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# Coping As A Mediator Between Proximity To Violence In Juarez, And PTSD Symptoms Among College Students Attending A University On The Texas - Mexico Border

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COPING AS A MEDIATOR BETWEEN PROXIMITY TO VIOLENCE IN JUAREZ, AND  
PTSD SYMPTOMS AMONG COLLEGE STUDENTS ATTENDING A UNIVERSITY ON

THE TEXAS – MEXICO BORDER

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PTSD SYMPTOMS AMONG COLLEGE STUDENTS ATTENDING A UNIVERSITY ON  
THE TEXAS – MEXICO BORDER

by

FRANCIS J. REYES

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## ABSTRACT

The present study directly examined whether proximity to ongoing violence might lead to symptoms of Post-Traumatic Stress Disorder (PTSD) in a sample of students attending a border university less than a mile from the US Mexico border. Exposure to violence is a common cause of PTSD symptomology. Prior research in the region suggests that ongoing traumatic stress due to the violence in Juarez is associated with increased PTSD symptomology. Because coping skills are thought to protect individuals from PTSD the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) guided the study. The purpose of this study was to examine the relationship between proximity to violence in Juarez and PTSD symptoms in a sample of college students (N = 244) attending a border university with large Hispanic enrollment. Secondly, this study examined the role of coping strategies in mediating this relationship. In addition to assessing proximity to violence in Juarez, the present study also assessed how people were coping with stress in their lives. Proximity to violence, as expected, positively correlated with PTSD symptoms. The best model fit to the study data was one in which avoidance coping was represented as a latent variable underlying the use of specific coping strategies, and proximity to violence was represented as a latent variable underlying proximity items. Using this model allowed us to account for 34% of the variance in PTSD symptoms in this sample. Results from this study are another example of how experiencing community violence and/or having close friends and family who are affected by violence may be associated with increased PTSD symptoms. Implications for future research and programs are discussed.

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## CHAPTER 1: INTRODUCTION AND BACKGROUND

El Paso, Texas is ranked as the safest city of its size in the nation (Redco, 2011). El Paso retains this status despite ongoing violence just across the border in Ciudad Juarez, the largest city in the US – Mexico border situated just minutes away from El Paso. This war is commonly referred to as the Mexican Drug War and the city affected the most in terms of violence has been Ciudad Juarez. There were approximately 3,000 killings recorded in Juarez alone in 2010 (Castillo & Valencia, 2011). Deadly and traumatic experiences related to the drug war include murders (close to 2,000 in 2011), kidnappings, car-jackings, robberies/extortion, and constant threat (Taylor, 2011).

The University of Texas at El Paso (UTEP) is located less than a quarter mile from Mexico's border, and within walking distance of a bridge linking the two countries. Many students from Juarez, or with families in Juarez, attend UTEP, and many cross back and forth every day. This has raised many concerns regarding the direct and indirect impact of the ongoing violence on the student population. Such events may impact not only those with direct ties to Juarez, but also those who are more indirectly connected to the region. Indeed, mere proximity to ongoing violence may influence the mental health and well-being of people in the El Paso border region (Afifi, 2010).

The present study examined whether such exposure might lead to symptoms of Post-Traumatic Stress Disorder (PTSD) in a sample of students attending a border university less than a mile from the US Mexico border – a university so close to the violence that stray bullets have landed on campus (KVIA, 2010). The sections that follow this study describe PTSD, PTSD symptoms, Transactional Model of Stress and Coping, Coping, the purpose of the study, and the study methods.

## Post-Traumatic Stress Disorder

The National Institutes of Mental Health (NIMH) estimates that PTSD affects approximately 7.7 million American adults within a given year (National Institutes of Mental Health, 2010). The disorder not only affects adults, but can develop at any age, including in childhood. It is also expected to be the most expensive anxiety disorder (\$4 to \$6.2 billion in the next two years) with around 300,000 veterans from the Iraq and Afghanistan wars with current PTSD (Medical News Today [MNT], 2011). According to the National Alliance on Mental Illness (2011), roughly 5 percent of men and 10 percent of women are identified as having PTSD within their lifetime.

Exposure to violence is a common cause of PTSD symptomology. Indeed, one study estimated that approximately 67 percent of people exposed to mass violence to acquired PTSD, a higher rate than people that were exposed to natural disasters or other traumatic incidents (Anxiety Disorders Association of America [ADAA], 2011). Given these estimates, approximately 1 in 30 adults, nationwide, may experience some form of PTSD in a given year, and that is even higher in veterans of war (NIMH, 2011).

**PTSD definition.** PTSD “is a psychiatric disorder that can occur in people who have experienced or witnessed life-threatening events”. (American Psychiatric Association [APA], 2011). In any dangerous situation, it is natural to experience fear or to be afraid. During this time, the body undergoes many changes to prepare itself to defend against or avoid such danger. This reaction is the fight-or-flight response and is meant to protect an individual from any type of harm or event (Roberts et al., 2010). The difference between PTSD and the normal fight or flight response is that people with PTSD experience increases in sympathetic nervous system activation (fight or flight

response) reactivity more frequently and in response to reminders or memory of past trauma situations (Friedman, 2000). For example, someone with PTSD may be hyperresponsive to normal stimuli such as crowds or loud noises, and may exhibit an exaggerated response such as extreme anxiety or fear.

Although frequently associated with combat and war, many events can lead to PTSD including experience of or exposure to violence of any kind (e.g., childhood abuse, sexual assault) or other negative life experiences (e.g., disasters or accidents; NIMH, 2011). Others may acquire PTSD symptoms vicariously from seeing or witnessing a friend or family member experience some kind of traumatic event or a sudden occurrence such as the unexpected death of a loved one.

In addition to reliving past events and the sudden experience of fight or flight responses, other PTSD-related symptoms include grief and depression, as well as physical and behavioral responses such as nausea, dizziness, changes in appetite and sleep patterns (Center for Disease Control and Prevention [CDC], 2011). Although these reactions are common to anyone experiencing a traumatic event, most individuals report declines or eliminations of symptoms within three months of the incident. If a person's symptoms last longer than one month after the occurrence, that individual may be suffering from PTSD (CDC, 2011). According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition – Text Revision (DSM-IV-TR; APA, 2000), symptoms must be present for at least one month and result in functional impairment to meet the criteria for a diagnosis of PTSD.

