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Posttraumatic Growth As It Relates To Family Environment

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BY

BRIAN KELLER

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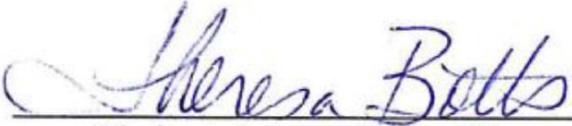
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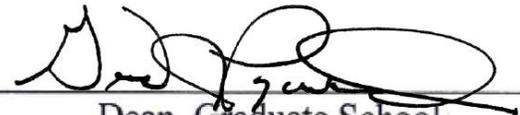
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POSTTRAUMATIC GROWTH AS IT RELATES TO FAMILY ENVIRONMENT

BY

BRIAN KELLER

Submitted to the Faculty of the Graduate School of

Eastern Kentucky University

in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

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DEDICATION

This thesis is dedicated to my father parents, Patti and Chris Keller, for their guidance, unending support, and consistent love. My success as a scholar and a person is a direct result of their immense effort and care in showing me how to be the best version of myself.

ACKNOWLEDGEMENTS

ABSTRACT

The current study sought to explore the relationship between one's family environment and reported posttraumatic growth. Participants were 197 EKU undergraduate intro to psychology students. They voluntarily took an online survey for course credit. Types and frequency of trauma was recorded using the Life Events Checklist. The Posttraumatic Growth Index was used to measure posttraumatic growth, the Family environment scale was used to assess qualities of family life, and the Big Five Inventory was used to control for personality traits. Results did not support the hypothesis, however, significant correlations with the Moral Religious subscale of the FES as well as neuroticism and openness factors of the BFI were found. Implications of these results are discussed.

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Chapter 1

Introduction

Posttraumatic Stress Disorder (PTSD) is a well-known and intensely studied disorder. A relatively newly named facet of this disorder is the phenomenon of Posttraumatic Growth (PTG). PTG is described as a psychological construct wherein a person often experiences a long term positive outcome from a past trauma. In other words, the person finds a sort of "silver lining" to the negative experience that they went through (Tedeschi & Calhoun, 2006).

Since the construct's formal naming in 1995, research on the phenomenon has increased dramatically (Tedeschi & Calhoun, 1995). The type and likelihood of PTG occurring is related to the type of initial trauma, the time since the trauma, and the amount of cognitive engagement the person undergoes with the trauma (Moore et al., 2015). However, research has yet to discover the entirety of what influences PTG. This study will attempt to further examine the nature of PTG in relation to family environment and personality. Doing so will shed light on exactly what kind of people experience PTG, how we can promote it, and the social factors may be involved.

Posttraumatic Stress Disorder

PTSD is a common disorder that arises from military service, sexual or physical abuse, accidents, injuries, and other traumas that can occur in one's life. It is commonly associated with symptoms of depression and anxiety and can lead many to substance abuse and some even to suicide. Guilt, anger, and irritability are also common reactions following a traumatic incident (Tedeschi and Calhoun, 2004). Other PTSD symptoms include nightmares, intrusive thoughts, flashbacks, psychological numbness, as well as

physiological responses to stress like gastrointestinal problems and muscular tenseness (Tedeschi and Calhoun, 2004).

The most well-established trauma that may lead to PTSD is military combat. These situations are usually full of instances where death or serious injury to yourself or those you care about is very likely (Horesh et al., 2015). The intense stress may lead many to be unable to cope and suffer from a variety of PTSD symptoms. In a study focusing on a group of soldiers deployed during operation Iraqi freedom, it was found that the asymmetrical nature of the combat there was directly related to higher prevalence and severity of PTSD symptoms (Green et al., 2016). With this knowledge, we can assume PTSD will continue to be a significant problem, as asymmetric warfare is becoming the norm in American conflicts.

PTSD is also common in instances of sexual abuse. In a study regarding incest, it was found that over 50% of the women who stated they were still trying to make sense of their experiences could not arrive at an answer. This was the case an average of 20 years since the event(s) took place (Silver, Boon, and Stones, 1983). That large amount of time speaks to the difficulty many have with dealing with a traumatic experience. However, it was also found that those who did seem to find an answer, and therefore closure, did so using the help of those around them. If a woman had vented their feelings and concerns regarding their trauma to at least one confidant, they were significantly more likely to be able to reach a conclusion regarding their experience (Silver, Boon, and Stones, 1983). This is evidence of an underlying social aspect to mediating the effects of PTSD.

Posttraumatic Growth

History:

In order to properly look into PTG, we need to examine its origins. PTG is defined as positive psychological change as a result of struggling with a traumatic event (Moore et al., 2015). The term was coined by Richard Tedeschi and Lawrence Calhoun. In their conceptual description of the phenomenon, they explain that these positive responses for trauma often come much later than the initial negative responses and may never appear at all. Specifically, they state that the most commonly seen positive outcomes are a change in the self, a change in one's relationship with others, or a change in one's philosophy of life (Tedeschi and Calhoun, 1996). The processes involved in this transformation can include a change in how the individual perceives and understands their world due to the possible challenge to their already established world view. Included in these changes are reports of better understanding of others and their issues, a feeling of personal strength (e.g. If I could survive that, then I must be strong), and more connection with religion and spirituality (Calhoun et. al., 2000). They also explain that this positive outcome of trauma has been shown to come from a variety of different experiences including medical illness or procedures such as cancer or organ transplants, military combat, sexual abuse, transportation accidents, natural disasters, robberies or assaults, and others (Tedeschi and Calhoun, 2004).

Although the term PTG was coined relatively recently, the concept of cognitive adaptation had already been examined in detail. One such article attempted to synthesize known aspects of human responses to trauma into a working theory for cognitive adaptation (Taylor, 1983). This precursor to modern PTG theory shares many of the same

tenants of today's construct. The three methods of adjusting following a threatening event are searching for meaning in the event, gaining a sense of mastery or control over said event, and using self-enhancement methods to increase self-esteem and bolster self-concept (Taylor, 1983). These three proposed methods of adjustment are clearly echoed in the basic ideas of PTG. This article is an example of the long road to the creation of the term PTG and the subsequent research regarding the theory. These ideas had been around for a long while before they were properly named and formed into the construct known as PTG.

