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Elaine Green
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THE ROLE OF SELF-EFFICACY IN THE RELATIONSHIP

BETWEEN CHILDHOOD TRAUMA AND ANXIETY

BY

ELAINE GREEN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF MASTER OF SCIENCE

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MASTER OF SCIENCE THESIS

OF

ELAINE GREEN

APPROVED:

Thesis Committee:

Major Professor   Ellen Flannery-Schroeder

Andrea Paiva

Diane Martins

Nasser H. Zawia
DEAN OF THE GRADUATE SCHOOL

UNIVERSITY OF RHODE ISLAND
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ABSTRACT

Traumatic childhood experiences (physical abuse and neglect, emotional abuse and neglect, and sexual abuse) have surprisingly high incidence rates and predict to a variety of negative health outcomes, such as anxiety. Although the relationship between childhood trauma and anxiety has been well documented, more research is necessary in order to understand the mechanisms underlying this relationship. The current study hypothesized that academic self-efficacy, the perception that one has the ability to achieve one's desired outcomes in academic endeavors, would mediate the relationship between childhood trauma and anxiety in a sample of college students (n=204). Furthermore, it was hypothesized that gender would moderate the relationship between childhood trauma and anxiety. The current study analyzed emotional abuse (EA), emotional neglect (EN) and physical neglect (PN) separately. Results indicated that although EA, EN, and PN were significant predictors of academic self-efficacy, academic self-efficacy was not a significant predictor of anxiety; therefore, academic self-efficacy did not serve as a mediator for the relationship between childhood trauma and anxiety. Additionally, findings revealed that gender did not moderate the relationship between childhood trauma and anxiety. Limitations of the current study as well as future directions are discussed.

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Introduction

Statement of the Problem

Traumatic childhood experiences (physical abuse and neglect, emotional abuse and neglect, and sexual abuse) have surprisingly high incidence rates and predict to a variety of negative health outcomes (Felitti et al., 1998; Marx, Young, Harvey, 2017; Poole, Dobson & Pusch, 2017; Sciaraffa, Zeanah & Zeanah, 2018). Gender differences have been found in prevalence rates of childhood traumatic experiences, types of abuse, and the symptomology related to these experiences (Pruessner et al., 2018; Vahl, Damme, Doreleijers, Vermeiren & Colins, 2015; Gwadz, Nish, Leonard & Strauss, 2007). However, most of the research done regarding gender differences has examined clinical populations or disadvantaged groups, and these findings might not be generalizable to the larger population. Anxiety is one of the numerous negative health outcomes associated with childhood trauma (Felitti et al., 1998; Marx et al., 2017; Poole et al., 2017; Sciaraffa et al., 2018). Anxiety disorders are the most prevalent disorders in the United States, impacting millions of people with mild to severe impairment and leading to elevated spending in health services (NIMH, 2017). Research has shown gender disparities in the prevalence rates of anxiety disorders, with women having higher rates of lifetime diagnosis and higher rates of disability (McLean, Asnaani, Litz & Hofmann, 2011). Although there has been a lot of research conducted regarding anxiety as a sequelae of childhood trauma, more research is needed to understand the numerous factors related to the development of anxiety and the complex relations among these factors. One of these factors is self-efficacy, the belief that one has the ability to achieve desired outcomes (Bandura, 1993; 1997), which has been found to be impacted by childhood trauma

(Chung, AlQarni, Al Muhairi & Mitchell, 2017; Bandura, 1997; Benight and Bandura, 2004; Brown, Kouri, Joscelyne, Marmar & Bryant, 2015; Brown et al., 2016; Diehl & Prout, 2002; Harter, 1999) and predictive of anxiety disorder symptoms across a number of studies (Muris, 2002; Muris, Meesters, Pierik & Kock, 2016; Raknes et al., 2017). The relationship between self-efficacy and anxiety is inversely related such that higher self-efficacy is associated with lower levels of anxiety. Furthermore, the research on gender differences regarding self-efficacy has been inconclusive, with some studies showing no gender differences in mean self-efficacy scores (Imam, 2006; Tong & Song, 2004), while others demonstrating females to have lower general self-efficacy (Ma, Zeng & Ye, 2015). Still other studies find differences across self-efficacy domains, with females displaying lower social self-efficacy, but higher emotional and academic self-efficacy than their male counterparts (McKay, Dempster, & Byme, 2014). Notably, much of the research conducted to date has not examined self-efficacy and anxiety in relation to childhood trauma (Guerra, Farkas & Moncada, 2018). The proposed study aims to (1) evaluate self-efficacy as a possible mediator for the relationship between childhood trauma and anxiety, and (2) evaluate gender as a possible moderator for the relationship between childhood trauma and anxiety.

Review of the Literature

      Childhood Trauma. Traumatic childhood experiences have been found to be highly prevalent and a precursor to a variety of mental health disorders (Felitti et al., 1998; Sciaraffa et al., 2018; Heim & Nemeroff, 2001). One of the most notable studies assessing the impact of childhood trauma on long-term mental and physical health is the Adverse Childhood Experiences (ACEs) study by Felitti and colleagues (1998). In this

study, 9,508 adults completed a standardized medical evaluation and answered questions about risk behaviors, health status, and disease. The authors examined seven categories of ACEs (psychological, physical, or sexual abuse; violence against mother; living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned) and found that traumatic childhood experiences are extremely common in US population (Felitti et al. 1998). Additionally, results demonstrated a "dose-response" relationship between ACEs and health and social problems (Felitti et al. 1998).

Gender Differences in Childhood Trauma. Although traumatic childhood experiences affect both men and women, there is growing evidence to support gender differences among rates and types of childhood trauma (Pruessner et al., 2018; Vahl et al., 2015; Gwadz et al., 2007). For example, in a clinical sample of 210 patients diagnosed with a first episode of psychosis, Pruessner and colleagues (2018) found that males had experienced higher rates of previous physical or emotional neglect whereas females had experienced higher rates of previous emotional abuse. In another study, Vahl and colleagues (2015), in a sample of 341 detained adolescents (46% male), found that females reported higher rates of maltreatment. They also found that emotional abuse was significantly associated with both internalizing and externalizing disorders for both genders and seemed to have a stronger impact on mental health than other types of abuse. On the other hand, sexual abuse was linked to internalizing symptoms in females and externalizing symptoms in males. Furthermore, Gwadz (2007) and colleagues theorized that gender differences for childhood maltreatment may be specific to certain populations. More specifically, in their sample of 85 youth experiencing homelessness (51% male), both genders reported experiencing maltreatment at the same rate. Notably,

a majority of studies examining gender differences in childhood maltreatment have been conducted with clinical or at-risk populations, and few have examined differences within non-clinical samples.