### **PTSD Symptoms**

As described, PTSD is an intense physical and emotional reaction to thoughts and memories of an event that can last for many weeks or months after the traumatic incident. Symptoms of PTSD fall into three broad types: re-experiencing, avoidance, and hyperarousal (NIMH, 2011).

*Re-experiencing* symptoms includes flashbacks (reliving a traumatic event over and over again), bad dreams and frightening thoughts (NIMH, 2011). These symptoms are triggered by the individual's thoughts and feelings, or objects or occurrences that remind them of events. For example, a combat veteran exposed to a car backfiring may flashback to an explosion that occurred out in the field (PTSD; Nebraska Department of Veterans' Affairs, 2007).

*Avoidance* symptoms may include a) avoiding places, events, or things that can remind a person of that tragedy; b) feeling emotionally numb; c) feeling guilt, worry, or depressed; d) less enjoyment from past pleasures; and e) trouble remembering traumatic events (NIMH, 2011). In particular, individuals will avoid activities and places that are likely to trigger a reaction or cause symptoms. These symptoms, in turn, can cause patients with PTSD to change their everyday routine. An example would be that, after a horrific car accident, the affected person might avoid driving, or even riding, in a car.

*Hyperarousal* symptoms include being overly alert and easily startled; feelings of tension or on edge; trouble sleeping or angry outbursts (CDC Injury Prevention, 2006). These symptoms are chronic and do not require reminders of traumatic events to be elicited. They can also make it difficult to accomplish daily tasks like eating, sleeping, and even concentrating. Not only that, they can make the person feel angry and

stressed. For example, a male combat veteran might find himself always on guard and on the lookout for any indication of danger.

### **PTSD Risk Factors**

Indeed, the majority of people experiencing such events will not experience PTSD or related symptoms. Many factors play a role in the etiology of the disorder. In addition to factors that are in the potential for PTSD, there are resilience factors which lessen such potential. Moreover, risk and resilience factors can be present before, during, or after a traumatic event.

*Risk factors* for PTSD include having lived through a traumatic and/or dangerous event, having a personal or family history of mental illness, getting injured during an event, witnessing people hurt or even killed because of a specific event, feelings of being helpless or extreme fear, little or no social support after a traumatic event, and having to deal with additional stress after the potentially precipitating event (e.g., loss of loved ones, pain and injury, or loss of job or home; NIMH, 2011). *Resilience factors* that may lessen the potential of acquiring PTSD include looking for help from friends and family, searching for a support group after an event, strong coping skills (e.g., consciously having a strategy for getting through the traumatic event and learning from it), and the ability to respond efficiently in spite of feeling fear (NIMH, 2011).

As noted above, experience of PTSD symptoms is not limited to combat veterans diagnosed with PTSD, but can occur as a result of life stressors such as exposure to various forms of violence or trauma including sexual assault, natural disasters, physical assault (e.g., bullying, mugging), and accidents such as a ship sinking, or plane crashing. Additionally, people who survive such disasters or acts of violence may

experience numbness, confusion, or guilt that may leave the individual feeling sad, helpless, or even anxious (Bascarino, Figley, & Adams, 2003).

Another non-combat trauma is community violence, which refers to a wide range of events such as riots, gang wars, workplace assaults, terrorist attacks, ethnic cleansing, and other horrific forms which occur in or around the area in which that person lives (Department of Veterans Affairs [VA], 2011). The difference between community violence and other types of trauma is that community violence often occurs without warning and comes as an unexpected shock. For this reason, people living in communities that experience frequent unexpected violence are more likely to feel that the world is an unsafe place, and may develop PTSD symptoms such as numbness, confusion, or guilt that may leave the individual feeling sad, helpless, or even anxious (Bascarino, Figley, & Adams, 2003; VA, 2011). As such, border drug-related violence, such as that on the US – Mexico border can impact the people living in the region because of their proximity and ties to Juarez and direct and indirect exposure to it.

Research on non-combat related PTSD has focused in several areas. These include responses to terrorist attacks, natural disasters, community violence among children, and violence in Ciudad Juarez.

### **PTSD and Terrorist Attack**

On September 11, 2001 (9/11), millions of people watched in horror and fear as terrorist crashed commercial airplanes straight into the World Trade Center. Approximately 3,000 individuals were killed during this catastrophe (Farach, Mennin, Smith, & Mandelbaum, 2008). This marked the turning point for thousands of individuals that witnessed the fall of the twin towers.

Schuster and colleagues evaluated the immediate mental health outcomes of the terrorist attacks on September 11, 2001 for non-direct victims (2001). Their team conducted a national survey, using random-digit dialing to acquire the sample, based on individuals who were not present during the 9/11 event (Schuster et al., 2001). This study was conducted to evaluate whether people who were not at the scene during 9/11 could also acquire PTSD. The team contacted a total of 560 individuals from all areas of the United States. Questions that were asked to evaluate reactions had a specific time frame of “since Tuesday, have you been bothered by: feeling very upset when something reminds you of what happened . . .” (Schuster et al., 2001, p. 1508). These questions came from a PTSD checklist and were modified to assess stress. At the end of the study, 40% of adults had reported having one or more symptoms of stress and 90% had low levels of stress symptoms (Schuster et al., 2001). A coping behavior checklist was also implemented to verify how the individuals are managing with the situation. Study participants reported they coped by talking with others (90%), turned to religion (90%), participated in-group activities (60%), or made donations for the cause (36%) (Schuster et al., 2001). The results indicated that catastrophes can have a definite outcome on people that are not physically present, and that the level of trauma-related symptoms of stress was related to television viewing (Schuster et al., 2001).

The majority of people in the United States had never witnessed a terrorist attack until 9/11, but other countries have been under siege of terrorist related attacks for many centuries. One such country is Israel. A study conducted by Shalev and Freedman (2005), assessed the incidence of PTSD and early PTSD symptoms in



Israelis who survived terrorist attacks. It also evaluated the effect of constant terrorism and its association with early PTSD symptoms. The researchers evaluated 39 survivors of terrorist attacks and 354 survivors of motor vehicle accidents upon admission to a general hospital emergency room, with a follow up of one week and four months (Shaley & Freedman, 2005). Peritraumatic (occurring around the time of trauma) stress was evaluated at 1 week and PTSD symptoms, depression, and anxiety at one week and four months. Researchers found that, survivors of terrorist attacks had higher rates of PTSD (37.8%) than those that survived motor vehicle accidents (18.7%; Shaley & Freedman, 2005). Shaley & Freedman concluded that early symptoms are dependable risk indicators of PTSD across different events and conditions.

