

**SYMPTOMS OF POST-TRAUMATIC STRESS DISORDER**

**A Senior Honors Thesis**

**By**

**CHRISTY ANN HALL**

**Submitted to the Office of Honors Programs  
& Academic Scholarships  
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**Group: Psychology 1**

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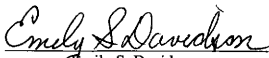
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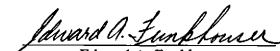
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## ABSTRACT

Symptoms of Post-Traumatic Stress Disorder.

(April 2000)

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Previous studies have indicated a possible relationship between Post-traumatic Stress Disorder (PTSD) resulting from exposure to a trauma and other measures of functioning, such as attachment style and substance use. The sample for this study consisted of students from Texas A&M University (N=288). The subjects were administered a questionnaire that asked questions about exposure to traumatic events, evaluated PTSD symptoms, attachment style and substance use. Analyses investigated the relationships between these variables, gender, and exposure to violent or sexual trauma. Self-reported trauma was found to be associated with increased PTSD symptoms, negative attachment style and increased substance use. Substance use was higher for men overall. Sexual trauma was found to have an extremely negative impact on PTSD symptoms, negative attachment style, and increased substance use. Women experienced more sexual traumas, while men reported more violent, non-sexual traumas. Implications of these findings for future research are discussed

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When reviewing the history of Post-Traumatic Stress Disorder (PTSD), Gersons and Carlier (1992) explain the disorder as a reasonable reaction to psychic trauma that, if it does not disappear after the danger is removed, can become pathological. PTSD was originally studied in Vietnam veterans, but has been recognized as a disorder in the general population.

PTSD is the development of specific symptoms in response to certain types of traumas. The DSM-IV (APA, 1994) defines these symptoms and traumas more precisely than they are used in lay language. Certain criteria must be met for diagnosis. The first criterion is the experiencing of a traumatic event and the response to it. A trauma is the direct experience of an event involving actual or threatened death, or serious injury or threat of injury to one's physical integrity. The trauma could also be witnessing such an event involving another person, or learning about such an event involving a family member or close friend. The response required for a diagnosis is feelings of intense horror, fear, and helplessness as the event is occurring or afterwards. The symptoms that result must be present for at least a month, and must cause clinically significant impairment in important areas of functioning. The characteristic symptoms are persistent reexperiencing of the event, persistent avoidance of associated stimuli, and persistent symptoms of hyperarousal.

Davidson and Connor (1999) discuss many problems with the diagnosis of PTSD, including high rates of comorbidity, such as substance abuse or depression, and failure to

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This thesis follows the style and format of The Journal of Abnormal Psychology.

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identify a history of trauma. Another issue is the overly high diagnostic thresholds used by some clinicians. Davidson and Conner believe that increasing awareness of the disorder will alleviate these problems. To increase this awareness, more research is required on what thresholds properly diagnose PTSD.

In 1991, 25 of the 150 people in a Luby's Cafeteria were killed by a gunman. North, Smith, and Spitznagel (1994) found 36 of the survivors met criteria for PTSD. Only 2% of the survivors did not exhibit any symptoms. The remaining survivors, over 60%, exhibited subclinical levels of symptoms like intrusive recall or insomnia. They did not, however, meet all the criteria for diagnosis of PTSD. This suggests that the thresholds currently used to diagnose PTSD may be lowered somewhat to diagnose what can be called subclinical levels of PTSD. It is seen here that even less severe PTSD symptoms can still negatively impact functioning. Lower diagnostic thresholds are used in this study to ensure inclusion of all subjects exhibiting PTSD symptoms.

There are several questions about the factors that affect the development of PTSD. One such question is how does gender affect PTSD? Several studies have found differences between males and females exposed to traumatic events. However, there is varying evidence about whether this is because of gender differences, or because the sexes experience different types of traumas. Females might be assumed to experience more traumas of a sexual nature, while males experience more traumas of a non-sexual nature. Men and women may have the same rates for non-violent trauma, but those traumas are less likely to produce PTSD.

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In a study of urban adolescents exposed to community violence, Beaver (1999) found that males did not necessarily experience greater exposure to violent trauma. Females did report more symptoms of PTSD, but coping strategies might have been related to this outcome. The study did not support the idea that differential experience of traumas is related to PTSD development, but admitted need for further study in this area.

Another study (Breslau, Chilcoat, Kessler, Peterson & Lucia, 1999) examined 2,181 people from 18-45 years of age in Detroit for their exposure to traumas as defined by the DSM-IV. This study found that although men experienced more lifetime exposure to violent traumas, women were almost twice as likely to develop PTSD symptoms, even after adjusting for the distribution of trauma types.

Najavits, Weiss and Shaw (1997) compared men and women with substance abuse problems. They found that men had lower rates of dual diagnoses of PTSD and substance abuse, and substance abuse stemmed more often from violent or crime-related trauma. The women had higher rates (39% to 59%) of dual diagnosis, commonly derived from repetitive childhood physical or sexual abuse.

Sex differences were examined again in a study (Breslau, Davis, Andreski, Peterson & Schultz, 1997) of 1,007 subjects. This time, no differences were found in the lifetime prevalence of exposure to traumatic events, or the number of traumatic events experienced. However, PTSD was still more common in women. Sex differences were also more significant when the event had been experienced early in childhood.

The differences between sexual and violent traumas were addressed in a study of patients, 61 female and 34 male, in substance abuse treatment (Dansky, Brady, Saladin



& Killeen, 1996). Ninety percent of the sample had experienced sexual or violent trauma, and 50% were diagnosed with crime-related PTSD. There were no gender differences in assault or crime-related PTSD prevalence rates, except for the instance of rape. Women were more likely to experience rape and perceive their lives as being in danger. Men were found to be younger than women at the time of their first violent incident.