Childhood Trauma and Anxiety. Individual who experienced childhood trauma might be particularly vulnerable to anxiety (Banducci, Lejuez, Dougherty & MacPherson, 2016; Guerra, Farkas & Moncada, 2018; Carr, Martins, Stingel, Lemgruber & Juruena 2013; Poole et al., 2017; Marx et al., 2017; Sciaraffa et al., 2018). Some of the mechanisms that underlie this vulnerability are related to brain development. In early childhood, the brain is rapidly developing and being molded by environmental factors. At this stage, the brain is particularly vulnerable to negative experiences such as emotional, physical and sexual abuse, as well as neglect (Spenrath, Clarke & Kutcher, 2011; McCain & Mustard, 1999; Heim & Nemeroff, 2001). Carr and colleagues (2013) conducted a systematic literature review looking at the effects of early life stress (ELS, traumatic experiences occurring during childhood and adolescence) and their relation to various psychiatric disorders in adulthood. After conducting a meta-analysis of 44 articles, their findings corroborate the relationship between childhood trauma and anxiety that has been found in numerous other studies (e.g., the ACEs study by Felitti and colleagues, 1998).

Due to the strong relationship between childhood trauma and anxiety, many researchers have studied possible mechanisms to explain the relationship. One such mechanism is emotion dysregulation (Huh, Kim, Lee & Chae, 2017; Poole et al., 2017). Huh and colleagues found that cognitive emotion regulation strategies played a mediating role in the relationship between childhood traumatic experiences and depression and anxiety in a clinical study (Huh et al., 2017). Rumination has also been found to be a

mediator between childhood trauma and adulthood anxiety (Kim, Jin, Jung, Hahn & Lee, 2017). Another factor that has been considered in the relationship between childhood trauma and anxiety is distress tolerance (DT), defined as perceived or actual ability to tolerate negative affect and experiences (Banducci et al., 2016). Banducci and colleagues (2016) conducted a 5-year longitudinal study with a community youth sample (N=244) and found that DT served as a moderator for the relationship of childhood emotional abuse (CEA) and anxiety, so that participants with higher CEA and lower DT had high anxiety levels. Furthermore, resilience, the ability to resume adaptive functioning following stress and/or trauma, has also been studied as a possible moderator for the relationship of childhood trauma and anxiety in later years (Marx et al., 2017; Poole et al., 2017). Resilience has been found to be a protective factor for anxiety in the context of childhood trauma (Marx et al., 2017).

   Gender Differences in Anxiety. Females are significantly more likely than males to develop an anxiety disorder throughout the lifespan (McLean et al., 2011; NIMH, 2017). In 2016, prevalence of any anxiety disorder was higher for females (23.4%) than for males (14.3%) (NIMH, 2017). McLean and colleagues (2011) examined gender differences a in a large sample of adults (N = 20,013) in the United States using data from the Collaborative Psychiatric Epidemiology Studies (CPES). Results indicated that females with an anxiety disorder are more likely to be diagnosed with a Major Depressive Disorder and Bulimia Nervosa. On the other hand, males with an anxiety disorder are more likely to be diagnosed with a substance use disorder, ADHD, or intermittent explosive disorder (IED) (McLean et al., 2011). Anxious females are also more likely to seek services from emergency rooms, urgent care and doctors than anxious males

(McLean et al., 2011). Compared to non-anxious females, anxious females missed significantly more days from work over a one month period prior to the study, while anxious males missed about the same days of work than non-anxious males; however, females and males missed approximately the same number of days from work (McLean et al., 2011). Additionally, McLean and colleagues (2011) found no gender differences for the persistence of anxiety disorders or the age of onset.

Childhood Trauma and Self-Efficacy. Although some mechanisms underlying the relationship between childhood trauma and anxiety have been identified, only a portion of the co-variance has been explained, leading to a need for further exploration of the mechanisms explaining this relationship. Self-efficacy, which is independent of actual competence, is the perception that one has the ability to achieve one's desired outcomes (Bandura, 1993; 1997). Self-efficacy has been found to be negatively associated with negative health outcomes post-trauma, such as lower self-efficacy being correlated with higher posttraumatic stress symptoms (Flatten, Walte & Perlitz, 2008; Luszczynska, Benight & Cieslak, 2009; Hirschel & Schulenberg, 2009; Chung et al., 2017; Saigh, Mroueh, Zimmerman & Fairbank, 1995; Nygaard, Johansen, Siqveland, Hussain & Heir, 2017). Trauma reduces self-efficacy and in turn elevates posttraumatic stress symptoms (Chung et al., 2017; Bandura, 1997; Benight and Bandura, 2004; Brown et al., 2015; Brown et al., 2016; Diehl & Prout, 2002; Harter, 1999). Childhood trauma may hinder the development of self-efficacy by increasing negative self-evaluations, negative self-beliefs and impacting other related cognitive factors (Diehl & Prout, 2002; Harter, 1999).

Gender Differences in Self-Efficacy. The literature on gender differences regarding self-efficacy displays mixed results. In a sample of 648 Chinese adolescents

(49% male), Ma and colleagues (2015) found significant gender differences with males reporting higher self-efficacy. Muris and colleagues (2016) also found gender differences, with females displaying lower self-efficacy and self-esteem and higher levels of anxiety. On the other hand, McKay and colleagues (2014) assessed gender differences in self-efficacy with a sample of 610 adolescents from the United Kingdom and found females to endorse lower social self-efficacy but higher emotional and academic self-efficacy than males. Still other studies have found no gender differences at all. For example, Tong and Song's (2004) study with 266 Chinese college students found no gender difference in an examination of socioeconomic status, general well-being, and general self-efficacy. Similarly, Iman (2006) found no gender differences in self-efficacy scores in a study of 162 undergraduate students in Malaysia.