These are just a sample of the many studies that have examined PTSD in response to terrorism. Other studies include risk and resiliency factors with PTSD among Jews and Arabs exposed to repeated acts of terrorism in Israel (Hobfoll et al., 2008); pathological responses to terrorism (Yehuda et al., 2005), and trauma reminders after a terrorist attack in Beslan (Scrimin et al., 2011).

### **PTSD and Natural Disaster**

A few years after 9/11, another disaster struck leaving thousands of people without work and home. This catastrophic event was the 2005 Hurricane Katrina. The hurricane left approximately 2,000 casualties in the Gulf area of Louisiana, Texas, and Mississippi; 470 shelters and evacuation centers for displaced persons were put together to support survivors across the United States (Ai et al., 2011). This was a traumatic event which left a mental health effect in youth survivors (Ai et al., 2011).

Like the studies on terrorist attacks, Weems and colleagues examined the consistency of PTSD symptoms in an ethnic minority sample of youth that were exposed to Hurricane Katrina (2009). Working under the hypothesis that exposure to any kind of natural disaster is linked to post-traumatic stress (PTS) symptoms in youth (Weems et al., 2009), Weems' team gathered 191 fourth and fifth graders for a screening that tested the exposure to traumatic occurrences and PTSD symptoms at 24 months and then again at 30 months post-disaster. They found a constant dose-response relationship between Time 1 and Time 2 post-disaster such that those exposed to high levels of any kind of traumatic event were more likely to acquire severe symptoms of PTSD during the aftermath (Weems et al., 2009). Their study also indicated that PTSD symptoms did not decrease considerably over time and that there were higher rates reported during an earlier time for more ethnically diverse samples (Weems et al., 2009). They also found that adolescents, specifically girls, experienced steady and elevated levels of PTSD symptoms (Weems et al., 2009) over time. The results are important because it points out the importance of developing prevention efforts that target females as well as younger children (Weems et al., 2009).

A similar study by Sezgin and Punamäki (2012) examined the exposure to earthquake related traumatic events and its association with PTSD and other psychiatric symptoms in women one year after the disaster. Participants were 1253 women from South East Anatolian region and were interviewed at their homes questioning their psychosocial needs as well as their mental health status (Sezgin & Punamäki, 2012). To assess for PTSD, the researchers used the Post Traumatic Stress Scale (PDS), for psychiatric symptoms, they used the Brief Symptoms Inventory (BSI), and for trauma-

exposures, it was conducted by explanations of single questions (Sezgin & Punamäki, 2012). Sezgin and Punamäki (2012) found that 61% of the women had PTSD, and there was a dose-response association between the number of earthquake-related traumatic events and PTSD and psychiatric symptoms. A second finding was that half of the women personally said that trauma is a will and guidance of God, others (41%) stated it was a natural event, and 9% blamed human irresponsibility. Interestingly, women who put the responsibility on other humans for the disaster, reported higher levels of depressive, somatization and paranoid symptoms than those that had explained it as God's will or a natural event (Sezgin & Punamäki, 2012).

### **PTSD and Community Violence**

Not only does community violence increase PTS symptoms in adults, it also does so in infants and adolescents. For example, studies have shown that three-quarters of children living in a high-violence urban area reported coming into contact with events such as acts of being shot, stabbed, beaten, or raped (VA, 2011).

Mathews and colleagues investigated the relationship between exposure to community violence and school functioning, and PTSD symptoms as a possible intermediary of the association (2009). They conducted a secondary analysis using data from a larger study that examined risk and protective factors for low-income African American children (ages 10-13). Children were selected based on their completion of the questionnaires as well as completed academic data. Questionnaires that assessed exposure to community violence and PTSD symptoms were handed out during the first quarter of the school year, and indicators of school functioning were obtained at the end of the same school year. They found that exposure to community violence was

associated with poor academic performance (e.g., grades) and attendance (e.g., not showing up for class; Mathews et al., 2009). Also PTSD symptoms appeared as mediator of the association between exposure to community violence and academic performance (Mathews et al., 2009). This study has implications for urban students that face violence in their communities, and highlights the importance of school-based mental health resources (Mathews et al., 2009).

Researchers examined community violence exposure among 284 urban community development workers in five U.S. cities (Walling et al., 2011). Researchers evaluated adulthood exposure to community violence, history of adverse childhood experiences, and PTSD symptoms. They hypothesized that having a personal history of adverse childhood experiences would moderate the relationship between community violence exposure and PTSD symptoms (Walling et al., 2011). They found that 75% of urban development workers, had reported direct community violence victimization, 71% reported at least one adverse childhood experiences incident, and 14% met possible diagnostic criteria for PTSD (Walling et al., 2011). Although they did find significant positive relationships between adverse childhood experiences and PTSD symptoms and between exposure to community violence and PTSD symptoms, no support was found for the moderation hypothesis.

### **PTSD and Violence in Ciudad Juarez**

Recently, investigators have examined how exposure to ongoing drug-cartel-related violence along the US-Mexico border has contributed to symptoms of PTSD. Numerous individuals living along the border, mainly those in Ciudad Juarez, Mexico, may be exposed to impending traumatic events, both directly and indirectly, on an

ongoing basis. As noted above, traumatic exposures related to the cartel drug war include murders (close to 2,000 this past year), kidnappings, car-jackings, robberies/extortion, and constant threat (Taylor, 2011). The United States is not immune to the violence with such close proximity to Mexico.

A study conducted in El Paso, Texas area related to the cartel war in Ciudad Juarez examined how the violence and resulting insecurity has impacted young adults, residents and commuters to Ciudad Juarez, Mexico, and how it has affected their daily stress levels and potential for self-medication (Taylor, 2010). One hundred – twenty one participants completed an online survey responding to items including location, degree of exposure to trauma, daily traumatic stress symptoms, prior lifetime exposure to trauma, mood and anxiety symptomology, overall stress, general coping strategies, and access to social support. Results suggested that participants had significant prior exposure to trauma in their communities due to non-combat violence (e.g., car-jackings, and robberies/extortion), and that higher levels of traumatic stress were associated with higher levels of PTSD symptoms (Taylor, 2010).