Grice, Brady, Dustan and Malcolm (1995) found that in one sample of 50 males and 50 females, 66% had a history of physical or sexual assault. Half of the sample met the criteria for PTSD. This study again found women to have a higher incidence of sexual trauma, and men to have been exposed to more violent, non-sexual traumas.

It seems that women develop PTSD more often than men. The research is unclear, however, whether women and men are experiencing different types of trauma. It must be determined if women are experiencing traumas of a more sexual nature, to answer the question of how much of a role gender differences play in the development of PTSD symptoms versus the role of trauma differences. Another factor in the types of trauma experienced by the sexes is the identity of the perpetrator in violent and sexual traumas.

Dansky, et al. (1996) found there were no gender differences in assault or crime-related PTSD prevalence rates, except for the instance of rape. Men were more likely to have been assaulted by a family member. However, Grice, et al. (1995), who likewise found women to have a higher incidence of sexual trauma, also found that women had more familial assault.

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Dansky, Byrne, and Brady (1999) assessed PTSD in 91 adults with cocaine dependency. Overall, 85.7% of the sample reported at least one incident of physical assault in their lifetime. In 46.2% of the subjects, this assault was by an intimate partner; about the same number of subjects also met criteria for PTSD at some point. This study was able to evaluate the effects of the identity of the perpetrator in both the women and the men. Once again, women were more likely to report abuse by an intimate partner, and more likely to report PTSD. The men who did, however, report assault by an intimate partner were more likely to report PTSD than men who were assaulted by others. These men also had higher scores on scales of addiction than the other men. This suggests that while women do report more of this trauma and more PTSD overall, the identity of the perpetrator is important in the onset of PTSD and substance abuse.

These studies suggest further investigation to determine what might cause women and men to develop different PTSD symptoms- background, type of trauma, or gender differences- and what the differences in symptoms are. Trauma variables also need to be evaluated to see if the genders experience qualitatively different traumas.

Traumas have the ability to affect many areas of psychological well being. Adult attachment style and substance use can be seriously altered by the experience of a trauma. In 1980, Bowlby proposed the theory of attachment based on his previous work in psychotherapy and psychopathology. One of three patterns of attachment is used to describe a child's relationship with the primary caregiver. Secure attachment styles are expressed by the child who uses the caregiver as a secure base from which to explore the world and as comfort when distressed. Because of their uncertainty, anxious/ambivalent

children demonstrate inconsistent behavior around caregivers, while avoidant children avoid seeking support and rely on themselves instead. Attachment styles formed in childhood are exhibited in adulthood. Attachment has been associated with traumas and several forms of psychopathology. The connection, though, remains unclear.

Roche, Runtz, and Hunter (1999) proposed that attachment acts as a mediator between child sexual abuse and psychological adjustment. University students (N=307) participated in the study, including 85 women with a history of child sexual abuse. The results indicated that a history of childhood sexual abuse predicted psychological adjustment and attachment style. Adult attachment style also predicted psychological adjustment. The study supported a mediational model in which attachment mediates between child sexual abuse and psychological adjustment.

An 11-year study (Allen, Hauser, Stuart, & Bormann-Spurrell, 1996) followed 66 upper-middle-class adolescents psychiatrically hospitalized at age 14, and 76 sociodemographically similar high school students. Almost all of the hospitalized youths at age 25 exhibited insecure attachments, compared to a normal mix of attachments in the control group. Much of the insecurity was accounted for by previous trauma with an attachment figure, suggesting that trauma involving a perpetrator close to the victim might lead to insecure attachment. This insecure attachment was also linked to criminal activity and substance abuse. The authors propose that attachment might act as a mediator in the long-term psychopathology from adolescence to adulthood.

There is strong evidence that attachment style has an impact on a person's reaction to trauma, which could in turn influence whether a person develops PTSD, or

other psychopathology. It is also possible that experiencing a traumatic event could alter attachment, disrupting a healthy attachment style or making worse an already insecure or ambivalent attachment style. These studies suggest that more investigation is needed into the association between traumas and attachment style.

Substance use has been found to have high comorbidity rates with PTSD. Indeed, researchers often use substance-abuse treatment groups to study PTSD (Dansky, et al., 1996; Grice, et al., 1995). To describe this phenomenon people have been known to refer to the practice of “self-medication” with drugs and alcohol (Khantzian, 1997). Drugs and alcohol can have the effect of numbing or dulling emotions and making people temporarily “forget” their problems. In one sample (Dansky, Saladin, Coffey & Brady, 1998) more than 90% of the substance abuse patients reported some type of trauma, and 38% met criteria for PTSD. The researchers point out the need for PTSD screening in everyone seeking help for substance abuse.

Alcohol abuse is a particular substance abuse problem for people who have experienced a trauma (Young & Blake, 1999). Epstein, Saunders, Kilpatrick and Resnick (1998) searched for a link between alcohol use and rape in 2,994 women. A tension reduction hypothesis proposes that emotional distress precedes substance use. Although it is only one variable, the results indicated that PTSD may be an intermediary that links alcohol abuse to childhood rape. The history of rape doubles the number of alcohol abuse symptoms in adulthood. There is a strong possibility that PTSD is a pathway between other traumas and substance abuse.

Childhood and sexual trauma may pose greater threats according to one study of women and alcohol (Oumette, Wolfe & Chrestman, 1997). Of 52 women who served in the military or as civilians during Vietnam, 12 were diagnosed with alcohol abuse and PTSD, 13 with PTSD, 5 with alcohol abuse, and 22 with neither. Women with childhood sexual abuse or sexual victimization were more likely to be diagnosed twice, despite no differences among the groups in other trauma variables. PTSD subjects, both alcohol abusers and non-abusers, also exhibited other disorders more often.

