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Norms, Attitudes, Perceptions, and Intentions for Benzodiazepine Prescription Drug Abuse Among Adolescents

Angela K. O'Neill

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Running Head: PRESCRIPTION DRUG ABUSE AMONG ADOLESCENTS

Norms, Attitudes, Perceptions, and Intentions for
Benzodiazepine Prescription Drug Abuse Among Adolescents

by

Angela K. O'Neill

Thesis

Submitted to the School of Health Promotion and Human Performance

Eastern Michigan University

in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE

in

Health Education

Thesis Committee:

Kathleen Mullen Conley, PhD, Chair

Jeffrey Schulz, PhD

Jeffrey Clark, HSD

June 10, 2011

Ypsilanti, MI

Dedication

This thesis project is dedicated to the memory of my younger brother, Michael F. Filippelli, who died in 2010 at the age of 30, after struggling with drug addiction, including benzodiazepine prescription drug abuse, for many years. Mike, you are loved and missed every day.

Acknowledgements

I would like to sincerely thank the Health Education faculty at Eastern Michigan University for sharing their expertise, support, and guidance: Dr. Kathleen Mullen Conley, Dr. Jeffrey Schulz, Dr. Joan Cowdery, and Dr. Susan McCarthy. I would also like to thank Dr. Jeffrey Clark of Ball State University for serving on my thesis committee, alongside my advisor, Dr. Conley, and committee member, Dr. Schulz.

I would like to express a very special thank you to my husband, Dr. Jim O'Neill, and daughters Sydney and Danielle, for their unconditional love, strength, and encouragement throughout the course of my graduate program.

Abstract

A cross-sectional, quantitative study was utilized to test the Theory of Planned Behavior (TPB) regarding the prediction of adolescents' behavioral intentions for benzodiazepine abuse. Subjective norms, perceived harm, and perceived behavioral control were measured to predict intentions to abuse such drugs. Similar measures for alcohol and marijuana also were assessed for comparison purposes. A survey was administered to 371 students in 8th, 10th, and 12th grades from the Chelsea School District (CSD) in March 2011. Inferential statistics, including binary logistic regression, chi-square, and repeated measures ANCOVA were used to test the null hypotheses. It was found that behavioral intentions for benzodiazepine abuse were significantly predicted by subjective norms, perceived harm, and perceived behavioral control for these drugs, specifically regarding taking someone else's prescription medication. More assessment is needed to validate and generalize the results of the present study.

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Chapter 1: Introduction

The following study was developed to determine if constructs from the Theory of Planned Behavior (TPB; Ajzen, 1991) correlated with increased intentions for prescription drug abuse among adolescents. Constructs measured were subjective norms, attitudes (e.g., perceived harm), perceived behavioral control, and behavioral intentions. The study focused on prescription drugs known as benzodiazepines (e.g., Xanax[®] and Valium[®]), which are classified as mild tranquilizers and central nervous system (CNS) depressants. The TPB has been shown to be effective in predicting other substance abuse intentions (e.g., alcohol and marijuana) among adolescents in previous research (Marcoux & Shope, 1997; Sayeed, Fishbein, Hornik, Cappella, & Kirkland, 2005). Perceptions about these substances were assessed in the present study, for comparison purposes.

Statement of the Problem

Abuse of prescription drugs is a public health problem in the United States today, and prevalence is on the rise for adolescents (National Institute on Drug Abuse, NIDA, 2009b). In the past 10-15 years, data have shown an alarming prevalence of prescription drug abuse in youth, as one in five adolescents report engaging in such behavior in their lifetime (Centers for Disease Control, [CDC], 2009b; McCabe, Boyd, & Young, 2007). Twombly and Holtz (2008) recommended that more prevention studies are needed to address the high reported rates of prescription drug use and misuse in adolescents. The researchers stated that the current generation of youth has been referred to as “Generation Rx” by the Partnership for Drug Free America (Twombly & Holtz, 2008).

In recent years, most adolescents reported using drugs for reasons including stress and anxiety relief, rather than “just for fun”; however, “fun” was the primary reason in the

previous decade (Partnership for a Drug-Free America, 2007). Experts hypothesize that because psychotherapeutic drugs are widely prescribed and available, individuals may feel such substances are safer to ingest non-medically than other drugs (NIDA, 2009a).

Because such substances are being marketed directly to consumers, experts hypothesize that the public may be led to believe that these drugs are widespread in use with minimal risks. Serious risks are associated with abuse and withdrawal of prescription medication, and researchers agree that more efforts are needed to address this public health epidemic, especially among adolescents (NIDA, 2009a).

The prescription drug supply has increased during the past decade while the prevalence of street drugs has declined (Johnston, O'Malley, Bachman, & Schulenberg, 2009). Current research states that the most commonly abused prescription drugs are oxycodone, hydrocodone, hydromorphone, methadone, morphine, codeine, clonazepam, alprazolam, diazepam, methylphenidate, and carisoprodal (Manchikanti, 2006; SAMHSA, 2005).

Prescription psychotherapeutic drugs addressed in this study are central nervous system (CNS) depressants (e.g., benzodiazepines). These drugs produce a calming effect in the body and are used to treat anxiety, sleep, stress, and other emotional disorders (NIDA, 2009a). From 1992 to 2002, it was estimated that benzodiazepine prescriptions had increased in the United States population by 49% (Califano, 2005). In 2000, it was estimated that 11 to 15% of the population had taken a benzodiazepine medication in the last 12 months (Longo & Johnson, 2000). The examples of benzodiazepines utilized in the study are Xanax[®] (alprazolam) and Valium[®] (diazepam), which are the most commonly used tranquilizers among students, according to current research (Johnston et al., 2009).

Purpose of the Study

Over 40 million Americans are treated for anxiety disorders in a given year (Kessler, Chiu, Demlar, and Walters, 2005). In the *2009 Partnership Attitude Tracking Survey (PATS)* study, a high number of adolescents (73%) reported self-medicating with drugs to deal with stress and anxiety (Partnership for a Drug-Free America, 2009). Additionally, 63% reported that prescription drugs were easy to get from family and friends (Partnership for a Drug-Free America, 2009). A decade ago, it was estimated that 11 to 15% of the population had taken a benzodiazepine medication in the last 12 months (Longo & Johnson, 2000). It was also estimated that, over a period of ten years, benzodiazepine prescriptions increased in the United States population by 49% (Califano, 2005). Because abuse of such substances can result in addiction and other serious health consequences, more research is needed to determine behavioral intentions among adolescents. Because Xanax[®] and Valium[®] are the most commonly abused benzodiazepines by students (Johnston et al., 2009), these two medications were listed as examples in the present study.

