

Childhood Trauma and Stress: Do Protective Factors Play a Role?

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Abstract

Over 35 million children have been affected by a childhood trauma in the United States (Norris, 1992), and childhood trauma has been supported to increase emotional response to daily stress and lead to lower overall cortisol levels (De Bellis and Zisk, 2014; Glaser, et al., 2006). The current study explored the role of protective factors on daily stress levels within a sample of college students with histories of childhood trauma (CT). Protective factors are defined as conditions or attributes an individual has or receives from the surrounding communities (Western Regional Center for Drug-Free Schools and Communities, 1991). The current study will observe protective factors such as optimism, family support, self-concept, finances, education, and social support, which have been supported to act as moderators and help lower stress levels (Youngstrom, et al., 2003; Brodhagen and Wise, 2008; Caley, 2012). Fifty-eight participants from a Midwestern university were used in the current study. Participants were prescreened from a larger pool of individuals through answering a questionnaire determining exposure to childhood trauma. . These individuals that endorsed childhood trauma exposure were then asked to complete measures regarding protective factors and stress. Specific measures used were the Protective Factors Scale and (PFS; Witt & Crompton, 1997) the Depression, Anxiety, and Stress Scale (DASS; Lovibond & Lovibond, 1995). Results indicated no significant interaction between protective factors and individual daily stress. Future studies should focus on understanding the mechanism of protective factors at different stages of development and how this might impact the importance of protective factors within a college age sample and retrospective reporting of childhood trauma.

Keywords: childhood trauma, protective factors, stress

Childhood Trauma and Stress: Do Protective Factors Play a Role?

Traumatic experiences have affected nearly 35 million children in the United States in 2011, and as of 2014, 46% of children in the U.S. have reported experiencing one or more adverse childhood experiences (Child Trends, 2014; Centers for Disease Control and Prevention, 2011). Such experiences differ across individuals and can consist of exposure to domestic violence, physical abuse, emotional abuse, sexual abuse, natural disasters, and traumatic grief from losing a loved one. In the general population, approximately 67% of people have experienced one or more childhood trauma (CT) before the age of 16 (Costello, et al., 2002; Copeland et al., 2007). Finkelhor and colleagues (2005) reported 71% of their sample had experienced one or more instances of victimization when examining siblings and peer assaults, dating violence, and hate crimes. Trauma in childhood is not only a pervasive problem in society, but it is also accompanied with a multitude of detrimental outcomes, including higher rates of PTSD, depression, anxiety, alcohol and substance abuse problems, and stress hypersensitivity (Colman, Garad, Zeng, Naicker, Weeks, Patten, Jones, Thompson, and Wild, 2013; Lardinois, Lataster, Mengelers, van Os, & Myin-Germeys, 2011; Widom, DuMont, Czaja, 2007). Individuals who experienced trauma in childhood also have low resiliency rates; for example research has shown that only 22% of children who have been abused and/or neglected will later be resilient later in life (De Bellis, and Zisk, 2014). Recent research has begun to examine factors that facilitate resilience and ameliorate the effects of trauma, often known as protective factors (Western Regional Center for Drug-Free Schools and Communities, 1991). Thus far, optimism (Brodhagen and Wise, 2008), friendship (Powers, Ressler, and Bradley, 2009), and social support (Prati & Pietrantonio, 2009) have been identified as protective factors, demonstrating a

buffering effect on negative outcomes of CT. With such high prevalence of CT, it is essential to continue research on protective factors that aid in the physical, emotional, and mental development of victims.