Since the creation of the term, the mechanisms that lead to PTG have been a target for researchers. A correlational study on the strength of reported PTG and cognitive processes showed that rumination was a strong predictor of high PTGI scores (Calhoun et. al., 2000). This rumination in the context of a trauma is usually described as repeated thinking of and attempts at making sense of the trauma. A tendency to think of the trauma is indicative of a higher likelihood of post traumatic growth simply because the individual thinks of it more often. This often leads to a better understanding of why the event happened and closure regarding it (Calhoun et. al., 2000). This study also found a relationship between changes in religious views and PTG. Those with higher reports of openness to religious change after a trauma were also more likely to experience PTG (Calhoun et. al., 2000). Again, this is likely due to the propensity for deep thought after experiencing a trauma, as religion is often an attractive prospect to those that have had such experiences.

Other research has been done on specific traumas and what factors are involved in posttraumatic growth. One such study examined the rate of posttraumatic growth in

parents of children who had committed suicide within the two years prior to participation. This study showed an inverse relationship between resilience and posttraumatic growth, explaining that those parents that were more resilient were less effected by experiencing the loss of their child due to their stronger coping skills. Without the trauma affecting them as profoundly, they also did not experience major growth from the event (Moore, Cerel, and Jobes, 2015). It was also inferred that the relatively low scores on the posttraumatic growth inventory (PTGI) from these parents was likely due to the relatively recent nature of the events. They did not yet have time to properly process and deal with the trauma and then undergo much growth (Moore, Cerel, and Jobes, 2015).

There are many factors that may determine an individual's propensity to experience PTG. This includes time since the trauma, type of trauma, resilience, social support, and even gender. One study regarding PTSD following a massive earthquake in China in 2008 focused on gender differences regarding PTG. After testing the individuals for PTSD symptoms and prevalence of PTG, it was found that females were significantly more likely to experience PTSD symptoms as well as PTG. It was also found that while controlling for PTSD symptoms, women had higher PTGI scores than their male counterparts (Jin, Xu, and Liu, 2014). The reasons proposed for this include the higher tendency for women to engage in rumination, both constructive and negative, perhaps leading them to think of the possible benefits from their trauma as well as examining the change in their lives since. Furthermore, women are also more prone to using emotionally-based coping strategies which are extremely in line with PTG experiences (Jin, Xu, and Liu, 2014).

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Another study analyzed the results of two programs on a sample of cancer outpatients. The programs were a mindfulness based stress reduction (MBSR) program and a healing through the arts program (HA). The participants were tested on a variety of scales before and after attending these classes. For our purposes, the PTGI scores are most notable. It was found that the individuals who experienced the MBSR program scored higher on the PTGI than those who went through the HA program with effect sizes of .28 and .09 respectively. The study also found a significantly higher change in spirituality in the MBSR program which of course correlated with an increase in PTG (Garland et al., 2007). This shows PTG outcomes can be altered significantly by environmental factors confirming that PTG is a malleable phenomenon that can rely on multiple influences.

A study on PTG in family units following a tsunami shows how social support likely influences PTG. The researchers tested parents as well as their children in dimensions such as PTSD symptoms and PTG. It was found that parental PTG is a significant predictor of child PTG (Hafstad et al., 2010). This is used as evidence that social support does have a significant effect on PTG, specifically in children and adolescents. The authors note an especially surprising finding: that the cohesion subscale of the family environment scale (FES) was not significantly related to reported PTG. It would be expected that a more cohesive family would lead to children being more able to properly think about and cope with a life-altering trauma. The authors explained this surprising finding by theorizing that the cohesion subscale of the FES simply doesn't capture the type of social support needed for higher levels of PTG (Hafstad et al., 2010).

Measurement:

The most widely used and accepted measure for PTG is the post traumatic growth index (PTGI). This scale attempts to capture the phenomenon using five factors: Appreciation of life, increased closeness with others, personal strength, recognition of new possibilities, and religious or spiritual growth. As this scale is crucial to understanding and measuring the construct of PTG, these factors require more scrutiny (Tedeschi and Calhoun, 2004).

Appreciation of life is a relatively simple factor. Individuals who experience PTG in this way will often report a change in their appreciation level of most aspects of life. This is often described as appreciating even the little things. The time spent with children, quiet days with the family, and even aspects of life that were previously considered boring are suddenly important to the individual. They often experience a feeling that they are extremely lucky to have what they have (Tedeschi and Calhoun, 2004).

Increased closeness with others is another reported type of PTG. Often, sufferers of a trauma will report feeling closer to those in their lives that were there for them. As the people around them make an effort to help in their time of need, they see how good their relationships are and begin to appreciate them more. Another form of this growth is the tendency for people to be more empathetic with others, especially those who have experienced a similar situation. The knowledge that others truly understand what they have gone through can make them feel connected in a way (Tedeschi and Calhoun, 2004).

The factor labeled "personal strength" is self-explanatory. Those who experience this type of growth often report a confidence in their ability to handle anything. The prevailing idea is "I made it through this, so I can survive anything." Individuals also report

a change in what they consider to be a big deal. Small issues affect them less strongly and they feel less stress regarding these issues (Tedeschi and Calhoun, 2004).

Another factor of PTG is the recognition of new possibilities in one's life. An individual who experiences a trauma may be inspired to help others going through the same thing such as allocating time or funds towards helping those who have gone through a similar experience. Or a brush with death may encourage someone to follow a long-delayed aspiration because of a realization that life is fleeting. The disruptive nature of these traumas can influence someone's future for the better (Tedeschi and Calhoun, 2004).