Much research exists on prevalence rates, reasons for use, attitudes, and behaviors (i.e., self-reported use) for a variety of prescription drugs in general, including pain relievers and stimulants; however, there is a gap in research specific to perceptions and attitudes about benzodiazepines and other CNS depressants. The majority of the research regarding perceived harm for this population has been conducted for substances from other drug classes, such as opiates and stimulants, rather than tranquilizers (Johnston et al., 2009). Additionally, these studies included older samples such as college students or young adults (Arria, Caldeira, Vincent, O'Grady, & Wish, 2008).

Consequences of benzodiazepine abuse may include, but are not limited to, addiction, increased anxiety, seizures, thoughts of suicide, confusion, and death. To determine effective strategies to prevent adolescents from abusing these substances, research is needed about whether more perceived harm, along with other variables, correlate with less intention to abuse such substances.

The present study focused on adolescents' norms, attitudes (e.g., perceived harm), perceptions, and intentions for benzodiazepine abuse in order to determine correlations of behavioral intentions utilizing theory. The primary purpose of the study was to utilize constructs from the TPB (Ajzen, 1991) to determine whether anti-drug subjective norms, anti-drug attitudes (e.g., more perceived harm), and increased perceived behavioral control correlated with weaker behavioral intentions for adolescents to abuse benzodiazepines, as compared to alcohol and marijuana. Providing theory-developed and data-driven prevention education recommendations to decision-makers at the local level (i.e., Chelsea School District [CSD] in Chelsea, MI) was a secondary purpose of the study.

Hypotheses

Independent variables in the study included subjective norms, attitudes (e.g., perceived harm), and perceived behavioral control to abuse benzodiazepine prescription drugs, whereas the dependent variable was behavioral intentions to abuse such drugs. Null hypotheses for the project included the following:

- ***H₀₁***: There is no association between subjective norms and behavioral intentions regarding benzodiazepine prescription drug (e.g., Xanax[®], Valium[®]) abuse among adolescents.

- *H₀₂*: There is no association between perceived harm and behavioral intentions regarding benzodiazepine prescription drug (e.g., Xanax[®], Valium[®]) abuse among adolescents.
- *H₀₃*: There is no significant difference in perceived behavioral control and behavioral intentions regarding benzodiazepine prescription drug (e.g., Xanax[®], Valium[®]) abuse among adolescents.
- *H₀₄*: There is no significant difference in norms, perceptions, attitudes, and intentions for benzodiazepine prescription drug (e.g., Xanax[®], Valium[®]) abuse as compared to abuse of alcohol and marijuana.

Demographic information was collected from participants for descriptive purposes, including race/ethnicity, grade, and gender. Data on subjective norms, perceived harm, perceived behavioral control, and behavioral intentions for alcohol and marijuana also were collected, to determine if there were significant differences in variables for prescription benzodiazepine abuse, as compared to the abuse of drugs with similar calming effects.

Limitations

The survey was administered to students in 8th, 10th, and 12th grades from the CSD in Chelsea, Michigan. Because the data were collected in a rural and mostly Caucasian community, results may not be generalizable to diverse communities, but instead to communities with similar demographics. Relying on self-reported data also was limiting, as such data typically reflect underreported estimates of drug use (Johnston et al., 2009).

Delimitations

Delimitations of this study included utilizing a cross-sectional convenience sample which precluded determination of a causal relationship between the variables. In addition, making adaptations to established and reliable surveys such as the *Monitoring the Future (MTF)* instrument (Johnston et al., 2009), *Commitment to Not Use Drugs* scale (Hansen, 1996), and *Beliefs about Peer Norms* scale (Hansen & Graham, 1991) to include words like “prescription drugs abuse like Xanax[®] and Valium[®],” may have affected the reliability of the newly developed items. Students may not have been aware of such drugs and therefore answered incorrectly. To address the issue, the authors of the original studies were contacted by the researcher, and advice was followed to assure that any newly developed items were worded as closely as possible to the original measurement tool. For instance, the word “alcohol” or “marijuana” from the original tool was replaced with “prescription drug” on the new survey. All other wording and answer choices remained the same. In addition, a brief definition of prescription drug abuse and examples of CNS depressants were highlighted on the newly created survey.

Assumptions

Assumptions of the current study included that most parents would provide consent for their child to take the survey because of anonymity and minimal risks to participants, and at least 300 students would complete the survey voluntarily and honestly. Also, it was assumed that adolescents were knowledgeable about the types of drugs and drug abuse addressed on the survey, and that survey adaptations did not influence the validity or reliability of the newly developed instrument.

It was assumed that adolescents with intentions to abuse substances such as prescription drugs, alcohol, and marijuana, had voluntary control over their actions. Other assumptions were that most respondents would be easily influenced by their close friends' attitudes and behaviors, as it has been found that normative beliefs are strong predictors of behavioral intentions regarding substance abuse (Olds, Thombs, & Tomasek, 2005). Furthermore, in the adolescent population, substance abuse research demonstrates that normative belief measures that assessed "close friend" reference groups were significantly more important in explaining behavioral intentions than for other reference groups (e.g., "parents" or "same-age peers"; Olds, Thombs, & Tomasek).

It was also assumed that most respondents would comply with their perception of their closest friends' beliefs (i.e., social approval or disapproval) of a particular behavior, as Manning (2009), in his meta-analysis of subjective norms research, concluded that social approval or disapproval of a particular behavior indeed will affect the likelihood that an individual will engage in that behavior. These perceptions were based on subjective norm principles as defined in the TPB (Ajzen, 1991).

