A Dissertation

entitled

The Relationship between Adverse Childhood Events, Resilience, and Substance Dependence among a College Freshman Population

by

Stephanie A. Calmes

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the

Doctor of Philosophy Degree in Counselor Education and Supervision

___________________________________________
Dr. John M. Laux, Committee Chair

___________________________________________
Dr. Nick J. Piazza, Committee Member

___________________________________________
Dr. Chris P. Roseman, Committee Member

___________________________________________
Dr. Jennifer L. Reynolds, Committee Member

___________________________________________
Dr. Patricia R. Komuniecki, Dean
College of Graduate Studies

The University of Toledo
May 2012
An Abstract of

The Relationship between Adverse Childhood Events, Resilience, and Substance Dependence among a College Freshman Population

by

Stephanie A. Calmes

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Counselor Education and Supervision

The University of Toledo
May 2012

There is a great deal of literature to suggest that experiencing traumatic events in childhood often leads to problematic outcomes in adulthood. Not all individuals who experience such trauma, however, arrive at the same end point. The concept of resilience has been promoted as one of the ways in which individuals experiencing similar life events can end up with very different results. This study sought to clarify the complex relationship between adverse childhood events, resilience, and substance dependence in a college student sample. This researcher surveyed 143 first-year college students in a university orientation class. While this researcher did identify a relationship between trauma and substance dependence in this sample, not all findings were in support of the research questions. Despite the mixed results of this study, the researcher did identify several notable implications based on this study’s findings, as well as a number of suggestions for future research.
For Mom and Dad, the two best parents I could have ever asked for.
Acknowledgments

This dissertation would not have been possible without the support of my family and friends. Their love and encouragement was essential in helping me to persevere with this dissertation. I am also grateful to my committee members, Dr. Chris Roseman, Dr. Nick Piazza, and Dr. Jennifer Reynolds, whose input was so valuable to me throughout this process.

Mostly, I owe this dissertation to my advisor and chair, Dr. John Laux, whose dedication to this project and to my educational career has been immeasurable. I am forever grateful.
Table of Contents

Abstract iii
Acknowledgments v
Table of Contents vi
List of Tables ix
List of Symbols x

1 Introduction 1
  1.1 Alcohol and Other Drug Use in College Student Populations 1
  1.2 Statement of the Problem 5
  1.3 Purpose of the Study 5
  1.4 Research Questions 6
  1.5 Significance of the Study 6

2 Literature Review 8
  2.1 The General Societal Consequences Associated with Substance 9
  2.2 Consequences of Substance Abuse among College Populations 10
  2.3 Substance Abuse and Dependence 13
  2.4 Biological Influences on Substance Abuse 18
  2.5 Environmental Influences on Substance Abuse 20
  2.6 Resilience 24
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.7 Scales</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Methods</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>3.1 Introduction</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>3.2 Research Questions</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>3.3 Research Design</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>3.4 Sample/participants</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>3.5 Instruments</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>3.6 Procedures</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>3.7 Variables</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>3.8 Data Analysis</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>3.9 Ethical Considerations</td>
<td>50</td>
</tr>
<tr>
<td>4</td>
<td>Results</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>4.1 Descriptive Data</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>4.2 Research Questions</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>4.3 Post-hoc Analyses</td>
<td>58</td>
</tr>
<tr>
<td>5</td>
<td>Discussion</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>5.1 Background and Study Findings</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>5.2 Integrating the Present Findings into the Literature</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>5.3 Implications</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>5.4 Limitations</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>5.5 Suggestions for Future Research</td>
<td>75</td>
</tr>
<tr>
<td>References</td>
<td></td>
<td>77</td>
</tr>
<tr>
<td>A</td>
<td>Institutional Review Board (IRB) Approval Form</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---------------------------</td>
<td>----</td>
</tr>
<tr>
<td>B</td>
<td>Demographic Data Form</td>
<td>93</td>
</tr>
<tr>
<td>C</td>
<td>Connor-Davidson Resilience Scale (CD-RISC)</td>
<td>100</td>
</tr>
<tr>
<td>D</td>
<td>Ego-Resiliency Scale (ER89)</td>
<td>106</td>
</tr>
<tr>
<td>E</td>
<td>Interpersonal Support Evaluation List (ISEL)</td>
<td>109</td>
</tr>
<tr>
<td>F</td>
<td>Resilience Scale (RS)</td>
<td>114</td>
</tr>
<tr>
<td>G</td>
<td>Substance Abuse Subtle Screening Inventory-3 (SASSI-3)</td>
<td>115</td>
</tr>
</tbody>
</table>
List of Tables

4.1 Frequency and age data for adverse childhood events .................. 54
4.2 Age data for adverse childhood events for only those who were negatively impacted .................................................. 55
4.3 The severity of the impact of each of the life events ...................... 56
4.4 Score means, ranges, and standard deviations for the three resilience scales used in this study ........................................ 59
4.5 Resilience scale scores based on substance dependent status .......... 60
4.6 Resilience scale scores based on traumatized status ....................... 61
List of Symbols

$\alpha \quad \text{Cronbach’s alpha}$
$\varepsilon^2 \quad \text{eta squared, effect size}$
$\lambda \quad \text{Wilks’ lambda}$

$F \quad \text{F statistic for ratio of variances}$
$p \quad \text{p-value, the chance of obtaining the observed result if no real relationship exists}$
$R \quad \text{multiple correlation coefficient}$
$R^2 \quad \text{coefficient of determination}$
$r \quad \text{correlation coefficient, the degree of the relationship between two variables}$
Chapter 1

Introduction

Chapter 1 will provide an introduction to the scope of substance abuse and its consequences, perspectives on the etiology of these disorders, and the role of resiliency as it applies to substance use. Chapter 1 will then address the research problem being investigated, the purpose of the study, the research hypotheses, and the significance of the present study. The chapter will then conclude with an overview of the organization of the dissertation.

1.1 Alcohol and Other Drug Use in College Student Populations: Consequences, Correlates, and Predictors

Abuse of alcohol and other drugs has led to a number of negative consequences for society. The total cost of substance abuse in America is calculated to be upwards of $246 billion, and has been on a steady climb since 1975 (Swan, 1998). More recent estimates of the overall costs of substance abuse in the United States are even higher. A report from the National Institute on Drug Abuse (NIDA, 2011) pegs current costs of substance abuse at upwards of $600 billion annually when illicit drugs, alcohol, and tobacco are all included. These economic costs are ascribed to a variety of sources, including increasing health care expenses, lost productivity (in the form of premature
death, drug abuse related illness, incarceration, etc.), and other related societal costs (ONDCP, 2004). Young people may be at an increased risk for the negative consequences attributed to alcohol and other drug abuse. According to the National Center on Addiction and Substance Abuse at Columbia University (CASA, 2007), half of all full-time college students binge drink (defined as five or more drinks on any one drinking occasion in the past two weeks) and/or abuse prescription or illegal drugs each month. Furthermore, rates of substance abuse among college-aged students have not decreased in recent years (CASA). A report from the National Institute on Drug Abuse (NIDA, 2007) indicates that these findings are especially significant because while alcohol use among high school students and young adults not in college has steadily decreased, college students have maintained high rates of heavy drinking.

Particularly severe consequences for college aged students who abuse alcohol and/or other drugs are not uncommon. Alcohol-related injuries, injury-related deaths, physical assaults by another drinking student, and drunk driving all are fairly common outcomes for college students (CASA, 2007; Hingson, Zha, & Weitzman, 2009). Other negative consequences of substance misuse for college aged students include sexual assault, legal problems, physical and mental health issues, and suicidality (CASA; Hingson, Heeren, Winter, & Wechsler, 2005). Finally, students who abuse alcohol and drugs often have academic problems and difficulties, including missing classes and falling behind in coursework (CASA).

A variety of viewpoints have emerged to explain why some individuals develop substance use disorders. Biological explanations for substance abuse and addiction are commonplace, with many attributing the development of substance use disorders within
families to a genetic predisposition (Bierut et al., 1998; Cami & Farre, 2003; APA, 2000). Prescott and Kendler (1999) found that genetic factors played a significant role in the development of alcohol use disorders for male twin research participants, including both alcohol abuse and dependence. Furthermore, researchers have suggested that for those substance abusing individuals with a family history of addiction, they tend to have more severe addictions beginning at an earlier age and with poorer long-term prognoses (Maxmen & Ward, 1995). Similarly, Merikangas et al. (1998) concluded that a family history of drug addiction is one of the most powerful factors contributing to the development of drug abuse.

Still, a number of researchers have focused on environmental influences on the development of substance use disorders. Much of this research has concentrated on the influence of the college setting, family of origin issues, and the experience of trauma as particularly powerful factors in determining substance abuse outcomes. Zakletskaia, Wilson, and Fleming (2010) reported that 57 percent of college students seeking services at a university medical center were considered at-risk drinkers, and many underage students admit to frequent and easy access to alcohol in a variety of settings (Fabian, Toomey, Lenk, & Erickson, 2008). Substance abuse may therefore be a prominent part of the culture on college campuses. Additionally, many researchers have reported that family dynamics, including quality of attachment, parenting style, and modeling of substance use have all been linked to substance use outcomes for young adults (Barrett & Turner, 2006; Velleman, Templeton, & Copello, 2005). Finally, other authors have suggested that experiencing child abuse, adult victimization, and even witnessing community violence are all linked to increased risk of substance use disorders (Kilpatrick
et al., 2000; Zinzow et al., 2009). Timko, Sutkowi, Pavao, and Kimerling (2008) suggested that for trauma survivors, the use of substances may be an attempt to cope with the negative psychological impact of the abusive or violent experience.

Despite the aforementioned research, not all individuals with similar backgrounds abuse substances nor develop substance use disorders. The concept of resilience has been introduced to explain why some individuals, in spite of possibly having a family history of addiction or experiencing traumatic life events, avoid developing a problem with alcohol or drugs. McElwee (2007) described resiliency as the ability to bounce back from difficult experiences or adversity. It has been reported that resilience serves as a buffer to traumatic events and can protect individuals from being vulnerable to developing substance use disorders (Hall & Webster, 2007). Other researchers have viewed resilience as a combination of multiple protective factors, including possessing high intelligence, problem solving capabilities, a sense of self-efficacy, a secure attachment to at least one parental figure, and engagement in meaningful activities (Constantine, Benard, & Diaz, 1999; Everall, Altrows, & Paulson, 2006).

The aforementioned research studies identify and detail a number of risk and protective factors that are believed to influence an individual’s likelihood of developing problems related to substance use. Despite the available and extensive research supporting this position, there exist many other research studies that argue that risk factors are not sufficient to predict negative outcomes (i.e., substance use disorders). One such research study reported that in their sample, college-aged adult children of alcoholics (ACOAs) were just as well-adjusted as those who were not children of alcoholics (Wright & Heppner, 1991). Other researchers have found no significant
differences between ACOAs and non-ACOAs on a number of measures of coping and overall functioning, such as substance use, self-esteem, and cognitive ability (Cutler & Radford, 1999; Harter & Taylor, 2000; Schroeder & Kelley, 2008). Still other researchers have suggested that many ACOAs are able to not only function capably, but have somehow been able to thrive in adulthood and make meaning of their lives (Palmer, 1997).

1.2 Statement of the Problem

The varied research presented in this chapter suggests that individuals raised in homes in which one or more caregiver abused or was dependent upon alcohol and/or those who have experienced traumatic life events are a diverse group and do not have identical outcomes. It is therefore evident that no one risk factor discussed previously fully explains the variance in functioning and substance use among college students. As a result, it is unclear which college-aged students are at the greatest risk for developing a substance use disorder. By understanding the role of resilience over and above all of the specific predictive factors that can be controlled, predicting substance use disorders among college students may be more accurate.

1.3 Purpose of the Study

The purpose of this study is to investigate the developmental history, resilience factors, and substance use of a sample of undergraduate college students. By conducting this study, the researcher hopes to identify what most effectively serves as a protective mechanism against developing a problem with substance use and other potentially negative outcomes.
1.4 Research Questions

1. Is there a relationship between adverse childhood events and substance dependence in a college student sample?

2. Does resilience predict unique variance in substance dependence status over and above variance accounted for by adverse childhood events?

1.5 Significance of the Study

Knowing this information would enable counselors and other mental health professionals to be better equipped to evaluate a student’s risk of developing a substance use problem, regardless of the student’s family background or the absence or presence of traumatic life experiences. If counselors were able to accurately identify who is at risk for developing substance use disorders, more individualized treatment planning and resulting interventions could be applied, rather than providing a uniform and unvarying approach to treatment. Also, should resilience uniquely mitigate the development of substance use disorders, mental health clinicians may have the opportunity to focus on wellness, enhancing innate strengths, and promoting resilience in their practice, as opposed to focusing on illness and the removal of deficits.

Furthermore, understanding the unique role of resilience in predicting substance use disorders among college students may permit early detection of substance abuse and the implementation of appropriate intervention strategies in a timely manner. More accurate targeting of substance abuse issues will likely result in more cost-effective treatment measures. University admissions may be especially interested in the possibility of using resilience as a tool to promote student retention. The potential also exists that increasing the accuracy of identification of substance use disorders in college students
may improve graduation rates and the ability for students to be productive members of society.

Summary

Chapter 1 introduced the problem being investigated and provided a rationale and purpose for the current study. Chapter 2 reviews and presents the research literature relevant to this study. The methodology used in this study is presented in Chapter 3. Chapter 4 will detail the statistical analyses performed and the results of this data. Discussion and summary of the study will be presented in Chapter 5.
Chapter 2

Literature Review

Chapter 2 will provide the reader with a background on the problem of substance abuse and addiction, including the costs of substance abuse and the negative consequences stemming from the misuse of substances. The various harmful consequences of substance abuse examined include unintentional death, injury, sexual assault, legal problems, health concerns, emotional problems, and academic difficulties. This author will then present a background on the diagnoses of substance abuse and dependence, including the diagnostic criteria for both. Biological influences on substance abuse and addiction will then be presented, including genetic and physiological explanations for the development of a substance use problem. Environmental influences on substance abuse will also be reviewed, and will focus on the culture of college settings, family of origin issues, and trauma as contributory factors. Finally, this chapter will conclude with a review of the concept of resiliency, as well as how individuals’ perceptions of experiences are more powerful determinants of outcome than are the experiences themselves.
2.1 The General Societal Consequences Associated with Substance Use Disorders

Alcohol and other drug abuse has led to a variety of negative consequences for American society. According to Swan (1998), the economic cost of drug abuse in the United States was estimated at $97.7 billion in 1992, a statistic 50% higher than the most recent previous estimate made less than 10 years prior. When the cost to society for alcohol abuse is added, the total cost of substance abuse in America is calculated to be upwards of $246 billion, and has been on a steady climb since 1975 (Swan). A more recent report from the Office of National Drug Control Policy (ONDCP, 2004) suggests that these rates continue to be on the rise. By 2002, the economic cost of drug abuse in the United States was estimated at $180.8 billion, an increase of 5.9 percent per year since 1992 (ONDCP). The economic costs have been attributed to increasing health care expenses, lost productivity (in the form of premature death, drug abuse related illness, incarceration, etc.), and other related societal costs (ONDCP). In their study, Rehm et al. (2009) evaluated the societal cost of alcohol use and alcohol use disorders across a number of nations. While all countries evaluated spent more than 1 percent of their Gross Domestic Product (GDP) as a result of alcohol misuse, the authors found that the U.S. had the highest alcohol-related cost per person among all nations surveyed (Rehm et al.).

In addition to the overall cost of substance misuse to American society in general, young adults may be at an increased risk for a number of harmful consequences related to drug and alcohol use. According to the National Center on Addiction and Substance Abuse at Columbia University (CASA, 2007), half of all full-time college students binge drink (defined as five or more drinks on any one drinking occasion in the past two weeks)
and/or abuse prescription or illegal drugs each month. Almost one in four of these college students met the diagnostic criteria for a substance use disorder in 2005, a rate nearly triple that found in the general population (CASA). In addition, research suggests that binge drinking in college leads to a higher risk of having alcohol problems later in life, ongoing behavioral issues, and difficulty adjusting to adult roles after college (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2006). Furthermore, rates of substance abuse among college-aged students have not decreased in recent years. From 1993 to 2005, abuse rates for all of the following classes of drugs among college students increased substantially: Prescription painkillers (up 343%), stimulants (up 93%), tranquilizers (up 450%), sedatives (up 225%), marijuana (daily users more than doubled), and other illegal drugs (such as cocaine and heroin, up 52%) (CASA).

