TRAUMA, EMOTIONAL DISTRESS, RACE AND ETHNICITY, GENDER, GREEK AFFILIATION, AND YEAR-IN-SCHOOL AS PREDICTORS OF NONMEDICAL USE OF PRESCRIPTION DRUGS AMONG UNDERGRADUATE COLLEGE STUDENTS

by

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ABSTRACT

PATRICK THOMAS JEFFS. Trauma, emotional distress, race and ethnicity, gender, Greek affiliation, and year-in-school as predictors of nonmedical use of prescription drugs among undergraduate college students. (Under the direction of Dr. LAURA VEACH)

The purpose of this study was to identity how events perceived as traumatic or very difficult to handle, factors of emotional distress, and demographics may predict nonmedical use of prescription drugs (NMPD) among traditional undergraduate college students. This secondary analysis utilized data from the National College Health Assessment II (NCHA II) from the Fall 2010 for the primary analysis. Data from the Fall 2008 and 2009 semester were subsequently analyzed to validate results over time. Sequential logistic regression was used to determine NMPD; first evaluating events perceived as traumatic, then including factors of emotional distress, and finally adding demographics of race and ethnicity, gender, Greek affiliation, and year-in-school. Fifth year (58-103%), 4th year (46-67%), 3rd year (43-60%), Greek affiliation (35-55%), feeling suicidal (27-49%), difficulties with intimate relationships (22-46%), males (28-39%), sleep difficulties (14-37%), feeling angry (29-35%), death of a family member or friend (13-29%), 2nd year (25-28%), feeling anxious (18-27%), and difficulties with finances (16-24%) were significantly more likely to predict NMPD during Fall 2008-2010 semesters. Conversely, Asians or Pacific Islanders (70-79%) and Blacks or African Americans (19-40%) were significantly less likely to use prescription drugs nonmedically over the same time period. While statistically significant, the model lacked increase of strength as variables were added to the regression equation. Regardless, college counselors, health professionals, and administrators should target support and

interventions to assist students struggling with trauma, emotional distress, and the misuse of prescription drugs.

DEDICATION

This dissertation is dedicated to my family. To my father, whose example of hard work, determination, and sacrifice carried me through the toughest of times. To my mother, whose support and encouragement inspired a young researcher to chase his dreams. To my darling Poppy, you bring me more joy than I ever believed possible. May my sacrifice be an example to follow wherever your heart may lead you. I will always support you on your path. Most of all, to my dearest Kim. You inspire me daily to be a better man, a better husband, and a better father. I could not imagine walking through this life with anyone more suited specifically for me. I thank you for your support, and for your sacrifice.

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CHAPTER 1: INTRODUCTION

Nonmedical Use of Prescription Drugs

Nonmedical use of prescription drugs (NMPD) is one of fastest growing classes of illicit drug use (Johnston, O'Malley, Bachman, & Schulenberg, 2009; McCabe, Cranford, Boyd, & Teter, 2007a). "Prescription drug abuse is the use of a medication without a prescription, in a way other than as prescribed, or for the experience or feelings elicited" (NIDA, 2011b, p. 1). NMPD can be classified as drug abuse because of the elevated risk that encompasses its use (Compton & Volkow, 2006). While some users may take prescription drugs non-medically to induce euphoria, exhilaration, relieve pain, or lower inhibitions, their misuse can impair coordination, arrest breathing, induce seizure, heart attack, stroke, coma, or death; lead to tolerance, withdrawal, or addiction (NIDA, 2010) and suicidal thoughts and behaviors (NIMH, 2012). Over the past two decades, the current NMPD misuse rates have also shown increasing trends (Johnston et al., 2009; McCabe et al., 2007a; McCabe, West, & Wechsler, 2007b). According to the National Institute on Drug Abuse, (NIDAa, 2011) between 2004 and 2009, there was a 98.4% increase in emergency room visits due to the negative consequences of NMPD; a rate of 1.2 million visits in 2009.

Recent research has shown that the most vulnerable age group of the general population for NMPD is between 18 and 25 years old (Colliver, Kroutil, Dai, & Gfroerer, 2006; Kroutil, Van Brunt, Herman-Stahl, & Heller, 2006; McCabe, Teter, & Boyd,

2006), which may include many college students (Johnston et al., 2007; McCabe, Knight, Teter, & Weschler, 2005a). One study of over 500 college students found overall rates of NMPD as high as 34% (Lanier & Farley, 2011). The nonmedical use of prescription drugs on college campuses is only behind alcohol and marijuana for abuse patterns (McCabe, Teter, & Boyd, 2005c; McCabe et al., 2006). Vidourek, King, and Knopf (2010) found that college students who used NMPD would concurrently drink alcohol (46.2%), use marijuana (36.5%), or use other drugs (8.0%). Findings also show that those who misuse prescription drugs also abuse other drugs (McCabe et al., 2006). Similarly, Lanier and Farley (2011) identified that the one strongest predictor of NMPD was other illicit drug use. Research suggests that some students prefer NMPD due to perceived lower physical, legal, and social risk associated with their misuse of prescription drugs compared to other drugs (Quintero, 2009b).

While research of NMPD use has included race and ethnicity, gender, Greek affiliation, and year-in-school as potential factors, there are opportunities for further research. McCabe , Teter, & Boyd (2009) found that nonmedical recreational and both recreational and self-treatment use of prescription drugs were reasons for misuse more in White and Hispanics than Black or Asian students. However, more recent studies have found no significant differences in NMPD use based on race and ethnicity (Lanier & Farley, 2011; Vidourek et al., 2010).

The role of gender warrants future research regarding NMPD use, citing mixed results (McCabe, Teter, & Boyd, 2005b; Simoni-Wastila, Ritter, & Strickler, 2004; Weyandt et al., 2009). McCabe et al. (2009) found that men used prescription drugs for nonmedical recreational and both recreational and self-treatment more than women for

painkillers and sedatives. However, excluding the misuse of stimulants, women used prescription drugs for self-treatment more than their male counterparts (McCabe et al., 2009).

Although overall rates found by Lanier and Farley (2011) were much higher than most studies, they noted that 46% of Greeks reported past year NMPD while non-Greeks reported 32%. According to McCabe et al. (2005b), fraternity members were at greater risk of nonmedical use of painkillers compared to sorority members and both were almost twice as likely to misuse painkillers as non-Greek students.

NMPD based on year-in-school has also shown conflicting results. Vidourek et al. (2010) found that juniors and seniors had higher predicted odds ratio of NMPD than freshman and sophomores; a 300% increase use of stimulants and 85.7% increase use of painkillers (Arria, O'Grady, Caldeira, Vincent, & Wish, 2008b). Conversely, Lanier and Farley (2011) found a significant difference with rates of use among freshman at 38% as compared to 30.1% for upperclassmen. These mixed results from research on NMPD and college specific demographics present an opportunity to clarify discrepancies.

Researchers have conducted studies of college students that include antidepressants, painkillers, sedatives, and stimulants and suggest further research of these specific drugs be conducted (McCabe et al., 2005a; McCabe et al., 2006; McCabe et al., 2009; Rozenbroek & Rothstein 2011). Reported rates of NMPD vary widely among college students. The rates of specific types of medication used nonmedically among college students between 2008-2011 differ: painkillers: 7.1-9.3%; stimulants: 4.7-7.8%; sedatives: 3.5-4.5%; and anti-depressants: 2.6-3.2% (American College Health Association, 2008; ACHA, 2009; ACHA, 2010; ACHA 2011). Further examination to

better understand the role of different demographics such as race and ethnicity, gender, Greek affiliation, and year-in-school when researching NMPD among college students has also been encouraged (Lanier & Farley, 2011; Vidourek et al., 2010). College students are at considerable risk for NMPD and studies show rates of use to be at alarming levels, presenting additional health risks from use on college campuses. The next section will introduce factors influencing NMPD among college students.

First, college students experience new freedoms that they did not encounter while at home; being responsible for their medical prescriptions is one of these. This suggests that they also have the freedom to divert their prescription drugs to others or use medications in a non-prescribed manner (McCabe et al, 2005a). McCabe et al. (2005a) looked at the sources college students list for obtaining prescription drugs for nonmedical use. Obtaining medications from peers was listed as the primary source. Another study found that students approached other students, known to have a prescription for stimulants, to sell or share their medication (McCabe et al., 2006). With more college students being prescribed medication (Olfson, Gameroff, Marcus, & Jensen, 2003; Zacny et al., 2003), this method of access is likely to continue to increase. While the relative ease for college students to obtain prescription drugs for self-treatment and recreational purposes, the perceived low level of potential risk of use contributes to a serious health hazard on college campuses. The next section will introduce the relationship between emotional distress and NMPD among college students.

Emotional Distress and NMPD

Emotional distress can encompass those that are emotionally upset to the point that they become irrational and may elicit negative behaviors (Tice, Bratslavsky, &

Baumeister, 2001). For years, researchers have highlighted the issue of depression and anxiety as a major health concern for college students (Arthur, 1998; Leino & Kisch, 2005). Leino and Kisch, (2005) report that 10% of college students receive a diagnosis of depression in a given year. Arthur (1998) researched the relationship between emotional distress and coping and found that students' inability to cope when distressed may negatively impact their lives. This study's findings suggest the importance for students to deal effectively with current concerns to keep pace with ever changing demands of collegiate life. Students report that depression and anxiety have negative academic consequences including lower grades and incidence of dropping classes (Leino & Kisch, 2005).

Arthur and Hayward (1997) state that academic pressures and others' expectations of them appear to negatively contribute to students' emotional health. Arthur and Hayward examined emotional distress associated with college students' transition to college and found that 35% had above normal levels of distress and that anxiety was especially prevalent. These authors suggest the findings demonstrate the need to address students' distress may assist in their future college success.

Researchers have shown a relationship between substance abuse and factors of emotional distress (Leino & Kisch, 2005; Markou, Kosten, & Koob, 2008; McCabe et al., 2009). It is important to consider depressive symptoms when addressing wellbeing of college students (Leino & Kisch, 2005). In a meta-analysis of the neurobiological link between depression and drug dependence, Markou et al. (2008) highlighted the complex relationship of drug abuse and self-medication for depressive factors. College students who reported self-treatment with sedatives or stimulants had an increased risk of other

drug use and drug related problems (McCabe et al., 2009). In order to cope with difficult emotions such an anxiety and depression, college students often turn to negative coping pattern to relieve their emotional pain.

Zullig and Divin (2012) found that symptoms of emotional distress were statistically significant predictors of NMPD, especially the use of painkillers in college students. The database used in this research, the American College Health Association-National College Health Assessment (ACHA-NCHA) II, will also be utilized for the proposed study. These researchers found that students were 1.18-1.91 times more likely to engage in NMPD when they experience difficult emotions such as hopelessness, sadness, and depression (Zullig & Divin, 2012). This is the strongest study to date linking the potential psychological impact of emotional distress on increased NMPD among college students.

While the literature lacks a clear definition, emotional distress has been described as mental suffering to the extent that there exists a risk of negative consequences such as depression (Arthur & Hayward, 1997; Farne & Gnugnoli, 2000), anxiety (Arthur & Hayward, 1997; Farne & Gnugnoli, 2000; Tschann, Flores, Pasch, & VanOssMarin, 2005), anger (Tschann et al., 2005), and fatigue (Farne & Gnugnoli, 2000). These emotions are supported by the American Psychiatric Association's (APA) definition of emotional distress that highlights the acute combination of emotions such as anger, anxiety and depression (APA, 2012). The Diagnostic and Statistical Manual of Mental Health Disorders (4^{th} ed., text rev., DSM-IV-TR, American Psychiatric Association, 2000) also includes numbing as a potential result of traumatic stress. Similarly, Teter, Falone, Cranford, Boyd, and McCabe (2010) found a strong correlation between non-

medical use of prescription stimulants and depressed mood although the author can only hypothesize the direction of the correlation. This current study hoped to create a more complete explanation of how emotional distress predicts NMPD by including traumatic experiences.

Similarly, Vidourek et al. (2010) found that college students who reported lifetime use of NMPD had greater lifetime odds of suicidal ideation and increased likelihood of suicidal thoughts within the last 12 months. These authors suggest that students may be using NMPD in order to cope with emotional distress and the subsequent effects of distress. College students may use NMPD as a manner to self-treat the stressors and symptoms felt during the college experience.

Then, Lanier and Farley (2011) highlight the fact that misperceptions of the drug's safety combined with accessibility may be components of the rise in abuse. Arria, Caldeira, Vincent, O'Grady, & Wish (2008a) found that college students who perceived NMPD risks to be low were ten times more likely to misuse stimulants and painkillers. Moreover, in a large, web-based study of college students' perceptions of NMPD (McCabe, 2008), results showed that while students thought their classmates' rates of stimulant use was 70% and 69% for opioids (painkillers), actual reports of use were 6% and 7.4% respectively. The assumption of greater use among college students may be one indicator for increase of NMPD. This supports social norming research that states that peer influence can impact drug use across multiple classes of drugs (Lewis & Clemens, 2008). In a qualitative study on social norming and cough syrup containing codeine among multi-ethnic college students, respondents believed that peer pressure was a main reason for first-time use (Peters et al., 2007).

Lastly, McCabe et al. (2009) found that the misuse of prescription drugs can be taken as a method of self-treatment for the drug's intended use and not always co-occurring for recreational drug use. The self-medication hypothesis for substance use suggests that individuals' use drugs to regulate emotional stress with the intentions of relieving emotional and psychological suffering (Khantzian, 1997). For example, a student who is suffering from depression from the death of a parent may take a painkiller in order to numb their emotions stemming from their recent loss. Emotional distress is often acute and can lead individuals to seek immediate relief by using drugs (Tice et al., 2001). While this has been found to be true, others have found that young adults also use prescription drugs in a nonmedical manner for recreational use (McCabe et al., 2007a; McCabe et al., 2009; Teter, McCabe, LaGrange, Crawford, & Boyd, 2006).

McCabe et al. (2009) studied a large sample of undergraduate college students. For those students who reported past-year NMPD, reasons for use were recreational 11.5% of the time, 30.9% for self-treatment, and 57.5% for both reasons. In the same study, over one-third of participants reported using multiple classes of prescription drugs in a nonmedical manner. Approximately half (49.2%) of these students reported in one study that they used combinations of drugs to amplify the high (Vidourek et al., 2010). In summary, NMPD is a growing and potentially dangerous trend on college campuses with a variety of possible motivations of use for students. This evidence suggests emphasizes the need for future research on NMPD. The following section will introduce important factors contributing to emotional distress in college students, including the experience of psychological trauma and the impact on substance use.

Trauma and Emotional Distress Among College Students

Students are entering college with extremely high rates of traumatic experiences (Scarpa et al., 2002). The lifetime prevalence of experiencing a traumatic event is also most likely to occur between the ages of 16-25 in the general population (Breslau et al., 1998). The National College Health Assessment (NCHA) (ACHA, 2011) published a survey of undergraduates which showed 78.8% of college students experienced at least one traumatic experience in the last year and almost half (48.3%) experienced three or more traumatic experience over the same time period. The DSM-IV-TR (American Psychiatric Association, 2000) defines a traumatic event as an event in which "the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others' and "the person's response involved intense fear, helplessness, or horror" (p. 467). Psychological trauma, as experienced by college students, is often associated with: death of someone close to the student, mental illness, forced sexual contact, abortion, accident, family violence, and relationship issues (Anders, Frazier, & Shallcross, 2012). Some studies show that university students have experienced or been witness to violence at rates between 82-96% (Scarpa et al., 2002). The Centers for Disease Control and Prevention (CDC, 2012) shows that the top three leading causes of death among 15-24 year olds in the general population are accidents, homicide, and suicide, which sheds light on the potential of trauma that may impact college students.

Research also notes a cumulative effect for experiencing multiple traumas that further compound levels of distress for college students (Frazier et al., 2009). Additional, Green et al. (2005) found that college students that experienced multiple traumatic events

showed higher levels of self-destructive thoughts and behaviors. Results of being victimized or witnessing traumatic experience can heighten levels of depression and aggression (Scarpa et al., 2002). Similarly, incidents of sexual trauma are related to elevated depressive symptoms in college students (Swanholm, Vosvick, & Chng, 2009). Scarpa et al. (2002) suggest that rates from non-violent traumatic experiences would raise overall levels of stress from traumatic experiences. The impact of from trauma can result in serious emotional risk factors for college students.

Negative stress, or distress, can be a result of a traumatic experience (Whitman, Spendlove, & Clark, 1984). Emotional distress is mental suffering to the extent that there exists a risk of negative consequences such as depression (Arthur & Hayward, 1997; Farne & Gnugnoli, 2000), anxiety (Arthur & Hayward, 1997; Farne & Gnugnoli, 2000; Tschann, Flores, Pasch, & VanOssMarin, 2005), anger (Tschann et al., 2005), and fatigue (Farne & Gnugnoli, 2000). Emotional distress as a result of psychological trauma may be a component that leads college students to turn to NMPD as a manner of coping (Arthur, 1998; Arthur & Hayward, 1997; Harring, Montgomery, & Hardin, 2010; Jackson & Finney, 2002; Leino & Kisch, 2005; Markou et al., 2008; McCabe et al., 2009). In a study of college students' distress, Jackson and Finney (2002) found that freshmen experience more depression when compared to seniors, and sophomores identified more anger than upperclassmen. These researchers found that students who experienced difficulty in school had elevated levels of depressed mood. Those students that experienced psychological trauma such as struggling to make friends had elevated levels of depression, anxiety, and anger. In addition, students who struggled with traumatic events connected to their families also reported high levels of anxiety. Those that noted

problems with race relations, deviance, and physical assault resulted in elevated anger scores compared to student that do not experience such situations. The authors conclude by stating that as college students' progress in their college careers, they act in a more proactive manner in dealing with stress. While this may translate to lower rates of NMPD among upperclassmen (Lanier & Farley, 2011), other authors note an increase of NMPD over students' college career (Arria et al., 2008b; McCabe et al., 2007; Vidourek et al., 2010). While students may cope with trauma and emotional distress in a variety of ways, the risk of NMPD use as an unhealthy coping mechanism increases.

Leino and Kisch (2005) reported that depressive symptoms among college students are higher than the national average. They note that females expressed higher levels of feeling hopeless, overwhelmed, exhausted, very sad, and depressed. Rates from this study noted similar levels of contemplation of suicide between female (9.9%) and male (8.7%) students. These rates of depressive symptoms and suicidal thoughts may be in reaction to traumatic experiences (Whitman et al., 1984).

Social acceptance in college is also noted as a significant stressor that may result in emotional distress (Jackson & Finney, 2002), therefore perceived rejection of acceptance is traumatic for the college student. Researchers report that students who struggle with school, family, friends, race, deviant behavior, and assault experience higher levels of depression, anxiety, and anger. Students who encounter sexual advances against their will or are in emotionally abusive relationships are more likely to be diagnosed with a depression diagnosis (Leino & Kisch, 2005). Additionally, college students, especially females, experience a great deal of distress stemming from issues with body image (Harring et al., 2010).

Similarly, there is strong evidence between posttraumatic stress symptoms, specifically numbing and hyperarousal, and engaging in substance use among college students (Broman, 2005; Flood, McDevitt-Murphy, Weathers, Eakin, & Benson, 2009; Marx & Sloan, 2003; Real et al., 2012; Stuart, 1996; Zullig & Divin, 2012). Authors strongly suggest, based on the specific symptoms clusters, that individuals use substances to self-medicate emotional distress (Flood et al. 2009), which may be linked to a traumatic event.