Definitions

It is vital to clarify the definitions of drug use, misuse, and abuse for any studies involving prescription medication, as well as provide an overview of the medication itself, as such substances may, in fact, be taken in a legitimate manner, as directed by a physician. It is also necessary to define the variables measured in the study, as they pertain to the TPB (Ajzen, 1991). Such terms may be used in different contexts in other pieces of literature; however, for the purpose of this study, definitions (provided by the Ajzen and/or the National Institute of Drug Abuse [NIDA]), are as follows (NIDA, 2010; NIDA, 2009a; Ajzen, 1991):

- **Drug:** a chemical compound or substance that can alter the structure and function of the body. Psychoactive drugs affect the function of the brain.
- **Prescription drug use:** taking a substance as medically directed by a physician, in the frequency and manner as originally prescribed.
- **Prescription drug misuse and prescription drug abuse:** similar meanings for this study, as both refer to the non-medical use of prescription medication, which includes taking a drug in higher frequencies than originally prescribed, taking someone else's prescription, and/or combining this substance with alcohol or other drugs.
- **Prescription psychotherapeutic drugs:** medication prescribed for a variety of mental health problems to relieve symptoms of anxiety, depression, and other emotional disorders. Examples for this study include central nervous system (CNS) depressants.
- **Central nervous system (CNS) depressants:** substances that enhance gamma-aminobutyric acid (GABA) neurotransmitter activity in the brain, which produces a calming or drowsy effect in an individual. Examples for this study include benzodiazepines.
- **Benzodiazepines:** mild tranquilizers including alprazolam (e.g., Xanax[®]), clonazepam (e.g., Klonopin[®]), and diazepam (e.g., Valium[®]). Common street names are "candy," "downers," and "sleeping pills."
- **Tranquilizers and sedatives:** both refer to drugs that suppress anxiety and relax muscles.
- **Normative belief:** an individual's perception about a particular behavior, which is influenced by the approval or disapproval of significant others (e.g., friends).

- ***Subjective norm:*** an individual's perception of significant others' beliefs (e.g., friends) that he or she should, or should not, perform a particular behavior, as well as the individual's willingness to comply with the group's beliefs.
- ***Attitude:*** a collection of beliefs about a particular behavior.
- ***Perceived behavioral control:*** an individual's perception of the level of ease or difficulty in performing a particular behavior. The concept of perceived behavioral control is closely related to self-efficacy or the confidence in one's ability and capacity to perform a certain behavior.
- ***Behavioral intention:*** an individual's readiness to perform a given behavior. According to Ajzen (1991), intention is the immediate antecedent of behavior. According to the TPB, intentions are based on attitude toward the behavior, subjective norms, and perceived behavioral control.

Chapter 2: Review of Related Literature

Despite the prevalence, serious risks, widespread availability, and negative health consequences of benzodiazepine abuse, little research has been conducted about this type of abuse in the adolescent population. In previous studies involving youth, other prescription drugs and various risk factors have been researched; however, theory-driven correlations utilizing the TPB (Ajzen, 1991) for benzodiazepines have not been studied. To fulfill a gap in current research, this study focused on adolescents' subjective norms, perceived harm, perceived behavioral control, and behavioral intentions for benzodiazepine abuse, as compared to the findings of norms, attitudes, perceptions, and intentions for alcohol and marijuana abuse.

A review of literature for prescription drug abuse is reported in this chapter, presented in the following sub-sections: 1) Current Research Findings, 2) Prescription Benzodiazepine Medication, 3) Prediction of Prescription Drug Abuse, 4) Theoretical Framework, and 5) Current Prevention Strategies.

Current Research Findings

In recent years, much quantitative and qualitative data have been collected on the patterns and frequencies of substance abuse in adolescents. Included are epidemiological surveys such as the national *Youth Risk Behavior Survey (YRBS)* (Centers for Disease Control and Prevention [CDC], 2009a), the *National Survey on Drug Use and Health [NSDUH]* (Substance Abuse and Mental Health Services Administration [SAMHSA], 2009), the *MTF* study (Johnston et al., 2009), and the *Partnership Attitude Tracking Study (PATS)* (Partnership for a Drug Free America, 2009).

Such tools utilized a representative national sample of youth and/or adults and are conducted annually or bi-annually to measure frequencies and demonstrate trends for a variety of risk factors and behaviors, including drug use. Using self-reported data collection methods, the 2009 *YRBS* ($n=16,410$), *MTF* ($n=46,000$), and *PATS* ($n=3,287$) surveys were administered to youth in schools, either online or in paper/pencil format (CDC, 2009a; Johnston et al., 2009; Partnership for a Drug-Free America, 2009). The *YRBS* and *PATS* surveys were administered to youth in grades nine through twelve, while the *MTF* study included youth in grades eight, ten, and twelve. The 2009 *NSDUH* survey ($n=67,500$) involved in-person interviews and was administered in households throughout the country to respondents ages 12 and older (SAMHSA, 2009).

In the last 10-15 years, data have shown an alarming prevalence of prescription drug abuse in youth, as one in five adolescents recently reported engaging in such behavior in their lifetime (CDC, 2009b; McCabe, Boyd, & Young, 2007). It has been estimated that roughly seven percent of youth ages 12-17 years old abuse prescription drugs each year (Schepis & Krishnan-Sarin, 2008). According to the latest *NSDUH* survey (SAMHSA, 2009), tranquilizer (e.g., benzodiazepines and other CNS depressants) abuse for youth ages 12-17 years old dropped from 11% in 2008 to eight percent in 2009. However, it was found in the 2009 *MTF* study that eighth graders have reported no decline in use since 2002 (i.e., roughly four percent reported lifetime use), when levels were at their highest since the previous decade (Johnston et al., 2009).

Also in the past 10-15 years, reported reasons for adolescent drug use have changed significantly. In 1997, the primary reported reason for adolescent drug use, according to the *PATS* survey, was because “drugs are fun” (Partnership for a Drug-Free America, 2007). Ten

years later (in 2007), the number one reported reason for adolescent drug use was “school stress” (73%), followed by “to help me feel better about myself” (65%), and “to help deal with problems at home” (55%). The 2007 *PATS* survey ($n=6,511$) also found that adolescents’ use of drugs because “drugs are fun” had decreased dramatically in one decade, as it was reported by less than a third (26%) of adolescents (Partnership for a Drug-Free America, 2007).

In addition, 62% of adolescents recently reported easy accessibility to prescription medications (Partnership for a Drug-Free America, 2009), and 63% felt that they are able to retrieve such substances from their own parents’ medicine cabinets. Furthermore, the 2009 *PATS* survey found that 56% of teens felt that prescription drugs were easier to get than illegal drugs, and 35% felt that prescription pain relievers were safer to use than illegal drugs (Partnership for a Drug-Free America, 2009).