      Self-Efficacy and Anxiety. In social cognitive theory, the perception that one has the ability to assert control over possible "threats" (real or imagined) plays a role in the development of anxiety, so that individuals with low self-efficacy are more likely to develop and maintain anxiety than those with high self-efficacy (Bandura, 1997; Beck, 2011; Raknes et al., 2017). The inverse relationship between self-efficacy and anxiety has been supported by numerous studies. For example, Raknes and colleagues (2017) found self-efficacy to be negatively correlated to anxiety in a sample of 1719 Norwegian adolescents. Participants were categorized either "anxious" or "not anxious" based on composite scores of the Spence Children's Anxiety Scale (SCAS). The researchers found that general self-efficacy was associated with lower levels of anxiety. Muris (2002) also found evidence of this inverse relationship in a sample of nearly 600 adolescents in the Netherlands. In this study, researchers measured state and trait anxiety, as well as general

self-efficacy and domain-specific self-efficacy such as: social (the perceived capability for peer relationships and assertiveness), academic (the perceived capability to manage one's own learning behavior) and emotional self-efficacy (perceived capability of coping with negative emotions). Muris (2002) not only found that general self-efficacy negatively correlated with trait anxiety and anxiety symptomatology, but also found evidence that domain specific self-efficacy was negatively correlated to specific anxiety disorders (e.g., social self-efficacy was correlated with social anxiety). Similarly, Muris and colleagues (2016) found a particularly strong negative correlation between emotional self-efficacy and anxiety in a sample of 132 non-clinical adolescents. In a regression analysis using self-efficacy as one of the predictors of anxiety, they found that only emotional self-efficacy made a significant contribution. However, academic self-efficacy has been found to be negatively correlated to general stress and anxiety levels (Lavasani, Khezriazar, Amani & Malahmadi, 2011; Misra & McKean, 2000), as well as academic related anxiety (i.e., testing anxiety) (Raufelder & Ringeisen, 2016; Ringeisen, Lichtenfeld, Becker & Minkley, 2018). Academic self-efficacy is particularly important when working with a sample of undergraduate students due to their high rate of academic stress and negative mental health outcomes (Delene & Brogowicz, 1990; Kumaraswamy, 2013; Misra & McKean, 2000).

Childhood Trauma, Anxiety and Self-Efficacy. Although both self-efficacy and childhood trauma have been studied and supporting evidence of correlations between each of these factors and anxiety have been established, few studies have examined the relationships among all three of these factors. Due to self-efficacy's relationship to both childhood trauma and anxiety, it is a construct that deserves further examination as a

mediator of the relationship between childhood trauma and anxiety. Guerra and colleagues (2018) evaluated the relationships among sexual abuse characteristics (e.g., frequency, level of violence), cognitive and behavioral factors (e.g., self-efficacy) and internalizing symptoms (e.g., anxiety) in a Chilean sample of 106 female adolescents with sexual abuse histories. Results showed that the level of sexual abuse violence was negatively correlated with self-efficacy. Likewise, self-efficacy was negatively correlated with the anxious symptomatology. However, these findings are difficult to generalize due to the small and strictly defined sample who had experienced one type of trauma; therefore, more research is necessary regarding the relationship among childhood trauma, self-efficacy and anxiety (Guerra et al., 2018).

Purpose of Study and Research Questions. There is substantial evidence of the relationship between childhood trauma and anxiety as well as between self-efficacy and anxiety. However, the relationships among all three of these variables have not been sufficiently investigated. The present study aimed to investigate whether academic self-efficacy serves as a mediator of the relationship between traumatic childhood experiences and anxiety and whether gender moderates the relationship between academic self-efficacy and anxiety. Hypotheses are as follows: (1) childhood trauma and anxiety will be positively correlated, (2) academic self-efficacy will mediate this relationship with traumatic childhood experiences being related to high levels of anxiety when self-efficacy is low and lower levels of anxiety when self-efficacy is high (See Figure 1); and (3) gender will moderate the relationship of childhood trauma and anxiety, with females seeing a stronger relationship between childhood trauma and anxiety than males (See Figure 2). In the present study traumatic childhood experiences will be evaluated

separately by domains: emotional abuse (EA), emotional neglect (EN) and physical

neglect (PN).

Figure 1. Conceptual Model for Hypothesis 2

Figure 2. Conceptual Model for Hypothesis 3
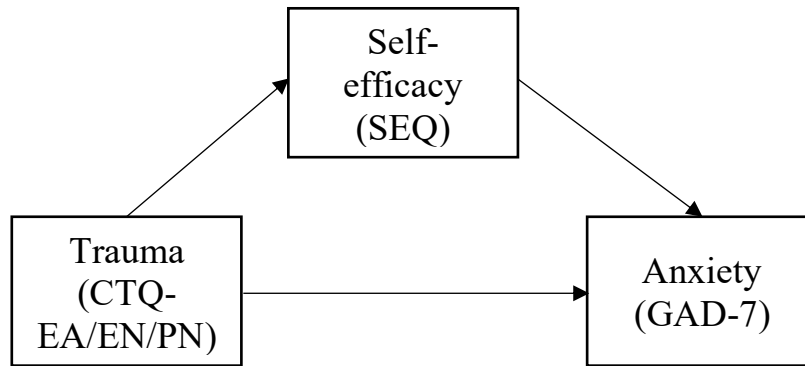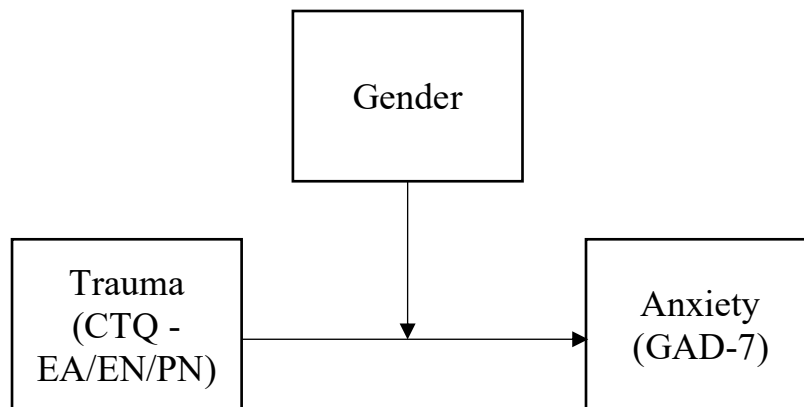

Method

Participants

Participants ($n = 204$, $M_{age} = 19.5$, 84.3% female) were undergraduate students

recruited from introductory psychology courses at the University of Rhode Island in the

spring of 2018. Additional demographic information is displayed in Table 1 for the 203

participants that reported on all demographic questions. Students were provided with

extra credit in their college course for their participation, and an alternate extra credit opportunity was available for students choosing not to participate. Participants completed various online questionnaires that were compiled for use in a previous study, including a demographic form and self-report measures of anxiety, childhood trauma and academic self-efficacy. The questionnaires took approximately 30-45 minutes to complete.