In summary, non-medical use of prescription drugs is one of fastest growing classes of illicit drug use (Johnston et al., 2009; McCabe et al., 2007a). Those in the general population between the ages of 18-25 have been shown to be at high risk for this type of drug abuse, with usage rates of 14.5% (Colliver et al., 2006). The lifetime prevalence of the general population experiencing a traumatic event is also most likely to occur between the ages of 16-25 (Breslau et al., 1998). The majority of college students experience significant levels of emotional distress, potentially brought on by a traumatic event during their college experience (ACHA, 2011). While many studies have shown the relationship between trauma and substance use in college students (Broman, 2005; Edwards, Dunham, Ries, & Barnett, 2006; Flood et al., 2009; Marx & Sloan, 2003; Read et al., 2012; Stuart, 1996), only one has shown a relationship between experiencing trauma and NMPD (McCauley et al., 2010) and one examining factors of emotional distress and NMPD (Zullig & Divin, 2012). In conclusion, while incidents of traumatic experiences and subsequent emotional distress are evident among college students, whether or not they predict the use of NMPD remains unknown. The next section will present the purpose and significance of this study.

Purpose of the Study

The purpose of this study was to examine categories of events perceived as traumatic or very difficult to handle, factors of emotional distress, race and ethnicity, gender, Greek affiliation, and year-in-school experienced by college students that might better predict NMPD.

Significance of the Study

To date, research has not evaluated factors related to possible links with a variety of traumatic experiences, emotional distress, race and ethnicity, gender, and Greek affiliation and year-in-school, and the relationship with the misuse of prescription drugs in a large sample of college students. Research has explored prevalence of use, behavioral and emotional factors related to NMPD use but individual experiences of trauma, such as personal relationship struggles or death of relative have yet to be evaluated as predictors of NMPD use, specifically in combination with factors of emotional distress. Flood et al. (2009) found that students often engage in high-risk behaviors following traumatic experiences, substance use being the most prevalent. After studying college student high-risk behaviors, Vidourek et al. (2010) highlight the need for further study with college students to better understand emotional distress, suggesting that these factors may lead to the use of NMPD. This study used a dataset, from the American College Health Association (ACHA), of college students to identify how perceived traumatic events or those that are very difficult to handle might predict NMPD. For the purposes of this study, NMPD is defined as the self-reported use of antidepressants, painkillers, sedatives, and/or stimulants in a nonmedical manner the last school year on item 18 of the NCHA II. Additionally, the NCHA II has been previously

used in research to measure emotional distress in college students (Garland Hamilton, 2006). While previous research has shown a relationship between NMPD and traumatic experiences and emotional distress separately, this study examined the connection between perceived traumatic experiences and emotional distress to predict NMPD. The results from this study will hopefully assist counseling professionals prevent, screen, and address NMPD among college students who are suffering through trauma and emotional distress.

Research Question

How do events perceived as traumatic or very difficult to handle as measured on NCHA II (academics, career-related issues, death of family member or friend, family problems, intimate relationships, other social relationships, finances, health problems of a family member or partner, personal appearance, personal health issue, sleep difficulties) in combination with emotional distress (feeling hopeless, feeling overwhelmed, feeling exhausted, feeling lonely, feeling very sad, feeling depressed, feeling anxious, feeling angry, and considering suicide), race and ethnicity, gender, Greek affiliation, and year-in-school predict non-medical use of prescription drugs among undergraduate college students (stimulants, pain killers, sedatives, antidepressants)?

Research Design

This correlational research study used a non-experimental of post-hoc data from a nationwide survey. Logistic regressions were used to analyze the predictive nature of events perceived as traumatic or very difficult to handle, emotional distress, race and

ethnicity, gender, Greek affiliation, and year-in-school to predict NMPD among college students.

Delimitations

The delimitations for the study were:

1. this study assures confidentially of participants by using de-identified data from NCHA II dataset;
2. generalizations are not able to be made to all college students as it is not confirmed that sample is representative of all college students; and
3. this study limits researcher bias by using secondary data analysis in which no feedback from the original researcher went into question creation.

Limitations

The limitations for the study were:

1. the analyzed survey data was limited to full-time, undergraduate college students between the ages of 18 and 25 at traditional 4-year schools, thus generalizability of the findings for college students outside this scope cannot be made;
2. students may not have answered questions honestly due to social desirability;
3. responses may have inherent variation due to subjective nature when describing whether experiences reached the level of being considered traumatic; and
4. self-report survey can limit the validity.

Assumptions

The following assumptions were made when conducting this study:

1. students responded willingly and honestly;
2. students accurately recalled events perceived as traumatic or very difficult to handle, emotional distress, and NMPD use over the past year;
3. time of year did not impact responses; and
4. responses of those who participated are similar to those who did not participate in the study based on inclusion criteria.
5. Students that complete the paper-and-pencil form of the survey responded the same as those that complete the electronic form of the survey.

Operational Definitions

Nonmedical use of prescription drugs (NMPD) was understood to be any use of prescription drugs outside of the indicated use under the prescribed supervision of a medical professional. For the purposes of this study, NMPD was defined as the self-reported use of antidepressants, painkillers, sedatives, and/or stimulants in a nonmedical manner the last school year on item 18 of the NCHA II.

Trauma was understood to be the perception that an event was traumatic or very difficult to handle. For the purposes of this study, trauma was identified by the self-reported acknowledgement of an event that is perceived as traumatic or very difficult to handle relative to areas of students life: academics, career-related issues, death of a family member or friend, family problems, intimate relationships, other social

relationships, finances, health problem of a family member or partner, personal appearance, personal health issue, and sleep difficulties within the last school year on item 33 of the NCHA II.

Emotional distress was understood to be mental suffering to the extent that there exists a risk of negative consequences. For the purposes of this study emotional distress was defined as the self-reported acknowledgement of feeling hopeless, feeling overwhelmed, felling exhausted, feeling lonely, feeling very sad, feeling depressed, feeling anxious, feeling angry, and considering suicide on item 30 of the NCHA II. Participants will note if they experienced any of these emotions as: yes, anytime in the last school year.

Race and ethnicity was defined by the participants self-report to their own race and ethnicity, which is a question on the NCHA II.

Gender defined by the participants self-report to their gender, which was a question on the NCHA II.

Greek Affiliation was defined by the participants self-report to being a member of a social fraternity or sorority, which is a question on the NCHA II.

Year-in-school was defined by the participants self-reported chronological year they attend school which is a question on the NCHA II.

Organization of the Study

Chapter One of this dissertation introduced background knowledge regarding NMPD and the potential relationship with identified causes of trauma, emotional distress, gender, race and ethnicity, Greek affiliation, and year-in-school among college students. After a brief introduction of current prevalence and dangers of NMPD, the chapter

outlined the research problem, described the need for and significance of the study, outlined delimitations and limitations, described operational definitions, and provided the research questions which directed this research study. Chapter Two presents the review of literature that examines nonmedical use of prescription drugs by college students. This section included different classes of drugs including painkillers, stimulants, sedatives, and antidepressants, and their relationship between demographic variables of race and ethnicity, gender, Greek affiliation, and year-in-school. Literature pertaining to traumatic experiences and emotional distress among college students is presented. Chapter Three outlines the methodology for this study.

CHAPTER 2: REVIEW OF THE LITERATURE

This chapter reviews the literature relevant to NMPD and trauma among college students. This review begins by addressing NMPD among college students. Specific attention is given to four classes of prescription drugs used nonmedically: (1) painkillers, (2) stimulants, (3) sedatives, and (4) anti-depressants. Next, the review continues by addressing the relevant literature of the relationship between NMPD and demographic variables, specifically: (a) NMPD and race and ethnicity, (b) NMPD and gender, (c) NMPD and Greek affiliation, and (d) NMPD and year-in-school. Then, trauma experiences among college students and the psychological impact of trauma are presented. Finally, the relationship between trauma, emotional distress and substance use will be addressed.

Non-medical use of prescription drugs

College students may have varying motivations for non-medical use of prescription drugs (NMPD), yet numerous studies yield a mixed picture regarding the patterns of NMPD on U.S. college campuses. McCabe et al. (2009) studied college students' motives for NMPD and recognized the need to address each class of prescription drugs separately in an effort to gain a clearer understanding of NMPD patterns. Of participants that reported NMPD, 39% identified self-treatment, 13% recreational use while 48% reported mixed motives as reasons for use. However, Quintero (2009b) notes that participants in his study state multiple motives for misuse in

a given episode, providing evidence that reasons for use are a complex equation. McCabe et al. (2009) also indicate from their findings that further research is needed to understand college students' motivation for nonmedical use of prescription drugs. Similarly, Lanier and Farley (2011) recommend that college-specific risk factors such as academic and relationship stress for NMPD needs to be further examined since their results showed lower rates than existing literature. The current study aimed to narrow the gap in the literature of how traumatic experiences, emotional distress, select demographic and college-specific variables may predict NMPD.

There are also mixed motivators of NMPD among college students. Quintero (2009b) conducted a qualitative study of college students between the ages of 18 and 25 who reported NMPD in the past 12 months and reported use of four different classes of prescription drug misuse: antidepressants, painkillers, sedatives, and stimulants. Participants cited wanting to control their high, often in combination with alcohol, as one key reason for misuse of prescription drugs. Those who reported NMPD concurrently used other drugs and alcohol 57% of the time. These respondents stated that they were purposeful in the ways in which they would take these prescription drugs to manage the intended effects.

Additionally, one group of researchers looked at the relationship between non-medical prescription drug use and health factors for college students (Vidourek et al., 2010). They surveyed 363 students from physical education and health classes at a large urban university. Amongst other questions, the researchers sought to identify reasons that students use prescription drugs in a non-medical manner. Almost one-third (32%) reported non-medical prescription drug use in their lifetime. Examination of use by class

of drugs indicated 11.6% used sedatives, 17.5 % used stimulants, and 22.4% reported using pain medication in a non-medical manner. Reasons that students stated for NMPD included staying awake for academic reasons (36.5%), curiosity (36.2%), stress relief (31.9%), and getting high (30.5%).

Since many college students who engage in NMPD did not obtain the drugs under the direction of a physician, there are risks and misconceptions that users might not understand. McCabe et al. (2009) drew attention to the fact that college students who use prescription drugs in a nonmedical manner often lack knowledge of the potential risk of the drugs that they are using. This is supported by other research that found a large percentage (42%) of college students who misuse prescription drugs cite that they were not concerned about the risks associated with their use (Quintero, 2009b). Quintero (2009b) contends the importance of those who work with college students to aim to shift the perception away from the erroneous belief that NMPD is a safe activity and to provide more focus towards prevention and intervention of prescription drug misuse.

Participants cited social context and availability for reasons for recreational use of prescription drugs. These same participants also cited predictability of prescription drugs and noted drug safety for motives for use (Quintero, 2009b). McCabe et al. (2009) found that 13% of undergraduate college students misuse prescriptions drugs. According to these researchers, students who misuse stimulants and sedatives particularly are at increased risk for drug abuse. These findings further underscore the need for research to study distinct classes of NMPD.

Weyandt et al. (2009) highlight that 20% of students believe that NMPD are harmless. A study by Vidourek et al. (2010) found that 76.2% of college students

thought knowing more about side effects of medication would impact their decision making process regarding taking prescription drugs in a non-medical manner. In addition, 72.4% thought that being aware of potential risks would impact potential future use of NMPD. Vidourek et al. (2010) found that protective factors for college students not using NMPD's were a desire not to use drugs (72.4%), disapproval by parents (65.8%), negative academic impact (64%), and personal values (64.2%).

Recent studies have begun to look at the relationship of other factors, such as emotional distress, with the increased prevalence of NMPD among college students. In one important, recent study of NMPD among college students, Zullig and Divin (2012) sought to understand the association between depressive symptoms and suicidality with NMPD among college students. This study of 22,783 college students used multiple logistic regressions to predict past-year NMPD (classified into groups of painkillers, stimulants, sedatives, and antidepressants) by comparing them to past-year reported depressive symptoms such as hopeless, lonely, very sad, and seriously considered suicide. Demographics of age and Greek membership were included while race and ethnicity was omitted.

The results showed that after adjusting for covariates, students had 1.18-1.91 times greater incidence of NMPD based on differing depressive symptoms. The most significant finding for these authors was the construct of emotional distress as noted with self-reported hopelessness, sadness, and depression, suicidality, with increased likelihood of painkiller use (1.18-1.43). Males and females who considered suicide almost equally showed increased likelihood to report use of painkillers (1.31-1.32). This matched Zullig and Divin's (2012) hypothesis that college students report prescription drug use in a non-

medical manner to self-medicate for depressive symptoms. While this study did not look at the direct causes of the symptoms of depression, the implications for the importance to do such can be implied. In summary, existing literature notes reasons for NMPD under social context, recreational purposes, and self-medication, especially for factors of emotional distress. Next, the review of existing literature regarding different classes of prescription drugs will be presented, beginning with the most researched NMPD among college students, stimulants.

Stimulants

Stimulants are abused to induce feelings of exhilaration, increased energy and mental alertness. These drugs can be injected, swallowed, smoked, or snorted to elicit potential effects. The misuse of these drugs can have potential negative health implications such as increased heart rate and blood pressure, nervousness, insomnia, seizures, heart attack, and stroke (NIDA, 2012).

The greatest amount of research on college students' misuse of prescription drugs is with stimulants. In a study by Weyandt et al. (2009), students listed reasons for use as improved academic performance and focus. This same study notes half of college students reported having access to stimulants. Stimulants have the distinction as the most highly diverted prescription drug for nonmedical use among college students (McCabe et al., 2006). Weyandt et al. (2009) had similar findings noting that a significant amount of students obtained their stimulants from classmates.

In a study of college students, McCabe et al. (2006) found that while previous years prevalence of medical use of stimulants were lower than other prescription drugs, stimulants showed the highest levels of NMPD. They concluded that stimulants

prescribed to treat Attention Deficit Hyperactivity Disorder (ADHD) are also the most diverted prescription among college students. However, Vidourek et al. (2010) found stimulants to be the second most frequently used NMPD in their study of college students.

Weyandt et al. (2009) conducted a study to evaluate the relationship of psychological variables with nonmedical use of stimulants with 390 college students. The authors reveal a strong relationship between higher incidence of nonmedical stimulant use and elevated psychological distress among college students. Specific to this study, depression, anxiety, and hostility are highly correlated with nonmedical use of prescription stimulants. These students also stated that they misused stimulants for recreational and academic reasons. Although this study found a relationship between emotional distress and NMPD, they suggest further research is needed to better identify those that may have higher risk of use.

Quintero (2009a) notes the importance of understanding the cultural perceptions of stimulant drugs. While no studies were found that looked at race and ethnicity or gender as the primary variable related to stimulants, many studies commented on demographic variables in their findings. Patterns of NMPD for race and ethnicity, gender, Greek affiliation, and year-in-school will be addressed fully later in this chapter. The abundance of stimulants on college campuses for medically sound purposes makes the diversion for the recreational, academic, and self-treatment potentially dangerous. While some reasons for stimulant use is cited in the literature, more research related to predictive factors of stimulant misuse among college students is certainly needed. The

following section will introduce the second-leading class of prescription drug abuse, painkillers, and patterns of use among college students.

Painkillers

Opioid and morphine derivative painkillers are often used non-medically to relieve pain and create a sense of euphoria or sedation but can also create drowsiness, impaired coordination, itching, sweating and dry mouth. These drugs can be chewed, injected swallowed, smoked, snorted, or use as a suppository to elicit potential effects. The improper use of this class of drugs can slow or arrest breathing, lower pulse and blood pressure, create tolerance, addiction, unconsciousness, coma, and death. The risk of death is elevated when used in combination with alcohol or other depressants (NIDA, 2012).

The nonmedical use of painkillers is most prevalent in college age students between 18 and 24 (Johnston et al., 2007). In one study of college students sampled from physical education and health classes, pain medication was found to be the most misused drug (22.4%) (Vidourek et al., 2010). McCabe et al. (2009) found that college students who reported using painkillers for solely recreational purposes as well as for both recreational and self-treatment purposes were more than nine times more likely to be identified for drug abuse. Similarly, these users had increased odds of abusing alcohol and illicit drugs.

Garnier et al. (2009) surveyed 3,400 college students looking at the prevalence of combining painkillers with alcohol. Their study found that alcohol and prescription analgesics were used concurrently 83% of the time. The authors note the high-risk

associated with combining these depressants and alcohol, including difficulties with breathing, decreased heart rate, alertness, consciousness, and even death.

In a study of over 9,000 college students, McCabe et al. (2005b) found that prevalence of use of painkillers was higher than stimulants, cocaine, and ecstasy. Forty-two percent of students who reported lifetime nonmedical use of painkillers stated the use started in college. Of important interest, those who were prescribed painkillers in elementary school were twice as likely to have misused painkillers in the last year, regardless of gender and age of first use. College men were also identified as more likely to be approached by their peers to share their pain medication. This study also found that those who misused painkillers typically had lower grade point averages. Given the prevalence and extreme risk of using painkillers nonmedically, painkiller abuse during college is a significant factor that needs to be better understood. Next, sedatives, another class of prescribed drugs with a pronounced pattern of misuse, and the relationship among college students will be addressed.

Sedatives

Sedatives, or central-nervous system (CNS) depressants, when taken nonmedically, can create euphoria, unusual excitement, reduce anxiety, lower inhibitions, but can also slur speech, create confusion, dizziness, and impair coordination and memory. These drugs can be injected, swallowed, or snorted to elicit potential effects. The potential health consequences from sedative misuse include lowered blood pressure, slowed breathing, tolerance, withdrawal, addiction, increased risk of death when combined with alcohol, irritability and life-threatening withdrawal for chronic users (NIDA, 2012).

As with nonmedical use of antidepressants, there is serious gap in the literature for studies looking at the relationship between college students and the nonmedical use of sedatives. In a national sample of 92,020 adults over the age of 18, 2.3% stated nonmedical use of sedatives in the past year (Becker, Fiellin, & Desai, 2007). However, college students report higher rates of nonmedical use of sedatives (3.6%) (ACHA, 2010). Becker et al. (2007) also note that their study found that rates of nonmedical use significantly differed by gender; females showed higher sedative abuse rates than males and suggest results may stem from their increased rates of treatment that includes being prescribed sedatives. There was also a high correlation in this study with alcohol dependence, which taken in combination, alcohol and sedatives can be lethal. The authors conclude their findings by stating the need for further research on emotional distress and nonmedical use of sedatives since emotional distress is a closely related to sedative use. Again, the risk of serious health consequences from sedative misuse highlights the need to better understand the predictive nature of its use. The following section will present literature on nonmedical use of antidepressants among college students.

Antidepressants

In 2007, the FDA extended the black box risk warning for anti-depressants to the age of 24. They cite that there may be elevated risk for individuals taking antidepressants to engage in suicidal behaviors (NIMH, 2012). The FDA (2010) further stated that risks may include worsening depression or anxiety, restlessness, panic attacks, insomnia, aggression, mania, and impulsivity. This risk of suicidal and other negative behaviors may be especially high for those that recently experienced a traumatic event and are

taking prescription antidepressants outside the supervision of a treating physician or psychiatrist.

There is a severe gap in the literature linking college students and the nonmedical use of prescription antidepressants. Quintero (2009b) cites that no research addresses recreational use as a reason for nonmedical use of antidepressants among college students. Although research has not cited recreational use of antidepressants, self-treatment may be such a reason. Kadison (2005) highlights the increase of individuals asking for antidepressants in order to get an edge in college even though they might not meet the diagnostic criteria for a prescription. The author further notes reasons for use as improved mood, social functioning, energy, and focus. The lack of existing literature especially for recreational use of antidepressants in combination with the risk of suicidal ideation with the misuse of antidepressants creates a need to enrich knowledge of factors that contribute to college students' misuse of prescription antidepressants.

In summary of this section, there are a variety of effects that users experience resulting from the misuse of prescription drugs. There also exists serious health consequences from NMPD, especially when taken in conjunction with alcohol or other drugs, including accidental death or potential suicide. While some motivations have been addressed such as self-medicating to manage difficult emotions, a more complete picture of predictors can extend current literature. Next, the relationship between NMPD and race and ethnicity, gender, Greek affiliation, and year-in-school will be addressed.