The 2009 *PATS* survey found that the number of adolescent females who felt drugs helped them “deal with problems at home” rose from 55% (2007) to 68% (2009), and the majority of adolescents (53%) reported that “drugs help them forget their troubles” (Partnership for a Drug-Free America, 2009). These same researchers also found that adolescent girls were more likely than boys to “self-medicate” with drinking and other drug use, and the majority of adolescent boys (52%) reported that “drugs help you relax socially.” This demonstrated that stress and anxiety relief are often associated with motivations for both sexes regarding adolescent drug use.

Prior to the current study, perceived harm research did not exist for benzodiazepines or other tranquilizers in the adolescent population. However, perceived harm research from the *MTF* study (Johnston et al., 2009) demonstrated that 44.8% of adolescents perceived

“great risk” in using marijuana occasionally, whereas only 27.4% of students in grade 12 felt the same (Johnston et al.). In addition, 55.8% of eighth graders felt “great risk” was involved in having five or more drinks of alcohol once or twice each weekend, and 48% of youth in grade 12 agreed.

Perceived harm and non-medical prescription drug use of stimulants and analgesics was recently measured in college students ($n=1,523$) by Arria et al. (2008). The researchers utilized in-person interviews in their methodology. In addition to prescription drugs, they studied alcohol, marijuana, and cocaine for comparison purposes. It was noted that the purpose of Arria and colleagues’ study was to address the gap in current research directly linking perceived harm to prescription drug abuse, as compared to other licit or illicit drugs. The researchers found that low perceived harm did predict non-medical prescription drug use for most of those sampled, which included first-year college students.

Another recent study (Boyd, McCabe, Cranford, and Young, 2006) researched adolescents ($n=1,086$) and their motivation to use prescription medication for non-medical purposes, to determine if such motivations were linked to dependency problems. Methodology included web-based surveys in schools, and the researchers focused on motivations to use substances from multiple classes of drugs while addressing a series of possible motives (i.e., to “get high,” “relieves pain,” “to help me sleep,” “decreases anxiety,” etc.). For example, they measured sedative motivations and found that 46% of those who used sedatives non-medically were doing so to “self-medicate” for sleep, stress, and anxiety problems. Attitudes about alcohol and marijuana were compared to their findings on prescription drugs. The researchers concluded that traditional prevention programming may

not apply to non-medical prescription drug abuse due to the prevalence of self-medication motives, and they stated that more research was needed.

Much qualitative data have been collected for the current prescription drug abuse epidemic, particularly benzodiazepine (e.g., Xanax[®]) abuse. Maxwell (2006) summarized the results from NIDA's *Community Epidemiology Work Group* (CEWG), consisting of 21 researchers from across the United States. The group meets bi-annually to report on drug abuse patterns, trends and, emerging needs. They use quantitative survey methods as well as qualitative methods, such as focus groups, to monitor trends in local geographic areas.

Alarming information shared by the CEWG within the last decade includes the following: a) prescription benzodiazepine is the second-highest drug (behind cocaine) involved in substance-related deaths across Georgia, b) the top five prescription drugs abused in New York City include two benzodiazepines (Xanax[®] and Klonopin[®]), c) the greatest number of drug-related deaths across Florida involved opiates and alprazolam (Xanax[®]), and alprazolam abuse was quoted to be "out of control," and d) students in Washington, D.C. reported that mixing cola drinks with both alcohol and Xanax[®] makes them feel drunk quickly (Maxwell, 2006).

A relatively new field of study, the CDC included prescription drug questions on the *YRBS* for the first time in 2009 (CDC, 2009a). The *MTF* has addressed perceived harm for several drugs since 1975; however, data regarding such perceptions has not been collected for tranquilizers (e.g., benzodiazepines), described as a result of space limitations on the questionnaire (Johnston et al., 2009). The study in college students by Arria et al. (2008) focused on perceived harm of opiates (e.g., pain relievers) and stimulants (e.g., amphetamines, cocaine) but not tranquilizers (e.g., benzodiazepines).

Prescription Benzodiazepine Medication

Anti-anxiety prescription medications affect the brain and central nervous system by enhancing the neurotransmitter gamma-amino butyric acid (GABA), which produces a calming effect in the individual (NIDA, 2010). Even when used for legitimate prescription purposes and the medication is used as directed, a drug such as Xanax[®] has been approved only for short-term usage (i.e., less than eight weeks). Several studies indicate that prolonged use has negative health effects, including those outlined below (Longo & Johnson, 2000; Compton & Volkow, 2005; Caplan, Epstein, Quinn, Stevens, & Stern, 2007).

Benzodiazepines are habit-forming and create a high risk of psychological and physical dependence (Compton & Volkow, 2005). Long-term use of these substances may cause severe withdrawal symptoms, particularly if use is stopped suddenly. Withdrawal symptoms may include anxiety, irritability, vomiting, diarrhea, restlessness, insomnia, tremors, thoughts of suicide, behavioral disorders, and seizures (National Alliance on Mental Illness, [NAMI], 2007).

Additional withdrawal symptoms associated with abrupt discontinuation of benzodiazepines include delirium and death (Caplan et al., 2007). In fact, medical supervision of withdrawal, including a gradual reduction in dosage, is recommended for anyone taking prescriptions such as Xanax[®] (NAMI, 2007). Long-term use of a benzodiazepine can decrease the efficacy of the GABA receptors, resulting in many psychological problems (e.g., anxiety and depression) when the drug is discontinued (Longo & Johnson, 2000). Common side-effects of taking anti-anxiety medication include drowsiness, depression, dizziness, nervousness, and impaired motor coordination (NAMI, 2007).

Prediction of Prescription Drug Abuse

Focus on Youth. Recent research has linked the age of onset of non-medical prescription drug use with later lifetime dependency and addiction (McCabe, West, Morales, Cranford, & Boyd, 2007). This was determined by studying age of respondents and onset of use. The researchers analyzed data from the *2001 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)*. The *NESARC* methodology consisted of diagnostic and structured interviews of a nationally representative sample ($n=43,093$). Researchers found that the prevalence rate for prescription drug abuse was 27.4% higher for those who abused prescription medication before the age of 13 than those who first used non-medically after the age of twenty-one. The prevalence rate for prescription drug dependency and addiction, including reported tolerance or need for higher doses of the substance to deliver the same effect, was 10.3% higher for those who engaged in early onset of use (i.e., before age 13) than those who first reported non-medical use after age twenty-one.