2.2 Consequences of Substance Abuse among College Populations

The consequences for alcohol and other drug abuse among college students can be particularly severe. Among college students ages 18-24, the incidence of alcohol-related unintentional deaths by injury increased 3 percent between 1998 and 2005, from 1,440 to 1,825 per 100,000 (Hingson et al., 2009). Furthermore, in the year 2001 alone, nearly 600,000 college students were injured because of drinking, and nearly 700,000 were assaulted by another drinking student (Hingson, Heeren, Winter, & Wechsler, 2005). Among college-aged students, rates of drunk driving increased 7 percent from 1999 to 2005 (Hingson et al., 2009). When these statistics are compared to those of other countries, U.S. college students have the highest rates of drinking and driving, with nearly 50 percent of male drinkers and 35 percent of female drinkers admitting to driving while under the influence of alcohol (CASA, 2007).
Unsafe sexual practices and sexual assault are also more common occurrences among alcohol abusing students (Wechsler, Dowdall, Davenport, & Castillo, 1995). Wechsler, Davenport, Dowdall, Moeykens, and Castillo (1994) found that students who regularly binged on alcohol were 7 to 10 times more likely to engage in unplanned sexual activity and to not use protection when sexually active than the students who did not binge drink. In a similar study, Hingson et al. (2005) reported that in 2001, 474,000 college students had unprotected sex because of their drinking and almost 100,000 students were the victims of alcohol-related sexual assault or date rape.

Legal problems and involvement with the authorities are also frequent consequences of substance abuse for college-aged students. Wechsler et al. (1994) conducted a study on the substance use of nearly 18,000 college students from 140 four-year colleges across the United States. The participants were subsequently characterized as non-binge drinkers, infrequent binge drinkers, and frequent binge drinkers. Only 2 percent of the non-binge drinkers admitted to engaging in property damage, whereas 8 percent of the infrequent binge drinkers and 22 percent of the frequent binge drinkers endorsed this item (Wechsler et al., 1994). In a related item, just 1 percent of non-binge drinkers and 4 percent of the infrequent binge drinkers indicated that they had been involved with campus or local police; however, 11 percent of the frequent binge drinkers had admitted to this behavior (Wechsler et al., 1994). Between 2001 and 2005, the number of alcohol-related arrests on college campuses increased 21 percent, and in 2005 alone, 83 percent of campus arrests were for alcohol-related incidents (CASA, 2007).

Substance abuse among college students is also associated with various health problems, including emotional issues and suicidality. Binge drinking has been shown to
be a major risk factor for serious health problems, and those who frequently binge drink are more likely to experience such issues (Wechsler et al., 1994; Wechsler et al., 1995). College students who regularly drink alcohol rate their own health much lower than do students who do not drink alcohol (CASA, 2007). Furthermore, substance use during young adulthood has been linked to depression, anxiety, and personality disturbances; in fact, one study found that of the college students who admitted considering suicide in the previous 12 months, they were more likely than other students to binge drink and use marijuana or other illegal drugs (CASA).

The negative consequences of alcohol and drug abuse are not limited to sexual assault, injury, and death. There are a number of other negative outcomes related to substance abuse on college campuses, including academic problems and difficulties. Of the students who binge drink, 68.1 percent admit to missing classes, 50.6 percent have fallen behind in school assignments and homework, and more than 5 percent have been suspended (CASA, 2007). In a similar study, Wechsler et al. (1994) compared responses to a survey about alcohol consumption and related health issues among college-aged students. The authors found that while only 8 percent of the non-binge drinkers admitted to missing a class because of alcohol use, 30 percent of the infrequent binge drinkers and 61 percent of the frequent binge drinkers endorsed this item (Wechsler et al., 1994). In addition, only 6 percent of the non-binge drinkers agreed that they had fallen behind on coursework because of alcohol, in comparison with 21 percent of the infrequent binge drinkers and 46 percent of the frequent binge drinkers (Wechsler et al., 1994). While not all individuals who binge drink would be classified with a substance use disorder, it is
nevertheless important to be able to distinguish between substance abuse and dependence. The diagnostic criteria for both substance use disorders are detailed below.

2.3 Substance Abuse and Dependence

Kessler et al. (2005) estimated that nearly half (46.4%) of all Americans will meet the criteria for a diagnosable DSM-IV disorder at some point in their lives. The authors also reported a lifetime prevalence rate for substance use disorders as 14.6 percent, with a median age of onset of 20 years (Kessler et al.). This age of onset is particularly relevant in light of the fact that college students are often between the ages of 18-24. In addition, Kessler et al. identified alcohol abuse as the most common substance use disorder, with a lifetime prevalence of 13.2 percent. It was previously mentioned that nearly one in four college students met the diagnostic criteria for substance abuse or dependence in 2005, a rate nearly triple that found in the general population (CASA, 2007). To aid the reader and to delineate the terms abuse and dependence, the author presents the diagnostic criteria for these two categories in the following sections.

Substance abuse criteria. According to the American Psychiatric Association (APA, 2000), substance abuse is characterized by “a maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances” (p. 198). In order to be diagnosed with a Substance Abuse disorder, an individual must meet at least one of four criteria within a 12-month period. The first criterion asserts that a person must exhibit “recurrent substance use resulting in a failure to fulfill major role obligation at work, school, or home” (APA, 2000, p. 199). An individual meeting this criterion may miss work or perform poorly at work because of hangovers or active use of substances. A student may miss school, be suspended, or even
be expelled because of substance-related issues. An individual meeting this criterion may also neglect children or other household duties as a result of substance abuse. The second criterion for a Substance Abuse diagnosis is met by “recurrent substance use in situations in which it is physically hazardous” (APA, 2000, p. 199). The individual may repeatedly drive after drinking, or operate machinery while under the influence of a substance. Having multiple legal problems related to substance use, including DUI’s, disorderly conduct charges, or public intoxication offenses, meets the third criterion for Substance Abuse. The final criterion for this diagnosis is defined as “continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance” (APA, 2000, p. 199). An individual meeting this criterion may experience marital problems or even divorce as a result of substance use, or may engage in verbal or physical fights frequently when using substances. College students may meet this criterion by fighting frequently with their roommates or friends after using substances, or by experiencing arguments with their parents about their continued substance use.

**Substance dependence criteria.** Generally considered to be more severe than Substance Abuse, the *DSM-IV-TR* (APA, 2000) has identified the primary characteristic of Substance Dependence as “a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems” (p. 192). In order to be diagnosed with Substance Dependence, an individual must meet at least three of the seven total criteria, occurring within the same 12-month period of time. The first criterion for Substance Dependence is tolerance. Tolerance for a substance is expressed as either the need for increasing
amounts of the substance to experience similar levels of intoxication, or reduced effects from continued use of the same amount of the substance (APA, 2000). The second criterion for a diagnosis of Substance Dependence is withdrawal. Withdrawal is defined as a “maladaptive behavioral change, with physiological and cognitive concomitants, that occurs when blood or tissue concentrations of a substance decline in an individual who had maintained prolonged heavy use of the substance” (APA, 2000, p. 194). For individuals who meet the second criterion for Substance Dependence, they are likely to continue use of their drug of choice to avoid and/or alleviate these withdrawal symptoms. Common withdrawal symptoms include insomnia, irritability, anxiety, agitation, dysphoria, nausea, rapid heartbeat, and hypertension (Kosten & O’Connor, 2003).

The third criterion for Substance Dependence indicates that the substance is taken in larger quantities or over longer periods of time than was originally intended (APA, 2000). Setting a pre-determined drinking limit for length of time or number of drinks, and then drinking beyond that limit, is an example of how an individual may meet this criterion for Substance Dependence. Leeman, Fenton, and Volpicelli (2007) reported that this inability to control drinking patterns is one of the “hallmarks of addiction” and can be one of the first signs of addiction to emerge in an individual (p. 42). The fourth criterion for a diagnosis of Substance Dependence is met when an individual reports a recurrent desire or a number of failed attempts to cut back on or stop using substances (APA, 2000). This criterion is commonly met among substance dependent individuals, as approximately 40 to 60 percent of those who receive treatment for their substance use disorders relapse within a one-year period (Leeman et al., 2007).
The fifth criterion of Substance Dependence requires that “a great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g., chain-smoking), or recover from its effects” (APA, 2000, p. 197). This criterion may be met by going to great lengths to obtain the substance, spending a significant amount of time using the drug, or requiring a considerable amount of time to recover from the use. Giving up or reducing important job-related, social, or recreational activities as a result of the use of substances is the sixth criterion for a diagnosis of Substance Dependence (APA, 2000). The individual may withdraw from activities involving family and friends in order to use the substance privately or to devote more time to relationships with other substance-using people. The final criterion for Substance Dependence involves continuing to use the substance despite having a medical or psychological problem that is either caused or made worse by the use of substances (APA, 2000). It is important to note that the main concern when determining if an individual meets this criterion “is not the existence of the problem, but rather the individual’s failure to abstain from using the substance despite having evidence of the difficulty it is causing” (APA, 2000, p. 195). In addition to the aforementioned diagnostic criteria, it is also important to note both the biological and environmental influences on the development of substance use disorders.

**DSM-V.** It is important to note that the ways in which substance use disorders are viewed is a changing concept. The diagnosis of substance use disorders, as proposed in the upcoming *DSM-V* (APA, 2010), will likely be presented in a very different way from how it is currently organized in the *DSM-IV-TR* (APA, 2000). While the *DSM-V* is still under development at this time, a good deal of information has been published about
the changing nosology, brought about by research challenging contemporary views on substance use disorder diagnosis (Borges et al., 2010; Helzer, Bucholz, & Gossop, 2007; Widiger & Samuel, 2005). Widiger and Samuel (2005) reported: “It is evident, however, that *DSM-IV* routinely fails in the goal of guiding the clinician to the presence of one specific disorder, despite the best efforts of the leading clinicians and researchers who have authored the manual” (p. 494). The authors also stated that the current diagnostic categories are problematic “in part because they provide inaccurate and misleading descriptions” (Widiger & Samuel, 2005, p. 500).

Some researchers believe that a dimensional model of diagnosis is a more accurate and useful way of classifying substance use disorders (Helzer et al., 2007). Helzer et al. (2007) reported: “Clinicians and researchers would benefit from a quantitative assessment of severity in addition to presence/absence of a diagnostic entity” (p. 27). Martin, Chung, and Langenbucher (2008) suggested that the mutually exclusive categories of substance abuse and dependence are not clinically sound, and should be replaced with a single set of diagnostic criteria. As it is currently proposed, the *DSM-V* will be arranged in a similar fashion, with substance use disorders no longer being strictly categorical in nature (APA, 2010). The new model of substance use disorder diagnosis combines the diagnoses of substance abuse and dependence into one disorder, and includes 11 diagnostic criteria, two of which must be met in order to receive this diagnosis. Added clinical tools in the *DSM-V* are the severity specifiers, wherein individuals are considered to have a substance use disorder of moderate severity if they meet two or three of the diagnostic criteria, and a severe substance use disorder if four or more of the criteria are positively endorsed.
2.4 Biological Influences on Substance Abuse

It is often reported that substance abuse and dependence have biological underpinnings and that a genetic predisposition may be at least partly to blame for the development of substance use disorders within families (Bierut et al., 1998; Cami & Farre, 2003; Crabbe, 2002; APA, 2000; Kendler, Jacobson, Prescott, & Neale, 2003; Nurnberger et al., 2004). The heritability estimates of alcohol consumption in twin studies has been estimated at 35 to 40 percent, and similarly, 40 to 60 percent of the variance in alcohol use disorders is attributed to genetics and biological influences (APA, 2000; Nurnberger et al.). It has also been suggested that individuals with substance use disorders who have a family history of addiction tend to develop substance use problems at an earlier age, have more severe dependency issues, and poorer prognoses overall; in fact, a family history of alcoholism has been cited as the greatest predictor of future alcoholism among adolescents (Maxmen & Ward, 1995).

The use of twin studies has been a common method for examining the heritability estimates of addiction. Traditionally, twin studies involve the “examination of co-occurrence of or comorbidity for the trait in monozygotic vs. dizygotic twins, reared together or apart, and in analogous family studies with other sorts of biological relatives” (Crabbe, 2002, p. 438). In their study on male twins, Prescott and Kendler (1999) found that genetic factors played a significant role in the development of alcohol use disorders for participants, including both alcohol abuse and dependence. Among the twin pairs studied, the degree of resemblance across multiple alcoholism definitions was considerably higher for the identical twins than the fraternal pairs, and the authors also reported that 48 to 58 percent of the variation in risk was the result of genetic influences.
(Prescott & Kendler). Other researchers have found that the genetic factors involved in the development of substance use disorders may extend to the type of substance used. In their twin study, Kendler et al. (2003) reported that the comorbidity between various substance use disorders among participants was primarily attributable to genetic origins.

Finally, many researchers interested in the biological bases of addiction have focused on the genetic and physiological contributions to the development of substance use disorders. Kendler et al. (2003) reported finding evidence of a single genetic common factor for both substance abuse and dependence. Similarly, Bierut et al. (1998) identified a general risk factor for dependence that is believed to be transmitted within families. These findings indicate that the risk for substance abuse and dependence is general in nature, and that there are no substance-specific genetic effects. Bierut et al. (1998) reported: “Alcohol dependence in probands increased the risk of developing all substance dependence we studied, independent of the risk of developing alcohol dependence” (p. 987). Therefore, it has been suggested that any differences in this susceptibility to developing a substance use disorder may be the result of factors increasing or decreasing the likelihood of substance abuse across all classes of substances (Kendler et al.). In addition, several authors have reported that individuals with a family history of alcohol dependence may have an increased risk for developing the disorder as a result of a decreased sensitivity to alcohol (Cami & Farre, 2003; Crabbe, 2002; Prescott & Kendler, 1999). These genetic factors, which have an influence on the metabolism of alcohol and effects of the substance, thus contribute to the increased risk of addiction.
2.5 Environmental Influences on Substance Abuse

**College Settings.** In addition to the commonly cited biological influences on the development of substance use disorders, there are a number of environmental factors that may play a role in the onset and maintenance of substance use disorders. Attitudes toward (including cultural attitudes) and expectations of substance use and its outcomes may be a part of why some individuals choose to use substances in the first place. According to Capuzzi and Stauffer (2012), “a person’s likelihood of using drugs, according to these models, the way he or she behaves, and the way abuse and addiction are defined are all influenced by the sociocultural system surrounding the individual” (p. 10). This pattern may be most openly exhibited by college students on college campuses, where substance use and partying are commonplace activities and may be part of the university culture. In a study investigating the alcohol use of students seeking services at a university medical center, Zakletskaia et al. (2010) found that 57 percent of those students were considered at-risk drinkers (defined by the authors as 7 or more drinks per week for women, 14 or more drinks per week for men, or 5 or more drinks in a row on single occasion). Fabian et al. (2008) reported that underage college students admitted to easy access to alcohol from a number of sources and in a variety of settings, including from older friends, parents, and siblings, in dormitories, within the Greek system, and at parties both off-campus and on-campus.

Similarly, both individual expectations of the costs and benefits of substance use and motivations to use substances can also serve as factors contributing to the initiation and maintenance of this behavior. Jones, Corbin, and Fromme (2001) reported: “A simple view is that positive expectations (such as ‘I expect to be the life and soul of the
party if I have a few drinks’) represent an important component of motivation to drink” (p. 59). Therefore, more negative views and expectations of drinking and its outcomes would lead individuals to be motivated to restrain themselves from consuming alcohol (Jones et al.). Motivations to use substances have been cited to include a desire to stimulate positive emotion and affective experience, to cope with negative affective states, and as a means of social reinforcement (Read, Wood, Kahler, Maddock, & Palfai, 2003). These motivations appear to be perpetuated by continued use of substances, as increases in drinking behavior are associated with increases in positive expectancies of alcohol use (Jones et al.). In their study, Bot, Engels, and Knibbe (2005) investigated the influence of alcohol expectations on alcohol consumption among participants in a naturalistic setting designed to mimic a social gathering. The authors reported that positive expectancies of alcohol use were strongly related to how frequently the participants consumed alcohol, and also that those participants who endorsed those positive expectancies were also more likely to consume a large number of alcoholic drinks per hour (Bot et al., 2005).