Finally, growth can occur in the form of spiritual or religious realizations. People can often attribute their survival of the ordeal to a higher power, strengthening or even creating their faith in God. This type of growth can also occur without specific religious connotations. The individual may be more likely to engage in existential thoughts and grapple with philosophical ideas (Tedeschi and Calhoun, 2004).

Indicative of the crux of posttraumatic growth is the paradoxical nature of it. Vulnerability can lead to strength, faithlessness can encourage piety, and a disruption to your path may set you on a better one. Confronting these difficult situations effectively creates an exercise in mental and emotional fortitude. Only through surviving a challenging experience can someone become better (Tedeschi and Calhoun, 2004).

Since the introduction of the PTGI, the measure has been heavily scrutinized for validity. One such study attempted to provide corroboration for the reported growth found in those that took the PTGI. Some critics of the PTGI claimed that the reported effects could be explained as a sort of illusion rationalization after a trauma. In other words, the growth does not actually occur, but rather the individual simply believes that they have

experienced a significant change. By asking significant others (e.g. spouses, friends, and family members) of the trauma survivor, the authors attempted to provide a more grounded example of real PTG. The results strongly showed a significant correlation between the reported growth of the survivors of trauma and the scores of the significant others that took the PTGI. Nearly every factor was significantly related with the lowest significant r-value at .31(Shakespeare-Finch and Enders, 2008). This study used corroboration to provide a strong case for the validity of the PTGI.

Post traumatic growth is often specific to the type of trauma that is experienced in the first place. One such example of this comes from a review of PTG in regard to physical illness. This study revealed a possible sixth factor specific to the experience of enduring a life threatening physical illness. Specifically, the reviewer suggests that many of these individuals acquired a new awareness of their own body. This is further described as the survival or management of the illness leading to a higher sense of control and domain over their physical selves. This created an increase in one's feeling of power and control over their life, especially regarding their health and physical form (Hefferon, Grealy, and Mutrie, 2009). This review shows the importance of categorizing the type and intensity of each specific trauma, as a difference in experience can often lead to a difference in the type of PTG.

Family Environment

History

The environment in which we are raised is known to have great effect on who and what we end up being. This effect can be so strong that it effects the very expression of our genes. In a study regarding a particular serotonin transporter gene, it was found that

aggressive parenting in adolescence had an indirect effect on this gene leading to higher rates of major depressive disorder (MDD) in those individuals. The parenting style was determined by observing interactions between the parent and child. For example: the pair would be instructed to plan a fun day together. The more instances of aggressive altercations there were, the higher the participants were ranked in aggressive parenting. The results showed that those with the dominant version of this allele were more susceptible to MDD in early adolescence and this susceptibility was also significantly related to parental aggression. The more aggressive and less positive the parent, the higher the rates of MDD especially in those with an SS genotype. The difference in parenting style directly affected the size of the left hippocampus using the pathway of this transporter gene (Little et al., 2015). This phenotypic difference within the same genotype shows the strength of one's environment. Parenting has a particularly massive influence on the way our brains develop and therefore who we become.

Conflict in a family can, of course, have a strong effect on the children that experience it. Higher levels of conflict in one's adolescence can often be associated with vulnerability to stress. This was shown to great effect in a study regarding childhood conflict and an attentional bias task. The study showed that those who had experienced familial conflict, and therefore chronic stress, were more likely to pay attention to a masked social threat word in the attentional bias task if they had been primed by a previous stress task (Andreotti, Venkatraman, and Compas, 2015). The data from this study shows a distinct difference in how those who experienced familial conflict are effected by stressful situations, even something as simple as a stress inducing word. The ability to be primed to respond more strongly to a stressful experience implies that

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individuals with high levels of conflict in their family may be more vulnerable to stress later in life.

There has been previous research on the idea that social support can help with a trauma. It is well established that a strong support system either from friends or family can buffer the negative effects of trauma. One study examined the different experiences of those that suffered childhood sexual abuse and those who had not. A correlation between women who had suffered childhood sexual assault and depression and anxiety levels was found. The study also found that this correlation was moderated by family environment, specifically that abused women from families with more conflict had higher levels of anxiety and depression, but abused women from families with more control had lower levels of anxiety. All r-values were higher than .3 in the cases of familial conflict and anxiety or depression. The effect size of control was less convincing with the only significant r-values being just above .2 (Yama et al. 1993). This research shows that a family environment can have strong moderating effects on one's response to trauma and the symptoms associated with it. As such, examining the family's effect on PTG is a logical progression of research.

Family environment has been linked to both depression and anxiety, both of which are symptoms of PTSD (Yunmiao Yu et al., 2015). In a study regarding family environment and depression on Chinese university students, it was found that the dimensions of family conflict and cohesion were significantly correlated with depression. More specifically, participants that reported less family cohesion and more family conflict reported more depressive symptoms with effect sizes of $r = -.33$ and .29 respectively (Yunmiao Yu et al., 2015). The authors go so far as to make a special note

that those who report high family cohesion are more able to remain healthy during stressful times. In general, the article references the stress-buffering effects of a good family environment. Other indicators of depression that were found are family control, marital discord, and parental education level (Yunmiao Yu et al., 2015). The clear connection between family environment and depressive symptoms make a strong case for the possibility that the FES would be a good predictor of PTG.

Another study has shown that family environment plays a significant role in predicting anxiety and stress level of adolescents. Specifically, again, conflict and cohesion were highly predictive of stress and anxiety in adolescents. This is especially true for females which is partially attributed to the culture of the Indian families involved in the study. It was also found that females who report high expressiveness and achievement orientation in their families are more prone to anxiety (Sharma et al., 2010). This study shows how family environment is a great predictor of anxiety, another major symptom of PTSD, and therefore would likely be a predictor of PTG.