Table 1. Demographic Information of Overall Sample

Variable	N	%
Ethnicity		
Hispanic or Latinx:	25	12.3%
Not Hispanic or Latinx	178	87.7%
Gender		
Female	172	84.3
Male	30	14.7
Trans male	1	0.5
Not listed	1	0.5
Race		
White	153	76.8
Black	18	9
Asian	6	3
American Indian/Alaskan Native	2	1
Native Hawaiian/Other Pacific Islander	1	0.5
Multi-racial	10	5
Other	9	4.5
Age		
18	49	24.1
19	65	32
20	49	24.1
21	25	12.3
22	7	3.4
23	3	1.5
24	5	2.5

Measures

  Childhood Trauma Questionnaire (CTQ) is a 28-item self-report measure of childhood traumatic experiences across five clinical scales (physical, sexual, and emotional abuse, and physical and emotional neglect). There are five questions per scale plus three validity questions. Experiences in childhood and adolescence are rated on a 5-point, Likert-type scale with response options ranging from Never True to Always True (*1 = Never True; 2 = Rarely True; 3= Sometimes True; 4= Often True; 5= Always True*). The CTQ has high sensitivity across forms of maltreatments and high reliability and validity (Bernstein et al., 2003). Scores for the CTQ range from 5 to 25. According to the CTQ scoring manual (Bernstein and Fink, 1998), each subscale is separated into four levels of severity, with each subscale having its own cut-offs as displayed in Table 2. Means, standard deviations, and ranges of the current sample for the CTQ are displayed in Table 3.

  The current study used the five-item emotional abuse subscale (CTQ-EA), emotional neglect subscale (CTQ-EN), physical neglect subscale (CTQ-PN), physical abuse subscale (CTQ-PA) and sexual abuse subscale (CTQ-SA). All subscales have exhibited a high degree of internal consistency with Cronbach's alpha for the factors ranging from 0.79 to 0.94 (Bernstein et al., 1994).

Table 2. Severity Cut-off Scores for CTQ subscales

Scale	*None (or Minimal)*	*Low (to Moderate)*	*Moderate (to Severe)*	*Severe (to Extreme)*
CTQ-EA	5 - 8	9 - 12	13 - 15	≥ 16
CTQ-EN	5 - 9	10 - 14	15 - 17	≥ 18
CTQ-PN	5 - 7	8 - 9	10 - 12	≥ 13
CTQ-PA	5 - 7	8 - 9	10 - 12	≥ 13
CTQ-SA	5	6 - 7	8 - 12	≥ 13

Generalized Anxiety Disorder 7-Item (GAD-7) scale is a seven-item self-report measure of anxiety. Each item is answered on a 4-point Likert-type scale (*0 = Not at all sure; 1 = Several days; 2 = Over half the days; 3= Nearly every day*). Internal consistency for the GAD-7 was found to be high ($\alpha = 0.92$), as was test-retest reliability (intraclass correlation = 0.83) and procedural validity (intraclass correlation = 0.83). The GAD-7 has high sensitivity and specificity as a brief clinical assessment of anxiety (Spitzer, Kroenke, Williams, & Lowe, 2006). Scores for the GAD-7 range from 0 to 21 with higher scores representing higher levels of anxiety. Scores for the GAD-7 are divided into four severity levels; scores between 0 and 4 are considered "minimal," scores between 5 and 9 are considered "mild," scores between 10 and 14 are considered "moderate," and scores between 15 and 21 are considered "severe." Means, standard deviations, and ranges of the current sample for the GAD-7 are displayed in Table 3.

Self-Efficacy Questionnaire (SEQ) is a thirteen-item self-report measure of self-efficacy with a specific focus on academic self-efficacy. Each item is answered on a 5-point Likert-type scale ranging from 1 (Not very like me) to 5 (Very like me). The Self-Efficacy Questionnaire is designed to measure a student's perceived level of proficiency in the two essential components of self-efficacy, which are: 1. belief that ability can grow with effort, and 2. belief in your ability to meet specific goals and/or expectations. The overall self-efficacy questionnaire was found to be highly reliable (13 items; $\alpha = .894$). The belief that ability grows with effort subscale consisted of 5 items ($\alpha = .805$), and the belief in personal ability subscale consisted of 8 items ($\alpha = .841$) (Gaumer, Soukup, Nooman & McGum, 2016). Results for the SEQ are displayed on a 100-point scale and

scores range from 20-100 with higher scores representing higher levels of academic self-efficacy, with the bottom quartile ranging from 20 to 77 and the top quartile ranging from 92 to 100 (Gaumer, Soukup, Nooman & McGum, 2016). These scores can be interpreted similar to grades (e.g., 70-79 is a C). Means, standard deviations, and ranges of the current sample for the SEQ are displayed in Table 3.

Table 3. Ranges, Means, and Standard Deviations for Primary Scales in Overall Sample.

Variable	N	Possible Range	Sample Range	Mean	SD
CTQ-EA	204	5 - 25	5 - 25	8.27	4.3
CTQ-EN	204	5 - 25	5 - 25	9.55	5.07
CTQ-PN	204	5 - 25	5 - 23	7.23	3.06
CTQ-PA	204	5 - 25	5 - 22	6.20	3.07
CTQ-SA	204	5 - 25	5 - 25	5.77	2.79
GAD-7	204	0 - 21	0 - 21	7.57	6.15
SEQ	204	20 - 100	20 - 100	79.77	14.74

Results

Preliminary Analysis

In the current sample, scores ranged from "none" to "severe for CTQ-EA, CTQ-EN, CTQ-PN, CTQ-PA and CTQ-SA (see Table 4). However, for both CTQ-PA and CTQ-SA, over eighty-five percent of the sample scored "none" (or minimal) trauma. Regarding anxiety, scores for the GAD-7 ranged from "minimal" to "severe" (see Table 5). For the SEQ, scores ranged from 20 to 100 (see Table 6).