### **Transactional Model of Stress and Coping**

Because coping skills are thought to protect individuals from PTSD (Olf, Langeland & Gersons, 2005), the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) guided the study. This model suggests that stress is neither a characteristic of the environment nor a quality of the person but arises from our interactions with the environment. Key concepts from this model include cognitive appraisal and coping. Cognitive appraisal refers to the way people interpret the significance for their well-being of what is happening as well as what might be done

about it (Lazarus, 1999). Coping is referred as, “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person.” (Lazarus & Folkman, 1984, p.141). Lazarus and colleagues stated that the cognitive and coping process determines the outcomes of a stressful experience (Lazarus, 1987). Some forms of coping are problem-focused or approach-oriented such as strategies for collecting information, making secessions, planning, and determining conflicts (Folkman & Moskowitz, 2004). Other forms are emotion-focused or avoidance-oriented such as self-blame, behavioral disengagement, venting, substance use, and self-distraction (Carver, 1997). Research has shown that problem-focused or approach coping tends to be associated with adaptive outcomes, whereas emotion-focused or avoidance-oriented coping is associated with maladaptive outcomes (Penley, Tomaka, & Weibe, 2002).

### **Purpose**

The purpose of this study was to examine the relationship between proximity to violence in Juarez and PTSD symptoms in a sample of college students attending a border university with a large Hispanic enrollment. Secondly, this study examined the role of coping strategies in mediating this relationship. In addition to assessing proximity to violence in Juarez, the present study also assessed how people were coping with stress in their lives. The study had the following hypotheses:

1. Higher levels of Proximity to Violence will be associated with higher levels of PTSD symptoms
2. Higher levels of Proximity to Violence will be associated with greater coping with stress, to include approach and avoidance coping

3. Coping style will mediate the relationship between Proximity to Violence and PTSD symptoms such that:

- 1) Use of avoidant or emotion-focused coping strategies will be associated with greater experience of symptoms
- 2) Use of approach or problem-focused coping strategies will be associated with lesser experience of symptoms.

## CHAPTER 2: METHOD

### Purpose statement

The purpose of this study was to examine the relationships between proximity to violence in Juarez, and PTSD symptoms among college students attending a border university. Additionally, the study examined the possible mediating effect of coping strategies on this relationship. Thus, the independent variable was Proximity to Violence, the dependent variable was PTSD symptoms, and potential mediating variables were approach and avoidant coping.

### Participants

The study was conducted through secondary analysis of data, collected from 244 college students at The University of Texas at El Paso (UTEP), located at the US – Mexico border. The participant age range was 18-56 and was predominantly female (67%) and Hispanic (79%). Undergraduate and graduate students were recruited by research assistants who also administered the surveys. The study was approved by the UTEP IRB and all students participated voluntarily.

### Measures

**Demographics.** Demographic items included gender, age, ethnicity (e.g., White (non-Hispanic), Black (non-Hispanic), Hispanic, Asian, American Indian, or Other), language (e.g., speaks English, Spanish, or both), income, and marital status (e.g., single/never married or separated/divorced or widowed, or currently married or living with partner (cohabitating)).

**Proximity to Violence.** Three items that assessed Proximity to Violence in Juarez, Mexico were designed specifically for this study: 1) I have close friends or family



members with strong connections to Ciudad Juarez, 2) The violence in Ciudad Juarez has affected me directly, and 3) I have friends or family members who have been affected by violence in Ciudad Juarez. The three items were combined to form a single index.

**PTSD Checklist-Civilian Version.** The PTSD Checklist - Civilian Version (PCL-C) (Ruggiero et al., 2003) is a self – report instrument designed to assess symptoms of PTSD in non-combat samples. It is a list of problems and complaints that people sometimes have in response to stressful life experiences (Ruggiero et al., 2003). The PCL-C 17- item is based on DSM criteria for PTSD. This instrument has been shown to have good reliability,  $\alpha = .93$  for B symptoms,  $\alpha = .92$  for D symptoms, and  $\alpha = .97$  for all 17 symptoms (Weathers et al., 1993).

**Brief COPE.** The Brief Cope (Carver, 1997) is a 28-item self-report questionnaire that assesses how people cope with stress. Each item says something about a particular way of coping. These items ask the degree to which the participant has been dealing with stress during the past 3 months up to the present, on a scale of 1 to 4 with responses indicating the following: 1) I haven't been doing this at all, 2) I've been doing this a little bit, 3) I've been doing this a medium amount, and 4) I've been doing this a lot. Subscales that are indicative of what some have termed problem-focused or approach-oriented coping, and emotion-focused avoidance-oriented coping have been reported, with mixed reliability. Avoidance coping subscale reliability in previous studies has been reported as self-distraction ( $\alpha=.71$ ), denial ( $\alpha =.54$ ), substance use ( $\alpha =.90$ ), behavioral disengagement ( $\alpha =.65$ ), venting denial ( $\alpha =.50$ ) (and self-blame ( $\alpha =.69$ ) (Carver, 1997). Reliability for the approach coping subscales has been reported as

planning ( $\alpha = .73$ ), acceptance ( $\alpha = .57$ ), positive reframing ( $\alpha = .64$ ), active coping ( $\alpha = .68$ ), emotional support ( $\alpha = .71$ ), instrumental support ( $\alpha = .64$ ), religion ( $\alpha = .82$ ), and humor ( $\alpha = .73$ ).

## **Procedures**

**Recruitment & Data Collection.** As noted, data were previously collected as part of a larger study on stress, appraisal and coping. The research assistants gained permission from university professors teaching health sciences courses to recruit study participants. During that time, the research assistants scheduled times to administer the questionnaire in those classrooms. The study was explained before handing out the questionnaire. Questions were answered prior to completion of questionnaire, and the research assistant briefly describe the content and purpose of the surveys. Students then completed the questionnaire, generally within 30 minutes.

## **Data Analysis**

SPSS AMOS was used to examine the primary and secondary hypotheses and to test multivariate and mediational models. The specific model that was tested is shown in Figure 1. As shown, this model suggests that 1) proximity to violence is positively associated with both avoidance coping and approach coping; 2) avoidance coping is positively associated with PTSD symptoms; 3) approach coping is negatively associated with PTSD symptoms, and 4) avoidance coping mediates the association between proximity to violence and PTSD symptoms.