Relationship between NMPD and race and ethnicity

While research of NMPD use has included race and ethnicity as a potential factor, there are opportunities for further research. McCabe et al. (2009) found that nonmedical

recreational and both recreational and self-treatment use of prescription drugs were reasons for misuse more in White and Hispanics than Black or Asian students. Self-treatment was reported by Blacks (12%) and Whites (8.1%) more so that Hispanic (6.8%) and Asians (4.2%). Similarly, other findings noted that rates of NMPD for white students were also higher than their Asian counterparts, while Hispanics reported higher rates than Asian and African Americans (McCabe et al., 2006). However, more recent studies have found no significant differences in NMPD use based on race and ethnicity (Lanier & Farley, 2011; Vidourek et al., 2010).

McCabe et al. (2005a) had similar findings when researching painkillers, noting that Whites had the highest rates of use and Asians with the lowest. These researchers also note higher rates than previously cited for African American students. They hypothesize that results could be due to self-treatment as opposed to recreational purposes. The inconsistencies in the literature of NMPD and race and ethnicity support the need for further analyses including race and ethnicity as a critical demographic. The next section will address the differing results pertaining to gender and NMPD.

Relationship between NMPD and gender

The role of gender warrants future research regarding NMPD use, citing mixed results (McCabe et al., 2005a; Simoni-Wastila et al., 2004; Weyandt et al., 2009). McCabe et al. (2009) found that men used prescription drugs solely for nonmedical recreational and both recreational and self-treatment more than women for painkillers and sedatives. This may support the findings of Simoni-Wastila et al. (2004) which found that women are 53% more likely to have past-year sedative misuse and 43% more likely to misuse painkillers.

However, excluding the misuse of stimulants, women used prescription drugs for self-treatment more than their male counterparts (McCabe et al., 2009). This is contrary to Weyandt et al. (2009) who found no gender differences among nonmedical stimulant users. Vidourek, King, & Knopf (2010) found that, overall, males had a greater odds of NMPD use that female counterparts. Lanier and Farley (2011) found that 40% of males reported use, while females were less than 28%. Specifically, rates of use for painkillers over the past year was higher in males college students than females (10.1% versus 8.6%) (McCabe et al., 2005a).

Interestingly, male students cited peers as methods for obtaining painkillers for nonmedical use, while female students cited family members (McCabe et al., 2005a). Furthermore, Weyandt et al. (2009) addressed the need to further NMPD research to better understand gender differences. The variation rates and motivations of NMPD based on gender makes this a significant factor for research. However, there are considerable risk factors for students NMPD and being Greek affiliated. The next section will address the relationship between NMPD and Greek affiliation.

Relationship between NMPD and Greek affiliation

Many studies have highlighted the elevated use of NMPD among fraternity and sorority members but more research is needed to understand trends in use (Lanier & Farley, 2011; McCabe et al., 2005a; Vidourek et al., 2010; Weyandt et al., 2009). Although overall rates of NMPD among college students found by Lanier and Farley (2011) were much higher than other studies, they found that 46% of Greeks reported past year NMPD while non-Greeks reported 32%. According to McCabe et al. (2005a), fraternity members were at greater risk of nonmedical use of painkillers compared to

sorority members and both were almost twice as likely to misuse painkillers as non-Greek students. Conversely, Weyandt et al. (2009) identified that sorority members had significantly higher nonmedical rates of use of stimulants. However, Vidourek et al. (2010) found no significant differences in NMPD use based on whether participants were in a sorority or fraternity. While there appears to be elevated rates of NMPD among Greek affiliation create a need to better understand potential causes for this relationship due to lack of consensus in the literature.

Relationship between NMPD and year-in-school

Finney and Jackson (2002) contend that college students mature emotionally, cognitively, and intellectually during the course of their college careers. Following this line of thinking, one might make the assumption that upperclassmen have better ways to cope with the increasing pressures of the college environment. This could lead to lower rates of NMPD.

However, Arria et al. (2008b) identified a 300% increase of stimulants and 85.7% increase of painkillers between first and second year students. Similarly, Vidourek et al. (2010) found that juniors and seniors had higher predicted odds ratio of NMPD than freshman and sophomores. Conversely, Lanier and Farley (2011) found a significant difference with rates of use among freshman at 38% as compared to 30.1% for upperclassmen. McCabe et al. (2007a) recognized that their study showed that seniors had the highest prevalence of opioids. One study of college students that focused only on nonmedical prescription stimulant use found no significant findings based on year-in-school (Weyandt et al., 2009). Due to the lack of consensus regarding in the literature relating NMPD to year-in-school, this area needed further research.

Race and ethnicity, gender, Greek affiliation, and year-in-school have often been cited in literature of NMPD. However, there continues to be a lack on consensus on rates and motivations based on these demographics. Further research is certainly required to give clarity to these discrepancies. The next section will review the literature of trauma among college students, highlighting their relationship with substance use.

Trauma Among College Students

The lifetime prevalence of experiencing a traumatic event is also most likely to occur between the ages of 16-25 in the general population (Breslau et al., 1998). University students have experienced or been witness to violence at rates between 82-96% (Scarpa et al., 2002). Researchers also note a cumulative effect among those that experienced multiple traumatic events had higher levels of emotional distress (Frazier et al., 2009). It has been noted that the most significant high-risk behavior that students with physical or psychological trauma exposure engage in is substance use (Flood et al., 2009). The following sections will present relevant literature reviewing trauma among college students, the psychological impact of trauma, factors of emotional distress, and the relationship between trauma, emotional distress, and substance abuse among college students.

Frazier et al. (2009) studied over 1,200 college student's lifetime and two-month experiences of trauma and the symptomatic impact of their trauma. Their results showed that 85% of students had a lifetime prevalence of a traumatic experience and importantly, 21% experienced a traumatic event in the last two months. The fact that 21% of the sample experienced a traumatic event in a two-month period while enrolled in college

supports the need for more extensive research examining college students' past-year experiences of trauma and its potential role in emotional distress and NMPD.

Specifically, the three most reported types of lifetime traumatic events for college students were an unexpected death, accident, and a loved-one surviving a life-threatening event. Similarly, those that experienced family violence, unwanted sexual attention, and sexual assault showed the highest levels of current stress, anxiety, and depression (Frazier et al., 2009). Of further importance, the researchers noted a cumulative effect among those that experienced multiple traumatic events displayed higher levels of emotional distress. Interestingly, those events that students reported as the worst events lacked the correlation of having the highest levels of distress. For example, while death of a loved one was often considered the worst event, traumatic stress experienced from sexual assault was much higher than bereavement. This last finding demonstrates the need for an in-depth analysis to include a broad spectrum of traumatic experiences that might predict NMPD.

Scarpa et al. (2002) also sought to better understand the psychological impact of traumatic events among college students. This study of 518 psychology students were 81% Caucasian, 67.7% female, and 92% were between the ages of 17-22. The researchers used a community violence questionnaire and asked students to attest to personal victimization of witnessing a variety of violence-related traumatic experiences. Researchers also used a traumatic life questionnaire that focused more on trauma such as accidents, deaths, natural disasters, and physical and sexual abuse. Psychological measures assessed depression, anxiety, posttraumatic stress, aggression, and interpersonal problems.

One finding of this study found that many college students in their research were victims or witnesses to three or more different types of violence (28-65%). Most types of violence also occurred near students' homes. The authors interpret their results to highlight persistent and chronic levels of violence exposure present difficulties of psychological adjustment in college students. This finding underscored the need for further research to better understand college students that have lifetime exposure to traumatic experiences who, they contend, are at high-risk for emotional and behavioral difficulties (Scarpa et al., 2002). This study continues to speak to the potential risk of NMPD stemming from experiencing trauma.

Many college students meet the definition of distress because of the changes in their lives that impact their physical and emotional wellbeing (Arthur, 1998; Insel & Roth, 2005). Students experience different levels of stress throughout the year, often increasing as the year progresses (Arthur, 1998). This suggests that mental health professionals working with college students need to be cognizant of critical periods in the academic calendar and of how these periods impact students, especially if traumatic events occurred. Arthur also highlights the responsibility of college counselors to assist students in developing positive coping strategies as a protective factor for future negative consequences. Leino and Kisch (2005) support the idea of early intervention for anxiety and depression as a protective factor for college students. Traumatic experiences have shown to have a psychological impact on college students. The next section further analyzes literature on emotional distress among college students.

Emotional Distress Among College Students

The majority of college students experience significant levels of emotional distress (ACHA, 2011), potentially brought on by a traumatic event during their college experience. Emotional distress can encompass those that are emotionally upset to the point that they become irrational and may elicit negative behaviors (Tice et al., 2001). Emotional distress as a result of psychological trauma may be a component that leads college students to turn to NMPD as a manner of coping (Arthur, 1998; Arthur & Hayward, 1997; Harring et al., 2010; Jackson & Finney, 2002; Leino & Kisch, 2005; Markou et al., 2008; McCabe et al., 2009). Additionally, emotional distress is often acute and can lead individuals to seek immediate relief by using drugs (Tice et al., 2001). Common symptoms of emotional distress among college students in the last year were feeling overwhelmed (86.1%), exhausted (81.4%), very lonely (57.2%), anxious (49.9%) hopeless (45.2%), depressed (30.3%), and having seriously considered suicide (6.6%) (ACHA, 2011). The following sections address the variables of emotional distress for this proposed study and their relationship with substance use.

Feeling Hopeless

Hopelessness can include discouragement and despair to the point that affects one's thinking. The feeling of hopelessness often communicates to the sufferer that there is a problem. This feeling has been shown to limit sufferer's ability to create options as to how to manage situations (Farran, Herth, & Popovich, 1995). Hopelessness has also been positively associated with students' depression, anxiety, anger, sleep problems, difficulty expressing feelings, suicide, and problems with academics, finances, and friendships (Williams, Galanter, Dermatis, & Schwartz, 2008). Hopelessness and

psychological distress have also been positively correlated with avoidance coping including substance use (O'Connor & O'Connor, 2003). In addition, hopelessness can be a predictor of student suicide, especially in combination with other measures of emotional distress such as feeling depressed (Heisel, Flett, & Hewitt, 2003). Students' inability to create options to cope with hopelessness makes this a vital component to research.

Feeling Overwhelmed

College students report being extremely overwhelmed by rigors of academia. A 2010 study reported past-year rates of feeling overwhelmed at 83.6%, with women reporting rates close to 90% (ACHA, 2010). In the book *College of the Overwhelmed* (Kadison & DiGeronimo, 2004), the authors recognized the myriad of stressors that affect students' lives. They emphasize that in addition to the normal development stages at this point of life, students struggle to cope with academic, financial, parental, racial, social, and cultural issues. They discuss the negative impact ineffective coping strategies have on depression, anxiety disorders, eating disorders, substance abuse, and in extreme cases, suicide. Students often turn to some drugs to numb their experience and to others for an energy booster (Kadison & DiGeronimo, 2004). The fact that students use drugs to cope with being overwhelmed makes this an important addition to this research.

Feeling Exhausted (Not due to physical activity)

Incidence of emotional exhaustion, not from physical activity, is alarming. Past year reported rates of feeling exhausted are 77.9% (ACHA, 2010). Feeling exhausted is related to burnout in which students experience depersonalization and emotional exhaustion. In one study, student burnout was linked to apathy and impersonalization.

Symptoms noted in this study included lower energy levels, limited emotional resources, higher levels of fatigue, and decreased sense of accomplishment (Paladino, Murray, Newgent, & Gohn, 2005). Addressing students' relationship between feelings of burnout and NMPD was an important addition this study.

Feeling Lonely

Historically, humans have had to remain in communities for survival but we are now living in a world where, increasingly, community is a less critical component of physical survival. Loneliness can serve to deregulate wellbeing making it more difficult to cope and heal oneself. Lonely individuals internalize everyday issues and find them to be more severe than non-lonely individuals. It is this impact of heightened perceived stress that limits the ability of lonely individuals to emotionally regulate and allow for physical healing (Cacioppo & Patrick, 2008).

A researcher in Turkey (Eldeleklioglu, 2008) sought to better understand loneliness among college students due to the impact that it has on students' emotional and physical wellbeing. In this study of 329 college students, researchers attempted to find what issues college students dealt with that could predict loneliness. The results led researchers to conclude that perceived lack of peer support and social reliability had a significant impact in predicting loneliness. This research showed the importance of developing social skills to create new relationships with peers that ultimately have a stronger supportive impact than students' family support systems. Students' inability to cope with loneliness made it an important factor to look at with NMPD.

Feeling Very Sad

Sadness is the emotional response to loss or trauma. This can be in response to the loss of a relationship, loved one, status, respect, or purpose. These types of sadness can be brought on by a specific event yet others encounter long-standing sadness due to lasting debilitating forces that may be beyond one's control. Sadness is a normal response to such events, but the response to sadness can create more severe depressive symptoms. This can result in disengagement from previously enjoyable activities and limit an individual's coping processes (Horwitz & Wakefield, 2007). One manner of dealing with sadness is through substance use.

Hussong (2007) looked at the relationship between sadness and alcohol abuse. This study followed 85 students for 28 days to understand drinking patterns as a form of coping with sadness. As predicted, this research found that drinking to cope with sadness was a significant predictor of abusive drinking patterns. Older, White, male students were found to have consumed alcohol in subsequent days after peak sadness yet women were found to drink more and for longer periods. While this study looked at drinking, the theory that college students abuse substances as a form of coping makes it pertinent as a needed area of study with NMPD.

Feeling Depressed

Depression has varying degrees of severity and emotional and behavioral symptomology due to the various transitions associated with attending college. Some symptoms of depressed mood experienced by college students can include change in weight and hygiene, emotional deregulation, exhaustion, significant decline in academic

performance, inattentiveness, irritability, and isolation. Students feeling depressed may also show increased alcohol and drug use (Sharkin, 2006).

In a key study of 3,639 college students reporting depressed mood, participants were surveyed in order to understand their relationship of depression to the nonmedical use of prescription stimulants. Results highlighted 26.2% of students reported depressed mood within the last month and 6% reported nonmedical use of stimulants within the last year (Teter et al., 2010). Further analysis found that almost one half of those reporting past month stimulant use experienced depressed mood. The authors hypothesized that self-medication may be a factor for students experiencing depressed mood. The high rates of depression among college students and its relationship with NMPD made including depressed mood an important factor for this study.

Feeling Anxious

May (1977) purports that "anxiety is the apprehension cued off by a threat to some value that the individual holds essential to his existence as a personality" (p. 205). May addresses the fact that this fear is often psychological or physical in nature and affects individuals to their core. He comments on the difficult nature of anxiety because of the powerlessness felt by those unable to readily identify the source of their anxiety. One result of anxiety is diminished self-awareness that may have a profound impact on the ability to cope.

A study of over 2,800 college students (Cranford, Eisenberg, & Serras, 2009) researched, among other things, the link between anxiety and alcohol abuse. The results showed that those with a Generalized Anxiety Disorder had greater odds of binge drinking. It was also found that males in this group had higher levels of binge drinking

than their female counterparts. The authors state these findings were consistent with existing research. For instance, they conclude that males may turn to binge drinking as a coping mechanism to deal with persistent anxiety (Cranford, Eisenberg, & Serras, 2009). The link between anxiety and alcohol abuse supports the self-medication hypothesis for dealing with trauma but more research was needed to specifically examine this pattern of anxiety and NMPD among college students.

Feeling Angry

Anger has been found to be a common emotion after traumatic events (Andrews, Brewin, Rose, & Kirk, 2000; Brewin, Andrews, & Rose, 2000). Understanding anger is difficult because it encompasses an emotion, a way of being, and a mood. While anger can be a motivating factor, many approach it by its negative consequences. As with anxiety, anger can be a state and trait emotion. The subjective nature of anger combined with broad scope of definition makes anger a difficult emotion to understand (DiGiuseppe & Tafratem, 2007). The DSM-IV criteria for posttraumatic stress disorder (PTSD) requires an event elicit the emotions of fear, helplessness, and horror. However, Hathaway, Boals, and Banks (2010) showed that college students who experienced the dominant emotion of anger after a traumatic incident had equivalent levels of PTSD severity. Anger as an emotion after a traumatic event is not by itself negative; however, Jackson and Finney (2002) note that anger becomes problematic when it results in aggressive acts, such as self-violence in the form of suicide.

In a study of almost 450 college students, the relationship between anger and alcohol abuse found that those who perseverate on anger were shown to have higher levels of weekly drinking, regardless of gender. The authors link the lack of healthy

coping with students' anger as a reason to turn to alcohol (Ciesla, Dickson, Anderson, & Neal, 2011). Due to the lack of research on NMPD use and anger, alcohol consumption was used as a model for turning to substances as a manner of coping with anger.

Considering Suicide

While attempting suicide is rare among college students (1.3%), rates of suicidal ideation among college students are compelling (6%) (ACHA, 2010). Arria ,O'Grady, Caldeira, Vincent, Wilcox, and Wish (2009) found similar incidences of suicidal ideation using a different measure. Their study of 1,249 college students found that 40% of the sample experienced numerous depressive symptoms. However, not having a strong support system was a significant predictor for suicidal ideation, evidenced by members of Greek organizations having lower levels of suicidal thoughts. There was also an identified association between alcohol use disorders and suicidal ideation. Assessing suicide among students with substance use disorders should be an important function of student support services on campuses (Arria et al., 2009; Tompkins & Witt, 2009; Zullig & Divin, 2012). Assessing NMPD and experiences that can induce suicidal thoughts and behaviors could benefit future students struggling with debilitating feelings. While traumatic experiences and components of emotional distress have shown to be linked to substance use, there is a dearth of literature linking trauma, emotional distress, and NMPD. The next section will highlight the argument to combine these factors for this proposal.

Trauma, Emotional Distress, and Substance Abuse

Dealing with difficult emotions are thought to be one reason that individuals often turn to substances as a form of coping after traumatic experiences. The self-medication

hypothesis for substance use purports that stems from the inability for individuals to regulate emotional stress (Khantzian, 1997). This theory suggests that due to individuals' emotional and psychological suffering, they turn to drugs for relief. This author concludes that while this is not the sole variable in the complex equation of substance abuse, there can be compelling arguments that need to be considered when working with clients that are abusing drugs. Khantzian continues to explain that based on a specific nature of the emotional pain, individuals may prefer the effects of a particular drug over another. This hypothesis, which continues to evolve, sheds light on the need for further study, examining individuals and patterns of use of different drugs when experiencing difficult emotional states when also experiencing trauma.

Edwards et al. (2006) conducted a convenience sample study of 92 college students, primarily female, to attempt to identify the relationship between traumatic symptomology and substance use. Students were asked to assess 10 psychological symptoms of trauma such as anxiety, depression, anger, and avoidance. The trauma scale results mostly fell between average and high-average range, suggesting that while participants certainly experienced emotional distress, measures might not meet the clinical level of PTSD. Yet, the results show that significant levels of intrusive and dissociative thoughts contributed to frequency of drinking. This study suggests that alcohol use serves as a coping mechanism for those struggling with the negative impact of experiencing trauma, again suggesting that there may be a pattern of seeking external mood-altering substances when negative symptoms of trauma intensify.

While Stuart (1996) highlighted that those who experience trauma may develop drug and alcohol problems, these findings were not supported by the work of Lauterbach

and Vrana (2002). Lauterbach and Vrana found that there was a high correlation between distress and substance use, although not meeting all criteria for PTSD and the threshold for substance abuse. Additionally, high drug use was strongly associated with students identifying multiple traumatic events. They conclude by suggesting that other important risk factors from traumatic experiences continue to be researched. While those college students experiencing trauma have the risk of developing drug problems, the relationship between trauma and emotional distress experienced by college students has not been evaluated before this study.

Broman (2005) sought to extend existing literature by researching the association between traumatic experiences and substance use in college students. An additional focus on this study was the role that students' race and ethnicity factored into their substance use. This researcher used a convenience sample to analyze 1,587 college students from a midwestern state. Although this study was a convenience sample, the focus was aimed at including a greater sampling of African-American participants. The questionnaire asked students about their drug and drinking patterns, including drugs used and the negative consequences of their use. Next, the researcher conducted two questionnaires about students' traumatic stress and college student stress. These included questions pertaining to academic stress, interpersonal stress, and other traumatic events. Demographic information was also collected.