Effects of Childhood Trauma

With high rates of CT and long-term negative affects, there is concern for individuals with histories of childhood trauma. Research has established that traumatic experiences in childhood results in a significant increased risk of developing psychological and emotional disorders in adulthood (Paolucci, Genuis, and Violato, 2001). More specifically, Colman and colleagues (2013) and Yahuda, Halligan, and Crossman (2001) found that CT significantly increases the chances of developing depression, heavy drinking habits, and increased risk of developing PTSD. By observing negative consequences of CT, such as depression and PTSD, there is reason to look at stress levels in these individuals. Results indicated that women who experienced at least one childhood adversity were significantly more likely to become depressed under low stress than those who had not experienced childhood adversity (Hammen, Henry, and Daley, 2000). More studies have established a relationship between stress and childhood experiences. Glaser, van Os, Portegijs, and Myin-Germeys observed the relationship between CT and emotional reactivity to daily life stress (2006). Daily stress is a type of stress experienced by every adult, such as paying bills, pressures from a job, and general hygiene (Glaser, et al., 2006). After measuring perceived daily stress of individuals, results indicated that those with a history of CT reported significantly increased emotion intensity in daily life stress (Glaser, et al., 2006). More intense emotional reactivity to stress could help establish why individuals with CT are more likely to become depressed under low stress. By increasing emotions, such as sadness and anger, there could be a heightened emotional and physical toll on the individual experiencing

CT, which can increase negative feelings and therefore increase chances of depressive symptomology. Other studies have demonstrated that individuals who develop psychosis are more likely to be hypersensitive to stress if there is a history of past CT (Lardinois, et al., 2011). Through looking at the effects stress has on trauma-exposed individuals, improved coping strategies can be created that focus on lessening and possibly preventing negative consequences. Reasons for this stress response to CT could lie in the effects on biological stress systems and cognitive development that CT has on the victim (De Bellis and Zisk, 2014).

Biological Responses to Trauma and Stress

Stress is a natural biological response to stimuli in an individual's environment. Biological events occur in the stress response system, involving the hypothalamus responding by releasing adrenaline and cortisol (De Bellis and Zisk, 2014). The purpose of the response is to return the body to homeostasis by countering stress through chemical reactions in the brain, but psychological reactions in response to altering brain function may result as well. Exposure to maltreatment can alter brain structure and function, which can lead to the development of anxiety, mood disorders, post-traumatic stress disorder, and memory and learning problems (Giannopoulou 2012). Maltreatment can cause stress on the child that triggers the stress response, thus releasing cortisol. Both stress and traumatic experiences in childhood contribute to the change in brain function, and a result is lower base levels of cortisol, which contribute to less ability to combat stress (Giannopoulou, 2012; De Bellis and Zisk, 2014). Cortisol is a direct responder to stress, but traumatic events then lead to lower baseline cortisol levels (De Bellis and Zisk, 2014), increasing difficulties in combatting stressors. Lower levels of cortisol can cause many unwanted symptoms, such as depression, weakness, fatigue, social anxiety, and insomnia (De Bellis and Zisk, 2014). Research suggests that there is a biological change occurring in CT

exposed individuals that contribute to the inability to handle stress, which can lead to other negative side effects. Due to alteration in brain activity by lower baseline cortisol levels as result of CT, there is increased risk of developing psychological disorders. With a basic understanding of the biological reaction to CT in place, there has been research focused on prevention of disorder development and the impact of early trauma on child development.

Trauma and Child Development

Childhood is a vital period of cognitive and physical development in all individuals. Therefore, traumatic experiences occurring in childhood may interfere with a child's cognitive and emotional development (Enlow, Egeland, Blood, Wright, and Wright, 2012; Briggs, Silver, Krug, Mason, Schrag, Chinitz, and Racine, 2014). Young children frequently exposed to traumatic stressors, involving near drowning, car accidents, shootings, physical and sexual abuse, domestic violence, war, terrorism, and hurricanes, are noted for being at risk of delayed cognitive, socio-emotional development, and brain function deficits (Lieberman and Knorr, 2007). Personal trauma in childhood is significantly associated with decreased cognitive ability even after controlling for extraneous variables such as in home stimulation and socio-demographic factors (Enlow, et al., 2012). Trauma also negatively impacts the developmental process in a way that does not promote the cognitive and emotional growth of a child, which may result in difficulties later in life. In addition to trauma having adverse cognitive developmental effects in early childhood, trauma within the first two years of childhood have been noted for having a negative impact into adulthood (Enlow, et al., 2012). Caregivers who have been exposed to trauma in childhood may also be at risk of child-rearing difficulties due to an inability to provide reliable, consistent, and empathetic interactions (Briggs, et al., 2014). Not providing reliable, consistent, and empathetic interaction may lead to socio-emotional developmental