**Family of Origin.** In addition to the cultural and attitudinal factors mentioned above, dynamics within families can also contribute to the use and abuse of substances. A number of variables including quality of parenting, psychological well-being of parents, stressors, and social supports have all been cited to influence the likelihood of substance misuse within a family (Velleman et al., 2005). In general, research has shown that there is an increased risk of substance abuse for individuals who were raised in a single-parent home or a household where both parents were absent, as opposed to a two-parent household (Barrett & Turner, 2006). Parental monitoring of their children has
also been reported to prevent or delay the onset of substance use in children (Velleman et al.). Researchers have also identified a number of factors related to the quality of family connections that are believed to impact substance use. Velleman et al. (2005) reported that while a close parent-child bond can discourage substance use in children, a “low level of communication between parent and child, poorly-defined and poorly-communicated expectations of a child’s behavior, excessively severe and inconsistent discipline, and high levels of negative interaction or family conflict” are all strongly linked to substance abuse among children and adolescents (pp. 95-96).

Beyond the structure of the family, many researchers have cited that the modeling of substance abuse within the family serves as a major determinant of substance use during childhood and adolescence (Barrett & Turner, 2006; Epstein, Bang, & Botvin, 2007; Velleman et al., 2005). Barrett and Turner (2006) reported that “parental use of substances is associated consistently with greater use by their offspring, and parents’ choice of drugs is connected closely with adolescents’ drug selection” (p. 111). In spite of the significant impact of parental substance abuse on children, Barrett and Turner suggested that adolescents imitate the substance use behavior of their older siblings even more closely than that of their parents. This finding was supported by Epstein et al. (2007), who found that the behavior of siblings was more important than that of friends, peers, or adults; in effect, siblings “do appear to be the most influential members of the family for this age group” (p. 709). Observing actual substance use and imitating such behavior, permissive parental attitudes towards alcohol and drugs, and ready access to those substances in the home may all be examples of the family dynamics that contribute to the increased risk of substance use.
Trauma. Other environmental factors have also been attributed to an increased risk of developing a substance use disorder. Several authors have cited that experiencing childhood abuse, adult victimization, and witnessing community violence are all related to higher rates of substance use and abuse (Kilpatrick et al., 2000; Min, Farkas, Minne, & Singer, 2007; Perron, Gotham, & Cho, 2008; Timko et al., 2008; Zinzow et al., 2009). Zinzow et al. reported that observing community and parental violence has a number of negative consequences for adolescents, including substance abuse, aggression, anxiety, depression, conduct problems, and antisocial behavior. It has also been suggested that experiencing victimization during childhood and adolescence results in increases in substance use, suicidality, physical aggression, delinquent behavior, and PTSD symptoms (Perron et al., 2008). Other research has found that as many as 62 to 81 percent of adult women currently receiving substance abuse treatment report histories of childhood abuse and neglect, in contrast to childhood abuse rates of 26 to 30 percent in the general population (Min et al., 2007). For the purpose of this study, the following were included as possible adverse life events: Divorce, employment problems, legal problems, medical problems, mental illness, alcohol or drug addiction, suicide or suicide attempt(s), family death, and emotional, physical, and/or sexual abuse. The inclusion of these specific traumatic experiences was supported by several research studies (Dube, Anda, Felitti, Edwards, & Croft, 2002; Fineran, Laux, Seymour, & Thomas, 2010).

Several theories have been proposed to explain the complex relationship between abusive experiences and the problematic use of substances. According to Timko et al. (2008), survivors of violence and abuse often engage in a variety of coping behaviors, some of which can be self-destructive and maladaptive. The use of substances can
therefore be viewed as an attempt to cope with the negative psychological impact of the abusive or violent experience. Kilpatrick et al. (2000) reported that the distress resulting from traumatic experiences compels individuals to seek out behaviors or actions to reduce these negative affective states, such as the use of drugs and alcohol. This perspective was supported by Brady and Sinha (2005), who described how life stressors can cause long-term changes in the ability to respond to stress: “Such changes can alter the sensitivity of the dopamine system to stress and can increase susceptibility to self-administration of substances of abuse” (p. 1484). Therefore, individuals experiencing a great deal of distress and anxiety may be particularly vulnerable to the effects of alcohol and other drugs.

Despite the aforementioned theories and statistics supporting a relationship between biological and environmental risk factors, not all individuals experiencing these dynamics develop substance use disorders or other psychological problems. Kiesler (2000) reports: “Current research seeks to understand why some children appear to be ‘resilient’—how they come to maturity relatively unscathed by organic and psychosocial insults that seem to handicap other children” (p. 147). The topics of resiliency, coping, and protective factors in children and adults are therefore essential to this line of research because “individuals who are better able to cope and adjust to difficult life situations are likely to prevent future, more problematic behaviors” (Clauss-Ehlers, 2008, p. 197).

2.6 Resilience

A number of researchers have attempted to define what resilience is and how it relates to life events and functioning. McElwee (2007) reported that the term resiliency is derived from Latin roots and means literally “to jump or bounce back” (p. 58). Agaibi
and Wilson (2005) documented a literal definition of resiliency as “an ability of an object to restore its original structural form, despite being temporarily altered by external forces that would ‘bend’ or ‘compress’ its shape” (pp. 196-197). Others have conceptualized resiliency less literally, and have focused on resiliency as a “stable personality trait or ability that protects individuals from the negative effects of risk and adversity” (Everall et al., 2006, p. 461). As applied to a person’s ability to “bounce back,” Waugh, Fredrickson, and Taylor (2008) reported that resiliency is “the ability to adapt to life’s ever-changing landscape and recover quickly from stressors” (p. 1031). Everall et al. also reported that resilience could be viewed as a positive outcome, wherein an individual avoids psychopathology and is able to function successfully despite risk factors. Despite these varied definitions, some researchers now view resilience not as a static trait or explicit outcome, but as more of a process that is dynamic and shifts over time in response to life experiences and development (Everall et al.; Palmer, 1997).

**Role of resilience.** Resilience serves an extremely important role in influencing outcomes of childhood and young adult development. Several researchers have delineated the function of resilience as it applies to coping and adaptation to challenges. Hall and Webster (2007) reported that resilience factors “can, and often do, serve as buffers to life stressors and can serve as a protective mechanism for alcohol use, age at the onset of drinking, and affective factors” (p. 426). Waugh et al. (2008) identified comparable findings, and supported the view that resilience aided individuals in being better able to adapt and cope with major life events. Similarly, McElwee (2007) reported that “resilient youth possess as a set of qualities that foster a successful process of
adaptation and transformation, despite significant risk and adversity in their lives” (p. 59).

Still others have chosen to view the benefits of resilience as the result of numerous external and internal factors, which collectively function as protective mechanisms. Hall (2007b) reported that these factors “tend to improve or buffer responses to both constitutional risk factors (such as parental alcoholism or mental illness) and stressful life events (such as economic hardship or a breakdown in parenting)” (p. 63). In an attempt to better understand the nature of resilience, a number of researchers (Constantine et al., 1999; Everall et al., 2006; Hall, 2007a; McElwee, 2007) have studied and classified various protective factors. This approach suggests that resilience is not comprised of simply one trait or mechanism, but rather a combination of several different factors, occurring both within and outside the individual, that serve to promote resilience and healthy functioning.

An individual characteristic often considered to be a protective mechanism includes having an above average IQ and advanced cognitive functioning (Everall et al., 2006; McElwee, 2007). Everall and colleagues (2006) reported that resilient individuals tend to have good problem-solving skills and draw on problem-focused coping strategies, stating: “With problem-focused coping, individuals squarely face and reflect on problems rather than avoiding them, creatively generate and plan solutions to problems, and reach out to other people for help” (p. 462). Therefore, resilient individuals are not only able to process and cope resourcefully with life stressors, but are also socially competent and able to communicate effectively with others (Constantine et al., 1999; Hall, 2007a; McElwee). Constantine et al. further described this individual characteristic
as the ability to be flexible in interpersonal relationships, work cooperatively with others, and be able to understand others’ feelings and experiences.

Another individual protective factor is autonomy and sense of self, comprised of self-awareness, empowerment, and an internal locus of control. Constantine et al. (1999) identified that individuals possessing this protective factor are able to stand up for their beliefs, have a sense of self-efficacy, and maintain an awareness and understanding of self. Maintaining an internal locus of control, or the belief that individuals can shape and change their own lives and can resolve most problems through personal effort, has been shown to be strongly positively correlated with resilience (Everall et al., 2006). Everall and colleagues (2006) also reported that “resilient adolescents tend to have goals, hopes, and plans for the future, combined with the persistence and ambition to bring them to fruition” (p. 463). Closely linked to this factor is a sense of purpose and meaning in life, coupled with high expectations for self and an optimistic view of the future. Wright and Heppner (1991) identified this trait specifically as “a sense of meaning and faith about life” (p. 470). Believing that one’s life has meaning, significance, and makes a difference is essential to this protective factor.

A number of external protective factors have also been identified and defined. Having positive, supportive relationships with others who model healthy development and functioning has been shown to promote resilience in children and adolescents (Constantine et al., 1999). Furthermore, a secure attachment to at least one parental figure can be an added source of resilience against adversity. Everall et al. (2006) reported: “Participants who received direct guidance and encouragement from their parents in the face of adversity often felt motivated, optimistic, and reassured that
someone believed in their ability to succeed” (p. 463). For those individuals without positive parental relationships, developing and maintaining supportive connections with others, including adults and peers in school settings and the community, can also promote resilience. Sources of this additional support may include “caring nonparent adults, such as teachers, coaches, school counselors, ministers, and neighbors” (Everall et al., 2006, p. 463). In addition, membership in a peer group can serve as a protective factor against adversity by fostering companionship and a sense of belonging.

Being actively involved and engaged in meaningful activities has also been identified as an external protective factor that can promote resilience. Constantine et al. (1999) define meaningful participation as “the involvement of the student in relevant, engaging, and responsible activities with opportunities for responsibility and contribution” (p. 13). These activities may include extracurricular school involvement, sports, hobbies, religious activities, or any other productive interests outside the home. Not only can these interests enable exposure to various supportive peers and adults, but they can also be instrumental in promoting the development of positive behaviors and coping skills. Everall et al. (2006) reported that this external protective factor may be most beneficial for those individuals with troubled home environments, as they can “provide relief from the stresses of family life and expose the youth to conditions more favorable for development” (p. 463).

Resilience as a predictor of outcome. Despite the aforementioned studies that identified and described a variety of risk and protective factors related to the development of substance use disorders, there are a number of other studies that suggest that risk factors alone are not sufficient in predicting negative outcomes. In fact, many research
studies have shown that adults who were raised in alcoholic families (ACOAs) were able to function as well as those who did not experience such a home life. Wright and Heppner (1991) reported that their results “indicate that the nonclinical college-age ACAs [adult children of alcoholics] appear to be as well-adjusted as non-ACAs on these variables and are not as maladapted as has been suggested in the literature” (p. 470). Similarly, Fass and Tubman (2002) found that among students with problematic attachment to parents and peers, “this subgroup of college students is not significantly less academically successful or less socially competent than the majority of their college cohort” (p. 569). Still other studies found no significant differences between ACOAs and their non-ACOA counterparts on a number of measures of coping and functioning, including alcohol use, self-esteem, social support, and cognitive ability (Cutler & Radford, 1999; Hall, 2007a; Hall, 2007b; Harter & Taylor, 2000; Schroeder & Kelley, 2008).

Based on these findings, it is reasonable to view ACOAs and those individuals who have experienced dysfunctional and/or traumatic experiences as a varied group. Wright and Heppner (1991) reported that their study “strongly suggests that ACAs may be a heterogeneous group; it appears to be an oversimplification to assume that all ACAs are alike” (p. 470). Along the same lines, Cutler and Radford (1999) stated that “it is becoming clearer that each ACOA family has varying degrees of healthy and unhealthy functioning” (p. 150). Palmer (1997) further reported in her study that many ACOAs were able to thrive in adulthood, demonstrating sustained periods of stability and a sense of coherence about life and self. It is therefore clear that no one risk factor fully explains the variance in functioning and substance use among college students. The concept of
resilience, however, views protective factors as having a combined impact on the outcome of functioning and coping. Therefore, understanding the role of resilience over and above all of the specific predictive factors that can be controlled may be much more useful in predicting substance use disorders among college students. Knowing this information would enable counselors and other mental health professionals to be better equipped to evaluate a student’s risk of developing a substance use problem, regardless of the student’s family background or the absence or presence of traumatic life experiences. Furthermore, understanding the role of resilience in predicting substance use disorders among college students may permit early detection of substance abuse and the implementation of appropriate intervention strategies.

2.7 Scales

There are a number of instruments designed to operationally define the construct of resilience. These include the Adolescent Resilience Scale (Oshio, Kaneko, Nagamine, & Nakaya, 2003), the Baruth Protective Factors Inventory (Baruth & Carroll, 2002), the Brief Resilient Coping Scale (Sinclair & Wallston, 2004), the Resilience Scale for Adults (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003), the Sense of Coherence Scale (Antonovsky, 1993), the Connor-Davidson Resilience Scale (Connor & Davidson, 2003), the Ego-Resiliency Scale (Block & Kremen, 1996), the Interpersonal Support Evaluation List (Cohen & Hoberman, 1983), and the Resilience Scale (Wagnild & Young, 1993). After a careful review of the available instruments’ psychometric properties, the author determined that four instruments, the Connor-Davidson Resilience Scale (CD-RISC), the Ego-Resiliency Scale (ER89), the Interpersonal Support Evaluation List (ISEL), and the Resilience Scale (RS), produce the most reliable and valid data among all resilience
scales used in studies involving college aged student populations. The purpose of this section is to introduce the reader to these four instruments, review the manner in which they were standardized, and provide evidence of their reliability and validity.

**Connor-Davidson Resilience Scale (CD-RISC).** The Connor-Davidson Resilience Scale (CD-RISC) is comprised of 25 items, each rated on a 5-point Likert-type scale (Connor & Davidson, 2003). Response options range from 0 (*not true at all*) to 4 (*true nearly all the time*). Scores are determined by summing each item, with total scores ranging from 0 to 100. According to Connor and Davidson (2003), higher scores on the scale reflect greater resilience, believed to represent “the personal qualities that enable one to thrive in the face of adversity” (p. 76). Sample items include “I am able to adapt to change” and “I tend to bounce back after illness or hardship”.

The CD-RISC has been shown to have adequate internal consistency (α=.89), and its test-retest reliability and convergent and discriminant validity have also been supported (Campbell-Sills & Stein, 2007; Connor & Davidson, 2003). The CD-RISC is reported to have utility in both clinical and research settings, and use of the CD-RISC shows that resilience is quantifiable, modifiable and can increase with treatment, and that improvement in resilience is linked to overall improvement in functioning (Connor & Davidson; Khoshouei, 2009). Other studies using shortened and/or modified versions of the CD-RISC (both involving undergraduate students) have also reported sound test-retest reliability, convergent validity, and divergent validity rates (Campbell-Sills & Stein; Vaishnavi, Connor, & Davidson, 2007).

**Ego-Resiliency Scale (ER89).** The Ego-Resiliency Scale (ER89) is comprised of 14 items, each rated on a 4-point Likert-type scale (Block & Kremen, 1996). Response
options range from 1 (does not apply at all) to 4 (applies very strongly). Scores are
determined by summing each item, with total scores ranging from 14 to 56. As is the
case with the CD-RISC, higher scores on the Ego-Resiliency Scale suggest greater levels
of resilience. Letzring, Block, and Funder (2004) reported about ego resiliency: “As a
result of this adaptive flexibility, individuals with a high level of resiliency are more
likely to experience positive affect, and have higher levels of self-confidence and better
psychological adjustment than individuals with a low level of resiliency” (p. 398).