Overall, Broman (2005) found 47% of all students reported an experience of one lifetime traumatic experience. While the measure of recent life stressors did not show differences based on race and ethnicity, the numbers of traumatic events were significantly higher for Black students compared to their White counterparts. Yet,

substance use levels among Whites were over three-times as high as Black students and substance use problems were significantly higher for White students. Overall, life and traumatic stress was shown to increase substance use in all college students across race and ethnicity. The author concludes by suggesting the continued need to address demographics to understand unique differences among the college population (Broman, 2005).

Flood et al. (2009) studied 136 undergraduate college students between 17-24 years old to understand how traumatic experiences contribute to negative physical health. Participants were asked to identify traumatic experience from a list of 17 possible experiences. In additional, students were asked to complete surveys about functional health and alcohol and drug use. While NMPD was a question asked on this questionnaire, responses were merely summed with other answers for a total score.

This study discovered that the most significant high-risk behavior that students with trauma exposure engage in is substance use. The results indicate that there was significant alcohol and drug use for each of the posttraumatic stress symptom clusters. The authors speculate that the students in their study may have used substances to temporarily regulate or relieve emotional distress from traumatic experiences. They further note that while substances do not create permanent relief, students who experience trauma need further support from health providers to build effective coping skills and support networks (Flood et al., 2009). This research further supports the current study by showing the vast impact of multiple posttraumatic stress symptoms impact on students' engagement with substances to mediate emotional distress from trauma.

In one of the few studies examining trauma, emotional distress and substance use, Marx and Sloan (2003) conducted a study of 600 college students, primarily female (71%). Their study highlights that those who experienced a traumatic event had significantly higher levels of psychological distress and posttraumatic stress (PTS) symptomology than the non-trauma group. Surprisingly, the researchers found no significant relationship to these elevated levels of distress and PTS in relation to alcohol consumption. These findings were in contrast to the literature that researchers presented as support for the need of their study to include alcohol use, which they believe was due to the high level of female participation. While the relationship between traumatic experiences and emotional distress was supported, there is a continued need to research the relationship between trauma and substance abuse among college students. These findings suggest that more research is needed to better assess the impact of trauma among college students and their reaction to turn to substances to cope.

Read et al. (2012) conducted a longitudinal study that impact of trauma, posttraumatic stress symptoms, and substance-related consequences among 997 first-year college students. They presented four levels of trauma and traumatic symptoms with substance outcomes over six points in students first year. The researchers utilized three substance use measures with three trauma and posttraumatic stress measures.

The findings of this study highlight the elevated risk that students face with regard to substance use and consequences in their first year. Their models reveal that the greatest risk is at the moment that students initially enter their first year when they have a history of trauma. Surprisingly, the risk of negative consequences of those entering college with a trauma history decreased as the year progressed. The authors hypothesize

that this is merely a function that those that experienced trauma entered at a higher level of risk (Read et al., 2012). These findings certainly show the risk that those entering college face with trauma and substance use.

Research concludes that most college students experience trauma prior to or during their college career. Those that experience trauma are at a higher risk for turning to substance for psychological relief. Predictors of overall substance misuse among college students including emotional distress from trauma such as depression, anxiety, and anger have been well documented. More research is needed to be done to identify the specific traumatic experiences and factors of emotional distress that lead to NMPD among college students.

Summary

This chapter provided an extensive review of the literature of NMPD, traumatic experiences among college students, and the relationship between emotional distress and substance use. The current trends of NMPD among college students were highlighted, introducing different classes of prescription drugs. The second section of this chapter showed the importance of including demographic variables based on their relationship with NMPD. In the third section of this chapter, trauma among college students was presented with specific attention to psychological impact experienced from trauma. The literature presented supports the need to further address the relationship between trauma and substance use. The relationship between trauma, emotional distress, and NMPD were identified and research linking their use among college students was also established. In conclusion, even though trauma, emotional distress, and substance use have been studied, there were no large-scale studies addressing traumatic experiences, emotional distress,

race and ethnicity, gender, Greek affiliation, and year-in-school that may predict NMPD. The review of literature supported the need for identified events perceived as traumatic and emotional distress to predict NMPD. Chapter Three will outline how to address the gap in literature between NMPD and trauma experienced by college students.

CHAPTER 3: METHODOLOGY

To date, there has been limited investigation as to the predictors of the misuse of prescription drugs among college students. The research that has been conducted focused primarily on behavioral and demographic factors that predict prescription drug misuse. Until only very recently have researchers begun to look at the trauma and emotional distress as predictors of NMPD, with one known study to review emotional distress and NMPD among college students and one with assessing trauma and NMPD. The literature also generally focuses on one class of prescription drug per study.

A review of relevant literature highlighted a need to further investigate this area of research. Conflicting results among demographic factors to predict use exist and this study adds to the current literature. Vidourek et al. (2010) highlight the need for further research with college students to better understand emotional distress, depression, and thoughts of suicide, suggesting that these factors with demographic variables may lead to NMPD. Since traumatic experiences elicit these types of symptoms, this research is the first to address a broad range of traumatic experiences to investigate if self-reported traumatic experiences predict NMPD.

The purpose of this study was to address the gap in literature that utilizes experiences with specific categories of events perceived as traumatic, factors of emotional distress, and demographic factors of undergraduate college students to predict the misuse of multiple classes of prescription drugs.

This chapter addresses the methodology for this study. The first section describes the research design to be implemented. The second section outlines the research question for this study. The third section provides the description of the participants included. The fourth section introduces the instrument used to collect the data. The fifth section then addresses the validity and reliability for the instrument. The sixth section describes the data analysis procedures. Finally, the chapter concludes with a summary of the methodology.

Research Design

The quantitative correlational research design used to analyze data was from a nationwide survey, National College Health Assessment II (NCHA II), for this non-experimental descriptive study. Logistic regressions were used to evaluate how events perceived as traumatic or very difficult to handle as self-reported on NCHA II of (a) academics, (b) career-related issues, (c) death of family member or friend, (d) family problems, (e) intimate relationships, (f) other social relationships, (g) finances, (h) health problems of a family member or partner, (i) personal appearance, (j) personal health issue, and (k) sleep difficulties with selected factors of emotional distress (l) feeling hopeless, (m) feeling overwhelmed, (n) feeling exhausted, (o) feeling lonely, (p) feeling very sad, (q) feeling depressed, (r) feeling anxious, (s) feeling angry, (t) considering suicide with demographic factors of (u) race and ethnicity, (v) gender, (w) Greek affiliation, and (x) year-in-school to examine if these factors predict the misuse of (1) stimulants, (2) painkillers, (3) sedatives, and (4) anti-depressants.

Overall Research Question

The primary research question for this study was:

How do perceived traumatic events, factors of emotional distress, race and ethnicity, gender, Greek affiliation, and year-in-school predict nonmedical use of prescription drugs among college students?

Research Question

> How do events perceived as traumatic or very difficult to handle as measured on NCHA II (academics, career-related issues, death of family member or friend, family problems, intimate relationships, other social relationships, finances, health problems of a family member or partner, personal appearance, personal health issue, sleep difficulties) in combination with emotional distress (feeling hopeless, feeling overwhelmed, feeling exhausted, feeling lonely, feeling very sad, feeling depressed, feeling anxious, feeling angry, and considering suicide), race and ethnicity, gender, Greek affiliation, and year-in-school predict non-medical use of prescription drugs among undergraduate college students (stimulants, pain killers, sedatives, antidepressants)?

This question was researched to better understand the association between events perceived as traumatic, factors of emotional distress, demographic factors, and reports of prescription drug misuse among undergraduate college students.

Description of Participants

Participants for this study were gained from the NCHA II, a nationwide survey of undergraduate college students during the Fall 2010 semester. The sample was comprised of female and male undergraduate students (measured in 1st, 2nd…5th year of school) under the age of 25, enrolled full-time, and at a traditional 4-year institution. The sample may include as many as 141 public and private universities from around the country.

Instrumentation

The American College Health Association (ACHA) was founded in 1920 and aims to provide advocacy, education, communication, products, and services to advance health of college students. ACHA relies on an endowment foundation of charitable gifts and contributions to support their mission. The ACHA conducted a biannual assessment of college students health nationwide called The National College Health Assessment II (NCHA II). To date, more than 825,000 students at more than 550 college across the United States have completed this survey. However, this survey is not intended to be representative of all colleges and universities across the United States, primarily due to the fact that schools self-select to participate in this survey.

The NCHA II survey seeks to gather information regarding college students' health factors such as mental and physical health, sexual behaviors, drug and alcohol use, and perceptions of health on students' campus and perception of other students' health choices. This is a self-report survey with 66 questions to gain knowledge about the areas of health listed above. Questions pertaining to students' demographic information are also collected. The focus of the current study was limited to the constructs of trauma,

emotional distress, demographics, and non-medical use of prescription drugs. The NCHA has been widely used since its pilot use in 1998-1999 and has been thoroughly tested and accepted for reliability and validity. For the purposes of this dissertation, the updated version, the NCHA II, introduced in 2008, was utilized since the question asking students about misuse of prescription drugs was added in this revision.

To obtain data from schools, universities or colleges first contact ACHA to inform them that they wish to participate in the survey in a given semester. In this communication, the school communicates whether they wish to administer a paper-and-pencil form or an electronic form of the survey. If a school chooses the paper-and-pencil format, administrators from the school then randomly select classrooms in which to distribute the survey. Directions on administration are included in the packet. If a school chooses to distribute the electronic form, administrators from that school randomly select e-mails from the student directory for distribution. In the Fall 2010 data set, 16 schools self–selected to use the paper-and-pencil form; whereas 125 schools chose the electronic form. Additionally, the response rate for paper-and-pencil was 84% whereas electronic form only had a response rate of 20%.

The NCHA II was selected because (a) captures are large nationwide sample of undergraduate college students, and (b) it gathers information to be able to address identified causes of trauma, factors of emotional distress, and prescription drug misuse. To obtain the dataset, a completed data request form was sent electronically, identifying which variables are requested and for which time periods.

Reliability and Validity

ACHA used multiple data sets to evaluate reliability and validity such as National College Health Risk Behavior Survey (CDC, 1995) and Harvard School of Public Health College Alcohol Study (CAS, 1999). These studies utilized different statistical analyses to create triangulation leading to a reliable and valid survey. This analysis has been shown to empirically represent college students on a national level.

Data Analysis

Survey data was gained from ACHA in the form of a Statistical Product and Service Solutions (SPSS) data file. SPSS 20 was utilized to run statistical analyses. The covariates are experiences perceived traumatic or very difficult to handle stemming from difficulties with academics, career-related issues, death of family member or friend, family problems, intimate relationships, other social relationships, finances, health problems of a family member or partner, personal appearance, personal health issue, sleep difficulties, factors of emotional distress of feeling hopeless, feeling overwhelmed, felling exhausted, feeling lonely, feeling very sad, feeling depressed, feeling anxious, feeling angry, and considering suicide, and demographics of race and ethnicity, gender, Greek affiliation, and year-in-school. The dependent variable will be an acknowledgement or not of having used anti-depressants, painkillers, sedatives, and/or stimulants. Although the survey obtains data from students regarding nonmedical use of erectile dysfunction drugs, it was omitted from this study due to lack of direct psychopharmacological effect such as euphoria or stimulation. There was no identified research to confirm any psychopharmacological effects that would make inclusion applicable to the scope of this study.

Prior to running major statistical analysis, the data will be screened for missing values. Any participants that did not respond to questions of perceived traumatic or very difficult event, emotional distress, and NMPD will be omitted from analysis. Descriptive analyses were run to better understand the potential relationship between covariates and the dependent variables. Sequential logistic regression was best suited to predict the binary outcomes measure of NMPD and the covariates that are a mixture of dichotomous (perceived traumatic event, emotional distress, race and ethnicity, gender, Greek affiliation) and ordinal (year-in-school). In the first block of the sequential logistic regression, analysis will include perceived traumatic events as covariates to predict dichotomized dependent variables of past-year NMPD. The second block will add factors of emotional distress. In the third block, all demographic variables in the study will be added to the previous model. This strategy will be employed to better understand the impact of the relationship between perceived traumatic or very difficult events and emotional distress to predict NMPD.

After the original analysis of the data from Fall 2010, data from Fall 2008 and Fall 2009 were evaluated to assess for differences over time. The procedures to analyze the 2008 and 2009 data were the same as those performed on the 2010 dataset. Overall response rates to each variable were evaluated to better understand whether further analysis would assist in supporting the outcome of the results from the Fall 2010 data.

This study measured eleven covariates of perceived trauma, asking if students had experienced these factors in the last school year as measured on NCHA II, as follows:

33. Within the last school year, have any of the following been traumatic or very difficult for you to handle? (Yes, in the last school year)

a. Academics

b. Career-related issues

c. Death of family member or friend

d. Family problems

e. Intimate relationships

f. Other social relationships

g. Finances

h. Health problems of a family member or partner

i. Personal appearance

j. Personal health issue

k. Sleep difficulties

In addition, this dissertation measured nine covariates of emotional distress asking if students had experienced these factors in the last school year as measured on NCHA II.

30. Have you ever: (Yes, in the last school year)

a. Felt things were hopeless

b. Felt overwhelmed by all you had to do

c. Felt exhausted

d. Felt very lonely

e. Felt very sad

f. Felt so depressed that it was difficult to function

g. Felt overwhelming anxiety

h. Felt overwhelming anger

i. Seriously considered suicide

The four dependent variables in this dissertation address the misuse of prescription drugs were combined into one dependent variable of NMPD.

18. Within the last school year, have you taken any of the following prescription drugs that were not prescribed to you? (Yes/No)

a. Antidepressants (e.g., Celexa, Lexapro, Prozac, Wellbutrin, Zoloft)

b. Pain killers (e.g., OxyContin, Vicodin, Codeine)

c. Sedatives (e.g., Xanax, Valium)

d. Stimulants (e.g., Ritalin, Adderall)

Additional covariates addressing multicultural considerations of race and ethnicity (White, Black or African American, Hispanic or Latino/a, Asian or Pacific Islander, or Other), gender (female, male, transgender), Greek affiliation (Yes/No), and year-in-school (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} or more) were added to the analyses. Of note, included as "Other" for race and ethnicity will be American Indian, Alaskan Native, or Native Hawaiian, Biracial or Multiracial as their percentages are less than 5 percent. See Table 1 for list of all covariates as they appear on the NCHA II.

Summary

This chapter described the research design, participants, instrumentation, procedures, and data analysis performed in the study of events perceived as traumatic or very difficult to handle, factors of emotional distress, and demographic and college-related predictors of NMPD among undergraduate college students. Descriptive analysis and sequential logistic regression were used to analyze data primarily from the NCHA II from the Fall 2010 semester, yet Fall 2008-09 semesters were also evaluated.

CHAPTER 4: RESULTS

The purpose of this study was to understand if events perceived as traumatic, factors of emotional distress, race and ethnicity, gender, Greek affiliation, and year-in-school served as predictors of nonmedical prescription drugs among undergraduate college students. This chapter presents the results of the analysis. The first section in this chapter will provide a description of the participants that were included in the sample. This section will also provide frequencies for covariates and the outcome variable. The second section will outline the bivariate correlations between the two primary covariate groups, events perceived as traumatic or very difficult to handle and factors of emotional distress, and NMPD. The third section will describe the results from the sequential logistic regressions utilized to address the research questions. Additionally, the full model sequential logistic regressions will be presented from 2008 and 2009 data sets to compare the results to that of the 2010 sample used as the primary data for this study. Finally, the last section presents the summary of this chapter.

Description of Participants

After receiving the dataset from the American College Health Association, the sample was narrowed from the population by only including participants that were undergraduate students, at 4-year colleges, were enrolled full-time, were between the ages of 18-25 years old, and identified as female or male. SPSS 20 was used for all statistical analysis and data management. After removing participants that did not meet

these criteria, the sample size was 22,336. Of this sample, 82.4% completed the survey online. Students identifying as White represented 67.5% (*n* =15,071), Black or African American represented 8.6% (*n* =1,925), Hispanics represented 10.6% (*n* =2,359), Asian or Pacific Islander represented 13.6% (*n* =3,030), and Other represented 7.5% (*n* =1,682). Females represented 65.6% of the sample (*n* =14,654) and 34.4% were males (*n* =7,682). Almost ten percent (9.7%, *n*=2,154) identified as being a member of a social fraternity or sorority (Greek affiliation). The distribution for year-in-school was (1) 1st year 39.5% (*n* =8,819), (2) 2nd year 21.7% (*n* =4,852), (3) 3rd 21.4% (*n* =4,780), (4) 4th 13.6% (*n* =3,031), and (5) 5th or more 3.8% (*n* =854). Frequencies for the two primary covariates groups, traumatic events and emotional distress, are also presented in Table 1.

Table 1: Frequencies of covariates in fall 2010 sample (N=22,336)

Variable	*N*	Percentage
Event Perceived as Traumatic of Very Difficult to Handle		
Academics	9,616	43.2%
Finances	6,956	31.3%
Intimate relationships	6,878	30.9%
Family problems	6,228	28.1%
Social relationships	5,526	24.9%
Sleep difficulties	4,941	22.2%
Personal appearance	4,917	22.1%
Health problem (others)	3,972	17.9%
Career-related	3,909	17.6%
Personal health issue	3,539	15.9%
Death of family member or friend	3,521	15.8%
Emotional Distress		

Overwhelmed	18,864	84.9%
Exhausted	17,384	78.2%
Very sad	13,213	59.6%
Very lonely	12,454	56.0%
Anxious	10,302	46.4%
Hopeless	9,946	44.9%
Anger	8,178	36.9%
Depressed	6,290	28.3%
Suicidal	1,306	5.9%
Race & Ethnicity		
White	15,071	67.5%
Asian or Pacific Islander	3,030	13.6%
Hispanic	2,359	10.6%
Black	1,925	8.6%
Other	1,682	7.5%
Gender		
Female	14,654	65.6%
Male	7,682	34.4%
Greek affiliated	2,154	9.7%
Year in School		
1st year	8,819	39.5%
2nd year	4,852	21.7%
3rd year	4,780	21.4%
4th year	3,031	13.6%
5th year or more	854	3.8%

Note. Frequencies for Events Perceived as Traumatic or Very Difficult to Handle and Emotional Distress represent an affirmative answer to those questions within the last 12 months.

Although the four classes of drugs were combined into one dependent variable, the distribution of that group is valuable. The overall frequency engaging in any NMPD for the sample was 12.2% (*n*=2,730). Individually pain killers had a use rate of 7.2% (*n*=1,606), stimulants had a use rate of 6.5% (*n*=1,453), sedatives 3.4% (*n*=749), and antidepressants 2.3% (*n*=521). The sample rates are similar to those of the entire surveyed population.

Table 2: Frequencies of nonmedical prescription drug use

Variables	*n*	Percentage
Pain killers	1,606	7.20%
Stimulants	1,453	6.50%
Sedatives	749	3.40%
Antidepressants	521	2.30%
Any	2,730	12.20%

The two primary groups of covariates were events perceived as traumatic and factors of emotional distress. The frequencies of events perceived as traumatic within the last 12 months are: (a) academics 43.2% (*n*=9,616), (b) career-related 17.6% (*n*=3,909), (c) death of family member or friend 15.8% (*n*=3,521), (d) family problems 28.1% (*n*=6,228), (e) intimate relationships 30.9% (*n*=6,878), (f) social relationships 24.9% (*n*=5,526), (g) finances 31.3% (*n*=6,956), (h) health problems of others 17.9% (*n*=3,972), (i) personal appearance 22.1% (*n*=4,917), (j) personal health issue 15.9% (*n*=3,539), and (k) sleep issues 22.2 (*n*=4,941). Frequencies for experiences of emotional distress within the last 12 months are (a) hopeless 44.9% (*n*=9,946), (b) overwhelmed 84.9% (*n*=18,864), (c) exhausted 78.2% (*n*=17,384), (d) very lonely 56.0% (*n*=12,454), (e) very

sad 59.6% (*n*=13,213), (f) depressed 28.3% (*n*=6,290), (g) anxious 46.4% (*n*=10,302), (h) angry 36.9%, 8,178, and (i) suicidal 5.9% (*n*=1,306).