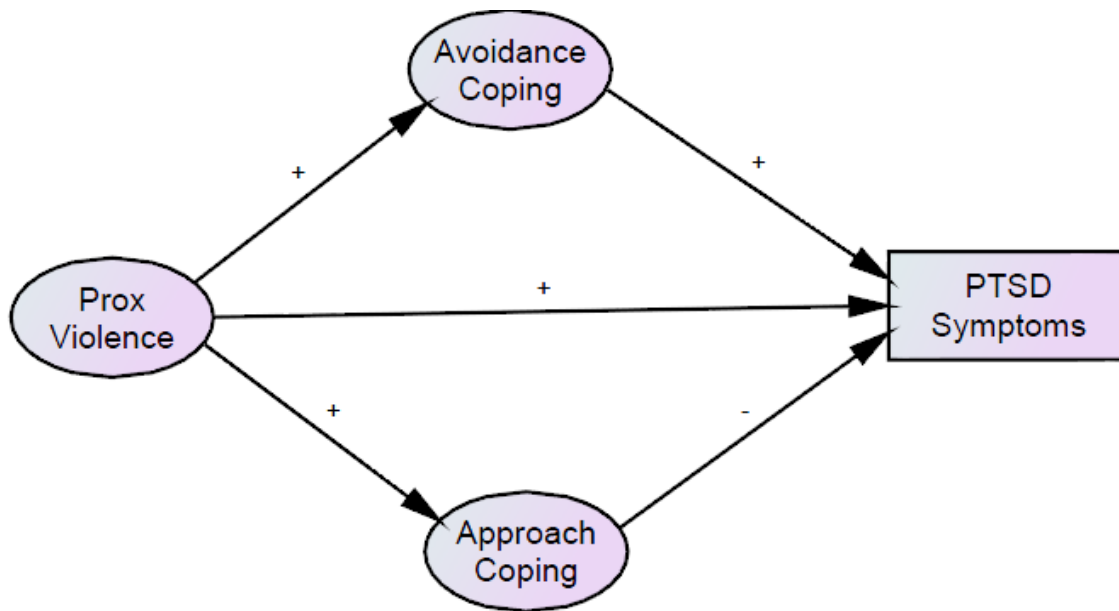


Figure 1: Model tested including Hypothesized model linking proximity to violence with PTSD symptoms.

## **Data Reduction**

In order to reduce the number of coping variables I performed a factor analysis of the 14 coping scales. A principle component factor analyses with oblimin rotation revealed two factors with eigenvalues  $> 1$  and which accounted for 58% of the variance in the total matrix. The first factor was labeled approach coping and included planning, acceptance, positive reframing, active coping, emotional support, instrumental support, religion, and humor. The second factor was labeled avoidance coping and included substance use, behavioral disengagement, denial, self-blame, self-distraction, and venting. Two coping subscales were created by averaging subscale scores loading on the approach and avoidance factors.

## **Descriptive Analyses**

Table one contains means and standard deviations, or percentages, for demographic and main study variables. As shown the sample had a mean age of approximately 24 years and was predominantly Hispanic as well as mostly female. Most were single, and 32% came from households with an income in the range of \$30,000 to \$49,999. Most (54.5%) reported being bilingual.

Table 1. Descriptive Statistics for all study variables and comparisons by gender

	Overall		Men		Women		F or $\chi^2$
	M	(SD)	M	(SD)	M	(SD)	
<b>Demographic</b>							
Age	23.91 (7.18)		24.20 (7.61)		23.77 (6.97)		.20
Gender (percent female)	67%		-		-		-
Percent Hispanic	79%		77%		80%		6.62
Income	5.35 (3.00)		5.83 (3.31)		5.11 (2.82)		3.11
Marital Status (% single)	79%		83%		77%		.96
Language primarily Spoken	2.43 (.83)		2.33 (.82)		2.47 (.83)		1.54
<b>Main Study Variables</b>							
Proximity to Violence	2.11 (.92)		2.01 (.87)		2.16 (.95)		1.41
Posttraumatic Stress Symptoms (PCL-C)	1.85 (.80)		1.80 (.78)		1.87 (.80)		.51
Approach Coping	5.14 (1.35)		4.96 (1.30)		5.23 (1.37)		2.15
Avoidance Coping	3.46 (1.22)		3.58 (1.26)		3.39 (1.19)		1.27

Notes: F-Value for PTSD symptoms assessed for significance using log transformed values.

\*\*\* =  $p < .001$

Regarding the main variables of interest, although the mean score for proximity to violence was 2.11 on a 4 point scale (1 being no proximity), 80.3% reported at least some proximity to violence and 55% scored 2 or greater. 88.5% reported at least some symptom of PTSD, 56.1% exceeded a common civilian primary care screening cutoff point of 25 (Walker et al., 2002), and 27.5% exceeded a diagnostic cutoff of 38. Participants in this sample reported engaging in higher levels of approach coping than avoidance coping,  $t(243) = 19.73, p < .001$ .

Table 2 contains correlations among the demographic and main study variables.

Table 2 . Intercorrelations among study variables.

	1	2	3	4	5	6	7	8
1. Age		-.03	.01	-.04	-.03	-.09	-.22**	-.11
2. Gender (0 = M 1 = F)			-.11	.08	.08	.05	.09	-.07
3. Income				-.29**	-.07	-.07	.02	-.09
4. Spanish Language Preference					.46**	.11	.04	.13*
5. Proximity to Violence ( $\alpha = .80$ )						.17**	.13*	.21**
6. PCL-C ( $\alpha = .94$ )							.31**	.52**
7. Approach coping ( $\alpha = .89$ )								.46**
8. Avoidance Coping ( $\alpha = .82$ )								

\* $p < .05$ , \*\* $p < .01$ ,  $N = 244$

As shown, age correlated only with approach coping such that older participants reported using less of this type of coping. Income negatively correlated with Spanish language preference such that as income rose, participants reported preference for English over Spanish. Not surprisingly Spanish language preference positively related to proximity to violence; Spanish language preference also positively correlated with avoidance coping. Proximity to violence, as expected, positively correlated with PTSD symptoms. Proximity to violence also correlated with approach and avoidance coping. PTSD symptoms also correlated positively with approach and avoidance coping. As shown, reliability for all of the scales was high, with  $\alpha = > .80$  for each.

### Mediation Analyses

SPSS AMOS was used to examine multivariate and mediational models. The specific model that was tested was shown in Figure 1. As shown, this model suggested

that avoidance and approach coping each mediate the association between proximity to violence and PTSD symptoms.

The results of the analysis are shown in Figure 2. As shown, the hypothesized model accounted for 26% of the variance in PTSD symptoms.