Chambers, Taylor, and Potenza (2003) emphasized two key variables in dependency and addictive disorders: a) the degree or amount of the drug taken, and b) the vulnerability of addiction when a drug is ingested, considering the neurodevelopmental stages experienced during adolescence. They found that the motivation to use addictive drugs may be accelerated during youth development, which can increase the risk for lifetime addiction.

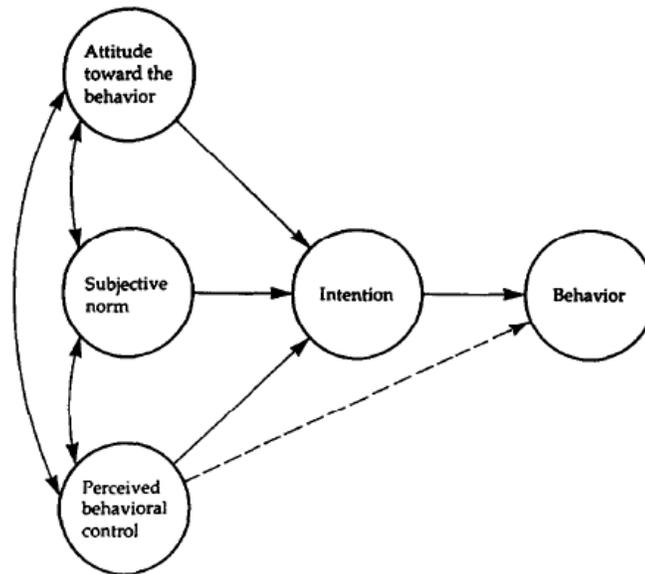
Given that early onset leads to later dependence (McCabe et al., 2007), it was found that youth are particularly at risk for addiction based on naturally occurring changes in their neurodevelopment (Chambers et al., 2003). It is clear more prevention research and initiatives are needed for younger populations.

Theoretical Framework

The Theory of Planned Behavior (TPB; Ajzen, 1991) has been used successfully in planning prevention and intervention strategies for substances including alcohol and marijuana (Marcoux & Shope, 1997; Sayeed, Fishbein, Hornik, Cappella, & Kirkland, 2005). The TPB was identified as a suitable theory for the present study because the theory was previously deemed appropriate by researchers for predicting behavior for substance abuse in the target population (e.g., adolescents).

Furthermore, a sense of volitional control or free-will is a necessary component of the theory (Ajzen, 1991). This highlights the importance of applying the theory in a population not already plagued with addiction or dependency issues, but instead a population in need of primary prevention (e.g., the majority of adolescents), rather than treatment services.

The TPB was derived from the Theory of Reasoned Action (TRA), originally created by Fishbein and Ajzen (1975), and included the addition of perceived behavioral control in later years (Ajzen, 1991). Ajzen created a diagram to demonstrate the theory's constructs (see Figure 1). As seen in the diagram, the TPB is used to predict, understand, and support behavior change.

Figure 1. Theory of Planned Behavior (Ajzen, 1991)

Notes. Constructs of Ajzen's theory, demonstrating how each variable influences behavior change.

Elements of the theory include identifying a person's motivational influences in performing a behavior, while considering that one's sense of control and/or self-efficacy in conducting the behavior is needed for change. Evidence supporting the TPB demonstrates that behaviors and behavioral intentions often correlate with subjective norms (e.g., perceptions) and attitudes (e.g., perceived harm; Kasprzyk & Montano, 2008). Prior to the study, these correlations had not yet been established specifically for adolescents and benzodiazepine abuse.

Ajzen and Fishbein concluded that attitude alone does not cause behavior change; instead, attitudes and subjective norms lead to intention, and intention leads to behavior change (Ajzen, 1991). Intention, according to the researcher, is an individual's perceived likelihood of performing a particular behavior and occurs before a change in behavior is

made. The TPB demonstrates that attitude and other constructs (i.e., perceived behavioral control) influence intention, which then leads to behavior change.

Although not studied for benzodiazepines and other CNS depressants, the TPB and TRA have been utilized in other substance abuse research, including alcohol and marijuana use. Both theories have been applied to predict and explain use and misuse of alcohol (Marcoux & Shope, 1997) and intentions for marijuana use (Sayeed et al., 2005). Marcoux and Shope (1997) surveyed 3,946 students in grades five through eight. Using a quantitative anonymous survey design, they compared the TPB and the TRA in predicting intentions and alcohol use. They found that the TPB was the more effective theory to be utilized in substance abuse research. Utilizing a web-based survey design in 2005, Sayeed and colleagues studied 12- to 18-year-olds ($n=600$) and found that the TRA and elements from the social cognitive theory can be successfully incorporated into planned intervention for marijuana use. Focusing on attitudes and predicting behavioral intentions for use, the researchers concluded that theory-driven prevention programs were needed to decrease such intentions.

Subjective Norms. Subjective norms, or an individual's perception of significant others' beliefs (e.g., friends) that he or she should, or should not, perform a particular behavior (as well as the individual's willingness to comply with the group's beliefs, which was assumed), were a construct from the TPB assessed in the present study. Much research regarding subjective norms has been conducted in recent years, as outlined in the meta-analysis of subjective norm principles conducted by Manning (2009). Manning reviewed 196 studies, from 1996-2006, in which subjective norms and behavior intentions were key variables, to compare the total effects of subjective norm concepts (i.e., injunctive and

descriptive norms) on behavior change. There was one inclusion criterion for this meta-analysis, which was that at least one measure of the TPB was included in the study.

Manning's findings supported Ajzen's (1991) original TPB, as he described that social approval or disapproval of a particular behavior indeed affects the likelihood that an individual will engage in that behavior, and, that perceptions of norms, rather than actual norms, affect behavior change.