difficulties in children being raised. It has been found that caregivers with CT are more likely to have children with social-emotional developmental deficits (Briggs, et al., 2014). Therefore, CT not only affects caregiving habits, but also later early childhood outcomes. The long-term negative cognitive consequences of CT on development may be explained by the role CT has on physiological development as well. Early trauma places children at risk for less than optimal development, and early trauma has been seen to have negative effects on enduring right hemisphere function, which can lead to inhibitory regulatory functions of the right brain (Schoore, 2001). Direct causes of these irregularities may lie in the stress response to traumatic events.

Protective Factors, Stress, and Childhood Trauma

Researchers have sought to identify what factors impact the relation between a history of trauma exposure and future negative outcomes, such as stress. Protective factors are conditions or attributes an individual has or receives from the surrounding communities (Western Regional Center for Drug-Free Schools and Communities, 1991), which can include optimism, social support, spirituality, emotional support, and positive coping strategies (Prati & Pietrantonio, 2009). For example, studies have shown that friendship provides a buffer against depression in individuals with a past history of trauma in childhood (Powers, Ressler, and Bradley, 2009). Social support has also been shown to protect trauma victims against complicated grief and PTSD along with major depressive disorder (Vanderwerker and Prigerson, 2004). In addition to social support, there is other evidence supporting the positive impact of protective factors, such as, social support, spirituality, and coping strategies (Prati & Pietrantonio, 2009). When examining subsequent stress from CT, research has found that optimism acts as a mediator in distress, such that higher levels of optimism lead to lower levels of distress (Brodhagen and Wise, 2008). Optimism, social support, and spirituality are only a few protective factors that

have been shown to have an impact in prevention of psychological disorders and stress reducers. Protective factors have a positive impact on many of the negative consequences of trauma, such as stress. For example, in research involving individuals with high levels of violence exposure, as a witness or a victim, it was found that family support and self-concept acted as moderators on stress levels (Youngstrom, Weist, and Albus, 2003). Both family support and self-concept are protective factors, and family support is a type of social support supported in research to help post traumatic growth (Prati & Pietrantonio, 2009). Family support can occur in different ways, such as emotional, physical, educational, and financial support. Higher levels of finances and education are associated with significantly lower stress levels in high stress families (Caley, 2012). Finances and education can help by permitting the individual to seek out help and be able to afford any services rendered meant to help alleviate stress levels. By noting familial support, higher levels of finances and education, and optimism, each one acts as a protective factor and is supported in research to help lower stress levels, even in individuals with a past history of CT (Caley, 2012; Youngstrom, Weist, and Albus, 2003). Other research indicates that inability to handle stress can result from alterations in brain development, but protective factors also help detour abnormal brain development (Bouras and Lazaratou, 2012). Early intervention and support along the lines of maternal care and psychological support helps lead to normal brain development (Bouras and Lazaratou, 2012). With increased risks of altering brain development and developing a psychological disorder, there is a major need for protective factors for CT exposed individuals.

Current Study

The current study aimed to examine the relation between childhood trauma and stress. Further, it investigated the impact of protective factors on that relation. CT has been supported to increase emotional responses to daily stress and lead to lower baseline cortisol levels (De Bellis and Zisk, 2014; Glaser, et al., 2006). Protective factors including maternal care and psychological support have been noted to prevent abnormal brain development (Bouras and Lazaratou, 2012). Other protective factors, such as optimism, family support, self-concept, finances, education, and social support, have been supported to act as moderators and help lower stress levels (Youngstrom, et al., 2003; Brodhagen and Wise, 2008; Caley, 2012). Protective factors are important to study to identify factors that may attenuate the relationship between future negative outcomes, including depression, anxiety, and substance abuse disorders, and CT. Several studies suggest that factors such as social support, optimism, and spirituality may buffer these effects (Brodhagen & Wise, 2008; Powers, Resler, & Bradley, 2009; Prati & Pietrantonio, 2009). The current study examines the effect of protective factors on the relation between stress and a past history of CT. The expectation is that higher levels of protective factors will be associated with reduced levels of daily stress in individuals who have experience CT. The results of this study will further the understanding of the relation between long-term development of stress and current treatment strategies.