Measurement

The FES is a relatively large measure that examines one's perceived family environment using eleven subscales: Cohesion, expressiveness, conflict, independence, achievement, intellectual-cultural, active-recreational, moral-religious, organization, control, and incongruence (Moos and Moos, 2009). Understanding the basis of each subscale is crucial to getting the full picture of what the family environment is. The 11 subscales are grouped into three primary dimensions: relationship, personal growth, and system maintenance. Incongruence is simply a measure of differing answers within the family and as such is not related to any particular dimension (Moos and Moos, 2009).

The relationship dimension is characterized by cohesion, expressiveness, and conflict. These three subscales all are measures of the quality and stability of the relationships within the family. Cohesiveness is simply how well the family gets along. It is often seen as a willingness to work together and provide for one-another. Expressiveness is the family's ability to share feelings openly and freely with each other. Those that score highly in expressiveness likely grew up sharing their feelings and letting their voice be heard. Lastly is conflict. This subscale focuses on the amount of arguments and confrontations that the family has (Moos and Moos, 2009).

The next five subscales are centered around the dimension of personal growth. Independence measures how self-sufficient the individual family members are. Those with high independence are less likely to confer with the family on decisions and more able to assertively handle themselves. Achievement-orientation is meant to measure how often tasks or goals are presented in an achievement minded manner. High emphasis on academic success is common here. Intellectual-cultural orientation is the family's tendency to engage in discussions or activities that are based in the culture around them. In other words, it expresses if the family is interested in the world around them. Active-recreational orientation is the likelihood of the family to enjoy and engage in social or recreational activities. Moral-religious emphasis is a measure of how much a family focuses on religion or matters of morality (Moos and Moos, 2009).

The last dimension is system maintenance which includes the subscales organization and control. Organization is simply the amount a family tends to plan and organize activities or tasks before completing them. Those high in organization likely have fuller schedules and are more rigid in their routines. Finally, control is a family's

propensity to set and use rules as a major part of family life. Highly controlling families would be considered strict and sometimes overbearing in what is expected in terms of conduct (Moos and Moos, 2009).

There is extensive information regarding the exact picture of family environment that is found in many different situations. Families with children who have behavior problems are often low in structure and high in conflict. Families of children with anxiety disorders are more likely to be high in structure and achievement orientation, but low in cohesiveness and expressiveness. Every type of child has a family paradigm that they are usually associated with. For the purpose of this study, the most notable of these are those that have to do with traumatic experiences. Namely, medical problems, sexual and physical abuse, and adult adjustment (Moos and Moos, 2009).

In general, a healthy and well-adjusted adult likely came from a family that was extremely supportive, organized, independent, and socially oriented. Individuals from these types of families enjoy benefits in their later marital life, especially those with higher levels of organization and familial support. The authors make special note that the mother's engagement with and enjoyment of her role as parent is usually associated with high levels of psychological well-being and self-confidence. Coping styles are also strongly associated with familial support. Specifically, women from a supportive and independence oriented family were more likely to employ self-reliant coping strategies. Finally, in general, a supportive family leads the adult to a more psychologically healthy life. All individuals, but women especially, are less depressed and anxious when they consider their family to be highly supportive. In contrast, families high in conflict and

low in supportiveness tend to lead to depression and anxiety later in life (Moos and Moos, 2009).

Physical illness is a common form of trauma and family environment seems to have a strong effect on how an individual can handle it. More family support also can directly influence recovery and treatment of diseases as a highly supportive family often will enable a better outlook on life and one's situation. In those with cancer, a supportive family can lead these individuals to adjust more smoothly to their disease and have their world less rocked by the diagnosis. In the case of almost every medical problem, it seems a supportive family can help with adjustment, resilience, and even treatment of the disease (Moos and Moos, 2009).

Family environments are malleable, and just like individuals, their values and orientations can change due to a life event. In the case of child death, it is often found that families become more closely knit and are more likely to engage in religious or spiritual activities. Those who experience PTSD from combat often come from families of low cohesion and their disorder, in turn, leads to less cohesion in when they return. It seems that most traumatic life events lead the family to become more strongly invested in each other and less involved in social experiences outside of the family (Moos and Moos, 2009).

In regard to trauma, it is consistently shown that traumatic experiences are mediated by a supportive and organized family that is low in conflict and control. In the case of military combat, those from cohesive families are less likely to experience PTSD. Those with medical issues are more able to deal with and accept their problem if their family is supporting them. In nearly every example given, a good family can buffer an

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individual from a trauma (Moos and Moos, 2009). This ability to influence one's reaction

to a traumatic experience may be one of the many factors that lead to the experience of

PTG

Big Five

The Big five theory attempts to describe the complex phenomenon of human

personality using five specific factors: openness, conscientiousness, extraversion,

agreeableness, and neuroticism (Naumann and Soto, 2008). This measure has been used

consistently for many years and as such, a simple overview of the construct and its

factors should suffice. Openness is often described as a person's willingness to try new

things and seek out new experiences. Conscientiousness can be seen as one's

thoughtfulness and attention to detail. Those who score high here are often focused high

achievers. Extraversion is one's tendency to seek and enjoy the company of others.

Agreeableness is a measure of one's kindness and compassion. Those who score high

here often are more trusting of others and are non-confrontational. Finally, neuroticism is

one's level of emotional stability. Highly neurotic individuals will be prone to anxiety,

anger, fear, and other negative emotions (Naumann and Soto, 2008). The use of the Big

Five Inventory in my study will likely provide control over the differing personalities

participants are sure to have, as well as other correlates to the effects of one's family

environment.

Because of its ubiquitous nature, the BFI has been related to almost every

psychological construct, including family environment. In a study that aimed to take a

critical look at the structure of the FES, the author also decided to compare FES

constructs to the big five personality traits. In doing so, it was found that three of the five

traits were particularly well correlated with aspects of family environment. The author

loaded the items of the FES onto three newly synthesized factors: Active-passive, calm-

conflictual, and structuredness. Extraversion, agreeableness, and conscientiousness were

significantly correlated with those three subscales, extraversion with Active-passive,

agreeableness with calm-conflictual, and conscientiousness with structuredness.