To measure subjective norms in substance abuse research, several measurement tools exist with established reliability ratings from SAMHSA's Center for Substance Abuse Prevention (CSAP; SAMHSA, 2011). Hansen & Graham's (1991) *Beliefs About Peer Norms* scale included subjective norms items on acceptability of drug use and consisted of an eight-item scale with an alpha coefficient of 0.88. An example of a subjective norm item on Hansen & Graham's scale was, "What would your best friends think if you tried using marijuana?" whereas answer choices were listed as "they would be angry with me," "they would be a little upset," "they wouldn't care one way or the other," "they would accept me," and "they would be glad." The scale also measured normative beliefs regarding prevalence rates, as a sample item asked, "How many of your closest friends do you think have been drunk during the past 30 days?" with answer choices listed as "all of them," "most of them," "some of them", and "none of them."

The *Beliefs About Peer Norms* scale (Hansen & Graham, 1991) included reference groups for "best friends" and "close friends," which are recommended categories for subjective norms research, supported in a 2005 study by Olds, Thombs, and Tomasek. Utilizing an anonymous questionnaire, they surveyed 6,594 students in grades 7-12 and found that for adolescents and substance abuse, close friends' attitudes and beliefs played a

significantly more important role in influencing one's intentions than did other reference groups (e.g., same-age peers).

The present study utilized items from the *Beliefs About Peer Norms* scale (Hansen & Graham, 1991), which measured subjective norms and normative beliefs for alcohol and marijuana abuse, and stems were adapted to include benzodiazepine abuse as well.

Attitudes (e.g., Perceived Harm). Attitudes, or the sum of one's beliefs about a particular behavior, were another construct from the TPB assessed in the present study. Attitudes measured were about perceived harm or the personal risk level an adolescent felt about a certain behavior.

The concept of risk and protective factors in predicting drug abuse was articulated by Hawkins, Catalano, and Miller (1992). They concluded from their review of the literature that the most effective strategies for the prevention of adolescent drug problems included risk- and protective-focused approaches. Low perceived harm, a risk factor for drug abuse identified by Hawkins et al. (1992), was first measured by Johnston, O'Malley, and Bachman in 1975, and a link for perceived harm for drug abuse and drug use behavior was established.

Since then, the *MTF* study (Johnston et al., 2009) has provided national results on adolescent drug use and is conducted annually by the University of Michigan's Institute for Social Research, supported by NIDA and the National Institutes of Health (NIH). The *MTF* study utilizes standardized measures and procedures and has consistently done so for more than 30 years. In 2002, Arthur, Hawkins, Pollard, Catalano, and Baglioni, utilized the *MTF* perceived harm items when developing the *Communities that Care Youth Survey* in order to encompass more risk and protective factors in a self-report measurement tool. Arthur and

colleagues concluded that the perceived harm items on the *MTF* demonstrated alpha coefficients between 0.86-0.89.

The *MTF* study (Johnston et al., 2009) assesses perceived harm for students in grades eight, ten, and twelve. Similar grades were surveyed in the present study, for comparison purposes. The *MTF* collected perceived harm data for substances including alcohol, tobacco, marijuana, steroids, inhalants, ecstasy, crack cocaine, cocaine, and heroin. Perceived harm data for several prescription drugs, including benzodiazepines and other CNS depressants, were not collected, due to space limitations on the questionnaire. Sample survey questions asked “How much do you think people risk harming themselves (physically or in other ways) if they...” followed by phrases such as “try marijuana once or twice?” and “try one or two drinks of an alcoholic beverage?” Each drug mentioned above is assessed for light, occasional, and heavy use of each substance.

The present study utilized items from the *MTF* survey (Johnston et al., 2009), with stems adapted that measured levels of perceived harm for benzodiazepine abuse, and included items on alcohol and marijuana abuse for comparison purposes.

Perceived Behavioral Control. In the TPB, Ajzen (1991) stated that the role of perceived behavioral control came from Albert Bandura’s concept of self-efficacy found in his outline of the Social Learning Theory (Bandura, 1977). Self-efficacy refers to the confidence with which one feels he or she is capable of performing a given behavior. The concept of self-efficacy is closely related with the term “perceived behavioral control,” which reflects the perception about how easy or difficult it would be for one to perform a particular behavior.

To measure perceived behavioral control and self-efficacy in substance abuse research, the SAMHSA's (2011) Center for Substance Abuse Prevention (CSAP) included core measure tools on their website entitled, *SAMHSA's Measurement and Instrument Resource*. Hansen's (1996) *Commitment to Not Use Drugs* scale included perceived behavioral control items that measured the degree to which one had made a decision, commitment, or promise to live a drug-free life, and consisted of an eight-item scale with an alpha coefficient of 0.84, which indicated good reliability. An example of an item on Hansen's scale was, "I have made a promise to myself that I will not drink alcohol" whereas answer choices were listed as "strongly agree," "agree," "disagree," and "strongly disagree." It was assumed that if one makes a promise to engage, or not to engage, in a particular behavior, and strongly agrees with this statement of promise, then the level of self-efficacy, or perceived behavioral control, is rated as high toward this decision.

The present study utilized items from the *Commitment to Not Use Drugs* scale (Hansen, 1996) that measured levels of perceived behavioral control for alcohol and marijuana abuse, and stems were adapted to include benzodiazepine abuse.

Behavioral Intentions. According to the TPB, behavioral intention is defined as an individual's readiness to perform a given behavior (Ajzen, 1991), and intention immediately precedes behavior. Behavioral intention research for prescription drugs focuses mainly on motivations to use and reasons for use. Although, prior to the present study, behavioral intention for CNS depressants had not been researched, intentions for alcohol use (Marcoux & Shope, 1997) and marijuana use (Sayeed et al., 2005) had been. It is commonly accepted that intentions to use drugs, as well as the intention to *not* use drugs, are significant predictors of drug abuse (SAMHSA, 2011).

According to the TPB, intentions are based on attitude toward the behavior, subjective norms, and perceived behavioral control, with each variable weighted differently per individual differences (Ajzen, 1991). To measure behavioral intentions, the same tool for measuring perceived behavioral control was utilized, (i.e., Hansen's *Commitment to Not Use Drugs* scale, 1996), as it consisted of an eight-item scale with an alpha coefficient of 0.84. The scale included intention items that measured the likelihood of future actions. An example of an intention item on Hansen's scale was, "I plan to get drunk sometime in the next year" whereas answer choices were listed as "strongly agree," "agree," "disagree," and "strongly disagree."