Najavits, Weiss, and Shaw (1999) compared 28 women suffering both from substance dependence and PTSD to 29 women with only PTSD. The two groups did not differ with respect to PTSD onset or severity, or type of lifetime traumas; however, the women with two diagnoses had more severe clinical profiles as children and adults. These women had more criminal behavior, worse life conditions, and a higher number of suicide attempts.

Najavits, et al. (1997) review evidence that there are also gender differences in drug use. They found that women have higher rates (39% to 59%) of dual diagnosis of PTSD and substance abuse, commonly derived from repetitive childhood physical or sexual abuse. Men were found to have rates of dual diagnosis two to three times lower, and substance abuse stemmed more often from violent or crime-related trauma.

Although many people who have PTSD also have addiction problems, Brown, Stout and Mueller (1999) found that they receive no more psychiatric care than substance-abuse patients without PTSD. Brown, Stout and Gannon-Rowley (1998) evaluated patients in a substance abuse treatment program who also had PTSD for their

opinions of comorbid diagnosis and treatment. The patients themselves saw the conditions as related. They reported that as one condition worsened, so did the other; if one condition improved the other did also. Because of this, the patients favored simultaneous treatment for the conditions, although the majority of the patients were never referred to help for their PTSD.

Dansky, Roitzsch, Brady, and Saladin (1997) found that substance abuse patients were underdiagnosed with PTSD, and suggest that a more rigorous investigation into possible PTSD symptoms be used with these patients. Combined with evidence that PTSD and substance abuse comorbidity rates are high, this knowledge suggests that substance abuse patients should be screened for symptoms of PTSD, and, conversely, those with PTSD should be evaluated for accompanying substance abuse.

The link between PTSD and substance use disorders needs more exploration, such as how the two disorders are linked. The questions about the development of substance abuse are similar to those raised about PTSD symptoms. There are questions about whether gender affects the development of substance abuse, and how the type of trauma can affect substance abuse, if the trauma is violent or non-violent, sexual in nature, or directly experienced.

### Problem

The purpose of the present study was to investigate the relationships between several factors involved in the development of PTSD. Because of the previous evidence that found substance abuse and PTSD to be related, drug use among the sample was evaluated. It was expected that rates of drug and alcohol use would be higher among those students reporting traumas.

Attachment styles were also reviewed in relation to gender and trauma type. It was hypothesized that the identity of the perpetrator in violent crime would have an effect on attachment. Those subjects who experienced a trauma perpetrated by someone close would have higher scores in avoidant and ambivalent attachment.

The students were evaluated for exposure to a trauma and subclinical PTSD symptoms. PTSD symptoms were expected to be higher in those students reporting any type of potentially traumatic event, but suspected to be more prevalent when the subjects themselves called the event traumatic, and when the event was directly experienced by the subject, rather than witnessed or heard about. Differences between the genders in types of trauma experienced and types of symptoms were looked for. It was hypothesized that those subjects reporting sexual trauma would display more severe symptoms than those reporting other traumas. It was also hypothesized that women would experience more sexual traumas, while men would experience more traumas of a violent nature. The identity of the perpetrator in violent and sexual traumas was suspected to influence the development of symptoms, where the closer the perpetrator was to the subject, the worse the symptoms would be.

## Method

Participants

The sample in this study consisted of 288 college undergraduates from Texas A&M University. The students were part of a research pool composed of students enrolled in Introductory Psychology, required to participate in four hours of research.

The average age of the 288 students was 18.9. Fifty-one percent were *freshman* and 36.1% were sophomores. The marital status of the sample was 98.3% single. Females were 64.6% of the sample. All demographic variables are listed in Table 1.

Table 1

## Demographic Variables

Variable	%	N
<b>Gender</b>		
Male	35.4	102
Female	64.6	186
<b>Ethnicity</b>		
African-American	3.9	11
Anglo-American	54.6	155
Mexican-American	9.2	26
Asian-American	2.8	8
Native American	3.9	11
Other	25.7	73



Table 1 Continued

	%	N
<b>Age</b>		
18	43.4	125
19	35.1	101
20	13.9	40
21	4.5	13
22	1.4	4
23	1.0	3
24	0.3	1
25	0.3	1
<b>Classification</b>		
Freshman	51.0	147
Sophomore	36.1	104
Junior	7.6	22
Senior	5.2	15
<b>Marital Status</b>		
Single	98.3	283
Married	1.4	4
Other	0.3	1
<b>Parental Marital Status</b>		
Single	0.3	1

Table 1 Continued

	%	N
Married	80.8	231
Divorced	15.0	43
Other	3.8	11
Hometown		
Rural	36.4	104
Urban	63.6	182
Parental Yearly Income		
Below 5,000	0.0	0
6-10,000	1.1	3
11-15,000	0.4	1
16- 20,000	2.2	6
21-30,000	5.5	15
31-40,000	8.4	23
41-50,000	8.4	23
51-60,000	12.0	33
Over 60,000	62.2	171

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### Measures

The students completed a 155-item questionnaire consisting of six parts.

### Demographics Questionnaire

Subjects supplied background information, including age and gender, academic classification, ethnicity, and marital status. Questions were also asked about hometown size, parental marital status, and parental income.