Block and Kremen (1996) administered the ER89 scale to participants in a
longitudinal study at both ages 18 and 23, and reported that the ER89 has acceptable
coefficient alpha reliability (α=.76) within the entire sample. The test-retest reliabilities
across the five years between test administrations were .67 and .51 for females and males
respectively, when adjusted for attenuation (Block & Kremen). Other studies on the
construct of ego resiliency as defined by the ER89 have reported positive findings.
Klohnen (1996) reported that “measures of this personality resource predict adjustment
and effective functioning in adulthood” (p. 1075). Similarly, in their study on
undergraduate students and resilience, Tugade and Fredrickson (2004) reported: “As
well, we found that trait-like positive emotionality contributes to resilient people’s
abilities to rebound physiologically from negative emotional events” (p. 331).

**Interpersonal Support Evaluation List (ISEL).** The Interpersonal Support
Evaluation List (ISEL) consists of 40 self-report items and directs participants to indicate
how true each item is for them (Cohen & Hoberman, 1983). Responses on the 4-point
Likert-type scale range from 0 (definitely false) to 3 (definitely true), and assess an
individual’s perception of available social supports (Borja, Callahan, & Rambo, 2009).
Scores on the ISEL range from 0 to 140 and, like the CD-RISC and ER89, higher scores suggest an increasingly positive perception of social supports. Brookings and Bolton (1988) described the four types of perceived support that are measured by the ISEL, including tangible support (“the perceived availability of material aid”), appraisal support (“the perceived availability of someone with whom to discuss issues of personal importance”), self-esteem support (“the presence of others with whom the individual feels he/she compares favorably”), and belonging support (“the perception that there is a group with which one can identify and socialize”) (p. 138). Scoring on the ISEL involves summing responses within each of the above four subscales, as well as the total support scale.

Cohen and Hoberman (1983) reported that the ISEL “is a reliable measure of social support and that its subscales evidence reasonable independence from one another” (p. 104). The internal reliability (Cronbach’s α) for the total scale was reported to be .77, with similar internal consistency rates for the tangible (α=.71), belonging (α=.75), self-esteem (α=.60), and appraisal (α=.77) subscales (Cohen & Hoberman). Brookings and Bolton (1988) performed a confirmatory factor analysis on the ISEL, and reported that each of the four scales provides unique information about perceived social support. It has also been suggested that because of the different types of support assessed by the ISEL, the instrument provides broader coverage of the topic of social support (Haber, Cohen, Lucas, & Baltes, 2007).

**Resilience Scale (RS).** The Resilience Scale (RS) was originally published in 1993, and consists of 25 items to which participants rate their level of agreement on a scale from 1 (strongly disagree) to 7 (strongly agree) (Wagnild & Young, 1993). Scores
on the Resilience Scale range from 25-175 after summing all item responses, and have been grouped into levels of resilience. Scores higher than 145 suggest moderately high to high resilience, 125-145 is indicative of moderately low to moderate levels of resilience, and a score of 120 or less implies low resilience (Wagnild, 2009). Sample items include “When I make plans, I follow through with them”, “I usually manage one way or another”, and “I feel that I can handle many things at a time”. Wagnild and Collins (2009) reported that the Resilience Scale “consistently is correlated with positive factors, including optimism, morale, and coping effectiveness, and is inversely related to depression and perceived stress” (p. 31).

The reliability and validity of the Resilience Scale has been evaluated on a number of different study samples, including undergraduate and graduate students, with Cronbach’s alpha coefficient ranging from .73 to .91 (Wagnild, 2009). The original study (Wagnild & Young, 1993) reported an internal consistency reliability coefficient of .89 for the sample. Wagnild (2009) also reported: “Validity of the Resilience Scale was supported with hypothesized and statistically significant associations with morale, self-esteem, life satisfaction, depression, and perceived stress” (p. 106). Although the Resilience Scale was originally based on a qualitative study of older women following a major life event, studies have validated that the scale is effective with samples of all ethnic groups and ages (Ahern, Kiehl, Sole, & Byers, 2006). Almedom and Glandon (2007) reported that the Resilience Scale has been well-received and widely used, so much that it has been translated into a number of different languages, including Russian, Spanish, and Swedish.
Substance Abuse Subtle Screening Inventory-3 (SASSI-3). The SASSI-3 is a screening instrument designed specifically to detect the presence of substance use disorders regardless of the truthfulness or motivation of the individuals completing the instrument (Feldstein & Miller, 2007). The SASSI was originally released in 1985, followed by the first revision in 1994 and the second (and current) revision in 1999 (Feldstein & Miller). The SASSI-3 form is double-sided, with the front side containing 67 true/false questions that are not explicitly related to alcohol or drug use, but make up eight useful subscales. The back side of the instrument contains two subscales, the 12-item Face Valid Alcohol (FVA) and 14-item Face Valid Other Drug (FVOD) subscales (Laux, Perera-Diltz, Smirnoff, & Salyers, 2005; Laux, Salyers, & Kotova, 2005). The SASSI-3 contains nine subscale scores, and overall scoring is based on nine different decision rules. When respondents exceed the cutoff for any of the nine decision rules, they are identified as having a high probability of having a substance dependence disorder; however, if all criteria are below the specified cutoffs, these respondents are considered to have a low probability of having a substance dependence disorder (Feldstein & Miller). These are the only score classifications for this instrument.

The SASSI-3 is reported to be highly accurate, sensitive, and specific (all 94%), with low false positive and false negative rates (both 6%) for the current instrument version (Feldstein & Miller, 2007). The SASSI-3’s internal consistency overall (as well as on the FVA and FVOD subscales) is fairly high ($\alpha > 0.90$), suggesting some redundancy in measuring the single construct. Other authors have cited that the SASSI-3’s greatest strengths over other substance abuse screens lie in its use of multiple approaches “to screening for substance use, its reported ability to screen for alcohol and
other drugs of abuse, and the use of a battery of subscales to provide clinicians with a variety of data for screening and treatment planning purposes” (Laux, Salyers, & Kotova, 2005, p. 42).

Summary

This chapter provided information on the negative consequences of substance abuse for society as a whole, in addition to the particularly severe consequences for college-aged students. Diagnostic criteria for both substance abuse and dependence were then presented. Biological influences on substance abuse and addiction were reviewed, including genetic and physiological explanations for developing a substance use disorder. Environmental influences on substance abuse and addiction were then presented, including the culture of college settings, family of origin issues, and trauma as contributory factors. The concept of resiliency was reviewed, commonly perceived as the ability to bounce back from adverse life experiences. Despite the evidence supporting the influence of traumatic events on the development of substance use disorders, other research presented in this chapter failed to support this link. It is therefore clear that no one risk factor fully explains the variance in functioning and substance use among college students, and individuals’ perceptions of experiences may be more powerful determinants of outcome than are the experiences themselves. Therefore, understanding the role of resilience over and above all of the specific predictive factors that can be controlled may be much more useful in predicting substance use disorders among college students.
Chapter 3

Methods

Chapter 3 will provide a brief background on substance abuse and its consequences, the varying perspectives on the origins of substance use disorders, and the role of resiliency as a buffer against these negative outcomes. Chapter 3 will then address the research hypotheses being investigated in this study, followed by the research design. The research design section will include information on the research sample, the instruments being used, and the procedures for conducting the study, as well as an explanation of how the data will be analyzed and presented. Chapter 3 will conclude with a review of the ethical considerations involved in this study, and a description of the potential limitations of the study and its design.

3.1 Introduction

Drug and alcohol abuse has resulted in a number of negative consequences for society. The consequences of substance abuse to college aged students may be particularly severe. A variety of viewpoints, including both biological and environmental, have been proposed to explain why individuals develop substance use disorders. Biological influences on the development of substance use problems include a family history of addiction and the genetic predisposition to developing the disorder.
Environmental influences include the culture of college settings, family of origin experiences, and trauma. Despite the research linking the above to the development of substance use disorders, not all individuals with similar backgrounds experience problems related to substance use.

The concept of resilience has been introduced to explain why some individuals, regardless of their family background or life experiences, avoid developing a problem with alcohol or drugs. Resilience is believed to serve as a protective mechanism against developing a substance abuse problem; however, the varied research available does not provide consistent findings about the role of resiliency and the known risk factors for addiction. It is therefore evident that no one risk factor fully explains the variance in functioning and substance use among college students, and understanding the role of resilience over and above all of the specific predictive factors that can be controlled may make the prediction of substance use disorders in college students much more accurate.

3.2 Research Questions

1. Is there a relationship between adverse childhood events and substance dependence in a college student sample?

2. Does resilience predict unique variance in substance dependence status over and above variance accounted for by adverse childhood events?

3.3 Research Design

This study is based on an ex post facto research design. In an effort to simulate experimentation, ex post facto designs examine possible relationships by observing an existing condition or attribute and investigating plausible predictive factors (Campbell & Stanley, 1963). Ex post facto research designs are appropriate when using independent
variables that cannot be manipulated, or when the independent variables could potentially be manipulated, but it would be unethical or negligent to do so (Ary, Jacobs, Sorensen, & Razavieh, 2009). In this study, it would be obviously unethical to randomly assign participants to either experience traumatic events or not experience trauma in an effort to study the effect on resiliency and later substance use. Ary et al. (2009) reported: “The designation *ex post facto*, from Latin for ‘after the fact,’ indicates that ex post facto research is conducted after variation in the variable of interest has already been determined in the natural course of events” (p. 332). The purpose of ex post facto research is to investigate relationships between independent and dependent variables of interest.

Ex post facto research designs have a number of strengths, as well as a number of weaknesses. Since the variation in the variable of interest has already occurred, this eliminates the possibility that participants will be influenced by an awareness that they are being tested or are the group of interest. Ex post facto designs are also useful as exploratory tools to show relationships. In addition, these methods permit researchers to demonstrate a correlation where more rigorous experimentation methods are not possible or ethical. Despite these advantages, ex post facto research has its limitations, including the lack of control for the independent variable and in randomizing subjects (Ary et al., 2009). Also, even if a relationship between the two variables is determined to exist, this does not imply a cause-and-effect relationship and strong inferences cannot be made. Finally, the ability to generalize the results of the study beyond the subjects being investigated in an ex post facto design is limited.
3.4 Sample/participants

The sample used in this study was selected because they were all participants in a university orientation class. There were a total of 143 participants in this study. The ages of the participants ranged from 18 to 49, with a mean age of 18.73 (SD=3.16). Of the 143 total participants, 71 (49.7%) were female, 71 (49.7%) were male, and 1 (0.7%) identified as transgendered. In terms of ethnicity, more than half of the participants identified themselves as European American (n=73, 51%). There were 50 students who identified themselves as African American (35%), 9 identified as Hispanic (6.3%), 8 identified as Mixed/Biracial (5.6%), 1 identified as Asian American (0.7%), and 2 participants identified their ethnicity as Other (1.4%).

3.5 Instruments

Resilience is a trait that is multidimensional in nature. Its definition includes those psychological traits necessary to thrive in the face of adversity (from the CD-RISC), adaptive flexibility, positive affect, self-confidence and psychological adjustment (from the ER89), the ability to ascertain and employ social supports (from the ISEL), optimism, positive morale, and effective coping skills (from the RS). Of the several resiliency scales reviewed for this study, the author found none that afforded a full assessment of the broadly defined resiliency construct. Consequently, four instruments were selected that meet exacting psychometric standards for reliability and validity as well as contribute to fuller measurement of resilience. The following section introduces each of these four instruments, describes the resiliency facets they assess, and provides the reader with a summary of their psychometric characteristics.
**Connor-Davidson Resilience Scale (CD-RISC).** The Connor-Davidson Resilience Scale (CD-RISC) is comprised of 25 items, each rated on a 5-point Likert-type scale (Connor & Davidson, 2003). Response options range from 0 (not true at all) to 4 (true nearly all the time). Scores are determined by summing each item, with total scores ranging from 0 to 100. According to Connor and Davidson (2003), higher scores on the scale reflect greater resilience, believed to represent “the personal qualities that enable one to thrive in the face of adversity” (p. 76). Sample items include “I am able to adapt to change” and “I tend to bounce back after illness or hardship”.

The CD-RISC has been shown to have adequate internal consistency (α=.89), and its test-retest reliability and convergent and discriminant validity have also been supported (Campbell-Sills & Stein, 2007; Connor & Davidson, 2003). The CD-RISC is reported to have utility in both clinical and research settings, and use of the CD-RISC shows that resilience is quantifiable, modifiable and can increase with treatment, and that improvement in resilience is linked to overall improvement in functioning (Connor & Davidson; Khoshouei, 2009). Other studies using shortened and/or modified versions of the CD-RISC (both involving undergraduate students) have also reported sound test-retest reliability, convergent validity, and divergent validity rates (Campbell-Sills & Stein, 2007; Vaishnavi, Connor, & Davidson, 2007).

**Ego-Resiliency Scale (ER89).** The Ego-Resiliency Scale (ER89) is comprised of 14 items, each rated on a 4-point Likert-type scale (Block & Kremen, 1996). Response options range from 1 (does not apply at all) to 4 (applies very strongly). Scores are determined by summing each item, with total scores ranging from 14 to 56. As is the case with the CD-RISC, higher scores on the Ego-Resiliency Scale suggest greater levels
of resilience. Letzring, Block, and Funder (2004) reported about ego resiliency: “As a result of this adaptive flexibility, individuals with a high level of resiliency are more likely to experience positive affect, and have higher levels of self-confidence and better psychological adjustment than individuals with a low level of resiliency” (p. 398).

Block and Kremen (1996) administered the ER89 scale to participants in a longitudinal study at both ages 18 and 23, and reported that the ER89 has acceptable coefficient alpha reliability (α=.76) within the entire sample. The test-retest reliabilities across the five years between test administrations were .67 and .51 for females and males respectively, when adjusted for attenuation (Block & Kremen). Other studies on the construct of ego resiliency as defined by the ER89 have reported positive findings. Klohnen (1996) reported that “measures of this personality resource predict adjustment and effective functioning in adulthood” (p. 1075). Similarly, in their study on undergraduate students and resilience, Tugade and Fredrickson (2004) reported: “As well, we found that trait-like positive emotionality contributes to resilient people’s abilities to rebound physiologically from negative emotional events” (p. 331).

**Interpersonal Support Evaluation List (ISEL).** The Interpersonal Support Evaluation List (ISEL) consists of 40 self-report items and directs participants to indicate how true each item is for them (Cohen & Hoberman, 1983). Responses on the 4-point Likert-type scale range from 0 (*definitely false*) to 3 (*definitely true*), and assess an individual’s perception of available social supports (Borja, Callahan, & Rambo, 2009). Scores on the ISEL range from 0 to 140 and, like the CD-RISC and ER89, higher scores suggest an increasingly positive perception of social supports. Brookings and Bolton (1988) described the four types of perceived support that are measured by the ISEL,
including tangible support (“the perceived availability of material aid”), appraisal support (“the perceived availability of someone with whom to discuss issues of personal importance”), self-esteem support (“the presence of others with whom the individual feels he/she compares favorably”), and belonging support (“the perception that there is a group with which one can identify and socialize”) (p. 138). Scoring on the ISEL involves summing responses within each of the above four subscales, as well as the total support scale.

Cohen and Hoberman (1983) reported that the ISEL “is a reliable measure of social support and that its subscales evidence reasonable independence from one another” (p. 104). The internal reliability (Cronbach’s α) for the total scale was reported to be .77, with similar internal consistency rates for the tangible (α=.71), belonging (α=.75), self-esteem (α=.60), and appraisal (α=.77) subscales (Cohen & Hoberman). Brookings and Bolton (1988) performed a confirmatory factor analysis on the ISEL, and reported that each of the four scales provides unique information about perceived social support. It has also been suggested that because of the different types of support assessed by the ISEL, the instrument provides broader coverage of the topic of social support (Haber, Cohen, Lucas, & Baltes, 2007).