The present study utilized items from the *Commitment to Not Use Drugs* scale (Hansen, 1996) that measured levels of behavioral intention for alcohol and marijuana abuse, and stems were adapted to include benzodiazepine abuse. Similar to CNS depressants, both alcohol and marijuana deliver calming effects when used in moderation (excluding binge drinking and excessive marijuana use). Behavioral intention for both of these substances was collected in the present study to compare with previous research findings.

Effective Prevention Strategies

Evidence shows that increasing knowledge and skills and providing resources are effective strategies in decreasing risk behaviors in youth (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Johnston, 1990; Connell, Turner, & Mason, 1985). Botvin et al. (1990) surveyed 4,456 seventh grade students over a 3-year period and found that cognitive-behavioral approaches were effective for cigarette, marijuana, and alcohol use. Through his extensive *MTF* research, Johnston (1990) concluded that providing youth with information about risks and short-term health consequences, together with other prevention strategies, is

effective. Connell, Turner, and Mason (1985) analyzed results from the *School Health Education Evaluation (SHEE)*, a nationwide study which involved students in grades four through seven. The researchers supported the theory that health promotion education is an effective strategy for youth in regard to healthy-decision making and substance abuse prevention.

Research specific to prescription drug abuse prevention (Twombly & Holtz, 2008; Arria et al., 2008) support certain methods to address the problem of abuse in adolescents. In their literature review of national substance abuse studies (e.g., *MTF*, *PATS*, and *SAHMSA*), Twombly and Holtz (2008) found that the most effective prevention methods include correcting perceived social norms around prevalence, identifying risks and benefits of abusing such drugs, considering other risk factors in addition to perceived harm, and not stigmatizing the legitimate use of prescription drugs.

Another effective strategy for substance abuse prevention includes the implementation of a Coordinated School Health Program (CSHP; Lohrmann, 2008; Marx & Wooley, 1998; Botvin et al., 1990). A CSHP is composed of eight components (i.e., health education; physical education; counseling, psychological, and social services; health promotion for staff; family and community involvement; health services; healthy school environment; and nutrition services) designed to address school health improvement (Lohrmann & Wooley, 1998; Marx & Wooley, 1998). The goal of the CSHP team is to link all eight components to find ways to improve student achievement, while empowering students with the knowledge and skills to make healthy lifestyle decisions (Connell, Turner, & Mason, 1985) and decrease risk behaviors (including substance abuse; Botvin et al., 1990).

The problem of youth prescription drug abuse can be addressed through different components of CSHP, including health education (Lohrmann, 2008).

Through comprehensive health education, research shows that students acquire social and emotional learning skills such as communication, the ability to express emotions, coping, setting and achieving goals, and managing stress. Other skills include refusing to abuse drugs (e.g., this could include prescription drugs) and learning to access support and resources for themselves, friends, and family members (Lohrmann, 2008).

The *Michigan Model for Health*[®] is a comprehensive health education program developed by the Michigan Departments of Education (MDE) and Community Health (MDE and MDCH, 2011). The curriculum includes lessons for grades kindergarten through twelve, and addresses serious health issues including alcohol, tobacco, and other drugs (ATOD). Over the past 15 years, several studies have shown the effectiveness of the *Michigan Model for Health*[®], and found a significant decline in alcohol and other drug use as compared to those who did not receive the curriculum (Shope, Copeland, & Marcoux, 1996; O'Neill, Clark, & Jones, 2011).

Shope, Copeland, and Marcoux (1996) studied sixth grade students followed through grade seven ($n=442$). They found that the *Michigan Model for Health*[®] program was effective in reducing ATOD use as well as improving knowledge. In a 2-year, randomized control study, O'Neill, Clark, and Jones (2011) studied the effectiveness of the *Michigan Model for Health*[®] curriculum. Fourth and fifth grade students ($n=2,512$) participated in a 2-year evaluation of the curriculum. The researchers found that the curriculum was effective in improving self-reported social skills and drug refusal skills. Results also were significant in reducing ATOD use intentions and behaviors. Implementing the full scope and sequence of

a comprehensive health education curriculum, such as the *Michigan Model for Health*[®], aligns with the health education component of a CSHP (Lohrmann, 1998).

In addition to health education, other components of the model can be improved to prevent substance abuse in the CSD. For example, research demonstrates that the physical activity component can alleviate stress as well as symptoms of anxiety, depression, and suicide (Ratey, 2008; Valois, Umstattd, Zulling & Paxton, 2008), all of which are linked to substance abuse (NIDA, 2009). Specifically, Valois et al. surveyed high school adolescents ($n=3,836$) and found that emotional self-efficacy was predicted by vigorous and moderate physical activity, as well as strengthening/toning exercises and playing on sports teams. Data ($n=13,917$) from the national *YRBS* study were analyzed by Taliferro, Rienzo, Miller, Pigg, and Dodd (2008), and the researchers concluded that students can learn to address emotional issues through physical education activities.

In addition, students who feel safe, secure, and connected to school are less likely to use ATOD (Learning First Alliance, 2001). Elements of the healthy school environment components contribute to student connectedness. For example, students feel connected if they develop positive relationships with teachers who mentor them over several years, or if they can find a way to be successful through extracurricular activities such as sports or clubs (Learning First Alliance, 2001). Improving school climate and environment for at-risk students could be a priority in a CSHP strategic planning session.

Primary prevention for stress management and anxiety would be provided through the counseling, psychological and social services component of the model. Should students be at risk for prescription or other drug abuse (or, already dependent on such substances), an intervention program nurse or other professional working in health services may be involved,

especially if psychological problems are masked as physical symptoms. Professionals associated with the above-mentioned components can identify and refer students in need of assistance due to prescription drug abuse and related mental health problems.

Providing prevention education resources for families relating to stress management, limiting accessibility to prescription and other drugs, and the health risks of drug abuse and would take place through the family and community involvement component of the model. For students already addicted to prescription or other drug abuse, school staff can work with families to refer these students to out-patient or in-patient treatment facilities. Resources that a family could access in a community include hospitals, behavioral health clinics, and local law enforcement services.

Should school staff members personally experience prescription drug abuse and/or related mental health issues, their job performance and behavior toward fellow workers and students could be negatively affected. Health promotion for staff can include educational programs involving stress management, physical activity, and social support.

