rusbult et al., 1998) total score obtained at Time 1 served as the measure of satisfaction. The Impact of Events scale (Sundin & Horowitz 2002) total score obtained at Time 2 served as the

measure of distress. The change score calculated by subtracting the total score of Current Standing Version of the Posttraumatic Growth Inventory (Frazier et al., 2009) obtained at Time 2 from the total score obtained at Time 1 served as the measure of actual stress-related growth. In order to test the moderation analysis, the two predictors were centered and an interaction term was created by multiplying the centered predictor values. The predictors, satisfaction and distress, accounted for 1.1% of the variance. This was not statistically significant (R^2 Change = .011, F Change(2,95) = .551, p = .578). The interaction of satisfaction and distress was also not statistically significant (R^2 Change = .005, F Change(1,94) = .471, p = .494).

Hypothesis 6: Self-expansion in the relationship will moderate the relationship between distress at the time of the breakup and actual stress-related growth.

The Self-Expansion Questionnaire (Lewandowski & Aron, 2001) total score obtained at Time 1 served as the measure of self-expansion in the relationship. The Impact of Events scale (Sundin & Horowitz, 2002) total score obtained at Time 2 served as the measure of distress. The change score calculated by subtracting the total score of Current Standing Version of the Posttraumatic Growth Inventory (Frazier et al., 2009) obtained at Time 2 from the total score obtained at Time 1 was the measure of actual stress-related growth.

In order to test the moderation analysis, the two predictors were centered and an interaction term was created by multiplying the centered predictor values. The predictors, self-expansion and distress, accounted for .6% of the variance, which was not statistically significant (R^2 Change = .006, F Change(2,96) = .284, p = .753). The

interaction of self-expansion and distress was also not statistically significant (R^2 Change

= .006, F Change(1,95) = .012, p = .914).