**Resilience Scale (RS).** The Resilience Scale (RS) was originally published in 1993, and consists of 25 items to which participants rate their level of agreement on a scale from 1 (strongly disagree) to 7 (strongly agree) (Wagnild & Young, 1993). Scores on the Resilience Scale range from 25-175 after summing all item responses, and have been grouped into levels of resilience. Scores higher than 145 suggest moderately high to high resilience, 125-145 is indicative of moderately low to moderate levels of resilience,
and a score of 120 or less implies low resilience (Wagnild, 2009). Sample items include “When I make plans, I follow through with them”, “I usually manage one way or another”, and “I feel that I can handle many things at a time”. Wagnild and Collins (2009) reported that the Resilience Scale “consistently is correlated with positive factors, including optimism, morale, and coping effectiveness, and is inversely related to depression and perceived stress” (p. 31).

The reliability and validity of the Resilience Scale has been evaluated on a number of different study samples, including undergraduate and graduate students, with Cronbach’s alpha coefficient ranging from .73 to .91 (Wagnild, 2009). The original study (Wagnild & Young, 1993) reported an internal consistency reliability coefficient of .89 for the sample. Wagnild (2009) also reported: “Validity of the Resilience Scale was supported with hypothesized and statistically significant associations with morale, self-esteem, life satisfaction, depression, and perceived stress” (p. 106). Although the Resilience Scale was originally based on a qualitative study of older women following a major life event, studies have validated that the scale is effective with samples of all ethnic groups and ages (Ahern, Kiehl, Sole, & Byers, 2006). Almedom and Glandon (2007) reported that the Resilience Scale has been well-received and widely used, so much that it has been translated into a number of different languages, including Russian, Spanish, and Swedish.

**Substance Abuse Subtle Screening Inventory-3 (SASSI-3).** The SASSI-3 is a screening instrument designed specifically to detect the presence of substance use disorders regardless of the truthfulness or motivation of the individuals completing the instrument (Feldstein & Miller, 2007). The SASSI was originally released in 1985,
followed by the first revision in 1994 and the second (and current) revision in 1999 (Feldstein & Miller). The SASSI-3 form is double-sided, with the front side containing 67 true/false questions that are not explicitly related to alcohol or drug use, but make up eight useful subscales. The back side of the instrument contains two subscales, the 12-item Face Valid Alcohol (FVA) and 14-item Face Valid Other Drug (FVOD) subscales (Laux, Perera-Diltz, Smirnoff, & Salyers, 2005; Laux, Salyers, & Kotova, 2005). The SASSI-3 contains nine subscale scores, and overall scoring is based on nine different decision rules. When respondents exceed the cutoff for any of the nine decision rules, they are identified as having a high probability of having a substance dependence disorder; however, if all criteria are below the specified cutoffs, these respondents are considered to have a low probability of having a substance dependence disorder (Feldstein & Miller). These are the only score classifications for this instrument.

The SASSI-3 is reported to be highly accurate, sensitive, and specific (all 94%), with low false positive and false negative rates (both 6%) for the current instrument version (Feldstein & Miller, 2007). The SASSI-3’s internal consistency overall (as well as on the FVA and FVOD subscales) is fairly high (α > 0.90), suggesting some redundancy in measuring the single construct. Other authors have cited that the SASSI-3’s greatest strengths over other substance abuse screens lie in its use of multiple approaches “to screening for substance use, its reported ability to screen for alcohol and other drugs of abuse, and the use of a battery of subscales to provide clinicians with a variety of data for screening and treatment planning purposes” (Laux, Salyers, & Kotova, 2005, p. 42).
**Demographics Questionnaire.** A demographic questionnaire was also administered to all study participants in order to collect basic background and demographic information. The questionnaire was developed by the author and the other researchers involved in this project to serve this purpose. The demographic questionnaire gathered the following data: gender, age, ethnicity, and grade level at the university. In addition to this personal history information, the demographic survey also asks participants to identify if they had ever experienced any of the following potentially traumatic life events in the home when they were growing up: displacement from home, parental divorce, employment problems, legal problems, medical problems, mental illness, alcohol or drug addiction, suicide or suicide attempt(s), family death, and if they were ever emotionally, physically, or sexually abused during childhood. To better assess the outcome of these potentially traumatic experiences, the demographic survey also asks participants to rate the impact that each of the experiences had on their lives (if any).

3.6 Procedures

The author, along with two departmental faculty members, met with and received permission from university administrators to approach the instructors of twenty-five (25) orientation classes. The researchers contacted all the course instructors for permission to visit their classes to run this study, and were given permission to attend nineteen (19) of the course sections. When the researchers arrived at the pre-arranged course sections, we explained to the students about the study being conducted. Researchers informed students that participation was strictly voluntary, and informed consent was obtained from those who volunteered to participate.
Participants were given study packets, which included all aforementioned instruments, as well as a demographics questionnaire. All instruments were counterbalanced in the packets so they were not being completed in the same order by participants. Participants returned the packets to researchers when they were completed. The study packets were brought directly back to the department by the researchers. Informed consent forms were stored separately from the original data in a locked cabinet in a locked office in a locked suite. Data were then transferred to an anonymous electronic file, which is password-protected on a password-protected computer.

3.7 Variables

The predictor variable in this study is trauma history. The criterion variable is substance dependence. The covariate in this study is resiliency.

*Predictor variable:*

The following predictor variables were selected based on the literature review cited in Chapter 2. In order for a participant to be considered “positive” for the presence of the predictor variable, the participant must have indicated that the event occurred, and that the impact/effect of the event had either a moderate negative life impact or a significant negative life impact (see Appendix X). The following are the types of trauma assessed in this study:

- Divorce yes/no; if yes, rank level of impact.
- Employment problems yes/no; if yes, rank level of impact.
- Legal problems yes/no; if yes, rank level of impact.
- Medical problems yes/no; if yes, rank level of impact.
- Mental illness yes/no; if yes, rank level of impact.
Alcohol or drug addiction yes/no; if yes, rank level of impact.

Suicide or suicide attempt(s) yes/no; if yes, rank level of impact.

Family death yes/no; if yes, rank level of impact.

Emotional abuse yes/no; if yes, rank level of impact.

Physical abuse yes/no; if yes, rank level of impact.

Sexual abuse yes/no; if yes, rank level of impact.

Criterion variable:

Substance Dependence (yes/no) as measured by the Substance Abuse Subtle Screening Inventory-3 (SASSI-3).

Covariates:

The Connor-Davidson Resilience Scale (CD-RISC) (continuous: range = 0-100)

The Ego-Resiliency Scale (ER89) (continuous: range = 14-56)

The Interpersonal Support Evaluation List (ISEL) (continuous: range = 0-140)

The Resilience Scale (RS) (continuous: range = 25-175)

3.8 Data Analysis

Both descriptive and inferential statistics were used to analyze the data. Descriptive data, such as means, standard deviations, and ranges of scores are presented. The author used the Phi correlational analysis to answer general research question 1. The author used multiple linear regression to answer research question 2.

Multiple linear regression was used to analyze the variance in predicting relationships between the variables. According to Wampold and Freund (1987), multiple linear regression is a process of investigating the individual and combined impact of one or more independent variables to the variance of a dependent variable. Almost all
statistical procedures are computational simplifications of the General Linear model; therefore, multiple linear regression offers a statistical approach for use in a wide variety of procedures including those with multiple predictor variables, such as is used in the present study (McNeil, Newman, & Kelly, 1996). Simultaneous regression is deemed to be appropriate when there is no basis for entering any particular independent variable prior to any other independent variable (Wampold & Freund). Therefore, this study used simultaneous regression procedures.

The direction of the research questions being investigated in this study is not being predicted prior to conducting the statistical analyses, as this author is looking for any significant relationship between the variables. A two-tailed test of significance was conducted for each hypothesis and the alpha level of .05 will not be adjusted. Therefore, a $p$ value of .05 or less will be required before the researcher can be 95 percent confident that a relationship exists.

Estimates of power were conducted based upon the most conservative estimates and a total sample size of 143. Power estimates provide an estimate of the Type II error rate for different size effects that may exist in the population. Cohen (1992) suggested three levels of effect sizes ($f^2$): small (.025), medium (.15), and large (.35). The researcher decided to calculate an estimate of power for each suggested effect size. Based upon these estimates, if there is a significant relationship in the population and the effect size is small, power will be .27. If the effect size is medium, power will be .98, and for a large effect size, power will be .99. Therefore, this author is confident that if a relationship exists, the statistical procedures and designs will be able to detect them if the effect size is at least medium (.15) or large (.35).
3.9 Ethical Considerations

This study was approved by the University’s Institutional Review Board (IRB). Informed consent was obtained from all research subjects prior to their participation in this study. This study’s procedures followed the ethical guidelines for research as set forth by the American Counseling Association (2005).

Summary

The purpose of this study is to investigate the risk factors, resilience factors, and substance use of a sample of undergraduate college students. By conducting this study, the researcher hopes to identify what most effectively serves as a protective mechanism against developing a problem with substance use and other potentially negative outcomes.

This study is based on an ex post facto research design. Ex post facto designs examine possible relationships by observing an existing condition or attribute and investigating plausible predictive factors (Campbell & Stanley, 1963). Ex post facto research designs are appropriate when using independent variables that cannot be manipulated, or when the independent variables could potentially be manipulated, but it would be unethical or negligent to do so (Ary, Jacobs, Sorensen, & Razavieh, 2009). Both descriptive and inferential statistics were used to answer the identified research questions. It should be noted that all methods and procedures involved in this study were approved by the University’s Institutional Review Board (IRB) and are in concordance with the American Counseling Association’s Code of Ethics (2005).
Chapter 4

Results

Chapter 4 will provide the reader with descriptive data as they apply to the instruments used in this study, including internal consistencies, frequencies, ranges, and standard deviations. The author will then answer both of this study’s research questions using the appropriate statistical procedures. Post-hoc analyses conducted by this researcher will then be detailed for the reader. Finally, the chapter will conclude with a summary of the data and findings.

4.1 Descriptive Data

This study used four measures of resiliency, the Substance Abuse Subtle Screening Inventory-3 (Feldstein & Miller, 2007), and a study-specific demographic data collection form. The four measures of resilience were: The Connor-Davidson Resilience Scale (Connor & Davidson, 2003), The Ego-Resiliency Scale (Block & Kremen, 1996), The Interpersonal Support Evaluation List (Cohen & Hoberman, 1983), and The Resilience Scale (Wagnild & Young, 1993).

The Resilience Scale (RS) (Wagnild & Young, 1993) was determined to have an acceptable level of internal consistency (Cronbach’s $\alpha = .83$). This sample’s mean RS score was 140.75 (SD = 20.71, range = 45-175). Based on Wagnild’s (2009) interpretive
guidelines, participants’ RS scores were grouped into categorical levels of resilience. Scores higher than 145 suggest moderately high to high resilience, scores of 125 to 145 are indicative of moderately low to moderate levels of resilience, and scores of 120 or less imply a low level of resilience (Wagnild). In this sample, 24 participants (17.5%) were determined to have low resilience, 63 participants (46%) had moderately low to moderate resilience, and 50 participants (36.5%) had moderately high to high levels of resilience.

The Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003) had an excellent level of internal consistency (Cronbach’s α = .93). The CD-RISC is comprised of 25 items, each rated on a 5-point Likert-type scale (Connor & Davidson, 2003). Scores are determined by summing each item, with total scores ranging from 0 to 100, making the CD-RISC a continuous measure. The mean score for this sample on the CD-RISC was 76.32 (SD = 14.63, range = 37-100).

The Ego-Resiliency Scale (ER89) (Block & Kremen, 1996) was determined to have an adequate level of internal consistency (Cronbach’s α = .82). The ER89 is comprised of 14 items, each rated on a 4-point Likert-type scale (Block & Kremen, 1996). Response options range from 1 (does not apply at all) to 4 (applies very strongly). Scores are determined by summing each item, with total scores ranging from 14 to 56. This sample’s mean ER89 score was 43.22 (SD = 6.35, range = 25-56). As is the case with the CD-RISC, higher scores on the Ego-Resiliency Scale suggest greater levels of resilience; however, unlike the CD-RISC, the ER89 is scored categorically. Those who score from 0-10 are considered to have very low resilience, 11-22 is low, 23-34 is classified as undetermined, 35-46 is high, and scores of 47-56 are very high. In this
sample, no one scored in the very low or low categories, but 15 participants (10.7%) scored in the undetermined category, 83 participants (59.3%) were determined to have high resilience, and 42 (30%) were found to have very high levels of resilience.

For an instrument to be considered internally consistent, the instrument must receive a score of .80 or above on a measure of internal consistency (Mitchell & Jolley, 2010). Unfortunately, because the reliability of the Interpersonal Support Evaluation List (ISEL) was below the acceptable cutoff for instruments (Cronbach’s $\alpha = .62$), the researcher could not be confident that it would validly measure the construct of interest. Therefore, the instrument was removed from further analysis.

The Substance Abuse Subtle Screening Inventory-3 (SASSI-3) (Feldstein & Miller, 2007) is a multi-scale instrument; therefore, a measure of internal consistency was inappropriate. The SASSI-3 contains nine subscale scores, and overall scoring is based on nine different decision rules. When respondents exceed the cutoff for any of the nine decision rules, they are identified as having a high probability of having a substance dependence disorder; however, if all criteria are below the specified cutoffs, these respondents are considered to have a low probability of having a substance dependence disorder (Feldstein & Miller). These are the only score classifications for this instrument. In this sample, 24 participants (17.6%) were determined to have a high probability of having a substance dependence disorder, while 112 (82.4%) were determined to have a low probability of substance dependence.

In addition to the aforementioned resilience and substance dependence data, the researcher also obtained data on participants’ history of traumatic life events. The life events included in the demographics questionnaire consist of parental divorce, family
employment problems, legal problems, medical problems, mental problems, addiction
problems, attempted or committed suicide, family member death, and experiencing
emotional, physical, and/or sexual abuse. In this sample, 108 participants (75.5%)
indicated that they had experienced at least one of the traumatic events during childhood.
A total of 35 students (24.5%) reported that they never experienced any of the traumatic
events. Participants endorsed an average of 1.72 adverse childhood events on the
demographics questionnaire (SD = 1.96, range = 0-9). Table 4.1 includes the frequencies
for each of the traumatic experiences included in this study, as well as data on the
average age at which each life event occurred (mean, range, standard deviation) for
anyone who indicated that they had experienced one of the events, regardless of how they
rated the event’s impact. Table 4.2 includes the average age (mean, range, standard
deviation) for only those who said that the childhood event was negatively impactful.

Table 4.1: Frequency and age data for adverse childhood events. Below are the
numbers of participants who endorsed each life event, as well as the age
means, ranges, and standard deviations for when the events occurred.

<table>
<thead>
<tr>
<th>Life Event</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divorce</td>
<td>62</td>
<td>0</td>
<td>18</td>
<td>6.65</td>
<td>4.65</td>
</tr>
<tr>
<td>Employment Problems</td>
<td>30</td>
<td>1</td>
<td>18</td>
<td>11.27</td>
<td>5.07</td>
</tr>
<tr>
<td>Legal Problems</td>
<td>19</td>
<td>1</td>
<td>19</td>
<td>11.58</td>
<td>4.89</td>
</tr>
<tr>
<td>Medical Problems</td>
<td>28</td>
<td>0</td>
<td>17</td>
<td>9.25</td>
<td>4.83</td>
</tr>
<tr>
<td>Mental Problems</td>
<td>23</td>
<td>1</td>
<td>17</td>
<td>12.52</td>
<td>3.58</td>
</tr>
<tr>
<td>Addiction</td>
<td>38</td>
<td>1</td>
<td>17</td>
<td>10.71</td>
<td>3.50</td>
</tr>
<tr>
<td>Suicide</td>
<td>24</td>
<td>1</td>
<td>18</td>
<td>12.83</td>
<td>4.32</td>
</tr>
<tr>
<td>Family Death</td>
<td>20</td>
<td>2</td>
<td>21</td>
<td>11.6</td>
<td>5.24</td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>22</td>
<td>4</td>
<td>17</td>
<td>10.82</td>
<td>3.65</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>12</td>
<td>6</td>
<td>16</td>
<td>10.17</td>
<td>3.54</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>6</td>
<td>4</td>
<td>16</td>
<td>11</td>
<td>4.65</td>
</tr>
</tbody>
</table>
Table 4.2: Age data for adverse childhood events for those who were negatively impacted. Below are the age means, ranges, and standard deviations for when the life events occurred only for participants who were negatively impacted by the event.