Neuroticism was also surprisingly negatively correlated with the active-passive

dimension as well as the calm-conflictual dimension. All of these significant correlations

had r-values between .22 and .39 showing a generally moderate effect size (Saucier,

Wilson, and Warka, 2007). This apparent correlation between FES and the BFI gives

reason to the inclusion of the BFI in this study. There is a clear relationship between the

two and taking that into account will only serve to bolster the study.

Hypothesis

 Overall, the research on PTG and PTSD is very telling. It points to the idea that a

strong social support system can help someone get through a trauma and possibly lessen

the strengths or amount of PTSD symptoms. What isn't yet clear though is how important

family environment is in the prevalence of PTG. Using previous research, it is predicted

that those raised in a family with higher scores on cohesiveness, expressiveness, and

organization would be less likely to experience PTG. PTG is defined by the struggle one

has with a trauma. If that struggle is muted by the support of a good family, it may allow

an individual to make it through a trauma without experiencing the growth that they

would have from struggling with less support. A family that is close knit, structured, and

open to sharing thoughts and feelings with each other would be able to handle stress more

successfully. These attributes signify a traditionally loving and supportive family. It is

expected that individuals from families that score high in conflict, achievement

orientation, and control will be more susceptible to prolonged symptoms of PTSD such as

depression and anxiety.

Chapter 2

Method

Sample

My participants consisted of 197 undergraduate EKU psychology students. They took an online survey for course credit. The survey used the survey monkey web service for administration. The survey began with the life events checklist and continued to the PTGI, Big five, and FES.

Life Events Checklist

This measure gives an itemized list of possible traumas for a person to have experienced (e.g. natural disasters, assault). The participant then checks a box indicating whether they personally experienced the event, witnessed it, learned about it, not sure, or doesn't apply to them. Regardless of answer, all participants moved on to the PTGI.

Posttraumatic growth inventory

This scale is a 21 item self-report measure that examines the amount of post-traumatic growth shown by the participant. The individual is asked to rank the level that each proposed change was found in their life since their trauma; 0 being no change at all and 5 being a great degree of change. Such items include: "I have a stronger religious faith," and "I have a greater sense of closeness with others." The items are loaded onto five factors including relating to others, new possibilities, personal strength, spiritual change, and appreciation of life.

Family Environment Scale

The "real" form of the Family Environment Scale is a 90-item measure that focuses on the individual's perception of their family life. Each item is a simple statement for which the participant must indicate true or false (e.g. we get along really well in our family, the

bible is a very important book in our household). The items are loaded onto eleven subscales including cohesion, expressiveness, conflict, independence, achievement, intellectual-cultural, active-recreational, moral-religious, organization, control, and family incongruence (Moos and Moos, 2009).

Big Five inventory

Big Five Inventory, is a 44-item measure that examines personality on five scales: openness, neuroticism, conscientiousness, agreeableness, and extroversion. Each item is a statement regarding the self (e.g. I am someone who tends to worry, I am someone who prefers work that is routine) to which the participant must respond on a 1-5 Likert scale (Donohue and Kentle, 1991). This scale will be incorporated in an attempt to control for variances in personality traits that may influence the prevalence of PTG.

Statistical Analysis

I used a step-wise multiple regression analysis at the factor level of each measure. This allowed for a clear indication of what aspects of the FES are strong predictors of the PTGI while controlling for the big five.

Chapter 3

Results

The present study examined the effect of two predictor variables – the Big Five Personality Scale, and the Family Environment Scale – on the perceived posttraumatic growth of participants. The study used a linear regression analysis to examine the relationship between these variables. Eastern Kentucky University undergraduate psychology students were used as participants (N=197, 56 males, 141 females). Participants' age range was recorded with 60% in the 18-20 range, 25% in the 21-29 range, 8% 30-39, 4% in the 40-49 range, and .5% in the 50-59.

The 21-item Posttraumatic growth index was used to assess participants' perceived positive outcomes from past traumas. This scale is divided into five subscales: Relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. The total score was used to determine the relationship with each independent variable. Standard deviations and means can be found in table 1.

Table 1

Items, means, and standard deviations for the Posttraumatic Growth Inventory

Item Name	Mean	Standard Deviation
I changed my priorities about what is important in life.	3.20	1.27
I have a greater appreciation for the value of my own life.	3.59	1.30
I developed new interests.	2.70	1.33
I have a greater feeling of self-reliance.	3.25	1.32
I have a better understanding of spiritual matters.	3.08	1.44
I more clearly see that I can count on people in times of trouble.	3.07	1.38
I established a new path for my life	3.04	1.46
I have a greater sense of closeness with others.	2.87	1.36
I am more willing to express my emotions.	2.58	1.35
I know better that I can handle difficulties.	3.49	1.26
I am able to do better things with my life.	3.32	1.32
I am better able to accept the way things work out.	3.20	1.24
I can better appreciate each day	3.53	1.27
New opportunities are available which wouldn't have been otherwise.	2.68	1.40
I have more compassion for others.	3.46	1.33
I put more effort into my relationships.	3.42	1.28
I am more likely to try to change things which need changing.	3.38	1.25
I have a stronger religious faith.	2.97	1.5
I discovered that I'm stronger than I thought I was.	3.63	1.28
I learned a great deal about how wonderful people are	2.99	1.31
I better accept needing others.	2.99	1.31

The 90-item FES has ten subscales: cohesion, expressiveness, conflict, independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, moral-religious, organization, and control. Composite variables for each subscale were created for use in analysis. The only subscale with a significant correlation with the PTGI was the moral-religious subscale (R= .15, p=.032). Table 2 shows the percentage of participants that answered "true" for each item.