Bivariate Correlations

Bivariate correlations were conducted using the two primary covariate groups (perceived traumatic events and factors of emotional distress) and the outcome variable (NMPD). The ranges for the Pearson correlations are displayed in Table 3. All covariates and dependent variable were found to be positive and significant at the .01 level. Many of the largest *r* values were found between factors of emotional distress. Feeling very sad had a strong, positive correlation with feeling lonely ($r = .692$, $p < .01$). Other factors of emotional distress also had strong, positive relationships: feeling exhausted and overwhelmed ($r = .583$, $p < .01$), feeling hopeless and depressed ($r = .510$, $p < .01$), and feeling anxious and angry ($r = .491$). These relationships indicate that there is an emotional carryover when feeling a variety of different emotions. The largest correlation between events perceived as traumatic were personal health issues and personal appearance ($r = .426$, $p < .01$). This indicates that there is a low to moderate relationship between covariates that comprise events perceived as traumatic. There were no correlations between events perceived as traumatic and factors of emotional distress that were higher than low to low-moderate levels. Additionally, these relationships show that there is not a high correlation between events perceived as traumatic, factors of emotional distress, and NMPD. The lowest range on the Pearson correlation matrix was for NMPD ($r = .048$-$.127$, $p < .01$).

Table 3: Bivariate correlations for NMPD, perceived trauma, and emotional distress

Variables	r range
NMPD	.048-.127
Academics	.125-.363
Career-related	.078-.363
Death of family member or friend	.048-.282
Family Problems	.088-.354
Intimate relationships	.126-.367
Social relationships	.091-.369
Finances	.101-.354
Health of family or friend	.060-.350
Personal appearance	.098-.426
Personal health	.093-.426
Sleep difficulties	.117-.324
Hopeless	.100-.533
Overwhelmed	.065-.583
Exhausted	.070-.583
Very Lonely	.070-.692
Very Sad	.083-.692
Depressed	.111-.510
Anxious	.112-.491
Angry	.119-.491
Suicidal	.060-.340

Sequential Logistic Regression

To understand the possible predictive nature of covariates on NMPD, sequential logistic regression was used. Block 1 of the regression included the events that students perceived as traumatic or very difficult to handle. Block 2 added factors of emotional distress. Block 3 then added the remaining demographic variables: race and ethnicity, gender, Greek affiliation, and year-in-school.

Overall, the model was significant for each of the three blocks. However, the change in prediction accuracy based on classification tables remained unchanged at 87.8% throughout. The large size of the sample most likely led to this significance but the model is unstable based on these results. The following sections present the results from each block.

The first block of the sequential logistic regression used events perceived as traumatic or very difficult to handle to predict NMPD. The results (Table 4) indicate that significant predictors of NMPD were: academics, death of family member or friend, intimate relationships, finances, personal appearance, person health issues, and sleep issues. Those predictors that were found to be statistically significant are described below.

Events perceived as traumatic or very difficult to handle were found to predict NMPD among undergraduates. Students that perceived academics as traumatic were 12% more likely to engage in NMPD. Students that perceived death of family member or friend as traumatic were 13% more likely to engage in NMPD. Students that perceived events related to intimate relationships as traumatic were 61% more likely to engage in NMPD. Students that perceived finances as traumatic were 26% more likely to engage in

NMPD. Students that perceived personal appearance as traumatic were 18% more likely to engage in NMPD. Students that perceived personal health issues as traumatic were 16% more likely to engage in NMPD. Finally, students that perceived sleep issues as traumatic were 44% more likely to engage in NMPD.

Table 4: Sequential logistic regression (Fall 2010)-Block 1

Variable	β	SE	OR	Wald	*p*
Event Perceived as Traumatic of Very Difficult to Handle					
Intimate relationships	.474	.048	1.607	96.312	<.001
Sleep difficulties	.364	.053	1.440	48.087	<.001
Finances	.232	.051	1.261	21.077	<.001
Personal appearance	.163	.056	1.177	8.486	.004
Personal health issue	.144	.060	1.155	5.757	.016
Death of family member or friend	.126	.057	1.134	4.917	.027
Academics	.115	.050	1.121	5.176	.023
Family problems	.093	.052	1.097	3.175	.075
Career related	.068	.057	1.070	1.419	.234
Social relationships	.044	.054	1.045	.677	.411
Health problem (others)	.075	.058	.928	1.643	.200

The second block in the sequential logistic regression added factors of emotional distress to the model. The results (Table 5) indicate that significant predictors to NMPD were: death of family member or friend, intimate relationships, finances, sleep, feeling overwhelmed, very lonely, anxious, angry, or suicidal. When adding emotional distress to the model, students that perceived death of family member or friend as traumatic were

13% more likely to engage in NMPD. Students that perceived intimate relationships as traumatic were 50% more likely to engage in NMPD. Students that perceived finances as traumatic were 24% more likely to engage in NMPD. Those that perceived sleep issues as traumatic were 35% more likely to engage in NMPD. Students that felt overwhelmed or very lonely were 21% more likely to engage in NMPD. Conversely, those students that felt very lonely were 21% less likely to engage in NMPD. Students that felt anxious were 20% more likely to engage in NMPD. Students that felt angry were 32% more likely to engage in NMPD. Finally, students that felt suicidal were 43% more likely to engage in NMPD. Some covariates were no longer significant once analyzed with emotional distress. Academics, personal appearance, and personal health issues were no longer significant when added to a more complex model.

Table 5: Sequential logistic regression (Fall 2010)-Block 2

Variable	β	SE	OR	Wald	*p*
Event Perceived as Traumatic of Very Difficult to Handle					
Intimate relationships	.403	.049	1.497	66.542	<.001
Sleep difficulties	.298	.053	1.347	31.354	<.001
Finances	.215	.051	1.240	18.033	<.001
Death of family member or friend	.117	.057	1.125	4.237	.040
Personal health issue	.116	.060	1.123	3.671	.055
Personal appearance	.102	.057	1.107	3.244	.072
Career-related	.046	.057	1.047	.664	.415
Academics	.033	.051	1.034	.416	.519
Family problems	.028	.053	1.028	.280	.597
Social relationships	-.027	.055	.973	.245	.621
Health problem (others)	-.082	.058	.921	2.001	.157

Emotional Distress					
Suicidal	.359	.077	1.432	21.481	<.001
Angry	.280	.054	1.323	27.168	<.001
Overwhelmed	.193	.090	1.213	4.564	.033
Anxious	.184	.058	1.202	10.179	.001
Exhausted	.111	.076	1.117	2.147	.143
Hopeless	.090	.058	1.094	2.431	.119
Depressed	.013	.061	1.013	.045	.833
Very sad	.005	.070	1.005	.005	.945
Very lonely	-.190	.065	.827	8.481	.004

The third block added race and ethnicity, gender, Greek affiliation, and year-in-school. This test of full model with all 33 covariates against the constant-only model was statistically significant, indicating that predictors were able to accurately identify whether students would engage in NMPD. In testing the goodness-of-fit, the Cox and Snell r^2 equal to .045 and Nagelkerke r^2 equal to .087 which translates that the model is not a strong fit for this dataset. Table 6 shows the regression coefficients, odds ratio Wald statistics, and statistical significance for the full model. The results indicate that significant predictors for NMPD were: death of family member or friend, family problems, intimate relationships, finances, personal appearance, personal health issue, sleep difficulties, feeling hopeless, overwhelmed, very lonely, anxious, angry, suicidal, Asian or Pacific Islander, gender, Greek affiliation, and all years-in-school. These statistically significant predictors will be further explained below.

Seven out of 11 events perceived as traumatic or very difficult to handle significantly predicted NMPD. Students that perceived death or family member or friend

as traumatic were 13% more likely to engage in NMPD. Students that perceived events related to family problems as traumatic were 11% more likely to engage in NMPD. Students that perceived events related to relationships as traumatic were 46% more likely to engage in NMPD. Students that perceived finances as traumatic were 18% more likely to engage in NMPD. Students that perceived personal appearance as traumatic were 14% more likely to engage in NMPD. Students that perceived personal health issues as traumatic were 14% more likely to engage in NMPD. Finally, students that perceived sleep issues as traumatic were 32% more likely to engage in NMPD.

Six out of nine factors of emotional distress were statistically significant to predict NMPD among undergraduates. Students who felt hopeless were 15% more likely to engage in NMPD. Students who felt overwhelmed were 20% more likely to engage in NMPD. Conversely, those students that felt very lonely were 22% less likely to engage in NMPD. Students who felt anxious were 18% more likely to engage in NMPD. Students that felt angry were 32% more likely to engage in NMPD. Finally, students that felt suicidal were 46% more likely to engage in NMPD.

Many demographic covariates were also statistically significant to predict NMPD for this sample. Two racial and ethnic covariates that were significant were African Americans and Asian or Pacific Islanders who were 19% and 58% less likely to engage in NMPD. Similarly, females were 39% less likely to engage in NMPD. As predicted, Greek affiliation was a strong predictor of NMPD, 44% more likely. Lastly, years-in-school demonstrated an increase in likelihood of use for each year in school when compared to first-year students. Second-year students were 26% more likely, third-years

60%, fourth-years 67%, and fifth-year students were over 100% more likely to use prescription drugs nonmedically as compared to first-year students.

Table 6: Sequential logistic regression (Fall 2010)-Block 3 (Final Model)

Variable	β	SE	OR	Wald	*p*
Event Perceived as Traumatic of Very Difficult to Handle					
Intimate relationships	.376	.050	1.457	56.849	<.001
Sleep difficulties	.280	.054	1.323	27.096	<.001
Finances	.162	.052	1.176	9.868	.002
Personal health issues	.136	.061	1.145	4.961	.026
Personal appearance	.130	.057	1.139	5.158	.023
Death of family member or friend	.123	.058	1.131	4.569	.033
Family Problems	.106	.053	1.111	3.908	.048
Academics	.040	.052	1.040	.583	.445
Social relationships	-.004	.056	.996	.004	.949
Career-related	-.045	.058	.956	.608	.436
Health of other	-.081	.059	.922	1.891	.169
Emotional Distress					
Suicidal	.377	.078	1.457	23.175	<.001
Angry	.273	.054	1.314	25.392	<.001
Overwhelmed	.188	.092	1.207	4.195	.041
Anxious	.166	.059	1.181	8.055	.005
Hopeless	.134	.058	1.143	5.242	.022
Exhausted	.099	.076	1.104	1.683	.195
Very sad	.046	.071	1.047	.427	.513
Depressed	.011	.061	1.011	.034	.854
Very lonely	-.196	.066	.822	8.885	.003

Demographics					
Other (Race/Ethnicity)	.012	.080	1.012	.022	.883
Hispanic	-.030	.072	.971	.170	.680
Black or African American	-.173	.083	.841	4.346	.037
Asian or Pacific Islander	-.579	.076	.560	58.634	<.001
Male	.330	.047	1.390	48.530	<.001
Greek	.365	.065	1.441	31.945	<.001
5th year	.710	.101	2.034	49.799	<.001
4th year	.510	.068	1.666	56.370	<.001
3rd year	.472	.059	1.603	63.353	<.001
2nd year	.234	.062	1.264	14.433	<.001

In order to assess how nonmedical use of prescription drugs may change over time, NCHA II data was also analyzed for comparison. The exact steps were taken to narrow the 2008 and 2009 samples as were described for the 2010 sample methodology. The 2008 sample was n=19,325 and 2009 was n= 23,712. Frequencies appeared to be relatively similar across time. Frequencies for these are presented in Table 7 and Table 8. Direct logistical regression was used to analyze all covariates and the results are presented in Table 9 and Table 10 for 2008 and 2009 respectively.

Table 7: Frequencies of covariates in 2008 sample (N=19,325)

Variable	*N*	Percentage
Event Perceived as Traumatic of Very Difficult to Handle	8,868	46.1%

Academics		
Intimate relationships	6,519	33.9%
Finances	6312	32.9%
Social relationships	5,497	28.6%
Family problems	5,391	28.0%
Personal appearance	4,565	23.7%
Family problems	5,391	28.0%
Sleep difficulties	4,399	22.9%
Career-related	3,713	19.3%
Health problem (others)	3,524	18.3%
Death of family member or friend	3,091	16.1%
Emotional Distress		
Hopeless	9,354	48.8%
Overwhelmed	16,999	88.4%
Exhausted	15,827	82.3%
Very lonely	11,927	62.0%
Very sad	12,610	65.7%
Depressed	5,938	30.9%
Anxious	9,506	49.5%
Anger	7,517	39.2%
Suicidal	7,517	6.5%
Race & Ethnicity		
White	14,490	76.3%
Asian or Pacific Islander	1,891	10.4%
Hispanic	1,517	8.3%
Other	1,502	7.8%
Black or African American	1,312	7.1%
Gender	13,552	70.1%

Female		
Male	5,773	29.9%
Greek affiliated	1,614	8.4%
Year in School		
1st year	7,025	36.4%
2nd year	3,639	18.8%
3rd year	4,406	22.8%
4th year	3,484	18.0%
5th year or more	771	4.0%

Note. Frequencies for Events Perceived as Traumatic or Very Difficult to Handle and Emotional Distress represent an affirmative answer to those questions within the last 12 months.

Table 8: Frequencies of covariates in 2009 sample (N=23,712)

Variable	*N*	Percentage
Event Perceived as Traumatic of Very Difficult to Handle		
Academics	10,686	45.3%
Finances	8,040	34.1%
Intimate relationships	7,313	31.0%
Family problems	6,477	27.5%
Social relationships	6,062	25.7%
Sleep difficulties	5,647	24.0%
Personal appearance	5,074	21.5%
Career-related	4,713	20.0%
Health problem (others)	4,246	18.0%
Personal health issue	3,841	16.3%
Death of family member or friend	3,782	16.0%
Emotional Distress	20,352	86.2%

Overwhelmed		
Exhausted	19,024	80.6%
Very sad	14,561	61.9%
Very lonely	13,822	58.6%
Anxious	11,188	47.5%
Hopeless	11,168	47.5%
Anger	9,033	38.4%
Depressed	6,994	29.7%
Suicidal	1,497	6.3%
Race & Ethnicity		
White	17,122	72.2%
Asian or Pacific Islander	2,760	11.6%
Black or African American	2,022	8.5%
Other	1,735	7.3%
Hispanic	1,636	6.9%
Gender		
Female	15,413	65.0%
Male	8,299	35.0%
Greek affiliated	2,443	10.4%
Year in School		
1st year	8,611	36.30%
2nd year	4,964	20.9%
3rd year	4,891	20.6%
4th year	3,954	16.7%
5th year or more	1,292	5.4%

Note. Frequencies for Events Perceived as Traumatic or Very Difficult to Handle and Emotional Distress represent an affirmative answer to those questions within the last 12 months.

When comparing the results from 2008, 2009, and 2010, there were many predictor variables that remained consistent for all three times periods. The predictors that were statistically significant consistent over these three years were: (a) events that were traumatic: death of family member or friend, intimate relationships, finances; (b) factors of emotional distress: feeling anxious, angry, and suicidal; and (c) demographics: Asian, gender, Greek affiliation, 1st and 2nd year students.

Table 9: Direct logistic regression- 2008 (Full model)

Variable	β	SE	OR	Wald	*p*
Event Perceived as Traumatic of Very Difficult to Handle					
Death of family member or friend	.252	.062	1.287	16.622	<.001
Finances	.216	.056	1.241	15.014	<.001
Intimate relationships	.198	.054	1.219	13.429	<.001
Personal appearance	.179	.061	1.196	8.587	.003
Sleep difficulties	.131	.059	1.140	4.932	.026
Academics	.120	.057	1.128	4.460	.035
Personal health issues	.105	.065	1.110	2.637	.104
Health of other	.062	.063	1.064	.987	.321
Family problems	.023	.058	1.023	.154	.695
Career-related	-.060	.062	.942	.930	.335
Social relationships	-.098	.059	.907	2.725	.099
Emotional Distress					
Suicidal	.401	.082	1.493	24.171	<.001
Angry	.251	.059	1.286	18.350	<.001
Anxious	.240	.066	1.271	13.315	<.001
Exhausted	.204	.094	1.226	4.662	.031

Depressed	.160	.066	1.174	5.922	.015
Hopeless	.108	.064	1.114	2.833	.092
Very lonely	.089	.076	1.094	1.377	.241
Very sad	-.025	.083	.975	.091	.763
Overwhelmed	-.232	.108	.793	4.629	.031
Demographics					
Hispanic	-.035	.088	.965	.163	.687
Other	-.067	.089	.936	.557	.456
Black or African American	-.340	.116	.712	8.651	.003
Asian or Pacific Islander	-.533	.093	.587	32.544	<.001
Male	.239	.054	1.270	19.247	<.001
Greek	.297	.079	1.346	14.070	<.001
5th year	.566	.117	1.761	23.204	<.001
4th year	.478	.070	1.612	46.260	<.001
3rd year	.423	.065	1.527	41.765	<.001
2nd year	.226	.071	1.253	10.052	.002

Table 10: Direct logistic regression- 2009 (Full model)

Variable	β	SE	OR	Wald	*p*
Event Perceived as Traumatic of Very Difficult to Handle					
Sleep difficulties	.312	.050	1.366	38.111	<.001
Intimate relationships	.280	.048	1.323	34.668	<.001
Personal health issues	.234	.057	1.264	16.693	<.001
Death of family member or friend	.158	.055	1.171	8.402	.004

Finances	.150	.049	1.162	9.386	.002
Family problems	.140	.051	1.150	7.511	.006
Health of other	.092	.056	1.096	2.726	.099
Personal appearance	.069	.055	1.072	1.589	.208
Academics	-.038	.050	.962	.587	.444
Career-related	-.052	.054	.949	.919	.338
Social relationships	-.065	.053	.937	1.514	.219
Emotional Distress					
Angry	.301	.052	1.351	33.297	<.001
Suicidal	.235	.073	1.265	10.295	<.001
Depressed	.229	.057	1.257	15.891	<.001
Anxious	.196	.056	1.216	12.021	.001
Very sad	.077	.070	1.080	1.207	.272
Exhausted	.077	.077	1.080	.992	.319
Hopeless	.030	.056	1.031	.296	.586
Very lonely	-.034	.064	.967	.280	.596
Overwhelmed	-.076	.088	.927	.744	.388
Demographics					
Other (Race/Ethnicity)	.021	.078	1.021	.073	.787
Black or African American	-.253	.086	.776	8.602	.003
Hispanic	-.355	.091	.701	15.323	<.001
Asian or Pacific Islander	-.531	.076	.588	48.216	<.001
Male	.270	.046	1.310	35.164	<.001
Greek	.437	.061	1.548	51.454	<.001
5th year	.459	.090	1.582	25.865	<.001
4th year	.376	.063	1.456	35.109	<.001
3rd year	.356	.059	1.428	36.282	<.001

2nd year	.249	.059	1.283	17.527	<.001

Table 11: Significant predictors for NMPD 2008-2010
(Fall 2008, n=19,325; Fall 2009, 23,712; Fall 2010, 22,336)

Variable	OR
Greek affiliation	1.346-1.548
Male	1.270-1.390
Feeling suicidal	1.265-1.493
Intimate relationships	1.219-1.455
Sleep difficulties	1.140-1.366
Feeling angry	1.286-1.351
Death of family member or friend	1.130-1.287
Feeling anxious	1.178-1.271
Finances	1.162-1.241
2nd year	1.253-1.283
3rd year	1.428-1.603
4th year	1.456-1.666
5th year	1.582-2.034
Black or African American	.712-.841
Asian or Pacific Islander	.560-.588

Summary

The purpose of this research study was to predict nonmedical use of prescription drugs among undergraduate college students based on events perceived as traumatic, emotional distress, race and ethnicity, gender, Greek affiliation, and year-in-school.

Demographic data, bivariate correlations, and sequential logistic regression were reported in this section.