<table>
<thead>
<tr>
<th>Life Event</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divorce</td>
<td>1</td>
<td>18</td>
<td>7.06</td>
<td>4.81</td>
</tr>
<tr>
<td>Employment Problems</td>
<td>2</td>
<td>18</td>
<td>11.33</td>
<td>5.09</td>
</tr>
<tr>
<td>Legal Problems</td>
<td>1</td>
<td>17</td>
<td>10.6</td>
<td>4.85</td>
</tr>
<tr>
<td>Medical Problems</td>
<td>1</td>
<td>17</td>
<td>9.91</td>
<td>4.67</td>
</tr>
<tr>
<td>Mental Problems</td>
<td>1</td>
<td>17</td>
<td>12.25</td>
<td>3.68</td>
</tr>
<tr>
<td>Addiction</td>
<td>1</td>
<td>17</td>
<td>11.03</td>
<td>3.40</td>
</tr>
<tr>
<td>Suicide</td>
<td>3</td>
<td>18</td>
<td>13</td>
<td>3.56</td>
</tr>
<tr>
<td>Family Death</td>
<td>2</td>
<td>21</td>
<td>11.82</td>
<td>5.27</td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>4</td>
<td>17</td>
<td>10.82</td>
<td>3.65</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>6</td>
<td>16</td>
<td>10.17</td>
<td>3.54</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>4</td>
<td>16</td>
<td>11</td>
<td>4.65</td>
</tr>
</tbody>
</table>

The researcher then obtained information from participants as to the severity of the impact of each of these life events. Participants who endorsed experiencing the event during childhood had the option to indicate that the life event had no negative impact, moderate negative impact, or significant negative impact. Table 4.3 details how participants rated each of these adverse childhood events.
Table 4.3: The severity of the impact of each of the life events. Below are the numbers of participants endorsing each of the severity categories for each of the adverse childhood events.

<table>
<thead>
<tr>
<th>Life Event</th>
<th>No Negative</th>
<th>Moderate Negative</th>
<th>Significant Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divorce</td>
<td>16 (25.4%)</td>
<td>26 (41.3%)</td>
<td>21 (33.3%)</td>
</tr>
<tr>
<td>Employment Problems</td>
<td>9 (28.1%)</td>
<td>14 (43.8%)</td>
<td>9 (28.1%)</td>
</tr>
<tr>
<td>Legal Problems</td>
<td>4 (21.1%)</td>
<td>11 (57.9%)</td>
<td>4 (21.1%)</td>
</tr>
<tr>
<td>Medical Problems</td>
<td>6 (18.8%)</td>
<td>16 (50%)</td>
<td>10 (31.3%)</td>
</tr>
<tr>
<td>Mental Problems</td>
<td>3 (12.5%)</td>
<td>8 (33.3%)</td>
<td>13 (54.2%)</td>
</tr>
<tr>
<td>Addiction</td>
<td>8 (19%)</td>
<td>14 (33.3%)</td>
<td>20 (47.6%)</td>
</tr>
<tr>
<td>Suicide</td>
<td>3 (13%)</td>
<td>10 (43.5%)</td>
<td>10 (43.5%)</td>
</tr>
<tr>
<td>Family Death</td>
<td>3 (15.8%)</td>
<td>5 (26.3%)</td>
<td>11 (57.9%)</td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>0</td>
<td>7 (29.2%)</td>
<td>17 (70.8%)</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>0</td>
<td>6 (60%)</td>
<td>4 (40%)</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>0</td>
<td>1 (16.7%)</td>
<td>5 (83.3%)</td>
</tr>
</tbody>
</table>

The fact that a participant experienced a negative life event does not ipso facto mean that the event had a negative impact on the participant. For example, one could argue that the divorce of a parent who was abusing a child might be perceived by that child as a positive life event. Likewise, a participant whose parents divorced while the participant was a toddler may have no memory of the divorce and therefore declare that the actual event had little to no negative effect. Consequently, it was necessary to assess not only whether a negative life event took place, but also the degree to which that negative life event affected the participant. In order to be categorized as positive for one of these traumatic events, a participant had to have indicated that the event occurred at some point and that the event had either a moderate negative impact or a significant negative impact on their life. Therefore, the researcher collapsed the measure of the impact of trauma from being categorical (no negative impact, moderate negative impact,
significant negative impact) into a dichotomous measure (yes/no). Those participants who indicated that the adverse event had no negative impact were removed from further analysis (no), and all those who indicated moderate or severe negative impact were combined into one category (yes). Once the impact of trauma was converted into a dichotomous measure, it was determined that of the 108 students who reported experiencing an adverse childhood event, 95 (88%) reported being negatively impacted by the event(s), whereas only 13 (12%) were not traumatized.

### 4.2 Research Questions

Research question 1 states: Is there a relationship between adverse childhood events and substance dependence in a college student sample? The researcher originally planned to perform a multiple linear regression to answer question 1. However, because the trauma variable was converted into a dichotomous measure, and substance dependence (as measured by the SASSI-3) is also dichotomous, it was determined that linear regression would be an inappropriate method of analysis for research question 1. The researcher therefore conducted a Phi correlational analysis. The Phi correlation coefficient between trauma and substance dependence was 0.221 ($p = .01$). The effect size (magnitude of the relationship) is .048. According to Cohen (1992), this effect size is considered small. This also means that knowing whether or not someone was traumatized predicts 4.8% of the variance in whether someone becomes substance dependent. The answer to research question 1 is yes; however, there is only a small correlation between trauma and substance dependence in this sample.

Research question 2 states: Does resilience predict unique variance in substance dependence status over and above the variance accounted for by adverse childhood
events? To answer this question, the researcher performed a multiple linear regression, where the full model combined both trauma and resilience as predictors of substance dependence and the restricted model used only trauma as a predictor of substance dependence. For full model, the multiple correlation coefficient ($R$), using all predictors simultaneously, was $0.284 (R^2 = 0.081)$ and the adjusted $R^2$ was $0.051 \ [F(3, 122) = 2.686, p = 0.035]$. The adjusted $R^2$ of $0.051$ means that $5.1\%$ of the variance in substance dependence can be predicted from resilience and trauma combined. The multiple correlation coefficient ($R$) for the restricted model was $0.172 (R^2 = 0.03)$ and the adjusted $R^2$ was $0.022 \ [F(1, 125) = 3.824, p = 0.053]$. The adjusted $R^2$ of $0.022$ indicates that $2.2\%$ of the variance in substance dependence can be predicted by trauma alone.

The ANOVA table shows that $F(1, 125)$ was $3.82 (p = 0.053)$ for the restricted model, indicating that the $R$ for the restricted model was not statistically significant. However, the ANOVA table shows that the $F(4, 122)$ for the full model was $2.686 (p = 0.035)$, which is statistically significant (Sig. = .035). This means that the combination of the predictors (trauma and resilience) significantly predicted substance dependence. However, the answer to research question 2 is no. Resilience does not predict unique variance in substance dependence over and above the variance accounted for by trauma.

**4.3 Post-hoc Analyses**

Out of curiosity, the researcher sought to determine if there was a relationship between the cumulative number of types of traumatic events experienced and the development of substance dependence. This type of correlation coefficient is called a point biserial (continuous variable correlated with a dichotomous variable). The $X$ coefficient was $0.217 (p = .01)$. The effect size (magnitude of the relationship) is $0.047$. 
According to Cohen (1992), this effect size is small. This also means that knowing the cumulative number of types of traumatic events experienced predicts 4.7% of the variance in whether someone becomes substance dependent. That is, there is a very small correlation between the cumulative number of types of traumatic events experienced and substance dependence classification.

The researcher was also curious to know if there were differences in resilience between those who were substance dependent and those who were not. To answer this question, the researchers conducted a multiple analysis of variance (MANOVA) where the dichotomous variable substance dependence served as the predictor variable and total scores for the Resilience Scale, Ego Resiliency Scale, and Connor-Davidson Resilience Scale served as the criterion variables. The means, standard deviations, and ranges of scores for the RS/ER/CD categorical data, when described as interval data, are located on Table 4.4. The means and standard deviations for each resilience scale by substance dependent status are located on Table 4.5.

Table 4.4: Score means, ranges, and standard deviations for the three resilience scales. Below are the mean scores, ranges, and standard deviations for each of the three resilience scales used in this study.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS score</td>
<td>137</td>
<td>45.00</td>
<td>175.00</td>
<td>140.7518</td>
<td>20.70904</td>
</tr>
<tr>
<td>Ego Resiliency Score</td>
<td>140</td>
<td>25.00</td>
<td>56.00</td>
<td>43.2214</td>
<td>6.35074</td>
</tr>
<tr>
<td>Connor</td>
<td>136</td>
<td>37.00</td>
<td>100.00</td>
<td>76.3162</td>
<td>14.62960</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>131</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.5: Resilience scale scores based on substance dependent status. Below are the mean scores, standard deviations, and frequencies for each of the three resilience scale scores based on substance dependent status (yes/no).

<table>
<thead>
<tr>
<th>Was the participant substance dependent?</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>143.2056</td>
<td>18.92524</td>
<td>107</td>
</tr>
<tr>
<td>yes</td>
<td>132.6500</td>
<td>20.65576</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>141.5433</td>
<td>19.50773</td>
<td>127</td>
</tr>
<tr>
<td>Ego Resiliency Score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>43.5047</td>
<td>6.37414</td>
<td>107</td>
</tr>
<tr>
<td>yes</td>
<td>41.1500</td>
<td>7.12501</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>43.1339</td>
<td>6.52512</td>
<td>127</td>
</tr>
<tr>
<td>Connor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>77.4673</td>
<td>14.10628</td>
<td>107</td>
</tr>
<tr>
<td>yes</td>
<td>71.3000</td>
<td>17.77668</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>76.4961</td>
<td>14.83714</td>
<td>127</td>
</tr>
</tbody>
</table>

To avoid making a type II error, the researcher conducted a Bonferroni alpha correction to account for the multiple ANOVAs being conducted (Newman, Fraas, & Laux, 2000). This correction consisted of dividing the a priori alpha (.05) by the number of ANOVA (3) and resulted in an adjusted alpha of .017. The MANOVA failed to produce a statistically significant difference in resilience scores between participants based on their substance dependence status \[F(2, 123) = 1.709, p = .169; \text{Wilk's } \lambda = 0.960, \text{partial } \epsilon^2 = .04\].

The researcher tested to see if there were differences in resilience between those who self-reported trauma and those who did not. To answer this question, the researchers conducted a multiple analysis of variance (MANOVA) where the dichotomous variable traumatized status served as the predictor variable and total scores for the Resilience Scale, Ego Resiliency Scale, and Connor-Davidson Resilience Scale served as the
criterion variables. The means and standard deviations for each resilience scale by traumatized status are located on Table 4.6.

Table 4.6: Resilience scale scores based on traumatized status. Below are the mean scores, standard deviations, and frequencies for each of the three resilience scale scores based on traumatized (yes/no) status.

<table>
<thead>
<tr>
<th>Was the participant traumatized?</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>144.1163</td>
<td>12.41199</td>
<td>43</td>
</tr>
<tr>
<td>yes</td>
<td>140.1818</td>
<td>21.88189</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>141.4733</td>
<td>19.33006</td>
<td>131</td>
</tr>
<tr>
<td>Ego Resiliency Score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>43.7907</td>
<td>5.97438</td>
<td>43</td>
</tr>
<tr>
<td>yes</td>
<td>42.7955</td>
<td>6.72986</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>43.1221</td>
<td>6.48551</td>
<td>131</td>
</tr>
<tr>
<td>Connor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no</td>
<td>78.7442</td>
<td>12.63987</td>
<td>43</td>
</tr>
<tr>
<td>yes</td>
<td>75.0000</td>
<td>15.76407</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>76.2290</td>
<td>14.86740</td>
<td>131</td>
</tr>
</tbody>
</table>

Again, to avoid making a type II error, the researcher conducted a Bonferroni alpha correction to account for the multiple ANOVAs being conducted (Newman, Fraas, & Laux, 2000). This correction consisted of dividing the a priori alpha (.05) by the number of ANOVA (3) and resulted in an adjusted alpha of .017. The MANOVA failed to produce a statistically significant difference in resilience scores between participants who were traumatized during their youth and those who were not, $F(2, 126) = .655, p = .581$; Wilk’s $\lambda = 0.985$, partial $\epsilon^2 = .015$.

Because the SASSI-3’s scoring procedures produce a dichotomous likelihood of substance dependence, the author sought to determine if relationships existed between the total number of types of traumas experienced and self-reported alcohol use and self-
reported use of drugs other than alcohol. Further, the researcher was interested to see if persons who reported any trauma at all had different levels of self-reported alcohol and other drug use. Self-reported alcohol use was operationally defined by the SASSI-3’s Face-Valid Alcohol Scale. Self-reported use of drugs other than alcohol was operationally defined by the SASSI-3’s FVOD scale. Raw FVA ($\alpha = .85$) and FVOD ($\alpha = .94$) scores were transformed into T-scores using the SASSI-3 Manual’s Appendix C (Miller, 1999). This sample’s mean (SD, range) FVA raw score and T-score was, respectively, 3.32 (SD = 4.27, 0-22) and 48.14 (SD = 8.38, 41-85). This sample’s mean (SD, range) FVOD raw score and T-score was, respectively, 3.41 (SD = 7.07, 0-32) and 51.05 (SD = 11.64, 45-99). A simple Pearson-product moment correlation analysis demonstrated a positive and statistically significant relationship between the number of types of trauma experienced and self-reported alcohol use ($r = .22, p = .013$) and self-reported use of drugs other than alcohol ($r = .21, p = .019$). A two-way multiple analysis of variance was conducted to determine if those who reported trauma had different FVA and FVOD scores than those who did not. The mean FVA T-score reported by those who were traumatized was 49.10 (SD = 9.26). The mean FVA T-score reported by those who were not traumatized was 46.39 (SD = 6.20). The mean FVOD T-score reported by those who were traumatized was 52.44 (SD = 13.10). The mean FVOD T-score reported by those who were not traumatized was 48.48 (SD = 7.78). The results of the MANOVA indicate that there was not a statistically significant difference in FVA or FVOD scores between persons who reported any trauma and those who did not, $F(1, 122) = 1.835, p = .164$, Wilk’s $\lambda = .971$, partial $\epsilon^2 = .029$.  

62
Summary

The researcher began this chapter by presenting internal consistency levels for each of the instruments used, and then identifying various descriptive data for each of the measures (means, ranges, standard deviations). Data on the adverse childhood events was then presented, including the number of participants endorsing these items, age when the events occurred, and the degree of negative impact of these events. The researcher then discussed the 2 research questions, including the statistical analyses that were performed to answer the questions. The researcher found support for research question 1, but not for research question 2. After answering the research questions, the researcher also conducted several post-hoc analyses, including a point biserial correlational analysis and two MANOVA tests. In Chapter 5, the researcher will discuss these findings. This will include integrating the findings into the existing literature, presenting the implications of these findings, identifying the limitations of this study, and providing the reader with suggestions for future research.
Chapter 5

Discussion

Chapter 5 will begin with a brief summary of the available literature which justifies the research conducted in this study. The researcher will then summarize the purpose of this study, the procedures, and the findings. The findings of this study will then be integrated into the current literature base, and implications will be stated. These implications will be directed not only towards researchers, counselors, and counselor educators, but also to the higher education system as a whole. The researcher will then identify and explain the limitations of this current study. The chapter will conclude with suggestions for future research resulting from this research study.

5.1 Background and Study Findings

Drug and alcohol abuse has resulted in a number of negative consequences for society. The consequences of substance abuse to college aged students may be particularly severe. A variety of viewpoints, including both biological and environmental, have been proposed to explain why individuals develop substance use disorders. Biological influences on the development of substance use problems include a family history of addiction and the genetic predisposition to developing the disorder. Environmental influences include the culture of college settings, family of origin
experiences, and trauma. Despite the research linking the above to the development of substance use disorders, not all individuals with similar backgrounds experience problems related to substance use.