Table 2

Individual item response frequencies for the Family Environment Scale

Item Name	Percentage that selected "True"
Family members really help and support one another.	80%
Family members often keep their feelings to themselves.	60%
We fight a lot in our family.	29%
We don't do things on our own very often in our family.	66%
We feel it is important to be the best at whatever you do.	81%
We often talk about political and social problems.	63%
We spend most weekends and evenings at home.	31%
Family members attend church, synagogue, or Sunday School fairly often.	51%
Activities in our family are pretty carefully planned.	43%
Family members are rarely ordered around.	39%
We often seem to be killing time at home.	43%
We say anything we want to around home.	59%
Family members rarely become openly angry.	47%
In our family, we are strongly encouraged to be independent.	81%
Getting ahead in life is very important in our family.	77%
We rarely go to lectures, plays or concerts.	55%
Friends often come over for dinner or to visit.	54%
We don't say prayers in our family.	61%
We are generally very neat and orderly.	59%
There are very few rules to follow in our family.	45%
We put a lot of energy into what we do at home.	67%
It's hard to "blow off steam" at home without upsetting somebody.	53%
Family members sometimes get so angry they throw things.	19%
We think things out for ourselves in our family.	73%
How much money a person makes is not very important to us.	27%
Learning about new and different things is very important in our family.	71%
Nobody in our family is active in sports, Little League, bowling, etc.	68%
We often talk about the religious meaning of Christmas, Passover, or other holidays.	56%
It's often hard to find things when you need them in our household.	68%
There is one family members who makes most of the decisions.	50%
There is a feeling of togetherness in our family.	72%
We tell each other about our personal problems.	70%
Family members hardly ever lose their tempers.	47%
We come and go as we want to in our family.	67%
We believe in competition and "may the best man win."	49%

Table 2 (continued)

Item Name	Percentage that selected "True"
We are not that interested in cultural activities.	52%
We often go to the movies, sports events, camping, etc.	65%
We don't believe in heaven or hell.	87%
Being on time is very important in our family.	73%
There are set ways of doing things at home.	65%
We rarely volunteer when something has to be done at home.	58%
If we feel like doing something on the spur of the moment we often just pick up and go.	70%
Family members often criticize each other.	45%
There is very little privacy in our family.	59%
We always strive to do things just a little better the next time.	83%
We rarely have intellectual discussions.	69%
Everyone in our family has a hobby or two.	82%
Family members have strict ideas about what is right and wrong.	69%
People change their minds often in our family.	42%
There is a strong emphasis on following rules in our family.	62%
Family members really back each other up.	72%
Someone usually gets upset if you complain in our family.	56%
Family members sometimes hit each other.	13%
Family members almost always rely on themselves when a problem comes up.	51%
Family members rarely worry about job promotions, school grades, etc.	73%
Someone in our family plays a musical instrument.	49%
Family members are not very involved in recreational activities outside work or school.	64%
We believe there are some things you just have to take on faith.	74%
Family members make sure their rooms are neat.	54%
Everyone has an equal say in family decisions.	42%
There is very little group spirit in our family.	70%
Money and paying bills is openly talked about in our family.	66%
If there's a disagreement in our family, we try hard to smooth things over and keep the peace.	25%
Family members strongly encourage each other to stand up for their rights.	77%
In our family, we don't try that hard to succeed.	82%
Family members often go to the library.	35%
Family members sometimes attend courses or take lessons for some hobby or interest (outside of school).	49%
In our family each person has different ideas about what is right and wrong.	42%

Table 2 (continued)

Item Name	Percentage that selected "True"
Each person's duties are clearly defined in our family.	49%
We can do whatever we want to in our family.	54%
We really get along well with each other.	74%
We are usually careful about what we say to each other.	39%
Family members often try to one-up or outdo each other.	29%
It's hard to be by yourself without hurting someone's feelings in our household.	72%
"Work before play" is the rule in our family.	68%
Watching TV is more important than reading in our family.	45%
Family members go out a lot.	44%
The Bible is a very important book in our home.	58%
Money is not handled very carefully in our family.	73%
Rules are pretty inflexible in our household.	33%
There is plenty of time and attention for everyone in our family.	73%
There are a lot of spontaneous discussions in our family.	73%
In our family, we believe you don't ever get anywhere by raising your voice.	50%
We are not really encouraged to speak up for ourselves in our family.	70%
Family members are often compared with others as to how well they are doing at work or school.	40%
Family members really like music, art and literature.	63%
Our main form of entertainment is watching TV or listening to the radio.	25%
Family members believe that if you sin you will be punished.	52%
Dishes are usually done immediately after eating.	43%
You can't get away with much in our family.	55%

The Big Five personality assessment is a 44-item Likert scale with five subscales: Extraversion, agreeableness, conscientiousness, neuroticism, and openness. Composite variables were computed for each subscale for use in analysis. Neuroticism and openness were both significantly correlated with posttraumatic growth (R=.143, .214; P=.039, .004). The mean and standard deviation for each item can be found in table 3 and all correlations between composite variables can be found in table 4.