### The PostTraumatic Stress Disorder Interview (PTSD-I)

This interview was developed by Watson, Juba, Manifold, Kucala & Anderson (1991). The interview was developed and validated with male psychiatric inpatients that were combat veterans. The PTSD-I uses the DSMIII-R criteria to divide the interview into three sub-scales for each diagnostic criterion subgroup. The groups are reexperiencing, avoidance, and hyperarousal. The symptoms are in statement form, and subjects respond in terms of the frequency they experience each symptom. Answers are on a scale from 0, "no/never", to 7, "extremely/always". Carlson (1996) notes that this measure is useful because it accounts for onset, frequency and severity of symptoms. This particular measure is sensitive to the effects of trauma involving violence.

Lifetime Involvement in Violent Events Survey (LIVES) (McGruder, Stock, & Davidson, 1995).

Eleven categories of the LIVES were combined into one scale called life threat events. Four categories of the LIVES were combined into another scale called sex threat events. The subjects were asked to indicate how many times each event happened to them directly, and how many times they witnessed or heard about the event, not including events in the media. The life threat events were: held hostage, intentionally shot or threatened with a gun, intentionally threatened or stabbed with a knife, mugged,

chased by a gang, beaten, carjacking, murder, and military combat. The sex threat events were: attempted rape, forced intercourse, forced sexplay, and forced sex acts.

#### Adult Attachment Questionnaire (AAQ)

A two dimensional, 17-item measure to determine the individual's style of attachment was developed by Simpson, Rholes, and Phillips (1996). One dimension measures the level of avoidance, or the tendency to withdraw from intimate relationships. The second dimension measures the level of ambivalence, the tendency to have conflicting thoughts on the stability of others' dependence. These dimensions were assessed for romantic and friendship relationships.

#### Substance Use Questionnaire

Questions were presented regarding the subjects' use of marijuana, alcohol, cocaine, ecstasy, and other drugs. Subjects were asked to indicate the frequency of use in the last six months and lifetime use by selecting choices that ranged from "not at all" to "forty or more times". Subjects also indicated tobacco use and caffeine use per day. Substance use data are presented in Table 2. For alcohol, subjects indicated the average number of drinks consumed per setting, presented in Table 3, and the frequency with which they drank in the last six months, presented in Table 4.

#### Open-ended Questions

Subjects were asked the question, "Have you ever experienced something so horrible that it would be distressing to almost anyone?" If the response was yes, the subject was then also asked to describe the trauma, when and where it occurred, and

Table 2

## Prevalence of Drug Use

	Subjects who used substance	
	%	N
<b>Marijuana</b>		
Last six months	19.3	55
Life time	31.6	90
<b>LSD</b>		
Last six months	3.2	9
Lifetime	6.0	17
<b>Uppers</b>		
Last six months	3.5	10
Lifetime	5.6	10
<b>Downers</b>		
Last six months	1.4	4
Lifetime	2.5	7
<b>Tranquilizers</b>		
Last six months	3.2	9
Lifetime	4.9	14
<b>Ecstasy</b>		
Last six months	2.5	7
Lifetime	4.9	14

Table 2 Continued

	%	N
<b>Cocaine</b>		
Last six months	1.7	5
Lifetime	2.8	8
<b>Crack</b>		
Last six months	0.7	2
Lifetime	0.7	2
<b>Poppy Derivatives</b>		
Last six months	1.4	4
Lifetime	1.7	5
<b>Inhalants</b>		
Last six months	0.7	2
Lifetime	3.8	11
<b>Codeine</b>		
Last six months	4.2	12
Lifetime	6.6	19
<b>Alcohol</b>		
Last six months	81.5	234
<b>Caffeine</b>		
Last six months	98.3	282

Table 2 Continued

	%	N
Tobacco		
Last six months	44.6	128

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Table 3

## Alcohol Consumption Per Setting

Number of Drinks Per Setting	%	N
I don't drink alcohol	17.1	49
½ drink	4.5	13
1 drink	10.5	30
2-3 drinks	23.1	66
4-5 drinks	19.2	55
6 drinks	11.5	33
7-12 drinks	13.3	38
13+ drinks	0.6	2

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Table 4

## Frequency of Alcohol Consumption During Last Six Months

Number of Times	%	N
Not at all	18.5	53
A few times	10.8	31
About once a month	14.6	42
A few times a month	7.0	20
About once a week	14.6	42
A few times a week	13.9	40
Almost daily	17.8	51
Several times daily	2.8	8

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other people that may have been involved. If the answer was no, the subject was asked to describe the most terrible thing that ever happened to them. For the LIVES, subjects were also asked to provide a written description of the trauma if it was directly experienced.

Two raters coded all the written responses using the DSM-IV definition for a traumatic event. The information was rated for meeting the DSM-IV criteria for a trauma, whether the event was directly experienced, witnessed, or heard about, whether the event was violent, and, if violent, the relationship of the perpetrator to the subject. The rating was done independently, and the two raters then conferred to reach a final



rating to be used for analyses. Inter-rater agreement for whether the event was a trauma was 80.63% of 253 ratings. For ratings of whether the event was experienced directly, witnessed, or heard about, agreement was 90.51% of 253 ratings. For ratings of whether the event was violent, agreement was 91.30% of 253 ratings. The violent events were also coded for the relationship of the perpetrator to the subject, close or not close. Agreement was 92.30% of 78 ratings.

The subjects were also asked to answer questions about their levels of helplessness, fear, and horror following the events. To meet criteria for a trauma, events had to match the definition of a traumatic event and the subject had to demonstrate the expected emotional response.

#### Procedure

This study was reviewed and approved by the Institutional Review Board for Human Subjects. A consent form, signed by all students, informed them of the nature of the study. The students were also told that the study was completely voluntary, and could be discontinued at any time without penalty. Responses were placed in sealed envelopes to ensure anonymity. A graduate student was available at all times in the event that a student became distressed.