Method

Participants

Participants were recruited from a large Midwestern University. Students self-identified as being exposed to trauma via an online questionnaire. Of the 180 participants, 62 endorsed childhood trauma exposure. The sample was primarily White (77.40%), female (66.1%), and

freshman and sophomore students (74.20%) with ages ranging from 18-53 ($M=21.48$, $SD=8.01$). Participants completed online questionnaires in exchange for undergraduate research credit.

Procedure

Participants were recruited from speech and psychology courses via an online tool entitled SONA. The sample consists of individuals who self-identified as childhood trauma-exposed on an online screener questionnaire. All participants were then sent an email asking if they would like to participate in an online questionnaire for research credit. The participants then completed informed consent and completed an online questionnaire consisting of a variety of online surveys. Following completion, all participants were debriefed and given course credit for their time.

Measures

Childhood Trauma. The childhood trauma questionnaire consisted of a pre-screener measurement, which each participant self identified with yes and no answers on whether a traumatic experience had occurred in childhood. The traumatic experiences included: natural disasters, physical abuse resulting in being punched, breaking a bone, or made to bleed, sexual abuse, bad experiences, serious accidents including a near drowning and vehicular crashes, serious injury, personal injury, warfare, divorce, and witnessing violence.

Protective Factors. The Protective Factors Scale (PFS; Witt & Crompton, 1997) assessed ten categories of protective factors via 40 items (e.g., neighborhood resources, interested and caring adults, sense of acceptance and belonging, high controls against deviant behavior, models for conventional behavior, positive attitude toward the future, value on achievement, ability to work with others, ability to workout conflict, and perceived competence). Each subscale consisted of 4 items. Each item asked participants to indicate their level of agreement on a seven

point scale ranging from “0=*Strongly Disagree*” to “7= *Strongly Agree*.” A total score was generated as an overall sum of protective factors in childhood, with possible scores ranging from 0 to 120. The scale has been tested in studies and has shown evidence of reliability and validity (Allen & McGovern, 1997; Lachenmeyer, 1973). The PFS demonstrated good reliability in the current sample, $\alpha=.97$.

Stress. The Depression, Anxiety, and Stress Scale (DASS; Lovibond & Lovibond, 1995) measured current levels of depression, anxiety, and stress in an individual. The Stress Scale was the only part administered from the DASS. The measure consists of 14 questions in the subscale. Participants rated their current symptoms on 3 point scale, from 0(*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*). The stress subscale was analyzed as a total score, with possible scores ranging from 0-42. The DASS has shown to be a reliable and valid measure, highly correlated with both the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) (Joreskog & Sorbom, 1998; Clark & Watson, 1990). The DASS demonstrated good reliability in the current sample, $\alpha=.97$.

Analysis

In order to analyze the data, a one-way ANOVA was conducted to investigate whether a significant interaction was present between protective factors and individuals’ daily stress. A linear regression analysis was then conducted to observe each specific subscale of the PFS as a predictor for daily stress in trauma exposed individuals. First, stress was used as the dependent variable, and the protective factors total was the independent variable, and regression was performed to observe overall relation. Next, stress was the dependent variable, and the protective factor subscales were the independent variable, ran in a multi-regression analysis.

Results

Regression Analysis

To determine whether protective factors were associated with reduced levels of daily stress in individuals who have experienced CT, first the trauma group and control group were measured in a one-way ANOVA. Results indicated no significant interaction between protective factors and individual daily stress $F(1,56)=.029$, $p=.865$, (Appendix A, Table 1). Additionally a linear regression analysis was performed to analyze each individual protective factor. Linear regression analysis found that no specific protective factors significantly predicted decreased daily stress in individuals with a trauma history ($R^2 = .215$, $F = 1.283$, $p = .267$)(Appendix A, Table 2). The overall regression indicated that the total score of protective factors did not predict decreased daily stress. When examining the subscales individually, no single subscale uniquely predicted daily stress. See Appendix B for subscale regression analyses.