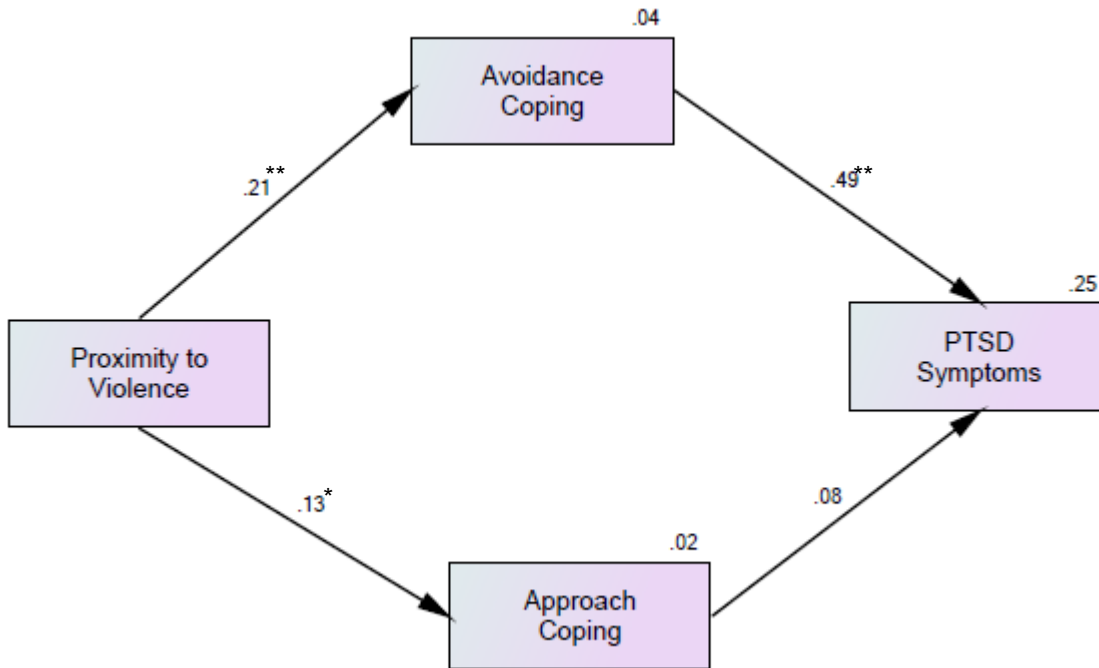


Figure 2. Hypothesized path model.

As expected, the relationship between proximity to violence and avoidance coping was positive and significant, as was the relationship between avoidance coping and PTSD symptoms. Also as expected, proximity to violence and approach coping was positive and significant, however, the relationship between approach coping and PTSD symptoms was not significant. Finally, as shown, when avoidance and approach coping were included as mediators, proximity to violence was no longer related to PTSD symptoms.

Over all, the model provided a relatively a poor fit to the data,  $\chi^2(1) = 54.958, p < .001$ . Given the nonsignificant association between approach coping and PTSD symptoms, a simpler model eliminating approach coping was tested. As shown in Figure 3, a model that eliminated approach coping also provided a good fit to the data,  $\chi^2 = 1.11, p > .29$ .

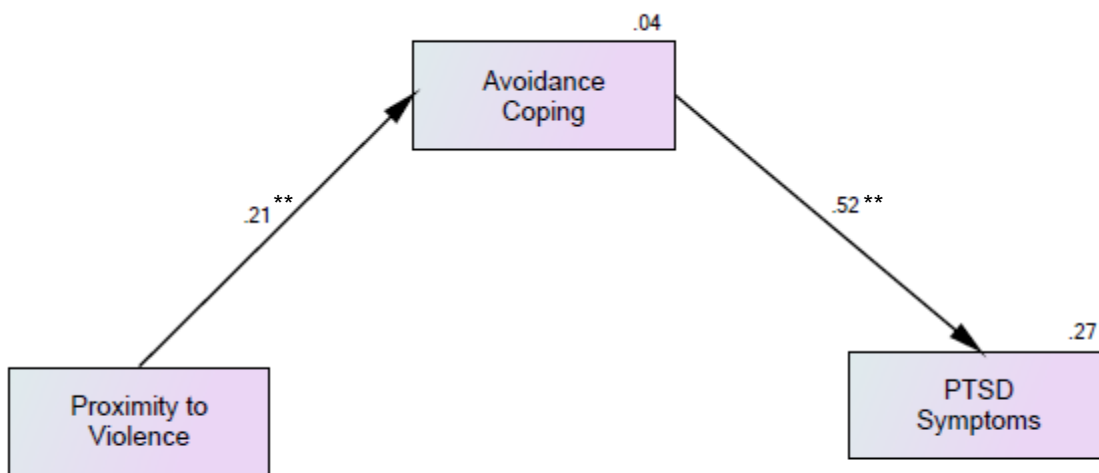


Figure 3. Final path model.

Because models that rely solely on observed values do not control for measurement error, I also tested a model that treated avoidance coping and proximity to violence as latent indicators to PTSD symptoms. The model tested is shown in Figure 4.