## Results

### Internal Consistency

Coefficient alphas were calculated for the three subscales of the PTSD-I, the combined PTSD-I scales, and the four sub-scales of the AAQ. The outcome measures were internally consistent, as shown in Table 5.

### Exposure to Traumatic Events

Exposure to traumatic events was low based on the open-ended responses, with only 13.9%, or 37, answering that they had experienced something traumatic. Twenty-seven of these subjects also exhibited high levels of fear, helplessness, and horror. However, when the experimenters rated all the subjects' open-ended responses, 70.0% were found to have experienced an event potentially traumatic according to DSM-IV standards. The event was experienced directly by 18.4% of the sample, witnessed by 34.8%, and heard about by 46.8% of the subjects.

According to the LIVES and the open-ended responses, women reported sexual traumas more often than men, while the men reported non-sexual forms of trauma. The responses to the LIVES can be seen in Table 6.

### Self-reported Trauma with Emotional Response and Gender

A 2 (trauma) X 2 (gender) MANOVA was used to evaluate the symptoms of PTSD, attachment styles, and drug use. For this analysis, only those subjects who also scored high on feelings of helplessness, horror, and fear were considered to have a trauma in accordance with the DSM-IV definition.

Table 5

## Internal Consistency

Measure	Alpha	Mean	SD
<b>PTSD-I Scales</b>			
Reexperiencing	0.83	2.37	1.18
Avoidance	0.85	2.21	1.25
Hyperarousal	0.80	1.89	1.04
PTSD Symptoms	0.92	24.79	8.59
<b>AAQ Scales</b>			
Romantic Avoidance	0.83	26.38	9.26
Romantic Ambivalence	0.83	31.33	10.76
Friendship Avoidance	0.82	24.79	8.59
Friendship Ambivalence	0.85	26.23	9.68

Table 6

## Exposure to Life and Sex Threat in the LIVES

Event	Direct		Witnessed		Told About	
	%	N	%	N	%	N
Held Hostage	0.4	1	1.1	3	22.9	65
Threatened with Gun	2.5	7	8.2	23	49.5	141

Table 6 Continued

Event	Direct		Witnessed		Told About	
	%	N	%	N	%	N
Shot with gun	1.1	3	1.4	4	38.0	108
Threatened with Knife	4.7	13	11.2	31	44.4	126
Stabbed with Knife	1.1	3	3.2	9	31.8	90
Mugged	1.8	5	2.2	6	44.2	126
Chased by a Gang	9.6	27	9.9	22	39.3	110
Beaten	4.7	13	18.4	52	53.2	151
Carjacked	1.1	3	1.1	3	21.8	62
Forced Sexplay	9.0	25	2.5	7	44.1	126
Forced Attempted Sex	2.9	8	0.0	0	38.5	110
Forced Intercourse	1.4	4	0.4	1	37.1	106
Forced Sex Acts	1.8	5	0.4	1	16.8	48
Murder/Homicide	0.0	0	0.8	2	27.4	78
Military/Combat Related	0.0	0	0.0	0	26.1	69

Results indicated a significant main effect for trauma, Wilk's Lambda  $F(11, 262) = 2.8530, p < .0015$ . Univariate analyses revealed significant differences in the PTSD-I scales of reexperiencing,  $[F(1, 272) = 30.10, p < .0001]$ , avoidance  $[F(1, 272) = 21.11, p < .0001]$ , and hyperarousal  $[F(1, 272) = 29.09, p < .0001]$ .

The means indicate that those subjects reporting a trauma were more likely to exhibit symptoms of reexperiencing, avoidance, and hyperarousal. The differences in the AAQ Scale were not statistically significant; however, the means were higher in the trauma group for romantic ambivalence and avoidance. There were also no significant differences in drug use, but again, means were higher for the trauma group. The means are presented in Table 7.

There was also a significant main effect for gender, Wilk's Lambda  $F(11, 262) = 2.3394, p < .0092$ . The significant difference in the PTSD-I was for reexperiencing [ $F(1, 272) = 5.59, p < .0188$ ]. There were no significant differences in attachment. There were, however, differences in lifetime marijuana use [ $F(1, 272) = 4.80, p < .0293$ ], alcohol use in the last six months [ $F(1, 272) = 10.71, p < .0012$ ], and alcoholic drinks per setting [ $F(1, 272) = 16.07, p < .0001$ ].

The means reveal that women have higher levels of reexperiencing symptoms. The men also had higher lifetime rates of marijuana use, and consumed significantly more drinks per setting than women. These means are presented in Table 8.

Gender effects were present throughout the study, but will not be discussed again. Gender was retained in subsequent analyses to test for interaction effects.

#### Self-Reported Trauma and Gender

The second analysis again used the subjects' responses about whether they had experienced a trauma. However, this time all subjects who reported having had a trauma were compared to those not reporting a trauma, regardless of the scores of fear, helplessness, and horror, because the number of subjects reporting a trauma and high

Table 7

PTSD-I, AAQ, and Substance Use Scores by Self-Reported Trauma with Emotional Response

	Trauma	No Trauma
	N=27	N=249
	Mean	Mean
PTSD-I		
Reexperiencing*	3.52	2.27
Avoidance*	3.36	2.19
Hyperarousal*	2.88	1.8
AAQ		
Romantic Avoidance	29.33	26.40
Romantic Ambivalence	34.44	30.91
Friendship Avoidance	25.88	25.02
Friendship Ambivalence	26.51	26.17
Substance Use		
Alcohol- last six months	3.44	3.13
Alcohol- per setting	3.70	3.07
Marijuana- last six months	0.48	0.37
Marijuana- lifetime	0.96	0.80