Table 3

Items, means, and standard deviations for the Big Five Inventory

Item Name	Mean	Standard Deviation
Is talkative	3.41	1.23
Tends to find fault with others	3.15	1.20
Does a thorough job	4.25	.79
Is depressed, blue	2.38	1.29
Is original, comes up with new ideas	3.52	.94
Is reserved	2.64	1.14
Is helpful and unselfish with others	4.03	.82
Can be somewhat careless	3.05	1.20
Is relaxed, handles stress well	2.99	1.17
Is curious about many different things	4.01	.93
Is full of energy	3.21	1.19
Starts quarrels with others	4.23	.95
Is a reliable worker	4.44	.82
Can be tense	3.59	1.07
Is ingenious, a deep thinker	3.69	1.01
Generates a lot of enthusiasm	3.48	1.05
Has a forgiving nature	3.82	1.17
Tends to be disorganized	3.36	1.37
Worries a lot	3.88	1.14
Has an active imagination	3.87	1.01
Tends to be quiet	2.78	1.30
Is generally trusting	3.84	1.10
Tends to be lazy	3.06	1.18
Is emotionally stable, not easily upset	2.81	1.14
Is inventive	3.24	1.02
Has an assertive personality	3.19	1.14
Can be cold and aloof	3.23	1.19
Perseveres until the task is finished	3.85	1.03
Can be moody	3.51	1.09
Values artistic, aesthetic experiences	3.57	1.19
Is sometimes shy, inhibited	2.73	1.29
Is considerate and kind to almost everyone	4.09	.91
Does things efficiently	4.03	.85
Remains calm in tense situations	2.50	1.08
Prefers work that is routine	2.46	1.09
Is outgoing, sociable	3.41	1.18
Is sometimes rude to others	3.69	1.06
Makes plans and follows through with them	3.82	.88
Gets nervous easily	3.55	1.21
Likes to reflect, play with ideas	3.55	.98
Has few artistic interests	3.01	1.24
Likes to cooperate with others	3.81	.93

Table 3 (continued)

Item Name	Mean	Standard Deviation
Is easily distracted	2.67	1.14
Is sophisticated in art, music, or literature	2.81	1.29

Table 4. *Bivariate Correlations of all composite variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. PTGI																
2. B5 EX	.09															
3. B5 AG	.00	.11														
4. B5 CO	.04	.18*	.28**													
5. B5 NE	.14*	-.34**	-.21	-.20**												
6. B5 OP	.21**	.21**	.02**	.08	-.15*											
7. FESc	.09	.20**	.35**	.26**	-.30**	-.08										
8. FESex	.03	.11	.24**	.20**	-.19*	-.09	.53**									
9. FEScon	.04	.05	-.34**	-.23**	.27**	.12	-.62**	-.44**								
10. FESind	.07	-.04	.16*	.20**	-.04	-.07	.35**	.35**	-.38**							
11. FESao	.10	.18*	.05	.16*	.04	.08	.14*	-.05	.17*	.61						
12. FESico	.10	.04	-.09	.16*	-.12	.22**	.47**	.26**	-.33**	.28**	.15*					
13. FESar	.03	.15*	.19**	.09	-.16*	.04	.43**	.27**	-.20**	.11**	.19**	.42**				
14. FESmr	.15*	.11	.11	.04	-.13	.00	.41**	.12	-.24**	.07	.25**	.29**	.15*			
15. FESorg	-.03	.13	.14*	.33**	-.16*	-.03	.35**	.02	-.32**	.06	.08	.20**	.15*	.15*		
16. FEScrl	-.12	.10	-.21**	-.01	.00	.03	-.25**	-.47**	.29**	-.40**	.25**	-.01	-.05	.10	.07	
Mean	66.95	24.80	33.88	32.59	25.32	33.67	6.36	5.65	3.17	6.42	6.04	4.91	4.97	5.69	5.23	4.60
SD	20.68	6.71	5.29	5.38	6.01	5.72	2.37	2.24	2.64	1.65	1.65	2.30	1.92	2.46	2.29	2.25

$p < .05$ *, $p < .01$ **

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A linear regression analysis was performed to ascertain how well the Big Five and FES can predict posttraumatic growth. The regression was performed first with just the big five, then with both the big five and the FES. Two factors from the big five were found to be significant predictors of PTGI scores: Neuroticism and Openness (B-weight = .814, .848 p = .012, .012). No factors from the FES were found to be significant predictors. The regression results can be seen in table 5.

Table 5
B-weights and significance of composite variables in regression analysis.

Variable	PTGI B
Extraversion	.31
Agreeableness	-.14
Conscientiousness	.21
Neuroticism	.81*
Openness	.85*
Cohesion	1.33
Expressiveness	-.48
Conflict	.74
Independence	.41
Achievement Orientation	.23
Intellectual-cultural Orientation	-.01
Active-Recreational Orientation	-.21
Moral-Religious	1.29
Organization	-.29
Control	-1.49
R^2	.39
F	1.67

$p < .05$ *, $p < .01$ **

These results do not support either hypothesis, as the majority of FES scales were not significant. The implications of the results are discussed.

Chapter 4

Discussion

Family Environment and PTG

The present study's hypothesis was not supported as it found no significant

correlation between familial cohesion, organization, or expressiveness with reported

posttraumatic growth. It did, however, find significant correlations with PTGI and the

moral-religious subscale of the FES. This finding is supported in research. A study

comparing Vietnam and Iraq/Afghanistan war veterans to each other found spirituality as

a strong predictor of severity PTSD symptoms. Specifically, the idea of forgiveness (of

oneself, of others, or of a divine power) was a particularly strong predictor of PTSD

symptoms. Those who reported more ability to forgive had less pronounced symptoms,

and those who had issues with this idea suffered more acutely from PTSD. The authors

suggest that part of PTSD is experiencing damage to one's spirituality and that taking

steps to repair that aspect of life directly influences other PTSD symptoms (Currier,

Drescher, and Harris, 2014).

Another study related this concept directly to PTG. Teachers in El Salvador, a

group highly at risk for trauma and past/current PTSD, were assessed for level of PTSD

symptoms, reported experience of PTG, and amount of daily spiritual experiences

(spiritual thoughts or actions throughout the day). It was found that those who reported

more daily spiritual experiences were more likely to have lower PTSD symptoms as well

as higher reported PTG (Kurian et al., 2016). Both of these studies show a direct and

relatively strong correlation between spirituality and trauma. In both instances, those who

reported higher spirituality experienced weaker PTSD symptoms. It would make sense

that those who claim their family is highly moral or religious on the FES would have similar experiences. One's own spirituality is very related to that of one's parents. Therefore, it would make sense that these individuals experienced a significantly higher level of PTG. Also, the fact that one of the PTGI subscales is Spiritual Change shows a direct link between the two phenomena.