The concept of resilience has been introduced to explain why some individuals, regardless of their family background or life experiences, avoid developing a problem with alcohol or drugs. Resilience is believed to serve as a protective mechanism against developing a substance abuse problem; however, the varied research available does not provide consistent findings about the role of resiliency and the known risk factors for addiction. It is therefore evident that no one risk factor fully explains the variance in functioning and substance use among college students, and understanding the role of resilience over and above all of the specific predictive factors that can be controlled may make the prediction of substance use disorders in college students much more accurate.

The purpose of this study was to investigate the developmental history, resilience factors, and substance use of a sample of undergraduate college students. By conducting this study, the researcher hoped to identify what most effectively serves as a protective mechanism against developing a problem with substance use and other potentially negative outcomes. To accomplish this, the author, along with two departmental faculty members, met with and received permission from university administrators to approach the instructors of twenty-five (25) orientation classes. The researchers contacted all the course instructors for permission to visit their classes to run this study, and were given permission to attend nineteen (19) of the course sections. When the researchers arrived at the pre-arranged course sections, we explained to the students about the study being
Researchers informed students that participation was strictly voluntary, and informed consent was obtained from those who volunteered to participate.

Participants were given study packets, which included all aforementioned instruments, as well as a demographics questionnaire. All instruments were counterbalanced in the packets so they were not being completed in the same order by participants. Subjects returned the packets to researchers when they were completed. The study packets were brought directly back to the department by the researchers. Informed consent forms were stored separately from the original data in a locked cabinet in a locked office in a locked suite. Data were then transferred to an anonymous electronic file, which is password-protected on a password-protected computer.

With the first research question, the researcher sought to establish if a relationship existed between adverse childhood events and substance dependence in a college student sample. The answer to research question 1 was “yes”; however, the Phi correlational analysis showed that only a small relationship existed between trauma and substance dependence in this sample, and the effect size was also small. The second research question sought to establish if resilience predicted unique variance in substance dependence status over and above the variance accounted for by adverse childhood events. A multiple linear regression was performed to answer this question. The regression analysis showed that while the combination of the predictors (trauma and resilience) significantly predicted substance dependence, the answer to research question 2 was “no”. Resilience did not predict unique variance in substance dependence over and above the variance accounted for by trauma in this sample.
Post-hoc analyses conducted by this researcher showed only a very small correlation between the cumulative number of types of traumatic events experienced and substance dependence classification. Other post-hoc analyses failed to produce a statistically significant difference in resilience scores between participants based on their substance dependence status, or between participants who were traumatized during their youth and those who were not. The researcher also conducted post-hoc analyses to determine if a relationship existed between the total number of types of traumas experienced and self-reported alcohol use and self-reported use of drugs other than alcohol. A Pearson-product moment correlation analysis demonstrated a statistically significant and positive relationship between the number of types of trauma experienced and self-reported alcohol use and self-reported use of drugs other than alcohol. The final post-hoc analysis was conducted to determine if participants who reported any trauma at all had different levels of self-reported alcohol and other drug use. The results of the MANOVA indicated that there was not a statistically significant difference in Face-Valid Alcohol (FVA) or Face-Valid Other Drugs (FVOD) scores on the SASSI-3 between persons who reported any trauma and those who did not.

Beyond the research questions and post-hoc analyses, there were a number of findings and observations that should be noted. First, there were a very large number of participants who were classified as substance dependent. In this sample, 24 students (17.6%) were determined to have a high probability of having a substance dependence disorder. This is more than double the estimated rate (8.5%) of substance dependence in the general population (CASA, 2007). While substance use among college students is common, having this many students qualify as substance dependent is alarming,
especially considering the average age of participants was only 18.73. This high rate of substance dependence in first-year college students may have a major impact on a variety of important factors, including their ability to be successful in the classroom and the risk of attrition.

Another notable finding was the very high rate of students reporting that they had experienced adverse childhood events. More than three-fourths of the sample indicated that they had experienced at least one of the traumatic events during childhood (n=108, 75.5%). These data suggest that traumatic experiences are not rare or infrequent, but are, in fact, much more commonly occurring than one may expect. Furthermore, with the exception of emotional/physical/sexual abuse, not everyone who reported experiencing an adverse life event ended up viewing the experience as significantly harmful. It may be that some of the events that were considered potentially traumatizing actually had a beneficial outcome for participants (e.g., a divorce that results in less friction or arguing in the home). The fact that all participants who had experienced emotional, physical, and/or sexual abuse rated it as negatively impactful is interesting in light of the above findings. This discrepancy may be because the questions about abuse were the only ones to ask about events happening directly to the participant, not just within the participant’s household. Considering these results, it is likely that simply witnessing an adverse event is less traumatizing than actually experiencing the event on a personal level.

Lastly, it can be viewed as a positive finding that the data failed to produce a statistically significant difference in resilience scores between participants who experienced trauma and those who did not. One would logically expect that the individuals who experienced childhood adversity might have less resilience in adulthood.
as a result of these traumatic experiences. However, in this sample, it appears that trauma did not impact resilience scores to a significant degree; therefore, participants with a trauma history must have found a way to process and move beyond their adverse childhood experiences in order to have levels of resilience comparable to those without a history of trauma. Better understanding the mechanisms that support this growth and coping would be beneficial in understanding why those who experience adverse life events have varied degrees of resilience.

5.2 Integrating the Present Findings into the Literature

There are a number of research studies that strongly support a link between childhood trauma and negative outcomes in adulthood. Many researchers have cited that parental substance abuse serves as a major determinant of substance use for offspring during childhood and adolescence (Barrett & Turner, 2006; Epstein, Bang, & Botvin, 2007; Velleman et al., 2005). Other authors have cited that experiencing childhood abuse, victimization, and witnessing violence are all related to higher rates of substance use and abuse (Kilpatrick et al., 2000; Min, Farkas, Minne, & Singer, 2007; Perron, Gotham, & Cho, 2008; Timko et al., 2008; Zinzow et al., 2009).

Despite these aforementioned studies, there are a number of other studies that suggest that risk factors alone are not sufficient in predicting negative outcomes. Wright and Heppner (1991) reported that their results “indicate that the nonclinical college-age ACAs [adult children of alcoholics] appear to be as well-adjusted as non-ACAs on these variables and are not as maladapted as has been suggested in the literature” (p. 470). Still other studies found no significant differences between ACOAs and their non-ACOA counterparts on a number of measures of coping and functioning, including alcohol use
The results of this study appear to support the views of the second group of researchers, who do not believe that substance abuse is a natural byproduct of childhood adversity. This study found only a small relationship between childhood traumatization and substance dependence in a sample of first-year college students. The results also indicated only a very small correlation between the cumulative number of types of traumatic events experienced and substance dependence classification. Based on these findings, it is reasonable to view those individuals who have experienced dysfunctional and/or traumatic experiences as a heterogeneous group with varying outcomes and levels of functioning (Schroeder & Kelley, 2008; Wright & Heppner, 1991).

Other analyses performed by this researcher found no statistically significant differences in scores of resiliency based on substance dependence status or whether or not they had experienced childhood trauma. These findings appear to contradict the view that resilience may arise in response to traumatic experiences as some authors have suggested (Everall et al., 2006; Palmer, 1997). Alternative views of resilience as a stable personality trait or an “ability to adapt to life’s ever-changing landscape and recover quickly from stressors” (Waugh et al., 2008, p. 1031) may be more accurately supported by this study’s findings. It is possible that instead of functioning as a behavioral response or a consequence of adverse life events, resilience is actually more of an inborn, innate skill or ability.
5.3 Implications

There are a number of implications based on the results of this study, primarily for future research, practicing counselors, counselor educators, and for higher education as a whole. The findings supported a small relationship between adverse childhood experiences and substance dependence in this sample; however, resilience did not predict unique variance in substance dependence over and above the variance accounted for by trauma in this sample. It should be noted that the link between trauma and substance use is well-supported in the literature (Min et al., 2007; Perron et al., 2008; Zinzow et al., 2009). However, based on the results of this study, it appears that the relationship is a complex and multifaceted one that cannot be easily explained by one or two contributing factors. Simply experiencing an adverse event during childhood does not guarantee that an individual will experience substance abuse issues in adulthood. At the same time, it cannot be discounted that research continues to find linkages between these experiences. Future research that focuses on understanding the complex relationship between childhood trauma and adult functioning is warranted. The fact that only a small relationship existed between adverse childhood events and substance dependence for this sample suggests that another factor is at play in determining outcomes for individuals who experience childhood trauma. Research that seeks to evaluate and identify those other factors will likely make a major impact on the field of research in this area.

Despite the less than robust findings supporting the relationship between childhood adversity and adult substance use in this sample, there are definite implications for practicing counselors. The sheer number of participants who endorsed experiencing adverse events during childhood, as well as the number who were identified as being
traumatized by their childhood experiences, suggests that childhood trauma is a fairly common experience. Therefore, counselors should not be assessing for a history of trauma only if they are presented with information to suggest it may have occurred; instead, evaluating for past trauma should be a standard part of the counseling relationship. In addition, counselors are encouraged to be aware of and evaluate for issues that commonly co-occur with childhood trauma, including substance abuse, posttraumatic stress disorder, and other emotional and/or psychiatric conditions.

Finally, for counselors who are working directly with children, the impact of childhood adversity demonstrated in this sample suggests that interventions designed to aid the family as a whole may be beneficial. Timko et al. (2008) reported similar implications: “Whether providers are initially focused on the adult or the child, there is the potential to help disrupt intergenerational alcohol misuse by considering the entire family or at least the parent-offspring dyad” (p. 7). The opportunity therefore exists to not only address any active trauma issues in clients, but to possibly prevent future harm as a result of adverse experiences in the home.

Counselor educators play an integral role in the development and preparation of practicing counselors. The implications of this study also extend to these educators who are influential in shaping and molding counseling students and their ability to conceptualize the needs of their future clients. Counselor educators can utilize the results of this study to aid their students in understanding the frequency of adverse childhood events and the impact of such experiences on the lives of their clients. Furthermore, this study’s findings suggest that it may be beneficial for counselor educators to train their students to actively assess for a history of trauma in their patients, and to also evaluate for
any co-occurring issues or disorders. On a final note, counselor educators are in a unique position to promote the concept of resilience in the classroom and in counselor training. Encouraging counseling students to learn about and strive to foster increased resilience in their clients is yet another way to improve the functioning and overall well-being of the people they serve.

This study’s findings offer other implications at a university level and for the higher education community as a whole. This study’s sample was exclusively first-year college students, a group of definite interest to university administrators for whom retention is a significant issue and concern. Kadambi, Audet, and Knish (2010) reported that there has been an overall increase in the complexity and severity of the presenting problems of students seeking help at university counseling centers since the mid-1980s. Considering the number of students in this study’s sample who had reported experiencing adverse childhood events, including those participants who experienced multiple traumatic events, ensuring that these students are able to continue in their college careers is a major issue for university staff. University-level programs designed to aid and assist students with emotional or mental health problems may be especially useful. In addition, interventions targeting the abuse of drugs or alcohol on campus settings may be warranted, as this study’s findings demonstrated a link between childhood adversity and substance dependence. Finally, not only is having a university counseling center essential, but having the center be well staffed, available to all students, publicized among the student body, and supported by the university is key to promoting the well-being of all students.
5.4 Limitations

Despite the number of implications and potential utility of this study, there also exist a number of limitations that should be noted and addressed. First, when administering the Substance Abuse Subtle Screening Inventory-3 (SASSI-3), the researcher did not specify a time reference for participants. Therefore, participants’ responses about their substance use could be in reference to current events or to substance use patterns occurring in the past. The researcher cannot guarantee that participants continue to use substances in the same manner that they indicated on the survey instrument. It is possible that some participants who met the SASSI-3 criteria for having a high probability of being substance dependent based on a lifetime report of substance use may no longer meet this criteria if only current substance use is evaluated (and vice versa).

Another limitation of this study applies to the sample itself, which consists only of first-year college students. Since the researcher evaluated only freshman college students, the findings of this study cannot be generalized to other college grades, or to other universities without similar demographics as reported in this study. The possibility exists that sophomore- or junior-level college students may not respond in comparable ways to their first-year peers. Similarly, if another university has a different student makeup than what was reported here, these findings may not translate or apply to their student population. Limited generalizability also applies to this study’s use of only college students. The findings cannot be appropriately applied to non-college students, even if they are the same age and have the same demographic background as this sample. It is possible that the non-college students may have experienced so much trauma that
they never pursued higher education. Alternately, the college students in this study with a history of adverse childhood events may have something unique about them (in comparison with the non-college students) that enabled them to endure and be able to attend college despite their potentially traumatic life experiences.

5.5 Suggestions for Future Research

This researcher has identified several suggestions for future research to improve upon the method utilized in this study. First, when evaluating the impact of the adverse childhood events, all events were lumped into one main category of traumatic life events. Only after the impact was combined did the researcher evaluate its relationship to the dependent variable (substance dependence). The researcher did not look at the individual types of trauma to determine if one was more predictive of the dependent variable than another. It is possible that personally experiencing sexual abuse as a child would be viewed as more impactful than a parent’s employment problem.

Another methodological issue that this researcher encountered was related to the nature of the adverse childhood event and its impact. To improve the method in the future, it would be beneficial to ask participants if the trauma they experienced was only once, on an episodic basis, or lifelong (possibly even current). The duration of these adverse events may have significantly influenced how impactful they were to the participants. Future researchers may also wish to evaluate the level of negative impact of each life event both in the past and currently. Some study participants may rate a particular childhood event as having a significantly negative impact on their lives; however, based on this study’s method, there is no way to know if the participants still consider themselves to be negatively impacted by the trauma. Participants who
experienced child sexual abuse, rated it as significantly negatively impactful, and who continue to experience the effects of the abuse, will appear qualitatively very different than individuals who were negatively impacted in the past but feel that they are no longer experiencing any long-term effects of this abuse.

Summary

There is a great deal of literature to suggest that experiencing traumatic events in childhood often leads to problematic outcomes in adulthood. However, not all individuals who experience such trauma arrive at the same end point. The concept of resilience has been promoted as one of the ways in which individuals experiencing similar life events can end up with very different results. Those who study resilience are tasked to develop an understanding as to how two people experiencing a similar life event can respond and recover to greatly varying degrees. This study sought to understand the aforementioned complex relationship between adverse childhood events, resilience, and substance dependence in a college student sample. While this researcher did identify a relationship between trauma and substance dependence in this sample, not all findings were in support of the research questions. Resilience did not predict unique variance in substance dependence over and above the variance accounted for by traumatic life events. Despite the mixed results of this study, the researcher did identify several notable implications based on this study’s findings, as well as a number of suggestions for future research. Only by continued study and examination of the multifaceted interaction between traumatic life events, resilience, and substance use will a greater understanding of this dynamic relationship (and how to aid those individuals impacted by it) ever be reached.
References

doi:10.1177/1524838005277438

doi:10.1080/01460860600677643

doi:10.1080/15325020600945962


http://www.uvu.edu/iri/pdfs/Retentionwriteup.pdf

Hughes, R. (2009). *Why do second year students leave HSU?* Retrieved from Humboldt State University, Division of Student Affairs website:

doi:10.1046/j.1360-0443.2001.961575.x


doi:10.1176/appi.ajp.160.4.687


doi:10.1093/alc/acl095


1-9.


doi:10.2105/AJPH.85.7.921

doi:10.1037/0021-843X.114.4.494


Appendix A

Institutional Review Board (IRB) Approval Form
To:        John M. Laux, Ph.D., and Stephanie Calmes  
           Department of School Psychology, Legal Specialties, Counselor Education

From:      Barbara K. Chesney, Ph.D., Chair  
           Kamala London, Ph.D., Vice Chair  
           Walter Eadinger, Ph.D., Chair Designee

Signed:    B. K. Chesney                       Date: 01/12/12

Subject:   IRB #107481

Title:     The Relationship between Adverse Childhood Events, Resilience and Substance Dependence among Students

On 01/12/12, the above research was reviewed and approved as exempt (category #4) by the Chair and Chair Designee of the University of Toledo (UT) Social Behavioral & Educational Institutional Review Board (IRB). The requirement to obtain a signed consent/authorization for use and disclosure of protected health information form has been waived as this research is determined to be minimal risk and a signed consent/authorization document would be the only record linking the subject to the data. It was determined that this waiver for signed consent/authorization will not adversely affect the rights and welfare of the participants. This action will be reported to the committee at its next scheduled meeting.