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Note: \*indicates  $p < .05$

Table 8

## PTSD-I, AAQ, and Substance Use Scores by Gender

	Male	Female
	N=97	N=179
	Mean	Mean
PTSD-I		
Reexperiencing*	2.19	2.51
Avoidance	2.24	2.34
Hyperarousal	1.88	1.92
AAQ		
Romantic Avoidance	26.26	26.92
Romantic Ambivalence	31.11	31.52
Friendship Avoidance	24.43	26.35
Friendship Ambivalence	26.45	26.07
Drug Use		
Alcohol- last six months*	3.75	2.84
Alcohol- per setting*	3.76	2.79
Marijuana- last six months	0.42	0.36
Marijuana- lifetime*	1.07	0.68

---

Note: \*indicates  $p < .05$

emotional responses was low ( $N=27$ ). This change increased the trauma group to 37.

A 2 (self-rated trauma) X 2 (gender) MANOVA was used to compare all subjects reporting a trauma to subjects not reporting a trauma. There was again a significant main effect for self-rated trauma, Wilk's Lambda  $F(11, 262) = 2.1376, p<.0183$ . The significant univariate results for PTSD scales were reexperiencing [ $F(1, 272) = 20.83, p<.0001$ ], avoidance [ $F(1, 272) = 12.40, p<.0005$ ], and hyperarousal [ $F(1, 272) = 18.44, p<.0001$ ]

There were no significant effects for attachment. There was a significant difference, however, for alcoholic drinks per setting [ $F(1, 2720) = 4.57, p<.0335$ ]. The means show that subjects reporting trauma reported having more drinks per setting. The means are presented in Table 9.

#### Experimenter-Rated Traumas and Gender

This analysis was based on the experimenters' ratings of traumas. Some events were not reported as traumas by the subjects, but met the DSM-IV criteria for traumas according to the definition of a traumatic event and emotional response of fear, helplessness, and horror. Although, 70% had experienced an event which was potentially traumatic, most did not rate it as producing high emotional response. These ratings were used to conduct another 2 (rated trauma) X 2 (gender) MANOVA, similar to the first analysis.

There was no significant main effect for experimenter-rated trauma. There was a significant main effect for the trauma X gender interaction, Wilk's Lambda  $F(11, 262) =$



Table 9

## PTSD-I, AAQ, and Substance Use Scores by Self-Reported Trauma

	Trauma	No Trauma
	N=37	N=239
	Mean	Mean
PTSD-I		
Reexperiencing*	3.18	2.27
Avoidance*	2.99	2.20
Hyperarousal*	2.57	1.80
AAQ		
Romantic Avoidance	29.00	26.33
Romantic Ambivalence	33.05	30.98
Friendship Avoidance	25.18	25.09
Friendship Ambivalence	26.25	25.86
Drug Use		
Alcohol- last six months	3.81	8.06
Alcohol- per setting*	3.75	3.03
Marijuana- last six months	0.51	0.36
Marijuana- lifetime	1.05	0.78

---

Note: \*indicates  $p < .05$

Table 10

## PTSD-I Scores for Experimenter-Rated Trauma X Gender Interaction

	Trauma		No Trauma	
	Male	Female	Male	Female
	N=18	N=54	N=79	N=125
	Mean	Mean	Mean	Mean
PTSD-I				
Reexperiencing	2.77 <sup>a</sup>	1.80 <sup>a</sup>	2.05 <sup>a</sup>	2.39 <sup>a</sup>
Avoidance*	3.27 <sup>b</sup>	2.51 <sup>a</sup>	2.00 <sup>a</sup>	2.27 <sup>a</sup>
Hyperarousal	2.42 <sup>a</sup>	2.17 <sup>a</sup>	1.75 <sup>a</sup>	1.81 <sup>a</sup>

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Note: \*indicates  $p < .05$

Means with the same superscript are not statistically significant.

2.0698,  $p < .0228$ . This effect was found in the avoidance scale of the PTSD-I [ $F(1, 272) = 7.04, p < .0084$ ]. As shown by the means in Table 10, of the subjects experiencing no trauma, women scored higher on avoidance, though not significantly higher.

Surprisingly, of the subjects who did experience a trauma, it was the men who scored higher for avoidance.

#### Sexual Trauma and Gender

The next analysis used another 2 (sexual trauma) X 2 (gender) MANOVA to

compare those subjects reporting sexual trauma on the LIVES to those subjects who did not report sexual trauma. For this analysis, sexual trauma included events directly experienced, witnessed, and heard about. A significant main effect was found for trauma  $F(11, 262) = 2.3859, p < .0079$ . The effects were found in all three scales of the PTSD-I, reexperiencing [ $F(1, 272) = 4.18, p < .0419$ ], avoidance [ $F(1, 272) = 6.75, p < .0099$ ], and hyperarousal [ $F(1, 272) = 7.58, p < .0063$ ]. For the AAQ, significant effects were found for romantic avoidance [ $F(1, 272) = 7.54, p < .0065$ ], romantic ambivalence [ $F(1, 272) = 8.36, p < .0041$ ], friendship avoidance [ $F(1, 272) = 4.94, p < .0270$ ], and friendship ambivalence [ $F(1, 272) = 7.13, p < .0080$ ].

The means are presented in Table 11. Those reporting experience with sexual trauma according to the LIVES scored significantly higher in every area of the PTSD-I, the AAQ, and substance use. Because these events could have been experienced directly, witnessed, or heard about, the scores indicate that any exposure to trauma of a sexual nature can have an impact.

There were no significant main effects for the trauma X gender interaction.