Discussion

The original hypothesis that protective factors will be associated with reduced levels of daily stress in individuals who have experienced CT was shown to be unsupported. Results of the study have great implications for future research and current research on protective factors. While previous studies support protective factors having a positive influence on growth following CT, this study had contradictory results. Many reasons could explain this contradicting discovery. First, the population that stress and protective factors are measured in could be significantly different in the current study. Current participants were approximately twenty-one years old, and the entire population measured is undergraduate students at a Midwestern university. Many previous studies that observed protective factors and stress measured in populations with adults in their mid-thirties, parents, and teenagers in high school

(Caley, 2012; Brodhagen and Wise, 2008; Youngstrom, et al., 2003). The results from the current study are limited to generalization as a result of the population used, which may have been one influence behind differing results.

Also, a limit of the study is that no other variables were controlled for in the study. The current study was meant to look more generally at the population to see whether any significance could be found for future studies. By not controlling for variables, there could be inaccurate results. One area that was not controlled for was stress in the population of participants. Since the participants were all enrolled in undergraduate classes at a university, there could have been extraneous variables affecting current stress levels in the population. The time of year the study was taken could have affected the sample as well, since different parts of the semester can greatly affect students in different ways. For instance, a large portion of the population was freshmen students, and freshmen can be greatly influenced at the beginning of the semester due to just getting used to the college experience as well as at the end of semester when the students are experiencing finals for the first time. Seniors in the study could also be affected if they are applying to graduate school during the semester or looking at plans after graduation. There are many different factors that can affect stress levels in undergraduate students, and failing to account for these variables can affect the overall measurements of the study. Future studies can take this into account by taking a preliminary measure and comparing to a general population sample in order to ensure that stress levels are not too elevated, and if a participant's stress level is significantly higher than the general population, then the participant's data will not be used in the study.

An additional confound may be that the protective factor scale used may not apply to the current population. For example, one subscale, neighborhood resources, may not associate with a

population of undergraduate students, due to undergraduate students being less involved with neighborhood activities and more involved with campus activities. One way to fix this circumstance is by changing the way the questions are worded to better reflect a population of undergraduate, university students. Another subscale that may cause ambiguous results is liking/perceived competence. Perceived competence has not been seen in previous research as representing a protective factor. In addition, individuals may perceive themselves in a different manner than reality, which can skew results in the subscale. The value on achievement subscale is similar to the previous subscale in that participants may be biased in their viewpoints. Due to the population being in an academic setting, viewpoints on achievement may differ from an average adult due to different undergraduates having differing life perspectives as compared to the general population. On the other hand, some subscales such as interested and caring adults as well as sense of acceptance and belonging do follow previous research when measuring social support. A solution to the uncertainty by using the Protective Factors Scale for this population is to use a different survey to measure protective factors in future research. Another survey supported in research is the Protective Factors Survey, which uses subscales that directly measure emotional support and concrete supports within social support (Counts, Buffington, Chang-Rios, Rasmussen, and Preacher, 2010). Previous research supports social and emotional support as protective factors against negative effects of CT (Prati & Pietrantonio, 2009; Vanderwerker and Prigerson, 2004). By changing the original survey to the Protective Factors Survey, future studies may be able to measure protective factors that are supported in research and focus more on a social support basis. Another approach to measuring protective factors in this population is the Trauma Resilience Scale. The Trauma Resilience Scale, which observes protective factors such as optimism and spirituality, has been tested in multiple waves of data

collection, and both global scales and individual factor subscales are supported for clinical research purposes (Madsen and Abell, 2010). Optimism and spirituality are both supported in research as protective factors against negative effects of CT and lead to lower levels of distress (Prati & Pietrantonio, 2009; Brodhagen and Wise, 2008). The Trauma Resilience Scale may then be a better representation of protective factors in the current population due to the population consisting of undergraduates at a university, and social support and optimism may be more relatable in relation to their current position in life.