The analysis of the demographic data highlighted that of the 22,336 participants in the sample, the majority were White females. Sequential logistic regression of the 2010 sample indicated that the model was statistically significant and revealed that death of family member or friend, family problems, issues with intimate relationships, finances, personal appearance, personal health issues, sleep difficulties, feeling hopeless, overwhelmed, very lonely, anxious, angry, and suicidal, being male, Greek affiliated, and year-in-school predicted NMPD. Furthermore, these variables were looked at during the Fall 2008 and 2009 semesters to compare the results over time and variables that predicted NMPD over this three-year period were death of family member or friend, issues with intimate relationships, finances, feeling anxious, angry, and suicidal, and Greek affiliation, and year-in-school.

CHAPTER 5: DISCUSSION

This research study intended to determine which events perceived as traumatic or very difficult to handle, factors of emotional distress, and demographic variables would predict nonmedical use of prescription drugs (NMPD) among undergraduate college students. This data was received from the National College Health Assessment II, which is a nationwide survey in which colleges and universities self-select to participate. The instrument gathers data from college students on areas including mental, physical health and sexual health, substance use, personal safety and violence. Analysis for this research study primarily relied on sequential logistic regression of these variables. This chapter will present a discussion on the findings of this study, including contributions, limitations, implications, and recommendations for future research.

Overview

NMPD is one of fastest growing classes of illicit drug use (Johnston, O'Malley, Bachman, & Schulenberg, 2009; McCabe, Cranford, Boyd, & Teter, 2007a). Over the past two decades, NMPD misuse rates have shown increasing trends (Johnston et al., 2009; McCabe et al., 2007a; McCabe, West, & Wechsler, 2007b). According to the National Institute on Drug Abuse, (NIDAa, 2011) between 2004 and 2009, there was a 98.4% increase in emergency room visits due to the negative consequences of NMPD; a rate of 1.2 million visits in 2009. Recent research has shown that the most vulnerable age group of the general population for NMPD is between 18 and 25 years old (Colliver,

Kroutil, Dai, & Gfroerer, 2006; Kroutil, Van Brunt, Herman-Stahl, & Heller, 2006; McCabe, Teter, & Boyd, 2006), which may include many college students (Johnston et al., 2007; McCabe, Knight, Teter, & Weschler, 2005a).

The lifetime prevalence of experiencing a traumatic event is also most likely to occur between the ages of 16-25 in the general population (Breslau et al., 1998). Research also notes a cumulative effect for experiencing multiple traumas that further compound levels of distress for college students (Frazier et al., 2009). Emotional distress as a result of psychological trauma may be a component that leads college students to turn to NMPD as a manner of coping (Arthur, 1998; Arthur & Hayward, 1997; Harring, Montgomery, & Hardin, 2010; Jackson & Finney, 2002; Leino & Kisch, 2005; Markou et al., 2008; McCabe et al., 2009). Authors also cite the need for further examination to better understand the role of different demographics such as race and ethnicity, gender, Greek affiliation, and year-in-school when researching NMPD among college students (Lanier & Farley, 2011; Vidourek et al., 2010). The self-medication hypothesis for substance use suggests that individuals' use drugs to regulate emotional stress to relieve emotional and psychological suffering (Khantzian, 1997).

While many studies have shown the relationship between trauma and substance use in college students (Broman, 2005; Edwards, Dunham, Ries, & Barnett, 2006; Flood et al., 2009; Marx & Sloan, 2003; Read et al., 2012; Stuart, 1996), only one has shown a relationship between experiencing trauma and NMPD (McCauley et al., 2010) and one examining factors of emotional distress and NMPD (Zullig & Divin, 2012). Flood et al. (2009) found that students often engage in high-risk behaviors following traumatic experiences, substance use being the most prevalent. After studying college student high-

risk behaviors, Vidourek et al. (2010) highlight the need for further study with college students to better understand emotional distress, suggesting that these factors may lead to NMPD. While incidents of traumatic experiences and subsequent emotional distress are evident among college students, whether or not they predict NMPD was previously unknown. To date, no studies have examined the combined factors of trauma, emotional distress, and various demographics as measures to better understand college students' nonmedical use of prescription drugs.

The researcher sought to examine how trauma, as perceived and self-reported by the participant, emotions, and select demographic variables impacted college students nonmedical use of prescription drugs. After a thorough review of relevant literature, the researcher outlined a study assessing events perceived as traumatic, factors of emotional distress, ethnicity and race, gender, Greek affiliation, and year-in-school of undergraduate college students that might predict their nonmedical use of prescription drugs.

The primary sample that was utilized for this study consisted of 22,336 full-time, undergraduate students at traditional 4-year schools that completed the National College Health Assessment II (NCHA II) during the Fall 2010 semester. Additionally, the full model of variables was then compared to results from the NCHA II for the Fall of 2008 and 2009 to determine consistency of results over time. The NCHA II only added questions assessing prescription drug misuse in the Fall 2008 semester. This study then analyzed the first three fall semesters of this information being available for research through ACHA. Additionally, this instrument is unique because of the size of sample, national reach, and ability to address the research questions in this study.

Discussion of the Results

Discussion of Demographic Data

A review of the demographic data revealed the sample was primarily identified white (67.5%), female (65.5.%), and first-year students (39.5%). The National Center for Education statistics cites data from 2010 college enrollment for Caucasians at 60% and females at 57% (NCES, 2010). Therefore, while the participants in this study are not representative of the United States college population, they do fall within 10 percentage points of representing the national population. While the percentage of Greek-affiliated students was low (9.7%), this appears consistent with other studies on this population (Lanier & Farley, 2011; McCabe et al., 2005a; Vidourek et al., 2010; Weyandt et al., 2009).

The frequencies of the primary covariates from the Fall 2010 data, events perceived as traumatic and factors of emotional distress, suggests that researchers need to continue to understand the emotional needs of college students. Over 43% (n=9,616) of undergraduates reported events related to academics that they perceive to be traumatic or very difficult to handle. Similarly, problems with intimate relationships and finances are perceived to be traumatic among 31% (n=6,878 & 6,956) of students. These frequencies confirm research by Scarpa et al. (2002) who state high prevalence of traumatic experiences of college students.

Almost 85% (n=18,864) of students in this sample reported feeling overwhelmed in the last 12 months. Additionally, over half of all students felt exhausted (not due to physical activity), very lonely, and very sad. While the percentage of students that were suicidal may seem low at almost 6% (n=1,306), the fact that any student experiences

suicidal ideation suggests colleges and universities might need to continually attempt to meet the needs of students with high levels of emotional distress. This result is consistent with that of another study looking at depressive factors, suicide, and NMPD (Zullig & Divin, 2012).

Table 12: Frequencies of covariates in fall 2010 sample (N=22,336)

Variable	*N*	Percentage
Event Perceived as Traumatic of Very Difficult to Handle		
Academics	9,616	43.2%
Finances	6,956	31.3%
Intimate relationships	6,878	30.9%
Family problems	6,228	28.06%
Social relationships	5,526	24.9%
Sleep difficulties	4,941	22.2%
Personal appearance	4,917	22.1%
Health problem (others)	3,972	17.9%
Career-related	3,909	17.6%
Personal health issue	3,539	15.9%
Death of family member or friend	3,521	15.8%
Emotional Distress		
Overwhelmed	18,864	84.9%
Exhausted	17,384	78.2%
Very Sad	13,213	59.6%
Very lonely	12,454	56.0%
Anxious	10,302	46.4%
Hopeless	9,946	44.9%

Angry	8,178	36.9%
Depressed	6,290	28.3%
Suicidal	1,306	5.9%
Race & Ethnicity		
White	15,071	67.5%
Asian or Pacific Islander	3,030	13.6%
Hispanic	2,359	10.6%
Black or African American	1,925	8.6%
Other	1,682	7.5%
Gender		
Female	14,654	65.4%
Male	7,682	34.4%
Greek affiliated	2,154	9.7%
Year in School		
1st year	8,819	39.5%
2nd year	4,852	21.7%
3rd year	4,780	21.4%
4th year	3,031	13.6%
5th year or more	854	3.8%

Note. Frequencies for Events Perceived as Traumatic or Very Difficult to Handle and Emotional Distress represent an affirmative answer to those questions within the last 12 months.

Next, the data from the Fall 2010 sample was analyzed using a 3-step sequential logistic regression. The variables were entered in the regression equation based on the established literature on the subject. Each step allowed for a greater possible understanding of how each set of variables might uniquely contribute to the prediction of NMPD. While all steps of this sequential logistic regression model were significant, the size of the sample may have played a large role in this. This may be assumed by the

relatively low contributions of adding additional variables to the model. Overall, the variability of these separate steps increased at each level, but even the final model variability remained very low as demonstrated by the Cox and Snell r^2=.045 and Nagelkerke r^2=.087. A fuller explanation of the logistic regression results based on variable groups is explained in the following sections.

Discussion of Events Perceived as Traumatic and NMPD

In the first block, events perceived as traumatic or very difficult to handle were entered to predict NMPD. The logistical regression indicated that the model was significant and that many variables were statistically significant to predict use among undergraduate students. When looking at just traumatic events as a predictor, academics, death or family member or friend, intimate relationships, finances, personal appearance, personal health issues, and sleep difficulties were all statistically significant to predict NMPD. Academics predicting NMPD in this study could be related to Arthur and Hayward's (1997) thoughts that academic pressures contribute to students' emotional health. The two events that predict the highest likelihood of NMPD use were problems with intimate relationships and sleep difficulties, with 60% and 44% increase risk of use respectively. Those events that were not found to be significant to predict NMPD in this model were career-related issues, family problems, social relationships, and health problems of others.

Discussion of Trauma, Emotional Distress, and NMPD

The second block of logistic regression focused on factors of emotional distress to traumatic events. When viewing these two groups of variables together, the model was again statistically significant and many of the variables were significant predictors of

NMPD. However, when emotional distress was added to the model, academics, personal appearance, and personal health issues were no longer significant predictors. These results suggest that the more variables that are added to this model, the more narrow (yet trustworthy) the group of predictors become. However, in testing the goodness-of-fit, the Cox and Snell r^2 equal to .045 and Nagelkerke r^2 equal to .087 which translates that the model is not a strong fit for this dataset. Variables that were significant in this model were death of family member or friend, intimate relationships, finances, and sleep difficulties as traumatic events that predict NMPD in combination with self-reported traumatic events and emotional distress. Additionally, emotional factors of feeling overwhelmed, anxious, angry, and suicidal all significantly predicted NMPD among students. These results were different from that of Zullig and Divin (2012) whose study of emotional distress and NMPD was similar to the current study. Of these emotional predictors, feeling suicidal showed the strongest risk of use (43%). The strong relationship between NMPD and suicidal ideation in this study supports the work of Vidourek et al. (2010), although these authors noted that it was the NMPD that increased the likelihood of suicidal thoughts. All these factors of emotional distress may verify thoughts by other researchers suggesting that NMPD may be a form of self-medication or treatment, seeking relief from emotional difficulties such as thoughts of suicide (Khantzian, 1997; Tice et al., 2001; McCabe et al., 2009). Interestingly, feeling lonely was statistically significant for students to be less likely to use prescription drugs in non-prescribed manner.

Discussion of Trauma, Emotional Distress, Demographics, and NMPD

The third block of the sequential logistic regression added demographics: race and ethnicity, gender, Greek affiliation, and year-in-school to traumatic events and factors of emotional distress. This final model was designed to best answer the main research question by creating potentially the most complete model to date to predict NMPD among college students. Indeed, this model was statistically significant and there were a variety of predictors from each of the variables groups.

The final model showed that death of family member or friend, family problems, intimate relationships, finances, personal appearance, personal health issues, and sleep difficulties were all significant events perceived as traumatic that predicted NMPD. Additionally, factors of emotional distress that predicted NMPD included feeling hopeless, overwhelmed, anxious, angry, and suicidal. Surprisingly, as with other models in this study, students feeling very lonely were less likely to use prescription drugs nonmedically. Demographic characteristics that predicted NMPD in this final model, males and Greek-affiliated members, were also statistically significant to predict NMPD. Greek affiliation strongly predicting NMPD supports results by Lanier and Farley (2011) and McCabe et al. (2005b) who similarly noted high rates of use among this group.

However, Blacks or African Americans and Asian or Pacific Islander students were seen to have been less likely to misuse prescription drugs. These results are consistent with findings by McCabe, Teter, and Boyd (2005) for specific race and ethnicity being less likely to use prescription drugs nonmedically. While all years-in-school were significant, they were all being compared to first-year students instead of being individually evaluated. The results showed an increased likelihood of use each

year that is consistent with the work of many researchers (Arria et al., 2008b; McCabe et al., 2007; Vidourek et al., 2010) who found that upperclassmen had higher rates of use than lowerclassmen. Conversely, Lanier and Farley (2011) found higher rates among freshmen that were not found to be consistent in this study. Future research to better understand impact of year-in-school on NMPD needs to be explored further.

Comparison of Results Over Time

As was previously discussed, this study conducted additional research to confirm whether findings during the Fall 2010 semester predicting NMPD would be consistent over three consecutive semesters. An examination of the results of the sequential logistic regression from the Fall 2008 and Fall 2009 semesters of the NCHA II showed that many variables showed predictability for NMPD for all three semesters. Events perceived to be traumatic including death of family member or friend, intimate relationships, and finances; factors of emotional distress including feeling anxious, anger, and suicidal; being male, Greek affiliated, and year-in-school compared to first-year students all predicted NMPD over time. Conversely, students identifying as Black or African American and Asian or Pacific Islander were consistently less likely to use prescription drugs in a nonmedical manner.

Table 1: Significant predictors for NMPD 2008-2010
(Fall 2008, n=19,325; Fall 2009, 23,712; Fall 2010, 22,336)

Variable	OR
Greek affiliation	1.346-1.548
Male	1.270-1.390
Feeling suicidal	1.265-1.493
Intimate relationships	1.219-1.455

Sleep difficulties	1.140-1.366
Feeling angry	1.286-1.351
Death of family member or friend	1.130-1.287
Feeling anxious	1.178-1.271
Finances	1.162-1.241
2nd year	1.253-1.283
3rd year	1.428-1.603
4th year	1.456-1.666
5th year	1.582-2.034
Black or African American	.712-.841
Asian or Pacific Islander	.560-.588

Contributions of the Study

This research study was the first in the literature of prescription drug misuse to empirically examine the predictive nature of select events perceived to be traumatic among undergraduates. Previous research on trauma among college students focused primarily on whether or not a traumatic event occurred and not the subjective traumatic nature of an experience. Additionally, previous studies that looked at trauma and substance abuse among college students focused mainly on alcohol. None looked at trauma, emotional distress, and prescription drug misuse.

Second, through sequential logistic regression, this study was the first to address the predictive nature of trauma along with factors of emotional distress on nonmedical use of prescription drugs among undergraduate college students. Previous research using this survey instrument looked at factors of emotional distress to predict nonmedical use of prescription drugs (Zullig & Divin, 2012), the current study was able to add to this study by pairing events perceived as traumatic.

Third, this study uniquely included demographics of race and ethnicity, gender, Greek affiliation, and year-in-school. While some studies of substance abuse research among college students have used these demographics as predictor variables, research looking at NMPD has not given these demographic variables such a primary role in other research. Additionally, the scope of this national data set captured a vast reach of regional demographics that were not overtly mentioned throughout these results.

Finally, a unique aspect of this study was to replicate the original methodology and sequential logistic regression over the two previous years. While showing a snapshot of the college student population NMPD is an important addition to the current literature, the ability to understand which predictors are consistent over time may assist college health professionals and administrators. The results of this study can guide decisions on how to best use resources to assist students struggling with trauma, emotional distress, and NMPD.

Limitations of the Study

There are several limitations in this study. First, the sample was comprised of undergraduate college students between the ages of 18-25 that attend full-time at traditional 4-year institutions, and those that identify as female or male. This omitted non-traditional students that may be over the age of 25, graduate students, part-time students, students that attend 2-year institutions, and students that identify as transgendered. Therefore, generalizability of the results is limited to those that meet the defined sample of this study. Additionally, schools self-select to participate in the NCHA II, thus, results may not represent those schools that did not choose to participate.

Another limitation of this study was the limited data due to the manner in which questions were asked. For example, the questions assessing events perceived as traumatic, emotional distress, and nonmedical use of prescription drugs were all yes or no answers for the past 12 months. This gives little information for frequency of NMPD use or how students obtained the drugs. Another example in which the survey construction may have limited the results was the question that assesses NMPD. This question may not have included those have a prescription for one of classes of drugs in the survey but misuse the drugs they are prescribed. This study also did not ascertain the nature of the reasons of use.

Finally, the nature of self-report surveys often lends participants to answer questions based upon social desirability. The questions utilized in this study may tend to be even more skewed for social desirable reasons due the illegal nature of NMPD. Additionally, selecting events as traumatic or very difficult to handle and factors of emotional distress over the past 12 months may be minimized for belief that things are not as bad as one might have previously thought.

Conclusions of this Study

This study sought to understand the relationship between trauma, emotional distress, demographics, and nonmedical use of prescription drugs among traditional undergraduate students. An extensive predictive analysis presented a model that identifies specific events, emotions, and characteristics that lead students to misuse this class of drugs.

The results of this study confirm that college students experience a variety of events they perceive as traumatic, emotional distress, and demographics that predict their

NMPD. This study identified a number of experiences perceived as traumatic that might not have been researched in the substance abuse literature such as difficulties with sleep. Race and ethnicity, gender, Greek affiliation, and year-in-school were all significant to predict whether students were more or less likely to use prescription drugs nonmedically.

The importance of these relationships remaining statistically significant not only in such a complex final regression model for one semester but also to have many of these results hold over a three-year period, highlights the importance for college counselors, health professionals, and administrators to better understand and support students around traumatic experiences, emotional distress, and NMPD. These results support previous research that also suggested that this line of research continue (Flood et al., 2009; Khantzian, 1997; Jackson & Finney, 2002; Leino & Kisch, 2005; Markou et al., 2008; Marx & Sloan, 2003; McCabe et al., 2009; Read et al., 2012; Vidourek et al., 2010; and Zullig & Divin, 2012).

Implications of Findings

This study contributes to the substance abuse literature among college students by highlighting specific predictors of nonmedical use prescription drugs among undergraduate students. Additionally this study broadened the scope of predictors of NMPD through the use of perception of events as traumatic in combination with factors of emotional distress and various demographics of traditional undergraduate students.

The results of this study have vital implications for college counselors and other health professionals that serve the undergraduate population. In regards to the high levels of events students perceive as traumatic, college administrators should become more aware of these specific events, create outreach and support services to target students who

experience these instances. While this study showed that events such as death of family member or friend, difficulties with intimate relationships, and finances were consistent predictors of NMPD, other significant predictors for one or two years studied also include issues with academics, family problems, personal appearance, personal health issues, and sleep issues. Colleges can be providing additional training for all administrators and healthcare staff to heighten awareness and tools to be able to address the unique needs identified in this study.

Colleges and universities could also reach out specifically to social Greek fraternities and sororities to attempt to curb risky use among this subgroup of students. This study confirmed current literature that substance use among the Greek community remains high. Given the dangers that often follow use of NMPD, especially in combination with other drugs, including alcohol, outreach targeted to Greeks would assist to reduce these dangerous trends.

Recommendations for Future Research

This research study presented contributions and implications for the literature pertaining to substance abuse among undergraduate college students. From these findings notable important questions have arisen that should guide future research. This study described a model of how trauma, emotional distress, and demographics significantly predict nonmedical use of prescription drug use among undergraduate college students. While the results of this study make a significant contribution to existing literature, other opportunities for future research exist.

First, the analysis of data taken from the NCHA II presented a limited view of the larger problems relating trauma, emotional distress, and demographic considerations due

to the nature of self-report surveys and quantitative data. A qualitative research project may be able to be conducted through a college counseling center. Data can be collected on students that visit or are referred to a college counseling center for prescription drug abuse. Clinicians working with these individuals can ascertain throughout the scope of treatment whether use was due to events perceived as traumatic, emotional distress, and demographics.