#### Direct Sexual Trauma

The effects of direct sexual trauma were evaluated in a 2 (direct sexual trauma) X 2 (gender) MANOVA. Those subjects who reported a direct sexual trauma on the LIVES were compared to the subjects who reported no sexual trauma. No significant effects were found, although the means were much higher in the subjects who had experienced some type of sexual trauma directly. There is the possibility that these differences were not significant because of the low number of reported direct sexual

traumas. Only 29 subjects reported direct involvement in sexual trauma, and only one of these was male. The means are shown in Table 12.

Table 11

## PTSD-I, AAQ, and Substance Use Scores by Sex Threat

	Sex Threat N=164	No Sex Threat N=112
	Mean	Mean
PTSD-I		
Reexperiencing*	2.52	2.22
Avoidance*	2.47	2.06
Hyperarousal*	2.05	1.70
AAQ		
Romantic Avoidance*	27.94	24.85
Romantic Ambivalence*	32.79	29.01
Friendship Avoidance*	26.04	23.73
Friendship Ambivalence*	27.48	24.33
Drug Use		
Alcohol- last six months*	3.45	2.74
Alcohol- per setting*	3.26	2.94
Marijuana- last six months*	0.54	0.14
Marijuana- lifetime*	0.99	0.56

---

Note: \*indicates  $p < .05$

Table 12

## PTSD-I, AAQ, and Substance Use Scores by Direct Sex Threat

	Direct Sex Threat	No Direct Sex Threat
	N=29	N=247
	Mean	Mean
PTSD-I		
Reexperiencing	3.04	2.32
Avoidance	3.11	2.21
Hyperarousal	2.45	1.84
AAQ		
Romantic Avoidance	32.82	25.97
Romantic Ambivalence	34.24	30.91
Friendship Avoidance	27.72	24.80
Friendship Ambivalence	26.24	25.86
Drug Use		
Alcohol- last six months	3.48	3.12
Alcohol- per setting	3.24	3.12
Marijuana- last six months	0.62	0.35
Marijuana- lifetime	0.93	0.80

---

Note: \*indicates  $p < .05$

### Women and Sex Threat

An additional analysis was done to evaluate the effect of sexual trauma based on reports from the LIVES. Because only one male reported direct sexual trauma, men were eliminated from the analysis to examine the effect on women. Females reporting direct sex threat on the LIVES were compared to women not reporting sex threat on the LIVES. There was a significant main effect for sexual threat, Wilk's Lambda  $F(11, 167) = 2.638, p < .0039$ . The significant differences for PTSD were found in the avoidance scale  $[F(1, 177) = 5.24, p < .0232]$ , and the hyperarousal scale  $[F(1, 177) = 8.17, p < .0048]$ . Significant differences were found in all four measures of attachment, romantic avoidance  $[F(1, 177) = 9.62, p < .0022]$ , romantic ambivalence  $[F(1, 177) = 5.24, p < .0233]$ , friendship avoidance  $[F(1, 177) = 5.09, p < .0253]$ , and friendship ambivalence  $[F(1, 177) = 5.28, p < .0227]$ . Significant effects for substance abuse were found for alcohol consumption in the last six months  $[F(1, 177) = 7.08, p < .0085]$ , marijuana use in the last six months  $[F(1, 177) = 10.03, p < .0018]$ , and lifetime marijuana use  $[F(1, 177) = 6.08, p < .0146]$ .

The means, presented in Table 13, show that women experiencing some type of sexual trauma have higher scores for avoidance and hyperarousal symptoms. These women also have higher levels of romantic ambivalence and avoidance, and friendship ambivalence and avoidance. Lifetime marijuana use was higher for these subjects, as was alcohol and marijuana use in the last six months. This suggests that women exposed to sexual trauma have significantly poorer functioning in many areas.

Table 13

## PTSD-I, AAQ, and Substance Use Scores by Sex Threat in Women

	Sex Threat	No Sex Threat
	N=110	N=69
	Mean	Mean
PTSD-I		
Reexperiencing	2.61	2.35
Avoidance*	2.52	2.06
Hyperarousal*	2.09	1.65
AAQ		
Romantic Avoidance*	28.70	24.07
Romantic Ambivalence*	32.53	28.85
Friendship Avoidance*	25.63	22.52
Friendship Ambivalence*	27.40	23.94
Drug Use		
Alcohol- last six months*	3.18	2.31
Alcohol- per setting	2.96	2.52
Marijuana- last six months*	0.52	0.10
Marijuana- lifetime*	0.86	0.39

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Note: \*indicates  $p < .05$

### Men and Violent Threat

Because women experienced more sex threats and men experienced more violent threats on the LIVES, an analysis, similar to the women and sex threat analysis, was done to compare men who reported a violent threat to men who did not report a violent threat on the LIVES. There was a significant main effect for violent threat,  $F(11, 85) = 4.8656, p < .0001$ . The only scale that showed an effect was the measure of alcohol consumed in the last six months [ $F(1, 95) = 7.25, p < .0084$ ].

The means are presented in Table 14. Men who reported violent threat were more likely to report more alcohol consumption in the past six months.

### Identity of Perpetrator and Gender

To identify the effect that identity of the perpetrator might have, all experimenter-rated violent traumas were coded for the relationship between the subject and the perpetrator. The perpetrator was identified as either close to the subject, or distant. This analysis was a 2 (perpetrator) X 2 (gender) MANOVA.