Table 4. Distribution of CTQ Scores

Scale	None (or Minimal) N (%)	Low (to Moderate) N (%)	Moderate (to Severe) N (%)	Severe (to Extreme) N (%)
CTQ-EA	137 (67.10)	37 (18.14)	12 (5.88)	18 (8.82)

CTQ-EN	129 (63.23)	39 (19.12)	17 (8.33)	19 (9.31)
CTQ-PN	134 (65.69)	31 (15.20)	21 (10.29)	18 (8.82)
CTQ-PA	177 (86.7)	7 (3.5)	8 (4)	12 (6)
CTQ-SA	179 (87.7)	5 (2.5)	15 (7.4)	5 (2.5)

Table 5. Distribution of GAD-7 Scores

Scale	Minimal N (%)	Mild N (%)	Moderate N (%)	Severe N (%)
GAD-7	78 (38.23)	57 (27.94)	41 (20.10)	28 (13.73)

Table 6. Distribution of SEQ Scores

Scale	20-60 N (%)	60-70 N (%)	70-80 N (%)	80-90 N (%)	90-100 N (%)
SEQ	13 (6.37)	35 (17.16)	43 (21.08)	57 (27.94)	56 (27.45)

Bivariate analysis revealed significant correlations among the variables of interest, except for CTQ-PA and CTQ-SA (see Table 7). CTQ-EA and CTQ-EN were significantly and positively correlated to one another ($r=.580$, $p<.01$). Both variables were also correlated to CTQ-PN: CTQ-EA was positively correlated to CTQ-PN ($r=.469$, $p<.01$), and CTQ-EN exhibited an even stronger positive correlation to CTQ-PN ($r=.718$, $p<.01$). Furthermore, all three variables were significantly and positively correlated to anxiety, such that individuals reporting higher levels of childhood trauma were more likely to report experiencing higher levels of anxiety. CTQ-EA had the strongest correlation to GAD-7 ($r=.464$, $p<.01$), followed by CTQ-EN ($r=.263$, $p<.01$), and CTQ-PN ($r=.217$, $p<.01$). Moreover, childhood trauma was significantly and negatively correlated to academic self-efficacy, with individuals reporting higher levels of childhood

trauma being more likely to report lower levels of self-efficacy. CTQ-EN had the

strongest correlation to SEQ (r= -.361, *p*<.01), followed by CTQ-PN (r= -.323, *p*<.01),

and CTQ-EA (r= -.230, *p*<.01). Likewise, GAD-7 and SEQ were significantly and

positively correlated, such that individuals reporting higher levels of anxiety were more

likely to report lower levels of self-efficacy (r= -.150, *p*<.05). CTQ-PA was not

significantly correlated to SEQ and CTQ-SA was not significantly correlated to SEQ or

GAD; therefore, they were not included in further analyses.

Table 7. Correlation Matrix

	CTQ_EA	*CTQ_EN*	*CTQ_PN*	*CTQ_PA*	*CTQ_SA*	*SEQ*	*GAD-7*
CTQ_EA	1	.580**	.469**	.576**	.177*	-.230**	.464**
CTQ_EN		1	.718**	.420**	.420**	-.361**	.263**
CTQ_PN			1	.398**	.224**	-.323**	.217**
CTQ_PA				1	.300**	.026	.199**
CTQ_SA					1	.042	.078
SEQ						1	-.150*
GAD-7							1
Note. N=204, *p < .05, ** p < .01

An independent sample t-test was conducted to examine any gender differences in

the variables of interest. A t-test revealed significant gender differences for CTQ-EN

(t(34.496)= -2.606, p=.013) with males reporting higher levels of emotional neglect than

their female counterparts. Gender differences were also found for CTQ-PN (t(33.141)= -

2.371, p=.024) with males reporting higher levels of physical neglect than females.

Furthermore, there were significant gender differences for GAD-7 (t(200)=2.158,

p=.032), indicating females reported higher levels of anxiety than males. No significant

gender differences were found for CTQ-EA or SEQ.

Table 8. Means and Standard Deviations for Study Variables by Gender

| Variable	Females			Males		
	Mean	SD	Level	Mean	SD	Level
CTQ_EA	8.20	4.25	"None"	8.98	4.52	"None"
CTQ_EN	8.98	4.55	"None"	12.10	6.28	Low
CTQ_PN	6.90	2.68	"None"	8.80	4.24	Low
SEQ	80.55	14.06	B	76.51	17.80	C
GAD-7	7.94	6.07	"Mild"	5.33	6.22	"Mild"
Note. N=202 (2 participants were excluded due to not identifying as male or female)						

Mediation Analysis

Regression analyses were conducted in order to examine the hypothesis that self-efficacy mediates the relationship between emotional abuse and anxiety. In step 1, the regression of emotional abuse on anxiety was significant, β=.65, p<.001. In step 2, of the mediation model, the regression of emotional abuse on self-efficacy was also significant, β=-.83, p<.001. However, in Step 3 of the model, the regression of self-efficacy on anxiety was not significant. Thus, the mediation model was not significant, and self-efficacy did not mediate the relationship between emotional abuse and anxiety. These regressions are depicted in Figure 3.