Second, future research could also address a cumulative measure of trauma and emotional distress. Previous research has assessed such issues as how multiple traumas influence drinking levels. A research question could be what is the cumulative impact of events perceived as traumatic or very difficult to handle in predicting NMPD among undergraduates. For example, Frazier et al. (2009) found students that experienced multiple traumatic events had compounding levels of emotional distress. Research could calculate how the number of perceived traumatic events might predict NMPD among college students.

Third, this study could be replicated for graduate students. There is currently no research on graduate students and nonmedical use of prescription drugs. While graduate students may have more coping skills than undergraduates, the cumulative impact of multiple traumas, greater life responsibilities, and greater accessibility to prescription drugs may lead graduate students to misuse prescription drugs. In addition, variables for undergraduates that could also be included in future research are socio-economic status, health insurance status, collegiate athletes, married students or students with young children.

A fourth consideration for future research could also address protective factors for undergraduates to not misuse prescription drugs. For example, this study demonstrated that Asian students were significantly less likely to engage in NMPD. There are many other variables even within the NCHA II that research could use to identify characteristics of nonusers that might serve to better understand non-users.

A fifth consideration for this line of future research would be to continue to evaluate these research questions but to focus on each drug individually. Unfortunately, although the sample size of this study was relatively high, the low percentage of each class of drug required a collapse of this variable to show any significance. Larger data sets may still be needed even though the relative percentage for each class may remain lower than needed for this type of analysis.

Finally, the research questions presented in this study should continue to be evaluated. Research is needed every year in order to continue monitoring the prescription drug abuse epidemic that exists in our country. Outcome research needs to be conducted on programs that are attempting to curb prescription drug abuse on college campuses.

Concluding Remarks

For many years, substance abuse among college students has presented public health concerns due to the prevalence and negative consequences resulting from misuse. Traditional college students currently attending have grown up in a society that is continually reliant on prescription drugs for many facets of life. In combination with marketing campaigns that saturate and seek to normalize prescription drug use, today's college students may continually see even the misuse of prescription drugs as safe. However, these drugs pose a very dangerous threat, especially when taken outside of the

supervision of a physician. This has been highlighted through the fact of a 98.4% increase in emergency room visits due to NMPD between 2004 and 2009. Additionally, with the high numbers of college students that experience events perceived as traumatic and high levels of emotional distress, this study showed that college students are continually turning to prescription drugs.

The results of this study imply that if students are involved with certain life events that they perceive are traumatic and experience emotional distress, there is an elevated likelihood that they will engage in nonmedical use of prescription drugs. These findings are important to note considering the lack of oversight and the potential to take these drugs in an unsafe situation.

The counseling profession should serve as the spoke of the wheel that connects research for traumatic, emotional, and substance abuse issues for those that suffer and those that will be counseling will able to assist. While this study was concerned with the college student population, the prescription drug abuse epidemic is not limited to this group. The counseling professional, specifically substance abuse counselors, should continue to conduct and explore existing research on evidence-based practices that could assist those that struggle with NMPD. Additionally, disseminating this information to counselors, physicians, and other helping professionals is essential to treating these complex issues.

In closing, this research study found that events perceived as traumatic, emotional distress, and demographic factors are important elements of assessment when evaluating nonmedical use of prescription drugs among college students. While these findings certainly add to existing literature, a better understanding of NMPD among college

students should continue to be evaluated. Specifically, treatment of not only prescription drug abuse, but also attention to predictive factors such as trauma and emotional distress, needs to be researched and implemented for college students.

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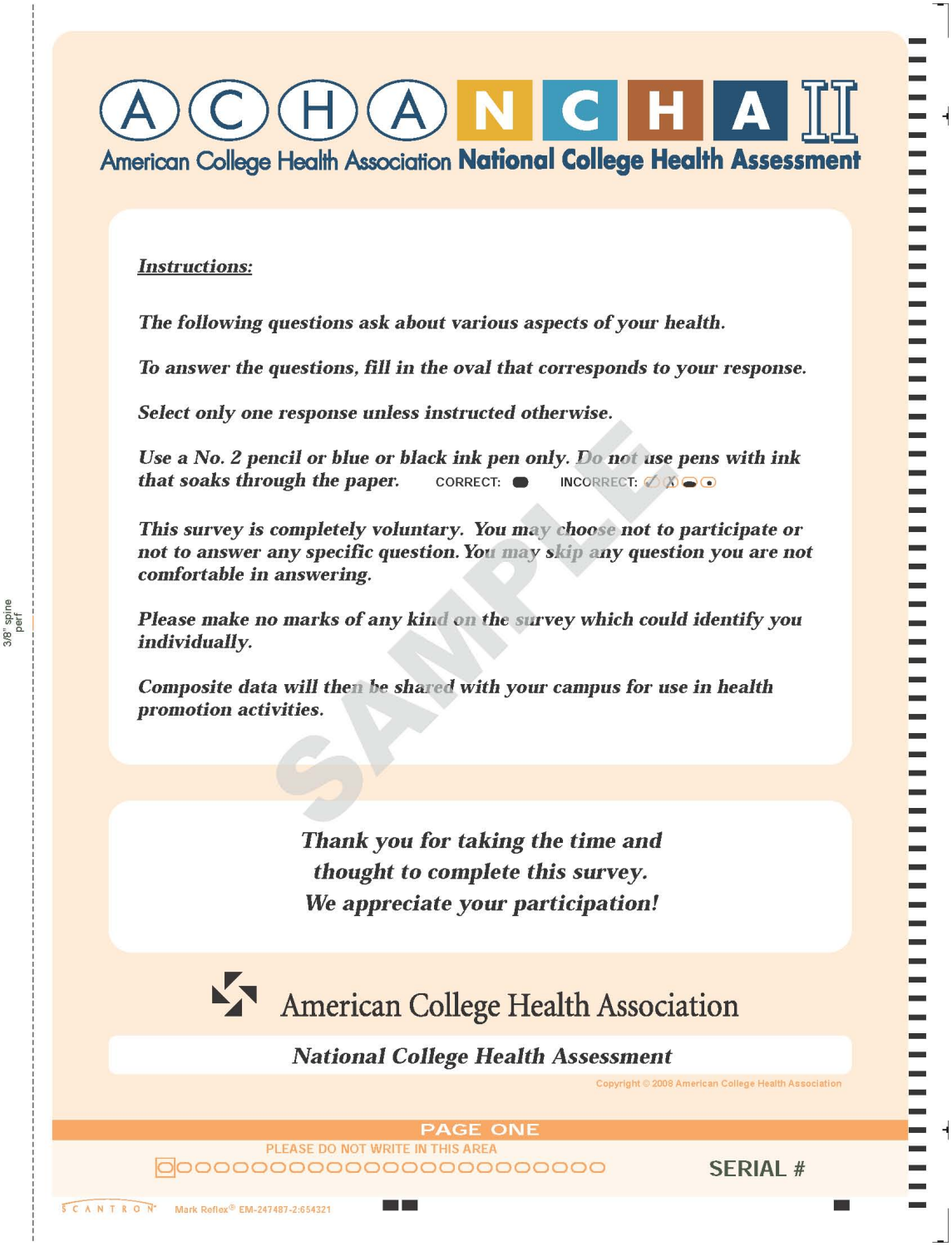
APPENDIX A: NCHA-II SURVEY INSTRUMENT



ACHA NCHA II

American College Health Association National College Health Assessment

Instructions:

The following questions ask about various aspects of your health.

To answer the questions, fill in the oval that corresponds to your response.

Select only one response unless instructed otherwise.

Use a No. 2 pencil or blue or black ink pen only. Do not use pens with ink that soaks through the paper. CORRECT: ● INCORRECT: ∅ ✓ ◒ ⊙

This survey is completely voluntary. You may choose not to participate or not to answer any specific question. You may skip any question you are not comfortable in answering.

Please make no marks of any kind on the survey which could identify you individually.

Composite data will then be shared with your campus for use in health promotion activities.

SAMPLE

Thank you for taking the time and thought to complete this survey. We appreciate your participation!

American College Health Association

National College Health Assessment

PAGE ONE

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Health, Health Education and Safety

1. How would you describe your general health?
   ○ Excellent ○ Very good ○ Good ○ Fair ○ Poor ○ Don't know

(Please mark the appropriate column for each question to the right)	2. Have you received information on the following topics from your college or university?		3. Are you interested in receiving information on the following topics from your college or university?	
	No	Yes	No	Yes
Alcohol and other drug use	○	○	○	○
Cold/Flu/Sore throat	○	○	○	○
Depression/Anxiety	○	○	○	○
Eating disorders	○	○	○	○
Grief and loss	○	○	○	○
How to help others in distress	○	○	○	○
Injury prevention	○	○	○	○
Nutrition	○	○	○	○
Physical activity	○	○	○	○
Pregnancy prevention	○	○	○	○
Problem use of Internet/computer games	○	○	○	○
Relationship difficulties	○	○	○	○
Sexual assault/Relationship violence prevention	○	○	○	○
Sexually transmitted disease/infection (STD/I) prevention	○	○	○	○
Sleep difficulties	○	○	○	○
Stress reduction	○	○	○	○
Suicide prevention	○	○	○	○
Tobacco use	○	○	○	○
Violence prevention	○	○	○	○

4. Within the **last 12 months**, how often did you:
   (Please mark the appropriate column for each row)

	Always	Most of the time	Sometimes	Rarely	Never	N/A, did not do this activity within the **last 12 months**
Wear a seatbelt when you rode in a car?	○	○	○	○	○	○
Wear a helmet when you rode a bicycle?	○	○	○	○	○	○
Wear a helmet when you rode a motorcycle?	○	○	○	○	○	○
Wear a helmet when you were inline skating?	○	○	○	○	○	○

5. Within the **last 12 months**:
   (Please mark the appropriate column for each row)

	Yes	No
Were you in a physical fight?	○	○
Were you physically assaulted (do not include sexual assault)?	○	○
Were you verbally threatened?	○	○
Were you sexually touched without your consent?	○	○
Was sexual penetration attempted (vaginal, anal, oral) without your consent?	○	○
Were you sexually penetrated (vaginal, anal, oral) without your consent?	○	○
Were you a victim of stalking (e.g., waiting for you outside your classroom, residence, or office; repeated emails/phone calls)?	○	○

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6. Within the **last 12 months**, have you been in an intimate (coupled/partnered) relationship that was:
(Please mark the appropriate column for each row)

	Yes	No
Emotionally abusive? (e.g., called derogatory names, yelled at, ridiculed)	○	○
Physically abusive? (e.g., kicked, slapped, punched)	○	○
Sexually abusive? (e.g., forced to have sex when you didn't want it, forced to perform or have an unwanted sexual act performed on you)	○	○

7. How safe do you feel:
(Please mark the appropriate column for each row)

	Very safe	Somewhat safe	Somewhat unsafe	Not safe at all
On this campus (daytime)?	○	○	○	○
On this campus (nighttime)?	○	○	○	○
In the community surrounding this school (daytime)?	○	○	○	○
In the community surrounding this school (nighttime)?	○	○	○	○

Alcohol, Tobacco, and Drugs

8. Within the **last 30 days**, on how many days did you use:
(Please mark the appropriate column for each row)

	Never used	Have used, but not in **last 30 days**	1-2 days	3-5 days	6-9 days	10-19 days	20-29 days	Used daily
Cigarettes	○	○	○	○	○	○	○	○
Tobacco from a water pipe (hookah)	○	○	○	○	○	○	○	○
Cigars, little cigars, clove cigarettes	○	○	○	○	○	○	○	○
Smokeless tobacco	○	○	○	○	○	○	○	○
Alcohol (beer, wine, liquor)	○	○	○	○	○	○	○	○
Marijuana (pot, weed, hashish, hash oil)	○	○	○	○	○	○	○	○
Cocaine (crack, rock, freebase)	○	○	○	○	○	○	○	○
Methamphetamine (crystal meth, ice, crank)	○	○	○	○	○	○	○	○
Other amphetamines (diet pills, bennies)	○	○	○	○	○	○	○	○
Sedatives (downers, ludes)	○	○	○	○	○	○	○	○
Hallucinogens (LSD, PCP)	○	○	○	○	○	○	○	○
Anabolic steroids (Testosterone)	○	○	○	○	○	○	○	○
Opiates (heroin, smack)	○	○	○	○	○	○	○	○
Inhalants (glue, solvents, gas)	○	○	○	○	○	○	○	○
MDMA (Ecstacy)	○	○	○	○	○	○	○	○
Other club drugs (GHB, Ketamine, Rohypnol)	○	○	○	○	○	○	○	○
Other illegal drugs	○	○	○	○	○	○	○	○

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9. Within the **last 30 days**, how often do you think **the typical student at your school** used:

(State your best estimate; Please mark the appropriate column for each row)

	Never used	Have used, but not in **last 30 days**	1-2 days	3-5 days	6-9 days	10-19 days	20-29 days	Used daily
Cigarettes	○	○	○	○	○	○	○	○
Tobacco from a water pipe (hookah)	○	○	○	○	○	○	○	○
Cigars, little cigars, clove cigarettes	○	○	○	○	○	○	○	○
Smokeless tobacco	○	○	○	○	○	○	○	○
Alcohol (beer, wine, liquor)	○	○	○	○	○	○	○	○
Marijuana (pot, weed, hashish, hash oil)	○	○	○	○	○	○	○	○
Cocaine (crack, rock, freebase)	○	○	○	○	○	○	○	○
Methamphetamine (crystal meth, ice, crank)	○	○	○	○	○	○	○	○
Other amphetamines (diet pills, bennies)	○	○	○	○	○	○	○	○
Sedatives (downers, ludes)	○	○	○	○	○	○	○	○
Hallucinogens (LSD, PCP)	○	○	○	○	○	○	○	○
Anabolic steroids (Testosterone)	○	○	○	○	○	○	○	○
Opiates (heroin, smack)	○	○	○	○	○	○	○	○
Inhalants (glue, solvents, gas)	○	○	○	○	○	○	○	○
MDMA (Ecstacy)	○	○	○	○	○	○	○	○
Other club drugs (GHB, Ketamine, Rohypnol)	○	○	○	○	○	○	○	○
Other illegal drugs	○	○	○	○	○	○	○	○

One drink of alcohol is defined as a 12 oz. can or bottle of beer or wine cooler, a 4 oz. glass of wine, or a shot of liquor straight or in a mixed drink.

10. The **last time** you "partied"/socialized how many **drinks of alcohol** did you have? (If you did not drink alcohol, please enter 00. If less than 10, enter 01, 02, 03, etc.)

DRINKS ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○

11. The **last time** you "partied"/socialized over how many **hours** did you drink alcohol? (If you did not drink alcohol, please enter 00. If less than 10, enter 01, 02, 03, etc.)

HOURS ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○

12. How many **drinks of alcohol** do you think **the typical student at your school** had the **last time** he/she "partied"/socialized? (If you think the typical student at your school does not drink alcohol, please enter 00. If less than 10, enter 01, 02, 03, etc.)

DRINKS ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○

13. Over the **last two weeks**, how many times have you had five or more drinks of alcohol at a sitting?

- ○ N/A, don't drink
- ○ None
- ○ 1 time
- ○ 2 times
- ○ 3 times
- ○ 4 times
- ○ 5 times
- ○ 6 times
- ○ 7 times
- ○ 8 times
- ○ 9 times
- ○ 10 or more times

14. Within the **last 30 days**, did you:

(Please mark the appropriate column for each row)

	Yes	No	N/A, don't drink	N/A, don't drive
Drive after drinking any alcohol at all	○	○	○	○
Drive after drinking five or more drinks of alcohol	○	○	○	○

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15. During the **last 12 months**, when you "partied"/socialized, how often did you:

(Please mark the appropriate column for each row)

	Never / N/A, don't drink	Rarely	Sometimes	Most of the time	Always
Alternate non-alcoholic with alcoholic beverages	○	○	○	○	○
Avoid drinking games	○	○	○	○	○
Choose not to drink alcohol	○	○	○	○	○
Determine, in advance, not to exceed a set number of drinks	○	○	○	○	○
Eat before and/or during drinking	○	○	○	○	○
Have a friend let you know when you have had enough	○	○	○	○	○
Keep track of how many drinks you were having	○	○	○	○	○
Pace your drinks to 1 or fewer per hour	○	○	○	○	○
Stay with the same group of friends the entire time you were drinking	○	○	○	○	○
Stick with only one kind of alcohol when drinking	○	○	○	○	○
Use a designated driver	○	○	○	○	○

16. Within the **last 12 months**, have you experienced any of the following **as a consequence of your drinking**?

(Please mark the appropriate column for each row)

	Yes	No	N/A, don't drink
Did something you later regretted	○	○	○
Forgot where you were or what you did	○	○	○
Got in trouble with the police	○	○	○
Had sex with someone **without giving** your consent	○	○	○
Had sex with someone **without getting** their consent	○	○	○
Had unprotected sex	○	○	○
Physically injured yourself	○	○	○
Physically injured another person	○	○	○
Seriously considered suicide	○	○	○

17. Within the **last 30 days**, what **percent** of students at your school used:
State your best estimate. (If less than 10, please enter 00, 01, 02, etc.)

Cigarettes % Used	Alcohol % Used	Marijuana % Used
00 01 02 03 04 05 06 07 08 09	00 01 02 03 04 05 06 07 08 09	00 01 02 03 04 05 06 07 08 09

18. Within the **last 12 months**, have you taken any of the following **prescription drugs** that were not prescribed to you?

(Please mark the appropriate column for each row)

	Yes	No
Antidepressants (e.g., Celexa, Lexapro, Prozac, Wellbutrin, Zoloft)	○	○
Erectile dysfunction drugs (e.g., Viagra, Cialis, Levitra)	○	○
Pain killers (e.g., OxyContin, Vicodin, Codeine)	○	○
Sedatives (e.g., Xanax, Valium)	○	○
Stimulants (e.g., Ritalin, Adderall)	○	○

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Sex Behavior and Contraception

19. Within the **last 12 months**, with how many partners have you had oral sex, vaginal intercourse, or anal intercourse? (If you did not have a sex partner within the last 12 months, please enter 00. If less than 10, enter 01, 02, 03, etc.) →

PARTNERS

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

20. Within **last 12 months**, did you have sexual partner(s) who were:

(Please mark the appropriate column for each row)

	Yes	No
Female	○	○
Male	○	○
Transgender	○	○

21. Within the **last 30 days**, did you have:

(Please mark the appropriate column for each row)

	Yes	No, have done this sexual activity in the past but not in the **last 30 days**	No, have never done this sexual activity
Oral sex?	○	○	○
Vaginal intercourse?	○	○	○
Anal intercourse?	○	○	○

22. Within the **last 30 days**, how often did you or your partner(s) use a condom or other protective barrier (e.g., male condom, female condom, dam, glove) during:

(Please mark the appropriate column for each row)

CONDOM/ BARRIER USE

	Have not done this sexual activity during the **last 30 days**	N/A, never did this sexual activity	Never	Rarely	Sometimes	Most of the time	Always
Oral sex?	○	○	○	○	○	○	○
Vaginal intercourse?	○	○	○	○	○	○	○
Anal intercourse?	○	○	○	○	○	○	○

23A. Did you or your partner use a method of birth control to prevent pregnancy **the last time** you had vaginal intercourse?

- ○ Yes (continue to item 23B)
- ○ N/A, have not had vaginal intercourse (skip to item 24)
- ○ No, have not had vaginal intercourse that could result in a pregnancy (skip to item 24)
- ○ No, did not want to prevent pregnancy (skip to item 24)
- ○ No, did not use any birth control method (skip to item 24)
- ○ Don't know (skip to item 24)

23B. Please indicate whether or not you or your partner used each of the following methods of birth control to prevent pregnancy **the last time** you had vaginal intercourse. (Please mark the appropriate column for each row)

	Yes	No		Yes	No
Birth control pills (monthly or extended cycle)	○	○	Diaphragm or cervical cap	○	○
Birth control shots	○	○	Contraceptive sponge	○	○
Birth control implants	○	○	Spermicide (e.g., foam, jelly, cream)	○	○
Birth control patch	○	○	Fertility awareness (e.g., calendar, mucous, basal body temperature)	○	○
Vaginal ring	○	○	Withdrawal	○	○
Intrauterine device (IUD)	○	○	Sterilization (e.g., hysterectomy, tubes tied, or vasectomy)	○	○
Male condom	○	○	Other method	○	○
Female condom	○	○			

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24. Within the **last 12 months**, have you or your partner(s) used emergency contraception ("morning after pill")?