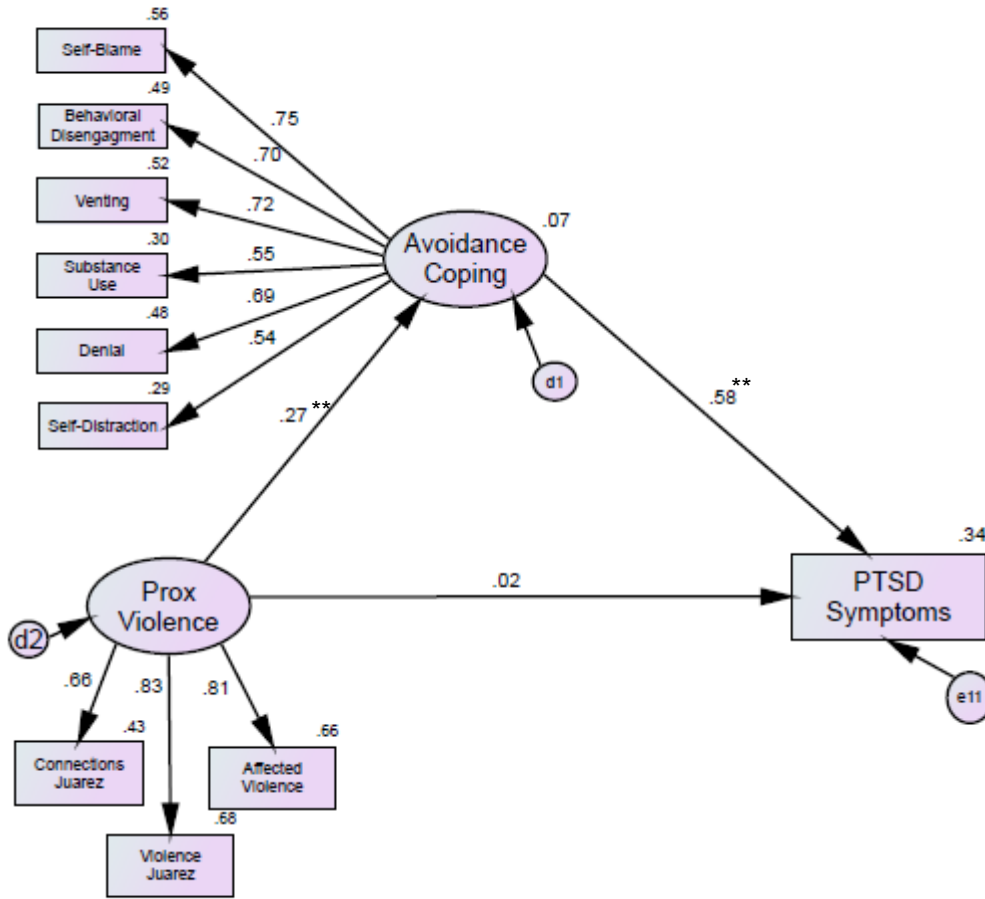


Figure 4. Model with avoidance coping & proximity to violence as latent variables

As shown, avoidance coping is represented as a latent variable underlying the use of specific avoidance coping strategies, and proximity to violence is shown as a latent variable underlying the three proximity items. This model provided a good fit to the data  $\chi^2(29) = 2.99, p > .41$ . As shown, the model accounted for 34% of the variance in PTSD symptoms. Relationships between proximity to violence and active coping, and active

coping and PTSD symptoms were stronger when these predictors were modeled as latent variables.

## CHAPTER 4: DISCUSSION & CONCLUSION

The purpose of this study was to examine the relationships between exposure to violence in Juarez, and PTSD symptoms among college students attending a large university on the Texas – Mexico border. Additionally, the study examined the possible mediating effect of coping strategies on this relationship. Consistent with the hypotheses, the relationship between proximity to violence and avoidance coping was positive and significant, as was the relationship between avoidance coping and PTSD symptoms. Also as expected, proximity to violence and approach coping was positive and significant, however, the relationship between approach coping and PTSD symptoms was not significant. Finally, when avoidance and approach coping were included as mediators, proximity to violence was no longer related to PTSD symptoms.

The best model fit to the study data was one in which avoidance coping was represented as a latent variable underlying the use of specific coping strategies, and proximity to violence was represented as a latent variable underlying proximity items. Using this model allowed us to account for 34% of the variance in PTSD symptoms in this sample. Results from this study are another example of how experiencing community violence and/or having close friends and family who are affected by violence may be associated with increased PTSD symptoms.

The unique study environment – a bi-national region in which one city is one of the most violent in the world, and the other is one of the safest in the U.S. – is fertile ground for understanding and responding to community violence and PTSD symptoms. Specifically, results suggest that people can experience PTSD symptoms just by being close to a community or to other people who experience violence. It also provides

documentation of specific symptomology among this group of college students, and areas for intervention based on reported coping style. In addition, these study results also support the utility of the transactional model of coping, as demonstrated by the positive relationship between proximity to violence and both approach and avoidance coping, as well as the relationship between both styles of coping and PTSD symptoms.

Of particular interest is that more than 80% of participants reported some proximity to violence. With those participants scoring high in proximity to violence, another interesting phenomenon was that it also played a role in PTSD symptoms. The vast majority (88.5%) of participants reported at least one symptom of PTSD. Although this study does not support a claim that it is the proximity to violence that caused these symptoms, community violence may very well have been a contributing factor. As indicated by Walling et al. (2011), among people exposed to community violence, those who had experienced childhood trauma were more likely to experience PTSD symptoms. This provides another area in which clinicians or other health professionals can intervene and perhaps be more aware of the need for additional screening.

### **Implications for Interventions**

People can use this data to determine the level of intervention that should be implemented for students that have been affected by the violence in Juarez. There is no known intervention on campus that relates to PTSD and violence. PTSD symptoms are likely to affect school performance (Mathews et al., 2009) in addition to many other areas of life. A specific intervention that provides education, resources, and coping strategies for those affected directly or indirectly by the violence would be a logical way to address what is clearly an issue for some students, and is likely for many other

people in the community. My data suggest that an intervention that facilitates reduction of avoidant coping strategies (e.g., substance use, denial, behavioral disengagement among others) might reduce PTSD symptoms among people reporting high proximity to violence.

Other individuals that could benefit from these results are counselors, social workers, health education specialists, and community health workers who are in contact daily with people whose proximity to violence may put them at risk for avoidant coping strategies (e.g., substance abuse) and/or PTSD symptoms. The data can also help the counseling center develop and share approach coping strategies that could be provided to diverse groups during outreach, workshops, or individual sessions.

### **Limitations.**

This study had several limitations. First of all, as a cross-sectional study, it does not allow us to make causal inferences from our findings. Second, because this was a convenience sample of college students, the sample is not necessarily representative either of students on campus or of other community members. Third, our results are not necessarily generalizable to other populations. Finally, although we used instruments with demonstrated reliability and validity, they are all based on self-report.

### **Suggestions for Future research.**

This study suggests a number of areas for additional research. Future research should be conducted in a wide range of populations who may be exposed to community violence. Ethnically and geographically diverse populations exposed to varying types and levels of community violence could benefit from studies to assess exposure or proximity to violence, which could lead to tailored coping strategies that might reduce

the onset or the severity of PTSD symptomology. Studies of this nature could give a broader perspective in how different populations cope with proximity to violence, as well as the likelihood of having PTSD symptoms. Locally, community members beyond the college campus could also be studied regarding proximity to violence.

This study also may have important implications for the large military population in the study region, as well as for other military members and civilians involved in or exposed to combat-related violence. Given that many soldiers witness some kind of traumatic event, this would be a great area in which to intervene and provide ways to cope with their trauma. Another area for future research in the college student population and in other groups could be investigating the role of appraisal in coping style, and the relationship between appraisal of stressful events and development of PTSD symptoms.