Regression analyses were also conducted in order to examine the hypothesis that self-efficacy mediates the relationship between emotional neglect and anxiety. In step 1, the regression of emotional neglect on anxiety was significant, β=.33, p<.001. Step 2 demonstrated that the regression of emotional neglect on self-efficacy was also significant, β=-1.20, p<.001. Nevertheless, in step 3, the regression of self-efficacy on anxiety was not significant. Thus, the mediation model was not significant, and self-

efficacy did not mediate the relationship between emotional neglect and anxiety. These regressions are depicted in Figure 4.
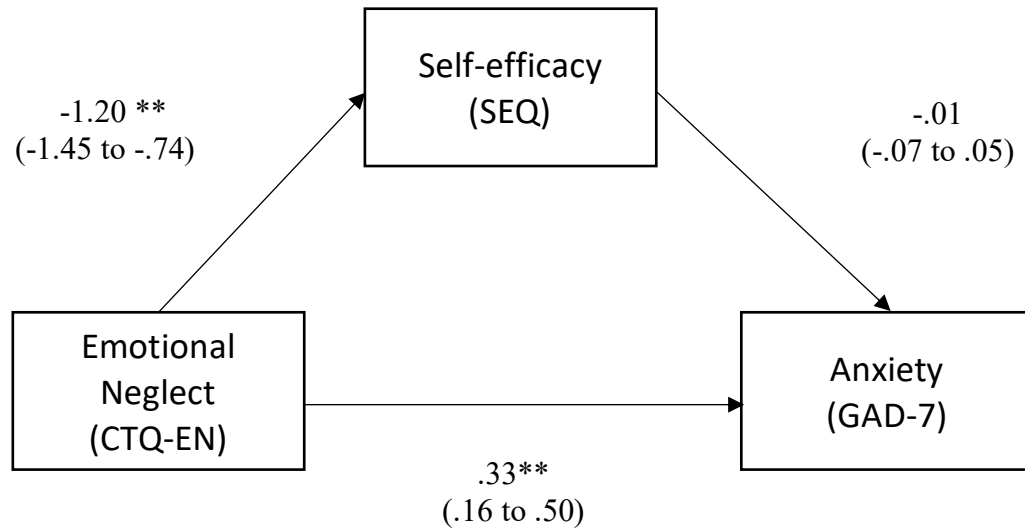
Finally, regression analyses were conducted in order to examine the hypothesis that self-efficacy mediates the relationship between physical neglect and anxiety. In step 1 of the mediation model, the regression of physical neglect on anxiety was significant in step 3, β=.42, p<.01. Step 2 showed that the regression of physical neglect on self-efficacy was also significant, β=-1.50, p<.001. However, in step 3, the regression of self-efficacy on anxiety was not significant. Thus, the mediation model was not significant, and self-efficacy did not mediate then relationship between physical neglect and anxiety. These regressions are depicted in Figure 5.

Figure 3. Results of Hierarchical Regression Analyses for the relationships between Emotional Abuse, Self-efficacy and Anxiety
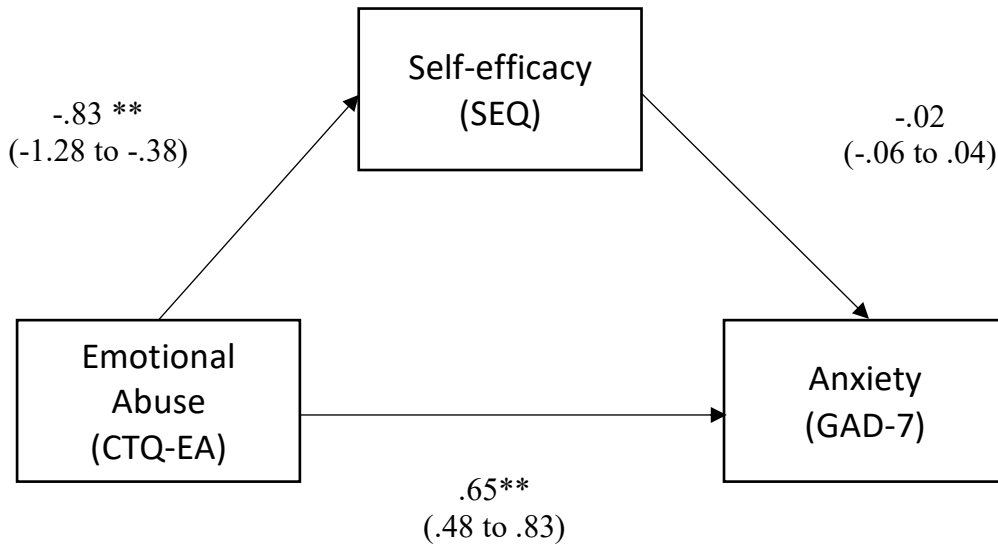
Note. *p<.05, **p<.01

Figure 4. Results of Hierarchical Regression Analyses for the relationships between Emotional Neglect, Self-efficacy and Anxiety

-1.20 ** (-1.45 to -.74)

Self-efficacy (SEQ)

-.01 (-.07 to .05)

Emotional Neglect (CTQ-EN)

Anxiety (GAD-7)

.33** (.16 to .50)

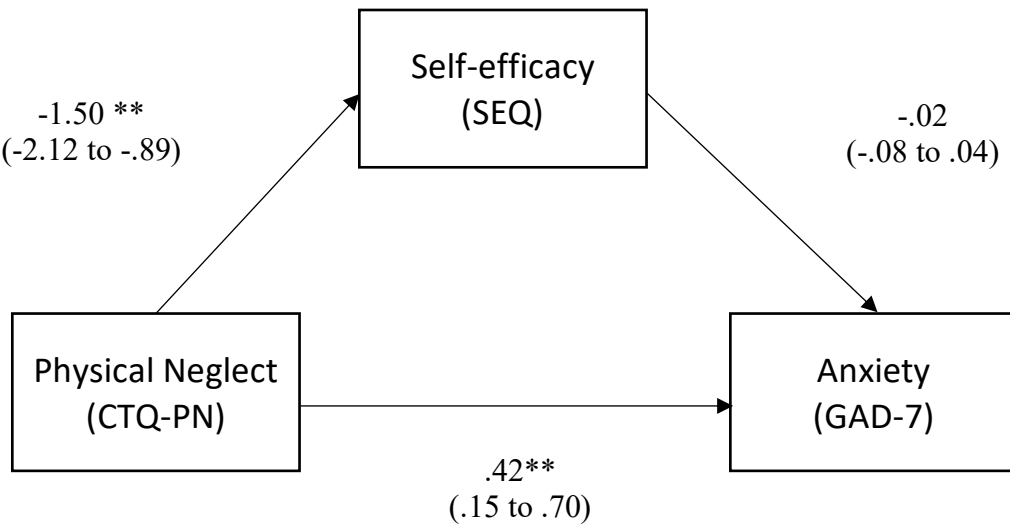Note. *p<.05, **p<.01

Figure 5. Results of Hierarchical Regression Analyses for the relationships between Physical Neglect, Self-efficacy and Anxiety