- ○ N/A, have not had vaginal intercourse in the **last 12 months**
- ○ No
- ○ Yes
- ○ Don't know

25. Within the **last 12 months**, have you or your partner(s) become pregnant?

- ○ N/A, have not had vaginal intercourse in the **last 12 months**
- ○ No
- ○ Yes, unintentionally
- ○ Yes, intentionally
- ○ Don't know

Weight, Nutrition, and Exercise

26. How do you describe your weight?

- ○ Very underweight
- ○ Slightly underweight
- ○ About the right weight
- ○ Slightly overweight
- ○ Very overweight

27. Are you trying to do any of the following about your weight?

- ○ I am not trying to do anything about my weight
- ○ Stay the same weight
- ○ Lose weight
- ○ Gain weight

28. How many servings of fruits and vegetables do you usually have **per day**?
(1 serving = 1 medium piece of fruit; 1/2 cup fresh, frozen, or canned fruits/vegetables; 3/4 cup fruit/vegetable juice; 1 cup salad greens; or 1/4 cup dried fruit)

○ 0 servings per day ○ 1–2 servings per day ○ 3–4 servings per day ○ 5 or more servings per day

29. On how many of the **past 7 days** did you:

(Please mark the appropriate column for each row)

	0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days
Do **moderate-intensity** cardio or aerobic exercise (caused a noticeable increase in heart rate, such as a brisk walk) for at least **30 minutes**?	○	○	○	○	○	○	○	○
Do **vigorous-intensity** cardio or aerobic exercise (caused large increases in breathing or heart rate, such as jogging) for at least **20 minutes**?	○	○	○	○	○	○	○	○
Do 8-10 strength training exercises (such as resistance weight machines) for 8-12 repetitions each?	○	○	○	○	○	○	○	○

Mental Health

30. Have you ever:

(Please mark the appropriate column for each row)

	Yes, in the **last 12 months**	Yes, in the **last 30 days**	Yes, in the **last 2 weeks**	No, not in **last 12 months**	No, never
Felt things were hopeless	○	○	○	○	○
Felt overwhelmed by all you had to do	○	○	○	○	○
Felt exhausted (not from physical activity)	○	○	○	○	○
Felt very lonely	○	○	○	○	○
Felt very sad	○	○	○	○	○
Felt so depressed that it was difficult to function	○	○	○	○	○
Felt overwhelming anxiety	○	○	○	○	○
Felt overwhelming anger	○	○	○	○	○
Intentionally cut, burned, bruised, or otherwise injured yourself	○	○	○	○	○
Seriously considered suicide	○	○	○	○	○
Attempted suicide	○	○	○	○	○

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31. Within the **last 12 months**, have you been diagnosed or treated **by a professional** for any of the following?

(Please mark the appropriate column for each row)

	Yes, other treatment	Yes, treated with medication and psychotherapy	Yes, treated with psychotherapy	Yes, treated with medication	Yes, diagnosed but not treated	No
Anorexia	○	○	○	○	○	○
Anxiety	○	○	○	○	○	○
Attention Deficit and Hyperactivity Disorder (ADHD)	○	○	○	○	○	○
Bipolar Disorder	○	○	○	○	○	○
Bulimia	○	○	○	○	○	○
Depression	○	○	○	○	○	○
Insomnia	○	○	○	○	○	○
Other sleep disorder	○	○	○	○	○	○
Obsessive Compulsive Disorder (OCD)	○	○	○	○	○	○
Panic attacks	○	○	○	○	○	○
Phobia	○	○	○	○	○	○
Schizophrenia	○	○	○	○	○	○
Substance abuse or addiction (alcohol or other drugs)	○	○	○	○	○	○
Other addiction (e.g., gambling, internet, sexual)	○	○	○	○	○	○
Other mental health condition	○	○	○	○	○	○

32. Have you ever been diagnosed with depression? ○ No ○ Yes

33. Within the **last 12 months**, have any of the following been traumatic or very difficult for you to handle?

(Please mark the appropriate column for each row)

	Yes	No
Academics	○	○
Career-related issue	○	○
Death of a family member or friend	○	○
Family problems	○	○
Intimate relationships	○	○
Other social relationships	○	○
Finances	○	○
Health problem of a family member or partner	○	○
Personal appearance	○	○
Personal health issue	○	○
Sleep difficulties	○	○
Other	○	○

34. Have you ever received psychological or mental health services from any of the following?

(Please mark the appropriate column for each row)

	Yes	No
Counselor/Therapist/Psychologist	○	○
Psychiatrist	○	○
Other medical provider (e.g., physician, nurse practitioner)	○	○
Minister/Priest/Rabbi/Other clergy	○	○

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35. Have you ever received psychological or mental health services from your **current** college/university's Counseling or Health Service?
○ No ○ Yes

36. If in the future you were having a personal problem that was really bothering you, would you consider seeking help from a mental health professional?
○ No ○ Yes

37. Within the **last 12 months**, how would you rate the overall level of stress you have experienced?
○ No stress
○ Less than average stress
○ Average stress
○ More than average stress
○ Tremendous stress

Physical Health

38. Within the **last 30 days**, did you do any of the following?

(Please mark the appropriate column for each row)

	Yes	No
Exercise to lose weight	○	○
Diet to lose weight	○	○
Vomit or take laxatives to lose weight	○	○
Take diet pills to lose weight	○	○

39. Have you:

(Please mark the appropriate column for each row)

	Don't know	Yes	No
Had a dental exam and cleaning in the **last 12 months**?	○	○	○
(Males) Performed testicular self exam in the **last 30 days**?	○	○	○
(Females) Performed breast self exam in the **last 30 days**?	○	○	○
(Females) Had a routine gynecological exam in the **last 12 months**?	○	○	○
Used sunscreen regularly with sun exposure?	○	○	○
Ever been tested for Human Immunodeficiency Virus (HIV) infection?	○	○	○

40. Have you received the following vaccinations (shots)?

(Please mark the appropriate column for each row)

	Don't know	Yes	No
Hepatitis B	○	○	○
Human Papillomavirus/HPV (cervical cancer vaccine)	○	○	○
Influenza (the flu) in the **last 12 months** (shot or nasal mist)	○	○	○
Measles, Mumps, Rubella	○	○	○
Meningococcal disease (meningococcal meningitis)	○	○	○
Varicella (chicken pox)	○	○	○

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41. Within the **last 12 months**, have you been diagnosed or treated **by a professional** for any of the following?

(Please mark the appropriate column for each row)

	Yes	No		Yes	No
Allergies	○	○	High blood pressure	○	○
Asthma	○	○	High cholesterol	○	○
Back pain	○	○	Human Immunodeficiency Virus (HIV)	○	○
Broken bone/Fracture/Sprain	○	○	Irritable Bowel Syndrome (IBS)	○	○
Bronchitis	○	○	Migraine headache	○	○
Chlamydia	○	○	Mononucleosis	○	○
Diabetes	○	○	Pelvic Inflammatory Disease (PID)	○	○
Ear infection	○	○	Repetitive stress injury (e.g., carpal tunnel syndrome)	○	○
Endometriosis	○	○	Sinus infection	○	○
Genital herpes	○	○	Strep throat	○	○
Genital warts/Human Papillomavirus (HPV)	○	○	Tuberculosis	○	○
Gonorrhea	○	○	Urinary tract infection	○	○
Hepatitis B or C	○	○			

42. On how many of the **past 7 days** did you get enough sleep so that you felt rested when you woke up in the morning?

○ 0 days ○ 1 day ○ 2 days ○ 3 days ○ 4 days ○ 5 days ○ 6 days ○ 7 days

43. People sometimes feel sleepy during the daytime. In the **past 7 days**, how much of a problem have you had with sleepiness (feeling sleepy, struggling to stay awake) during your daytime activities?

○ No problem at all
○ A little problem
○ More than a little problem
○ A big problem
○ A very big problem

44. In the **past 7 days**, how often have you:

(Please mark the appropriate column for each row)

	0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days
Awakened too early in the morning and couldn't get back to sleep?	○	○	○	○	○	○	○	○
Felt tired, dragged out, or sleepy during the day?	○	○	○	○	○	○	○	○
Gone to bed because you just could not stay awake any longer?	○	○	○	○	○	○	○	○
Had an extremely hard time falling asleep?	○	○	○	○	○	○	○	○

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Impediments to Academic Performance

(Please select the most serious outcome for each item below)

45. Within the **last 12 months**, have any of the following affected your academic performance?

	Significant disruption in thesis, dissertation, research, or practicum work	Received an incomplete or dropped the course	Received a lower grade in the course	Received a lower grade on an exam or important project	I have experienced this issue but my academics have not been affected	This did not happen to me/not applicable
Alcohol use	○	○	○	○	○	○
Allergies	○	○	○	○	○	○
Anxiety	○	○	○	○	○	○
Assault (physical)	○	○	○	○	○	○
Assault (sexual)	○	○	○	○	○	○
Attention Deficit and Hyperactivity Disorder (ADHD)	○	○	○	○	○	○
Cold/Flu/Sore throat	○	○	○	○	○	○
Concern for a troubled friend or family member	○	○	○	○	○	○
Chronic health problem or serious illness (e.g., diabetes, asthma, cancer)	○	○	○	○	○	○
Chronic pain	○	○	○	○	○	○
Death of a friend or family member	○	○	○	○	○	○
Depression	○	○	○	○	○	○
Discrimination (e.g., homophobia, racism, sexism)	○	○	○	○	○	○
Drug use	○	○	○	○	○	○
Eating disorder/problem	○	○	○	○	○	○
Finances	○	○	○	○	○	○
Gambling	○	○	○	○	○	○
Homesickness	○	○	○	○	○	○
Injury (fracture, sprain, strain, cut)	○	○	○	○	○	○
Internet use/computer games	○	○	○	○	○	○
Learning disability	○	○	○	○	○	○
Participation in extracurricular activities (e.g., campus clubs, organizations, athletics)	○	○	○	○	○	○
Pregnancy (yours or your partner's)	○	○	○	○	○	○
Relationship difficulties	○	○	○	○	○	○
Roommate difficulties	○	○	○	○	○	○
Sexually transmitted disease/infection (STD/I)	○	○	○	○	○	○
Sinus infection/Ear infection/Bronchitis/Strep throat	○	○	○	○	○	○
Sleep difficulties	○	○	○	○	○	○
Stress	○	○	○	○	○	○
Work	○	○	○	○	○	○
Other (please specify _____)	○	○	○	○	○	○

Demographic Characteristics

46. How old are you? → Years

47. What is your gender?
- ○ Female
- ○ Male
- ○ Transgender

48. What is your sexual orientation?
- ○ Heterosexual
- ○ Gay/Lesbian
- ○ Bisexual
- ○ Unsure

49. What is your height in feet and inches? → HEIGHT: Ft. / Inch

50. What is your weight in pounds? → WEIGHT: Pounds

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51. What is your year in school?
- ○ 1st year undergraduate
- ○ 2nd year undergraduate
- ○ 3rd year undergraduate
- ○ 4th year undergraduate
- ○ 5th year or more undergraduate
- ○ Graduate or professional
- ○ Not seeking a degree
- ○ Other

52. What is your enrollment status?
○ Full-time ○ Part-time ○ Other

53. Have you transferred to this college or university within the **last 12 months**?
○ No ○ Yes

54. How do you usually describe yourself?
(Mark all that apply)
- ○ White, non Hispanic (includes Middle Eastern)
- ○ Black, non Hispanic
- ○ Hispanic or Latino/a
- ○ Asian or Pacific Islander
- ○ American Indian, Alaskan Native, or Native Hawaiian
- ○ Biracial or Multiracial
- ○ Other

55. Are you an international student?
○ No ○ Yes

56. What is your relationship status?
- ○ Not in a relationship
- ○ In a relationship but not living together
- ○ In a relationship and living together

57. What is your marital status?
○ Single ○ Divorced
○ Married/Partnered ○ Other
○ Separated

58. Where do you currently live?
- ○ Campus residence hall
- ○ Fraternity or sorority house
- ○ Other college/university housing
- ○ Parent/guardian's home
- ○ Other off-campus housing
- ○ Other

59. Are you a member of a **social** fraternity or sorority? (e.g., National Interfraternity Conference, National Panhellenic Conference, National Pan-Hellenic Council, National Association of Latino Fraternal Organizations)
○ No ○ Yes

60. How many hours a week do you **work for pay**?
○ 0 hours ○ 30–39 hours
○ 1–9 hours ○ 40 hours
○ 10–19 hours ○ More than 40 hours
○ 20–29 hours

61. How many hours a week do you **volunteer**?
○ 0 hours ○ 30–39 hours
○ 1–9 hours ○ 40 hours
○ 10–19 hours ○ More than 40 hours
○ 20–29 hours

62. What is your primary source of health insurance?
- ○ My college/university sponsored plan
- ○ My parents' plan
- ○ Another plan
- ○ I don't have health insurance
- ○ I am not sure if I have health insurance

63. What is your approximate cumulative grade average?
○ A ○ B ○ C ○ D/F ○ N/A

64. Within the **last 12 months**, have you participated in organized college athletics at any of the following levels?

(Please mark the appropriate column for each row)	Yes	No
Varsity	○	○
Club sports	○	○
Intramurals	○	○

65. Do you have any of the following disabilities or medical conditions?

(Please mark the appropriate column for each row)	Yes	No
Attention Deficit and Hyperactivity Disorder (ADHD)	○	○
Chronic illness (e.g., cancer, diabetes, auto-immune disorders)	○	○
Deaf/Hard of hearing	○	○
Learning disability	○	○
Mobility/Dexterity disability	○	○
Partially sighted/Blind	○	○
Psychiatric condition	○	○
Speech or language disorder	○	○
Other disability	○	○

THANK YOU FOR COMPLETING THIS SURVEY

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APPENDIX B: NCHA-II DATA USE AGREEMENT

American College Health Association

1362 Mellon Road, Suite 180
Hanover, MD 21076
Tel: (410) 859-1500
Fax: (410) 859-1510
www.acha.org

December 26, 2012

Patrick Jeffs
105 Fidelity St A38
Carrboro NC 27510

Dear Patrick,

Thank you for submitting a request to utilize ACHA-NCHA data in your dissertation, "Trauma, Emotional Distress, Race and Ethnicity, Gender, Greek Affiliation and Year-in-school as Predictors of Nonmedical Use of Prescription Drugs among Undergraduate College Students." Your request has been approved and enclosed you will find a CD containing Fall 2008, 2009, and 2010 ACHA-NCHA Reference Group datasets. Both institutional and student identifiers have been removed from the files. I've also included a copy of the survey codebook so that you have a record of the survey questions as asked.

I have enclosed a copy of our data use guidelines and agreement for your information. Your signed copy is on file in my office. Please note that additional studies using the ACHA-NCHA data acquired through this request require submission of a new data use request to the ACHA-NCHA Program Office.

As stated in the agreement, we would appreciate a copy of any final products that result from your research.

Please don't hesitate to contact me if you have any questions.

Best of luck in your efforts,

Mary Hoban, PhD, CHES
Director, ACHA-NCHA Program Office

Enclosure: ACHA-NCHA Data Use Guidelines and Agreement

Data Use Guidelines

The ACHA-NCHA data contain information about high-risk behaviors, and all data are confidential. ACHA will not release data on any institution, nor will it release data sets where it is possible to identify any participating schools. Individuals who are granted access to any ACHA-NCHA data must adhere to ACHA's data use guidelines, which follow. Failure to sign or to adhere to the attached agreement will result in immediate termination of data use privileges.

The accuracy of the users' statistical analyses and the findings they report are not the responsibility of the American College Health Association. ACHA shall not be held liable for improper or incorrect use of the data.

Data Use Agreement

Signing this agreement does not guarantee your request will be approved; however, this section must be complete for your application to be considered.

By signing below, I agree to the following:

- I will reference the American College Health Association when reporting any data obtained from the ACHA-NCHA utilizing the following standard format (items in Arial font are specific to the data you receive and must be completed appropriately):
American College Health Association. American College Health Association-National College Health Assessment, Survey Period(s) [computer file]. Baltimore, MD: American College Health Association [producer and distributor]; (YYYY-MM-DD of distribution).
- I will grant access to ACHA-NCHA data to only those individuals specified in this *Data Use Request Form*. Should the need to grant access to additional individuals arise, I will contact the ACHA Research Director immediately.
- If my institution requires, I will obtain all necessary Institutional Review Board (IRB) approval for secondary data analysis prior to beginning my research, and I will provide ACHA with appropriate documentation of IRB approval.
- I will provide ACHA with any final products produced using ACHA-NCHA data, which include but are not limited to: professional journal manuscripts, professional conference presentations, student theses/dissertations, book chapters, policy documents, fact sheets, and brochures.

Signed copy on file at ACHA, 12/18/2012

APPENDIX C: IRB PROTOCOL APPROVAL

UNC CHARLOTTE

Office of Research Compliance

9201 University City Boulevard, Charlotte, NC 28223-0001
t/ 704.687.3311 f/ 704.687.2292 www.research.uncc.edu/comp/complian.cfm

Institutional Review Board (IRB) for Research with Human Subjects

Approval of Exemption

Protocol #	**12-11-30**			
Title:	**Trauma, Emotional Distress, Race and Ethnicity, Gender, Greek Affiliation, and Year-in-school as Predictors of Nonmedical Use of Prescription Drugs among Undergraduate College Students**			
Date:	**11/28/2012**			
Responsible Faculty	**Dr.**	**Laura**	**Veach**	**Counseling**
Investigator	**Mr.**	**Patrick**	**Jeffs**	**Counseling**

The Institutional Review Board (IRB) certifies that the protocol listed above is exempt under category 4 (45 CFR 46.101).

Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

This approval will expire one year from the date of this letter. In order to continue conducting research under this protocol after one year, the "Annual Protocol Renewal Form" must be submitted to the IRB. Please note that it is the investigator's responsibility to promptly inform the committee of any changes in the proposed research, as well as any unanticipated problems that may arise involving risks to subjects. Amendment and Event Reporting forms are available on our web site: http://research.uncc.edu/compliance-ethics/human-subjects/amending-your-protocol or http://research.uncc.edu/compliance-ethics/human-subjects/reporting-adverse-events

M. Lyn Exum — 12/3/12

Dr. M. Lyn Exum, IRB Chair — Date

APPENDIX D: IRB PROTOCOL AMMENDMENT APPROVAL

UNC CHARLOTTE

Office of Research Compliance

9201 University City Boulevard, Charlotte, NC 28223-0001
t/ 704.687.3311 f/ 704.687.2292 www.research.uncc.edu/comp/complian.cfm

Institutional Review Board (IRB) for Research with Human Subjects

University of North Carolina at Charlotte

Approval of Amendment

Protocol #	**12-11-30**		
Title:	**Trauma, Emotional Distress, Race and Ethnicity, Gender, Greek Affiliation, and Year-in-school as Predictors of Nonmedical Use of Prescription Drugs among Undergraduate College Students**		
Date:	**12/18/2012**		
Investigator	**Mr. Patrick**	**Jeffs**	**Counseling**
Responsible Faculty	**Dr. Laura**	**Veach**	**Counseling**

The Institutional Review Board (IRB) has approved the amendment of the protocol listed above for Research with Human Subjects.

Please note that it is the investigator's responsibility to promptly inform the committee of any changes in the proposed research, as well as any unanticipated problems that may arise involving risks to subjects.

Amendment Details: Instead of using National College Health Assessment II (NCHA II) data from the Spring 2012 semester, Fall 2008 and Fall 2009 will be used if significance is found for 2010 semester and need is sought based on data summary for 2010-11.

M. Lyn Exum — 12/19/12

Dr. M. Lyn Exum, IRB Chair Date