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## APPENDIX

### Demographics:

Gender:  Male  Female

Age: \_\_\_\_\_

Ethnicity: (check one)  White (non-Hispanic)  
 Black (non-Hispanic)  
 Hispanic  
 Asian  
 American Indian  
 Other: \_\_\_\_\_

Grade Level :  Freshmen  Junior  
 Sophomore  Senior  Graduate Student

Check One:  I speak English exclusively  
 I speak English primarily, but know some Spanish  
 I am bilingual (can communicate in English or Spanish or \_\_\_\_\_)  
 I speak Spanish primarily, but know some English  
 I speak Spanish exclusively

My Mother:  speak/spoke English exclusively  
 speak/spoke English primarily, but know some Spanish  
 are/were bilingual (can communicate in English or Spanish or \_\_\_\_\_)  
 speak/spoke Spanish primarily, but know some English  
 speak/spoke Spanish exclusively

My Father:  speak/spoke English exclusively  
 speak/spoke English primarily, but know some Spanish  
 are/were bilingual (can communicate in English or Spanish or \_\_\_\_\_)  
 speak/spoke Spanish primarily, but know some English  
 speak/spoke Spanish exclusively

My total household income from all sources is:

<input type="checkbox"/> \$0-9,999 per year	<input type="checkbox"/> \$50,000-59,999 per year
<input type="checkbox"/> \$10,000-19,999 per year	<input type="checkbox"/> \$60,000-69,999 per year
<input type="checkbox"/> \$20,000-29,999 per year	<input type="checkbox"/> \$70,000-79,999 per year
<input type="checkbox"/> \$30,000-39,999 per year	<input type="checkbox"/> \$80,000-89,999 per year
<input type="checkbox"/> \$40,000-49,999 per year	<input type="checkbox"/> \$90,000-99,999 per year
	<input type="checkbox"/> more than \$100,000

Marital Status:  Single/Never Married or Separated/Divorced or Widowed  
 Currently married or living with partner (cohabitating)

### Proximity to Violence:

In recent months, I have been to Cd. Juarez:

Never	Once a month or less	Once or twice a week	Three or more times per week	Almost every day
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I have close friends or family members with strong connections to Cd. Juarez (e.g., live or work there)

Yes, many	Yes, some	Yes, a few	No, none
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The violence in Cd. Juarez has affected me directly.

Yes, very much	Yes, somewhat	Yes, a little	Not at all
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I have friends or family members who have been affected by the violence in Cd. Juarez?

Yes, many	Yes, some	Yes, a few	No, none
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## Stress

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate *how often* you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each separate question. The best a particular way, but rather indicate the alternative that seems like a reasonable estimate. For each question choose from the following alternatives:

0 Never	1 Almost Never	2 Sometimes	3 Fairly Often	4 Very Often
------------	-------------------	----------------	-------------------	-----------------

0 1 2 3 4	1. In the last month, how often have you been upset because of something that happened unexpectedly
0 1 2 3 4	2. In the last month, how often have you felt that you were unable to control the important things in your life
0 1 2 3 4	3. In the last month, how often have you felt nervous and "stressed"
0 1 2 3 4	4. In the last month, how often have you dealt successfully with irritating life hassles
0 1 2 3 4	5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life
0 1 2 3 4	6. In the last month, how often have you felt confident about your ability to handle your personal problems
0 1 2 3 4	7. In the last month, how often have you felt that things were going your way
0 1 2 3 4	8. In the last month, how often have you found that you could not cope with all the things that you had to do
0 1 2 3 4	9. In the last month, how often have you been able to control irritations in your life
0 1 2 3 4	10. In the last month, how often have you felt that you were on top of things
0 1 2 3 4	11. In the last month, how often have you been angered because of things that happened that were outside of your control
0 1 2 3 4	12. In the last month, how often have you found yourself thinking about things that you have to accomplish
0 1 2 3 4	13. In the last month, how often have you been able to control the way you spend your time
0 1 2 3 4	14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them



## PTSD Checklist – Civilian Version (PCL-C)

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, put an “X” in the box to indicate how much you have been bothered by that problem in the last month.

No.	Response	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1.	Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience from the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Repeated, disturbing <i>dreams</i> of a stressful experience from the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening</i> again (as if you were reliving it)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Feeling <i>very upset</i> when <i>something</i> reminded you of a stressful experience from the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, or sweating) when <i>something</i> reminded you of a stressful experience from the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Avoid <i>thinking about</i> or <i>talking about</i> a stressful experience from the past or avoid <i>having feelings</i> related to it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Avoid <i>activities</i> or <i>situations</i> because they <i>remind you</i> of a stressful experience from the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Trouble <i>remembering important parts</i> of a stressful experience from the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Loss of <i>interest in things that you used to enjoy</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Feeling <i>distant</i> or <i>cut off</i> from other people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11.	Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Feeling as if your <i>future</i> will somehow be <i>cut short</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Trouble <i>falling</i> or <i>staying asleep</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Feeling <i>irritable</i> or having <i>angry outbursts</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Having <i>difficulty concentrating</i> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Being " <i>super alert</i> " or watchful on guard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Feeling <i>jumpy</i> or easily startled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## VITA

In 2001, Francis Javier Reyes moved to El Paso, Texas. Francis graduated from Franklin High School in 2005 and promptly enrolled at The University of Texas at El Paso, where he majored in Health Promotion and Health Education. During his undergraduate career, he met his mentor and great friend, Dr. Holly Mata, who played an enormous role in Francis' achievements and accomplishments.

Francis graduated in 2010 with a degree in Health Promotion and went straight into the Master of Public Health program. Dr. Holly Mata continued to guide him along with his chair, Dr. Joe Tomaka. During those few years, he was able to help in various projects such as help the Hispanic Health Disparities Research Center, work with migrant farm workers, survey and evaluate certain chronic disease primary prevention projects through community health worker/promotora programs for The Pan American Health Organization, intern at the El Paso City of Public Health, and work as a Research Assistant for the Provost.

Francis successfully defended his thesis on August 7<sup>th</sup>, 2012. Now, he is living in Washington DC interning at the National Institutes of Health, within the National Cancer Institute. At the NIH, he is working as a health communication intern collaborating with health professionals from all over the world.