-1.50 ** (-2.12 to -.89)

Self-efficacy (SEQ)

-.02 (-.08 to .04)

Physical Neglect (CTQ-PN)

Anxiety (GAD-7)

.42** (.15 to .70)

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

Moderation Analyses

Regression analyses were conducted in order to examine if gender moderates the relationship between emotional abuse and anxiety. In step 1 of the moderation model, results indicated that emotional abuse (IV) and gender (M) accounted for approximately 22% of the variance in anxiety (DV) (R^2= .22, F(3, 226) = 20.98, p<.001). Emotional abuse was a significant predictor of anxiety (b = .65, 95% CI [.48, .81], t = 7.77, p < .001), but gender was not. In step 2, the interaction term between emotional abuse and gender was examined. Results indicated that the interaction was not significant (b = -.03, 95% CI [−33, .26], t = -.21, p=.83). Thus, gender did not have a moderating effect on the relationship between emotional abuse and anxiety.

Regression analyses were also conducted in order to examine if gender moderates the relationship between emotional neglect and anxiety. In step 1 of the moderation model, results indicated that emotional neglect (IV) and gender (M) accounted for approximately 12% of the variance in anxiety (DV) (R^2= .12, F(3, 231) = 10.25, p<.001). Emotional neglect was a significant predictor of anxiety (b = .41, 95% CI [.26, .56], t = 5.29, p < .001), as was gender (b = -2.25, 95% CI [-4.29, -2.11], t = -2.17, p < .05). In step 2, the interaction term between emotional neglect and gender was examined. Results indicated that the interaction was not significant (b = -.01, 95% CI [−19, .18], t = -.05, p=.95). Thus, gender did not have a moderating effect on the relationship between emotional neglect and anxiety.

Finally, regression analyses were conducted in order to examine if gender moderates the relationship between physical neglect and anxiety. In step 1 of the

moderation model, results indicated that physical neglect (IV) and gender (M) accounted for approximately 8% of the variance in anxiety (DV) (R^2= .08, F(3, 227) = 6.89, p<.001). Physical neglect was a significant predictor of anxiety (b = .54, 95% CI [.28, .79], t = 4.16, p < .001), but gender was not. In step 2, the interaction term between physical neglect and gender was examined. Results indicated that the interaction was not significant (b = -.22, 95% CI [−64, .20], t = -1.03, p=.30). Thus, gender did not have a moderating effect on the relationship between physical neglect and anxiety.

Discussion

The current study was aimed at expanding the literature regarding the relationship between childhood trauma and anxiety. As hypothesized, findings indicated significant positive correlations between childhood trauma and anxiety, with one exception. Positive correlations were found for emotional abuse, emotional neglect, physical neglect and physical abuse, but not for sexual abuse. The lack of a relationship between sexual abuse and anxiety may be related to the small portion of the sample (12%) that endorsed sexual abuse, which is roughly comparable to the prevalence rate of the general population (9%) (U.S. Department of Health & Human Services, 2019). When combining both physical and emotional neglect, the prevalence rate of the current sample (71%) is also comparable to that of the general population (75%); as is also the physical abuse rates in the current sample (13% in the present study compared to 18% for the general population) (U.S. Department of Health & Human Services, 2019). The U.S. Department of Health and Human Services does not report a prevalence of emotional abuse; yet, it reports a 6% prevalence rate of psychological maltreatment (2019). These correlations between childhood trauma and anxiety are in line with previous findings.

Significant negative correlations were found between academic self-efficacy and emotional abuse, emotional neglect, and physical neglect; however, physical abuse and sexual abuse were not significantly correlated to self-efficacy. The lack of significant associations between sexual and physical abuse may be related to the small portion of the sample that endorsed these types of abuse, as noted above. These findings support previous research indicating that childhood trauma may hinder the development of self-efficacy (Diehl & Prout, 2002; Harter, 1999). Furthermore, academic self-efficacy and anxiety were also found to be significantly negatively correlated, which is in agreement with previous research (Lavasani, Khezriazar, Amani & Malahmadi, 2011; Misra & McKean, 2000).

Given previous research regarding the relationships among these variables, the second hypothesis proposed that academic self-efficacy would mediate the relationship between childhood trauma and anxiety. This study, to our knowledge, was the first to explore self-efficacy as a mediator of this relationship. Findings revealed that although emotional and physical abuse and physical neglect were significant predictors of academic self-efficacy, academic self-efficacy was not a significant predictor of anxiety; therefore, academic self-efficacy did not serve as a mediator for the relationship between childhood trauma and anxiety. These findings support previous research indicating that childhood trauma leads to lower self-efficacy; however, these findings do not support the role of academic self-efficacy in the development and maintenance of anxiety. These unexpected findings may be related to the measure used for academic self-efficacy, which is limited in its assessment of negative self-beliefs and negative self-evaluations that may be associated with higher levels of general anxiety. Previous research has found

that emotional self-efficacy was a significant contributor to anxiety (Muris, 2016).

Furthermore, there is evidence that academic self-efficacy may be associated with

specific testing and academic-related anxiety (Muris, 2002). The present study utilized a

measure for generalized anxiety, which may not have adequately captured academic-

related anxiety. Therefore, future research should explore the role of different types of

self-efficacy in the relationship between trauma and different types of anxiety.

The present study also hypothesized that gender would moderate the relationship

between childhood trauma and anxiety. Based on previous research, gender differences in

childhood trauma were expected, such that females endorsed higher levels of trauma than

males (Vahl et al, 2015). Findings revealed gender differences only among emotional

neglect and physical neglect, with males endorsing higher levels of neglect compared to

females. Contrary to previous research, however, there were no significant gender

differences in emotional abuse. The findings of higher levels of neglect endorsed by

males (vs. females) supports previous findings from studies conducted with patients

experiencing psychosis (Pruessner et al., 2018). These findings expand the literature,

demonstrating that males may experience higher levels of physical and emotional neglect

in the general population, although this neglect does not necessarily translate to higher

levels of anxiety. Future research should explore how higher levels of physical and

emotional neglect may impact male's mental health and identify potential factors which

may serve to mediate the relationship between these forms of neglect and anxiety in

males. Moreover, there were also gender differences found in levels of anxiety, with