There were no significant main effects for perpetrator, gender, or perpetrator X gender interaction. However, the total number of subjects in this analysis was very small ( $N=26$ ), because only subjects who also scored high for emotional response met the criteria for a traumatic event. The means are shown in Table 15, and indicate some large differences, which might have been significant in a larger sample. For PTSD symptoms, the means reexperiencing and hyperarousal were higher when the perpetrator was close to the subject, and avoidance was higher when the perpetrator was not close to the subject. For the AAQ, friendship avoidance and ambivalence were both higher when



Table 14

## PTSD-I, AAQ, and Substance Use Scores by Violent Threat in Men

	Violent Threat	No Violent Threat
	N=84	N=13
	Mean	Mean
PTSD-I		
Reexperiencing	2.20	2.07
Avoidance	2.30	1.79
Hyperarousal	1.92	1.61
AAQ		
Romantic Avoidance	29.92	25.70
Romantic Ambivalence	32.09	27.84
Friendship Avoidance	26.79	23.46
Friendship Ambivalence	26.96	23.15
Drug Use		
Alcohol- last six months*	3.98	2.23
Alcohol- per setting	3.88	3.00
Marijuana- last six months	0.48	0.00
Marijuana- lifetime	1.17	0.38

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Note: \*indicates  $p < .05$

Table 15

## PTSD-I, AAQ, and Substance Use Scores by Identity of Perpetrator

	Close	Distant
	N=14	N=12
	Mean	Mean
PTSD-I		
Reexperiencing	2.55	3.18
Avoidance	2.66	3.44
Hyperarousal	2.32	2.61
AAQ		
Romantic Avoidance	32.14	26.00
Romantic Ambivalence	34.92	42.50
Friendship Avoidance	28.00	27.83
Friendship Ambivalence	30.64	28.83
Drug Use		
Alcohol- last six months	2.14	3.58
Alcohol- per setting	2.64	3.16
Marijuana- last six months	0.64	0.33
Marijuana- lifetime	0.78	0.75

---

Note: \*indicates  $p < .05$

the perpetrator was close to the subject, as was romantic avoidance. However, romantic ambivalence was higher when the perpetrator was not close to the subject. Alcohol use was higher when the perpetrator was close to the subject, and marijuana use was higher when the perpetrator was not close to the subject.

### Discussion and Conclusion

The results did confirm the hypothesis that those subjects who called an event in their life traumatic would have more problems. Subjects who reported their own trauma scored significantly higher on all subscales of the PTSD-I. While the scores for attachment and substance use were not significantly different, they were consistently higher for those subjects with a self-reported trauma. Because there were no significant differences for experimenter-rated trauma, it is suspected that the development of problems is influenced by the person's perception of the event. One person may not be affected by what is traumatic to another person. This could be because of previous exposure to an event, because of personal background variables, or because of pre-existing attachment styles.

The role of attachment style in response to traumas is still uncertain. It is clear that there is some type of relationship. Attachment scores were significantly higher for those reporting sexual threat, although not for other types of threat. However, the means were higher for self-reported traumas and for men reporting violent traumas. The small number of subjects could have masked significant differences. Attachment style could be affecting the way in which people respond to traumatic events. However, traumatic events could be altering attachment. More research is needed to determine how attachment factors into response to trauma.

It was hypothesized that the nature of the trauma might have an effect on the symptoms reported. Women experienced more sexual traumas, and report more PTSD symptoms. Men experienced more traumas of a violent, non-sexual nature. The

symptoms the men reported differed from women, as well as the type of trauma. Men showed greater lifetime use of marijuana, greater use of alcohol, and more alcohol consumed *per setting*. The different impacts on women and men may be a result of the type of trauma, or a result of gender differences.

Women displayed significantly more reexperiencing behaviors than men. If women have a tendency to reexperience negative events, this behavior could lead to the development of other PTSD symptoms. A tendency to reexperience and being more likely to experience a sexual trauma could explain why they show poorer functioning overall in response to trauma.

In contrast, men scored higher for avoidance for experimenter-rated traumas. This could demonstrate the tendency of men to avoid potential problems, rather than relive past ones. This could explain why men exhibit higher levels of substance use. While women demonstrated PTSD symptoms, men were exhibiting significantly higher scores for marijuana and alcohol use. There is also the possibility that men are not willing to admit experiencing PTSD symptoms, or that the men in this sample perceived the violent events to be less threatening than women perceived sexual threat.

Because no causal relationships can be inferred here, more research is needed to determine why women and men respond differently to traumas. It could be because of a gender difference that influences how they respond, either with reexperiencing or avoidance behaviors. It could be because they are more likely to experience different types of trauma. These two factors could also be working together.

However, it is evident that any type of sexual trauma has a negative impact in all areas. For both the entire sample and the women by themselves, higher scores appeared in all areas of the PTSD-I, AAQ, and substance use for subjects exposed to any type of sexual trauma- direct, witnessed, or heard about. There was no gender-sexual trauma interaction because only one male in the sample reported direct sexual threat. In a sample with more men reporting sexual threat, an interaction may appear that was not seen here.

Substance use was consistently higher in men. Overall, substance use was higher for all subjects who reported a trauma, and women who reported a sexual trauma. As already noted, substance use may be a more likely response for men than women in general, but trauma is also related to substance use in women. Although the study did reveal several significant differences in substance use, the age of the sample could have masked even larger differences because substance use is higher in college populations in general.

This study had several limitations. Further research should focus on eliminating these limitations. This sample consisted entirely of college students, mostly white and middle class. Future studies should examine samples from the general population with more diverse socioeconomic status, more diverse cultural backgrounds, and a broader age range. This study also had small numbers of subjects reporting *traumatic events*. This could have disguised possible significant differences that would appear in samples reporting more traumatic events. Especially for sexual trauma, the low number of men

reporting any type of sexual threat could have prevented effects that are present in the general population.

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