Another issue with the accuracy of the current study rests in the small population size that was measured in the study. The current study observed 62 participants with self-identified CT, but in the general population approximately 67%, or roughly 213 million people, have experienced CT, which means the current study represents a small sampling of the population that has experienced CT (Costello, et al., 2002; Copeland et al., 2007). On the state level, 9,842 cases of abuse and neglect were substantiated in 2012 alone (Oklahoma State Department of Human Services, 2012). The 58 participants in the study of the current population may be more generalizable to a population of undergraduate students who have experienced CT as opposed to the general population who has experienced CT. In order to get a more generalizable representation of the CT population as a whole there would need to be a more diverse range of individuals, rather than only individuals currently enrolled at an undergraduate university. Also, the current population may be a small representation of the CT population since seeking higher education might imply an increase in resiliency as compared to the general population of those experiencing early trauma.

The current population shows resiliency by being able to cope with the past trauma by pursuing a higher education. Signs of resiliency is lower in individuals who have experienced

CT, where only a third of abuse victims show signs of resiliency (Orbke and Smith, 2013) and multiple forms of trauma lower resilience in the population (Collin-Vézina, Coleman, Milne, Sell, and Daigneault, 2011). Since the population measured displays resiliency, the current study is more generalizable to individuals who have experienced CT and show signs of resiliency. In connection with resiliency, the current study then demonstrates that the protective factors measured show no significant association with stress levels. Individuals who show more signs of resiliency after CT may not be influenced by protective factors the same way protective factors would influence the general population that does not show signs of resiliency. Therapists and researchers can take note when observing or treating individuals with a history of CT, and individuals who show more signs of resiliency may not respond similarly to these protective factors.

Individuals who have been exposed to CT have been noted for having significantly increased emotions in daily life stress (Glaser, et al., 2006), so preventive measures are still needed to alleviate stress. By increasing intensity of emotions in daily life stress, there is also an increased risk of developing a disorder after stress increases. When looking at individuals with a past history of childhood adversity, stressful events in adulthood were associated with increased risk of a psychological disorder, such as major depression, anxiety disorder, post-traumatic stress disorder, and perceived stress (McLaughlin, Conron, Koenen, and Gilman, 2010). Due to exposure to CT, significantly increasing intensity of emotions in daily life stress and stressful events increasing the risk of developing psychological disorders, there is a need to find intervention methods following exposure to CT.

In addition to the risks associated with CT, prevalence rates and the negative impact on psychological and neurobiological development from neglect and abuse in childhood have been

observed in numerous studies (Cyr, Michel, and Dumais, 2013; Giannopoulou 2012; Lieberman and Knorr, 2007; Paolucci, et al., 2001; Yahuda, et al., 2001). Despite evidence that the current study presents that protective factors do not play a role in stress levels in people with a history of CT, there are studies that support protective factors as buffers against negative effects of CT exposure, with resiliency not being taken into account. One example being that social support from family and friends are shown to reduce symptoms of depression, anxiety, anger, and hostility in individuals with a history of abuse (Folger and Wright, 2013). Social support is supported in research to reduce psychological disorder symptoms, so when looking at future directions, increased focus should be placed on social support as a protective factor to understand the influence that social support has on stress levels.

In conclusion, the current study found that protective factors as measured by the PFS do not play a role in impacting daily stress in victims of CT. Limitations of the current study include low population sample and the subscales of the protective factors may not accurately be representing the population being studied. Identifying the protective factors that influence stress levels is important in helping to avoid the psychological repercussions, such as depression, anxiety, substance abuse problems (Colman, et al., 2013; Lardinois, et al., 2011; Widom, et al., 2007). Social support, optimism, and spirituality are a few key protective factors that have been supported in research to reduce the negative consequences of CT, so future studies would benefit from tailoring a protective factors measure that takes into account these different protective factors that have been supported in research. Implications of this study also show that the protective factors measured are not supported to influence stress levels in individuals with a history of CT, with resiliency not being accounted for. Future studies would benefit from avoiding the protective factors listed when measuring protective factors in a population showing

more resiliency. By establishing the protective factors have no influence on stress levels in the population specified, future studies can observe different protective factors and establish strategies to actively combat the negative effects of CT.