females reporting higher levels of anxiety than males. This finding supports the literature

regarding anxiety disorder prevalence. Although these gender differences in anxiety were

significant, gender did not moderate the relationship between trauma and anxiety. These findings may have been impacted by an unequal sample (84% female). Previous findings indicate that emotional abuse is a more robust predictor of anxiety and that females often endorse higher levels of emotional abuse (Vahl et al., 2015). Nevertheless, we did not find gender differences in emotional abuse in the present study, and accordingly, did not find moderation by gender. Regarding gender differences in self-efficacy, results revealed no significant findings. This result contributes to the current and conflicting literature regarding gender differences in self-efficacy, in which some studies find females to endorse higher academic self-efficacy than males (McKay et al., 2014), while other studies find the inverse (Ma et al., 2015, Muris et al., 2016). Further research should consider exploring gender differences in childhood trauma, self-efficacy, and anxiety with larger and more diverse samples in order to attain more conclusive and generalizable results.

Limitations

Although the current study has contributed to the literature regarding childhood trauma, anxiety and self-efficacy, there are several important limitations to consider. First, the current sample was very homogeneous (84% female, 77% White, 88% Non-Hispanic). All participants were recruited from the same north-eastern university in the United States through undergraduate psychology courses. This may have impacted the ability of finding significant differences across gender and may have led to the lack of variability in levels of trauma (e.g., 85% endorsed "none" to "low" emotional abuse). There was low endorsement of clinical levels of childhood trauma (moderate to severe) across trauma types, with physical neglect having the highest rate (19% endorsed

moderate to severe). In addition, this homogeneity makes it difficult to generalize the results to a wider population of individuals. Future research should employ random sampling and should strive to have equal size groups by gender. Moreover, future research should explore the relationships between trauma, self-efficacy and anxiety in samples with higher rates of clinical levels of childhood trauma. These limitations may be addressed by using nationally representative normative samples, as well as clinical samples, in order to enhance generalizability.

Furthermore, there are also limitations related to the measures used. The childhood trauma measure used in the current study, the CTQ, is a self-reported, retrospective measure of childhood traumatic experiences. Even though this measure has shown validity and reliability in samples such as college undergraduates, responses are vulnerable to biases or distorted memories caused by the passage of time. The retrospective nature of this measure may also be related to the lower endorsement of traumatic experiences. Future studies should consider longitudinal models to account for this limitation or use interviews and reports by health professionals in order to have a more accurate report of trauma.

Regarding anxiety, the GAD-7 is also a self-reported measure, which makes it vulnerable to response bias. Although this measure is often used by researchers to measure anxiety at large due to the various symptoms that are found across anxiety disorders, the GAD-7 is very brief and specific to Generalized Anxiety Disorder, and, therefore, may not provide a complete picture of the anxiety experienced by our sample. Future research should assess various types of anxiety or use a broader measure.

Based on previous research indicating the impact academic stress and self-efficacy has on undergraduates' mental health, the current study looked specifically at academic self-efficacy. Yet, the SEQ is a self-reported measure and, thus, scores may be susceptible to social desirability bias. Additionally, other forms of self-efficacy, including emotional, social, or general self-efficacy, may also be related to childhood trauma and anxiety. Therefore, it is important for future research to measure self-efficacy in different domains and explore which specific types of self-efficacy, if any, mediate the relationship between childhood trauma and anxiety.

Future Directions

The current study explored several important questions regarding the relationship of childhood trauma, self-efficacy, and anxiety and contributed to the literature regarding gender differences in childhood trauma. The results of the present study indicated that childhood trauma (EA, EN, PN) was a significant predictor of academic self-efficacy, but academic self-efficacy was not a significant predictor of anxiety; thus, academic self-efficacy was not a mediator of childhood trauma and anxiety. These findings indicate a need for interventions targeting survivors of childhood trauma to incorporate strategies that would increase self-efficacy (both general and academic) in this population. Furthermore, results revealed gender differences among emotional neglect and physical neglect, with males endorsing higher levels of neglect compared to females. However, gender was not found to be a moderator of the relationship between childhood trauma and anxiety.

Although the present study has contributed to the literature, there are numerous ways to improve and build upon the current research. Future research should utilize a

larger and more heterogeneous sample, with a focus on exploring the full range of gender identities and representative ethnic and racial groups. Future researchers should consider conducting mixed-method studies and combining self-reported data with psychodiagnostics interviews and health history reports to best assess for childhood trauma, self-efficacy, and anxiety. This approach may lessen the effect of social desirability biases and may lead to more accurate measures of these constructs. Future research may also benefit from employing measures for various domains of self-efficacy, which may be more closely related to the development and maintenance of anxiety, such as emotional, social, and coping self-efficacy. It may also be beneficial for future studies to evaluate other specific types of anxiety disorders and explore any differences that may arise in trauma and self-efficacy across disorders. Moreover, longitudinal studies may be useful in looking at childhood trauma as a predictor of self-efficacy and, in turn, anxiety. Other possible mediators of the relationship between childhood trauma and anxiety (e.g., self-esteem) should also be explored.

Due to the current findings indicating males reporting higher levels of childhood emotional and physical neglect, it is imperative for future research to explore risk and protective factors of childhood neglect in males, such as differences in socialization and the impact of gender roles. These findings also indicate the need for preventive interventions targeting child neglect in young males and a need for interventions tailored to men who have experienced emotional and/or physical neglect. Furthermore, the literature on gender differences in academic self-efficacy is scarce and the results are mixed. Therefore, future research should investigate gender differences in a more representative sample.

Conclusion

In sum, findings indicate that there are significant associations among trauma, academic self-efficacy, and anxiety; however, academic self-efficacy did not mediate the relationship between childhood trauma and anxiety. Future research should explore different types of self-efficacy that may be more significantly associated with anxiety. Furthermore, gender did not moderate the relationship between trauma and anxiety, although there were some differences found in trauma and anxiety across gender. Specifically, males endorsed higher levels of physical and emotional neglect, while females endorsed higher levels of anxiety. Current findings did not support previous findings of females endorsing higher emotional abuse. Thus, gender differences in risk and protective factors of trauma and anxiety should be further examined. A replication and extension of the current study could inform treatment for children who have experienced trauma, as well as preventive interventions for anxiety.

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