Please Note: A consent form is not required for this study. However an Information Sheet regarding the study should be distributed to potential participants. This Information Sheet should include the name and telephone number of a contact person in case the subjects need additional information. It is also strongly encouraged that the study be explained verbally to potential subjects.

Items Reviewed:
• IRB Application Requesting Exempt Review

Designated as EXEMPT RESEARCH on: 01/12/12

Please read the following attachment detailing Principal Investigator responsibilities.
Appendix B

Demographic Data Form
DEMOGRAPHIC QUESTIONNAIRE

Please answer the questions below. You may circle the appropriate answer or write your answer on the line provided. Please print. DO NOT include any identifying information on these pages.

1. **What is your gender?**
   - Male
   - Female
   - Transgendered
   - Other: ____________

2. **What is your age?**  ____________

3. **What is your ethnicity?**
   - African American/Black
   - Asian American
   - Latino/Hispanic
   - Native American
   - Native Hawaiian or other Pacific Islander
   - White/Caucasian
   - Two or more races: ___________
   - Unknown
   - Other: ______________________

4. **What is your current student status?**
   - Freshman
   - Sophomore
   - Junior
   - Senior
   - Other: ______________________

5. **While you were growing up, did you EVER live with anyone other than your biological parents for a significant length of time?**

   (Please circle):  YES  NO

   a) *If YES, please indicate your childhood living situation below.*

   - Foster care
   - Grandparent(s)
   - Aunt/Uncle
   - Neighbor
   - Family friend
   - Correctional setting (e.g., juvenile detention center)
   - Homeless shelter

   - Other: ______________________
a) If **YES**, how old were you when you lived with someone other than your biological parents? _______

b) If **YES**, were you ever adopted? _______

c) If **YES**, on the scale below, please rate the impact (if any) that your childhood living situation had on your life.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no negative impact)</td>
<td>(moderate negative impact)</td>
<td>(significant negative impact)</td>
</tr>
</tbody>
</table>

6. Did your parents **divorce or separate** when you were growing up?

(Please circle):  

**YES**  **NO**

a) If **YES**, how old were you when your parents divorced or separated?

_____

b) If **YES**, on the scale below, please rate the impact (if any) that your parents’ separation and/or divorce had on your life.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no negative impact)</td>
<td>(moderate negative impact)</td>
<td>(significant negative impact)</td>
</tr>
</tbody>
</table>

7. In your opinion, did anyone in your home have serious **employment problems** when you were growing up?

(Please circle):  

**YES**  **NO**

a) If **YES**, please indicate which household member(s) below.

☐ Self  ☐ Sibling(s)  ☐ Parent(s)/Guardian(s)  ☐ Other: ___________________

b) If **YES**, how old were you when this person had serious employment problems?

_____

c) If **YES**, on the scale below, please rate the impact (if any) that this person’s employment problems had on your life.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no negative impact)</td>
<td>(moderate negative impact)</td>
<td>(significant negative impact)</td>
</tr>
</tbody>
</table>
8. In your opinion, did anyone in your home have serious legal problems when you were growing up?

(Please circle): YES NO

a) If YES, please indicate which household member(s) below.

☐ Self
☐ Sibling(s)
☐ Parent(s)/Guardian(s)
☐ Other: ___________________

b) If YES, how old were you when this person had serious legal problems?

________

c) If YES, on the scale below, please rate the impact (if any) that this person’s legal problems had on your life.

0 1 2
(no negative impact) (moderate negative impact) (significant negative impact)

9. In your opinion, did anyone in your home have serious medical problems when you were growing up?

(Please circle): YES NO

a) If YES, please indicate which household member(s) below.

☐ Self
☐ Sibling(s)
☐ Parent(s)/Guardian(s)
☐ Other: ___________________

b) If YES, how old were you when this person had serious medical problems?

________

c) If YES, on the scale below, please rate the impact (if any) that this person’s medical problems had on your life.

0 1 2
(no negative impact) (moderate negative impact) (significant negative impact)

10. In your opinion, did anyone in your home have a serious mental illness (for example, depression, anxiety, bipolar disorder) when you were growing up?

(Please circle): YES NO

a) If YES, please indicate which household member(s) below.
b) If YES, how old were you when you first realized someone in your home had a serious mental illness? _______

c) If YES, on the scale below, please rate the impact (if any) that this person’s mental illness had on your life.

0 1 2
(no negative impact) (moderate negative impact) (significant negative impact)

11. In your opinion, was anyone in your home addicted to alcohol or other drugs when you were growing up?

(Please circle): YES NO

a) If YES, please indicate which household member(s) below.

☐ Self
☐ Sibling(s)
☐ Parent(s)/Guardian(s)
☐ Other: ______________________

b) If YES, how old were you when you first realized this person was addicted to alcohol or other drugs? _______

c) If YES, on the scale below, please rate the impact (if any) that this person’s alcohol or other drug addiction had on your life.

0 1 2
(no negative impact) (moderate negative impact) (significant negative impact)

12. Did anyone in your home, another family member, or a close friend attempt or commit suicide when you were growing up?

(Please circle): YES NO

a) If YES, please indicate which household member(s) below.

☐ Self
☐ Sibling(s)
☐ Parent(s)/Guardian(s)
☐ Other: ________________
b) *If YES*, how old were you when this person attempted or committed suicide? ______

c) *If YES*, on the scale below, please rate the impact (if any) that this person’s attempted or committed suicide had on your life.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no negative impact)</td>
<td>(moderate negative impact)</td>
<td>(significant negative impact)</td>
</tr>
</tbody>
</table>

13. Did anyone in your home **die** when you were growing up?

(Please circle): **YES**  **NO**

a) *If YES*, please indicate which household member(s) below.

- Self
- Sibling(s)
- Parent(s)/Guardian(s)
- Other: ____________________

b) *If YES*, how old were you when this person died? ______

c) *If YES*, on the scale below, please rate the impact (if any) that this person’s death had on your life.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no negative impact)</td>
<td>(moderate negative impact)</td>
<td>(significant negative impact)</td>
</tr>
</tbody>
</table>

14. In your opinion, did anyone **emotionally abuse** you when you were growing up?

(Please circle): **YES**  **NO**

a) *If YES*, how old were you when the emotional abuse began? ______

b) *If YES*, on the scale below, please rate the impact (if any) that this emotional abuse had on your life.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no negative impact)</td>
<td>(moderate negative impact)</td>
<td>(significant negative impact)</td>
</tr>
</tbody>
</table>

15. In your opinion, did anyone **physically abuse** you when you were growing up?

(Please circle): **YES**  **NO**

a) *If YES*, how old were you when the physical abuse began? ______
b) If YES, on the scale below, please rate the impact (if any) that this physical abuse had on your life.

0 1 2
(no negative impact) (moderate negative impact) (significant negative impact)

16. In your opinion, did anyone sexually abuse you when you were growing up?

(Please circle): YES NO

a) If YES, how old were you when the sexual abuse began? ________

b) If YES, on the scale below, please rate the impact (if any) that this sexual abuse had on your life.

0 1 2
(no negative impact) (moderate negative impact) (significant negative impact)

17. Was there anything else that occurred while you were growing up that, in your opinion, caused you harm or had a negative impact? If so, please describe below.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Appendix C

Connor-Davidson Resilience Scale (CD-RISC)
Connor-Davidson Resilience Scale

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not True at All</th>
<th>Rarely True</th>
<th>Sometimes True</th>
<th>Often True</th>
<th>True Nearly All of the Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am able to adapt to change.</td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>2. I have close and secure relationships.</td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>3. I believe that sometimes fate or God can help.</td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>4. I can deal with whatever comes.</td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>5. Past success gives me confidence for new challenges.</td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>
6. I see the humorous side of things.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

7. Coping with stress strengthens me.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

8. I tend to bounce back after illness or hardship.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

10. I give my best effort no matter what.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

11. I believe I can achieve my goals.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>
12. When things look hopeless, I don’t give up.

<table>
<thead>
<tr>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

13. I know where to turn for help when I need it.

<table>
<thead>
<tr>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

14. Under pressure, I can focus and think clearly.

<table>
<thead>
<tr>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

15. I prefer to take the lead in problem solving.

<table>
<thead>
<tr>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

16. I am not easily discouraged by failure.

<table>
<thead>
<tr>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

17. I think of myself as a strong person.

<table>
<thead>
<tr>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>
18. I can make unpopular or difficult decisions.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>Sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

19. I can handle unpleasant feelings.

<table>
<thead>
<tr>
<th></th>
<th>Not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

20. I have what it takes to act on a hunch.

<table>
<thead>
<tr>
<th></th>
<th>Not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

21. I have a strong sense of purpose.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>Sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

22. I am in control of my life.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>Sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

23. I like challenges.

<table>
<thead>
<tr>
<th></th>
<th>not true at all</th>
<th>rarely true</th>
<th>Sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>
24. I work to attain my goals.

<table>
<thead>
<tr>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

25. I take pride in my achievements.

<table>
<thead>
<tr>
<th>not true at all</th>
<th>rarely true</th>
<th>sometimes true</th>
<th>often true</th>
<th>true nearly all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
</tbody>
</table>
Appendix D

Ego-Resiliency Scale (ER89)
EGO RESILIENCY SCALE (J. Block & Kremen, 1996)

This scale consists of 14 items, each responded to on a 4-point Likert scale, ranging from 1 (does not apply at all) to 4 (applies very strongly). **Fourteen Questions record and add up your score.**

Let me know how true the following characteristics are as they apply to you generally:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>I am generous with my friends.</strong></td>
<td>1</td>
<td>Does not apply at all</td>
</tr>
<tr>
<td>2</td>
<td><strong>I quickly get over and recover from being startled.</strong></td>
<td>1</td>
<td>Does not apply at all</td>
</tr>
<tr>
<td>3</td>
<td><strong>I enjoy dealing with new and unusual situations.</strong></td>
<td>1</td>
<td>Does not apply at all</td>
</tr>
<tr>
<td>4</td>
<td><strong>I usually succeed in making a favorable impression on people.</strong></td>
<td>1</td>
<td>Does not apply at all</td>
</tr>
<tr>
<td>5</td>
<td><strong>I enjoy trying new foods I have never tasted before.</strong></td>
<td>1</td>
<td>Does not apply at all</td>
</tr>
<tr>
<td>6</td>
<td><strong>I am regarded as a very energetic person.</strong></td>
<td>1</td>
<td>Does not apply at all</td>
</tr>
<tr>
<td>7</td>
<td><strong>I like to take different paths to familiar places.</strong></td>
<td>1</td>
<td>Does not apply at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>8.</td>
<td>I am more curious than most people.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Does not apply at all</td>
<td>Applies slightly</td>
<td>Applies somewhat</td>
</tr>
<tr>
<td>9.</td>
<td>Most of the people I meet are likable.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Does not apply at all</td>
<td>Applies slightly</td>
<td>Applies somewhat</td>
</tr>
<tr>
<td>10.</td>
<td>I usually think carefully about something before acting.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Does not apply at all</td>
<td>Applies slightly</td>
<td>Applies somewhat</td>
</tr>
<tr>
<td>11.</td>
<td>I like to do new and different things.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Does not apply at all</td>
<td>Applies slightly</td>
<td>Applies somewhat</td>
</tr>
<tr>
<td>12.</td>
<td>My daily life is full of things that keep me interested.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Does not apply at all</td>
<td>Applies slightly</td>
<td>Applies somewhat</td>
</tr>
<tr>
<td>13.</td>
<td>I would be willing to describe myself as a pretty &quot;strong&quot; personality.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Does not apply at all</td>
<td>Applies slightly</td>
<td>Applies somewhat</td>
</tr>
<tr>
<td>14.</td>
<td>I get over my anger at someone reasonably quickly.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Does not apply at all</td>
<td>Applies slightly</td>
<td>Applies somewhat</td>
</tr>
</tbody>
</table>
Appendix E

Interpersonal Support Evaluation List (ISEL)
ISEL
Interpersonal Support Evaluation List (ISEL) -- General Population

This scale is made up of a list of statements each of which may or may not be true about you. For each statement check “definitely true” if you are sure it is true about you and “probably true” if you think it is true but are not absolutely certain. Similarly, you should check “definitely false” if you are sure the statement is false and “probably false” is you think it is false but are not absolutely certain.

1. There are several people that I trust to help solve my problems.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

2. If I needed help fixing an appliance or repairing my car, there is someone who would help me.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

3. Most of my friends are more interesting than I am.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

4. There is someone who takes pride in my accomplishments.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

5. When I feel lonely, there are several people I can talk to.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

6. There is no one that I feel comfortable to talking about intimate personal problems.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

7. I often meet or talk with family or friends.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

8. Most people I know think highly of me.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

9. If I needed a ride to the airport very early in the morning, I would have a hard time finding someone to take me.
   __definitely true (3)  __definitely false (0)
   __probably true (2)  __probably false (1)

10. I feel like I’m not always included by my circle of friends.
    __definitely true (3)  __definitely false (0)
    __probably true (2)  __probably false (1)
11. There really is no one who can give me an objective view of how I’m handling my problems.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

12. There are several different people I enjoy spending time with.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

13. I think that my friends feel that I’m not very good at helping them solve their problems.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

14. If I were sick and needed someone (friend, family member, or acquaintance) to take me to
   the doctor, I would have trouble finding someone.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

15. If I wanted to go on a trip for a day (e.g., to the mountains, beach, or country), I would have a
   hard time finding someone to go with me.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

16. If I needed a place to stay for a week because of an emergency (for example, water or
   electricity out in my apartment or house), I could easily find someone who would put me up.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

17. I feel that there is no one I can share my most private worries and fears with.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

18. If I were sick, I could easily find someone to help me with my daily chores.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

19. There is someone I can turn to for advice about handling problems with my family.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

20. I am as good at doing things as most other people are.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)

21. If I decide one afternoon that I would like to go to a movie that evening, I could easily find
   someone to go with me.
   ________definitely true (3) ________definitely false (0)
   ________probably true (2) ________probably false (1)
22. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

23. If I needed an emergency loan of $100, there is someone (friend, relative, or acquaintance) I could get it from.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

24. In general, people do not have much confidence in me.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

25. Most people I know do not enjoy the same things that I do.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

26. There is someone I could turn to for advice about making career plans or changing my job.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

27. I don’t often get invited to do things with others.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

28. Most of my friends are more successful at making changes in their lives than I am.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

29. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

30. There really is no one I can trust to give me good financial advice.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

31. If I wanted to have lunch with someone, I could easily find someone to join me.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)

32. I am more satisfied with my life than most people are with theirs.

____definitely true (3)  ____definitely false (0)
____probably true (2)  ____probably false (1)
33. If I was stranded 10 miles from home, there is someone I could call who would come and get me.
   ____definitely true (3)   ____definitely false (0)
   ____probably true (2)   ____probably false (1)

34. No one I know would throw a birthday party for me.
   ____definitely true (3)   ____definitely false (0)
   ____probably true (2)   ____probably false (1)

35. It would be difficult to find someone who would lend me their car for a few hours.
   ____definitely true (3)   ____definitely false (0)
   ____probably true (2)   ____probably false (1)

36. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.
   ____definitely true (3)   ____definitely false (0)
   ____probably true (2)   ____probably false (1)

37. I am closer to my friends than most other people are to theirs.
   ____definitely true (3)   ____definitely false (0)
   ____probably true (2)   ____probably false (1)

38. There is at least one person I know whose advice I really trust.
   ____definitely true (3)   ____definitely false (0)
   ____probably true (2)   ____probably false (1)

39. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.
   ____definitely true (3)   ____definitely false (0)
   ____probably true (2)   ____probably false (1)

40. I have a hard time keeping pace with my friends.
   ____definitely true (3)   ____definitely false (0)
   ____probably true (2)   ____probably false (1)
Appendix F

Resilience Scale (RS)

The Resilience Scale (RS) is protected by Copyright. Therefore, it cannot be included in the Appendices.
Appendix G

Substance Abuse Subtle Screening Inventory-3 (SASSI-3)

The Substance Abuse Subtle Screening Inventory-3 (SASSI-3) is protected by Copyright. Therefore, it cannot be included in the Appendices.