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Appendix A

The following tables are results from the multi-regression analysis conducted in the experiment and table is listed according to the analysis conducted.

ANOVA

Group	SS	df	MS	F	<i>P</i>
Trauma	2.039	1	2.039	.029	.865

Table 1

Model Summary

	² R	² Adjusted R	Std. Error of the Estimate	Model F	Model p
	.215	.047	8.11568	1.283	.267

]

Appendix B

The current table shows the results from the regression analysis on each subscale in the Protective Factors Scale with the dependent variable being the DASS stress measure.

				95.0% Confidence Interval for B	
Protective Factors Subscales	B	t	<i>p</i>	Lower Bound	Upper Bound
Neighborhood Resources	.174	.612	.543	-.769	1.442
Interested & Caring Adults	-.130	-.603	.549	-.981	.529
Sense of Acceptance & Belonging	.574	1.983	.053	-.016	2.310
High Controls Against Deviant Behavior	.327	1.599	.116	-.156	1.367
Models for Conventional Behavior	-.280	-.832	.410	-1.718	.713
Positive Attitude Toward the Future	-.386	-1.199	.237	-2.108	.534
Value on Achievement	-.126	-.324	.748	-1.799	1.300
Ability to Work with Others	-.555	-1.680	.100	-2.310	.207
Ability to Workout Conflicts	.373	1.516	.136	-.226	1.608
Liking/Perceived Competence	.128	.578	.566	-.507	.916

Appendix C

The current table displays the results of average stress levels within each protective factor.

Stress Levels

Trauma Group	M	SD
Stress Total	22.9828	8.31505
Neighborhood Resources	9.2759	4.29113
Interested & Caring Adults	10.0172	4.75908
Sense of Acceptance & Belonging	7.2931	4.15915
High Controls Against Deviant Behavior	10.0690	4.48726
Models for Conventional Behavior	7.1034	4.63280
Positive Attitude Toward the Future	7.7414	4.08059
Value on Achievement	5.9483	4.19449
Ability to Work with Others	7.8276	4.38953
Ability to Workout Conflicts	7.8793	4.49201
Liking/Perceived Competence	6.1897	5.18925

Control Group	M	SD
Stress Total	21.2832	7.75227
Neighborhood Resources	8.5310	4.74543
Interested & Caring Adults	8.3982	4.21634
Sense of Acceptance & Belonging	6.8053	4.18726
High Controls Against Deviant Behavior	8.7611	4.46269
Models for Conventional Behavior	6.2743	3.83184
Positive Attitude Toward the Future	7.8319	3.60035
Value on Achievement	5.5841	3.45307
Ability to Work with Others	6.5398	3.73458
Ability to Workout Conflicts	6.6637	3.49645
Liking/Perceived Competence	6.0619	4.04060

Appendix D

The following table reflects the results of the correlation between stress measured and total protective factors.

Group		PFS Total
Trauma	r	.023
	<i>p</i> (1-tailed)	.433
Control	r	.251
	<i>p</i> (1-tailed)	.004

Appendix E

The following table reflects the demographics of the individuals in the observed group.

Ethnicity	Frequency	Percent
Caucasian	48	77.4
African American	4	6.5
Latino/Hispanic	2	3.2
Asian American	2	3.2
Native American	5	8.1
Other	1	1.6

Grade	Frequency	Percent
Freshman	30	48.4
Sophomore	16	25.8
Junior	9	14.5
Senior	6	9.7
Unanswered	1	1.6

	M	SD	Range
Age	21.48	8.01	18-53

Gender	Frequency	Percent
Male	21	33.9
Female	41	66.1