None of the other subscales for the FES showed significant correlations with PTGI. One possible explanation for this is that the FES, though it does accurately measure perceptions about one's family, does not capture the entire scope of one's social support. As shown in previous research, social support has a strong effect on PTSD symptoms (Silver, Boon, and Stones, 1983), and would theoretically effect PTGI scores as well. Without a clear indication of participants' support outside of their own family, it could be that much of what was influencing their ability to deal with trauma was not measured. This idea fits with the fact that the Moral-Religious subscale was the only one to show significant results. We often gain our basis of spirituality from our parents with little input from other sources.

Furthermore, due to the wide range of experienced trauma, perhaps the PTGI was simply stretched too thin for any real correlations to take place. This population was not screened for PTSD symptoms, simply for past traumatic experiences. This could have led to a disconnect between the PTGI and the construct it is trying to measure. PTG is meant to arise from experiencing from a trauma and then ruminating on it, struggling with it (Calhoun et. al, 2000). Without a real measure of the level of trauma or the level of PTSD symptoms, it is impossible to assess how much rumination or other PTG inducing

processes were experienced. This could have simply made the PTGI less meaningful, leading to less strength in correlation with any measure.

Big Five Inventory

The BFI was included in this study as a covariate, a measure to control for personality differences in participants. Correlations between FES scores and BFI were expected (Saucier, Wilson, and Warka, 2007) and were found in the present study. The two factors that were found as significant correlates to PTGI as well as significant predictors in the regression model were neuroticism and openness. Neuroticism is consistently found to be associated with stronger PTSD symptoms (Li et al., 2012). This makes sense as the Neuroticism factor is basically a measure of negative emotionality. It's positive correlation with PTGI scores also makes sense with how PTG is conceptualized. Again, rumination is a key factor in experiencing PTG. One who is the type to experience negative emotions and to worry would theoretically be more likely to dwell on a past trauma. This would lead to stronger PTSD symptoms, yes, but would also eventually lead to higher rates of PTG. The act of mentally struggling with the experience allows for more growth.

Openness inherently would be expected to lead to higher posttraumatic growth. It is the measure of one's openness to new experiences. One would assume that an open person would be more able to use their experience to open up new opportunities and therefore experience more growth. Interestingly, research does support this idea, but only in those with PTSD that are less distressed than others. A group of motor vehicle accident survivors was assessed for PTSD symptoms, PTG, and openness as well as other factors. Those who were more open to new experiences and had less severe PTSD symptoms

reported higher levels of PTG (Zoellner et al., 2008). It seems that the level of trauma can more or less overwhelm the openness of a person. At a certain point, a trauma can be so bad that one's openness no longer leads to any additional growth. In the case of my study, using a group of participants that were not particularly traumatized seems to have shown this effect. One's openness to experiences would encourage engaging in group therapies, in seeking out treatment, and in actively struggling with the experience and its implications. This would lead to higher rates of growth.

Future Research

A large limitation to this study seems to be a lack of control for levels of social support. The possible discrepancy between family environment and overall social support could account for some of the weaker correlations. Also, examining the relationships between FES and social support would be an added bonus. Future studies should use also control for social support to hopefully target familial influence more directly.

Similarly, assessing one's level of trauma and PTSD symptoms would give a better indication of what exactly we are dealing with in the participant pool. The large variability in level of trauma likely contributed to the low correlations of anything with PTGI scores. Future studies should attempt to better assess severity of trauma as well as existence of real PTSD symptoms. In this same vein, a population with past or current PTSD would be preferable to the population of relatively untraumatized undergraduates used in this study. This would better target PTG and provide a chance for the predictors to be analyzed in relation to a disordered population.

One central theme of the literature review was the idea that struggling with the trauma is what leads to PTG. It is unclear, however, if those who experience lesser

traumas end up in a state of less "growth" in total. In other words, do those who experience greater traumas and go on to exhibit growth grow beyond what they would have achieved otherwise? This could be in measures such as compassion, self-confidence, spirituality, and many others. It would be interesting to ascertain if PTG truly does create an all-around better person, or if simply not experiencing the trauma would be the better alternative. Looking at outcomes of treatment for alike individuals with similar traumatic experiences but different treatment outcomes would address this issue.

PTG is still a relatively young concept in our field, and examining any and all possible relationships with other constructs can only serve to bolster our understanding of it. High PTG is the best outcome for an individual that has experienced past trauma, and as such figuring out the best way to get there should be a priority. Differing treatment options, external variables, and severity of trauma all need to be researched further in order to better understand this phenomenon.

Conclusion

PTSD seems like a relatively constant disorder. As long as there are natural disasters, wars, and other tragedies, this disorder will persist through human history. PTG is the "silver lining" for those who struggle with this disorder. The growth that can come from experiencing a trauma can lead to a better relationship with those around you, a stronger sense of self, and a greater appreciation for life. Supporting those with PTSD is something we should all strive to do. Even if research shows that doing so may lead to less growth, social support decreases symptom severity and difficulties with the disorder. Hopefully, as more research is done, we can find a way to avoid PTSD where possible, treat it when it's there, and still promote growth in those that make it through.

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APPENDICES

Appendix A:

Informed Consent Form

Appendix A: Consent Form

Introduction:

Participation in this study will entail completing a series of surveys regarding family life, personality, and information on past trauma. Participants will give no identifying information and all data collected will only be handled by those running the study. Upon completion, the participant will receive .5 Sona credits for their participation.

Possible Risks:

Participants will be asked specific questions about potentially traumatic experiences in their past. This may lead to reliving unpleasant memories and experiencing unwanted thoughts. If a participant is in need of assistance during or after the survey, there is contact information for support services below

EKU psychology clinic: (859) 622-2356, www.psychology.eku.edu

EKU counseling center: (859) 622-1303

National Suicide Prevention Lifeline: 1-800-273-8255,

www.suicidepreventionlifeline.org

Contact Information:

Below is contact information for the principle investigators of the study

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