In summary, a CSHP can provide a system of learning supports that is governed by appropriate policies and coordination. Components of the model effective in substance abuse prevention include health education; physical activity; healthy school environment; counseling, psychological, and social services; health services; and health promotion for staff. Facilitated by strategic planning, effective coordinated school health programs can lower substance abuse risks for students (and staff) by providing a continuum of services across multiple components of school health.

Chapter 3: Methodology

The purpose of this study was to fill a gap in current research predicting behavioral intentions for prescription drug abuse in the adolescent population utilizing constructs from the TPB. A secondary purpose was to provide school administrators with a snapshot of their students' current subjective norms, attitudes, perceptions, and intentions regarding prescription drug and other substance abuse (i.e., alcohol and marijuana) in order to recommend prevention education initiatives, if needed, based upon survey results.

Subjects

In the 2010/2011 school year there were approximately 650 total students in the 8th, 10th, and 12th grades in the CSD ($n = 190, 230, \text{ and } 230$, respectively). A power analysis was conducted by the researcher, resulting in an anticipated sample size of $n = 300$, which is considered adequate to detect small effect sizes (of .20 to .30) commonly found in health and behavioral science research (Cohen, 1988), for an analysis that does not exceed six variables, with a minimum level of .80 statistical power and alpha set at .05, two-tailed (Aberson, 2010).

In March, 2011, the survey was taken voluntarily by more than 300 total students ($n = 371$) in 8th, 10th, and 12th grades ($n = 107, 114, \text{ and } 150$, respectively), in the CSD. As expected, there were no reported instances in which parent/guardians denied participation.

Study Design

A cross-sectional, quantitative survey design was developed for this study, after a letter of agreement was received from CSD administration (see Appendix A). Because the study involved human subjects, the study was proposed to the Human Subjects Review Committee through the College of Health and Human Services (CHHS) at Eastern Michigan

University (EMU). The committee decided that the study involved minimal risks for participants, and approval to conduct research was confirmed in February 2011 (see Appendix B).

Instrument

A 20-item questionnaire entitled *Student Health Survey* (see Appendix C) was created by the researcher, borrowing items in original format and/or adapting stems to include “prescription drug abuse” from measurement tools that are deemed reliable and valid (Johnston et al., 2009; Hansen, 1996; Hansen & Graham, 1991). The instrument included items on prescription drugs (examples: Xanax[®], Valium[®]) as well as alcohol and marijuana for comparison purposes. The *Student Health Survey* exhibited a reading level of 7.9 as determined by the *Flesch-Kincaid Grade Level* score within the *Microsoft Word 2010*[®] program.

Measurements utilized in creating the instrument were the *Beliefs about Peer Norms Scale* (Hansen & Graham, 1991), a core measurement tool recognized by SAMHSA’s CSAP with an established test-retest reliability of 0.88 to assess subjective norms; the *Commitment to Not Use Drugs Scale* (Hansen, 1996), a core measurement tool recognized by SAMHSA’s CSAP with an established test-retest reliability of 0.84 to assess perceived behavioral control and behavioral intentions; and the *MTF* study (Johnston et al., 2009), a national study conducted year by the University of Michigan’s Institute for Social Research and federally supported by NIDA and NIH, with an established test-retest reliability rating of between 0.86-0.89 to assess perceived harm (Arthur et al., 2002).

The authors/principal investigators of the studies listed above (Hansen, 1996, Johnston et al., 2009) were contacted by the researcher during the instrument development

phase of the proposed study to address researcher concerns that reliability might be affected by adapting stems to include “prescription drug abuse” in the wording of certain questions.

The authors suggested that definitions and examples be provided on the survey (specific to benzodiazepines), and it was suggested that answer choices (specifically for the *MTF* items) included a “can’t say/drug unfamiliar” choice for those students who may not be aware of such medication. A description of “prescription drug abuse” as well as examples of benzodiazepine medication were included on the new instrument, in addition to the “can’t say/drug unfamiliar” answer choice.

Table 1 demonstrates the survey item constructs and sources utilized, which included reliability statistics from the original surveys from which all items were borrowed, and/or stems adapted, to include the term “prescription drug abuse” within the questionnaire (Johnston et al., 2009; Hansen, 1996; Hansen & Graham, 1991).

Table 1.
Survey Constructs and Sources

Construct	Survey Items	Source of Survey Items	Reliability Statistics
Subjective Norms 6 items	Q1-Q6	Hansen W.B. & Graham, J.W., 1991. Q1, Q2, Q4, and Q5 in original format. Q3 and Q6 adapted using stems to include “prescription drug abuse.”	Source: <i>Beliefs about Peer Norms</i> (SAMHSA CSAP Core Measure/CMIR17) Reliability=0.88
Attitudes (e.g., Perceived Harm) 5 items	Q7-Q11	Johnston et al., 2009. Q7-Q8 in original format. Q9-Q11 adapted using stems to include “prescription drug abuse.”	Source: <i>Monitoring the Future</i> study (Conducted through University of Michigan’s Institute of Social Research, federally funded by NIDA and NIH). Reliability=0.86-0.89
Behavioral Intentions 3 items	Q12-Q14	Hansen, W.B., 1996. Q12 in original format. Q13 and 14 adapted using stems to include “marijuana” and “prescription drug abuse.”	Source: <i>Commitment to Not Use Drugs</i> (SAMHSA CSAP Core Measure /CMIR16) Reliability=0.84
Perceived Behavioral Control 3 items	Q15-Q17	Hansen, W.B., 1996. Q15 and Q16 in original format. Q17 adapted using stems to include “prescription drug abuse.”	Source: <i>Commitment to Not Use Drugs</i> (SAMHSA CSAP Core Measure /CMIR16) Reliability=0.84
N/A (Demographic Items)	Q18-20	Self-developed	N/A

Subjective Norms. The instrument included six items derived and/or adapted from Hansen and Graham’s *Beliefs about Peer Norms* scale (1991) and inquired about perceptions of friends’ behavior, as well as how friends felt should the respondent engage in a particular substance abuse behavior. A sample subjective norms question (Q6) was as follows: “What would your best friends think if you abused prescription drugs like Xanax[®] and Valium[®]?” and the answer choices are listed were “they would be angry at me,” “they would be a little upset,” “they wouldn’t care one way or the other,” “they would accept me,” and “they would be glad.”

Attitudes (e.g., Perceived Harm). The instrument included five items to assess perceived harm. Attitudinal questions measured the perceived harm associated with use and abuse of benzodiazepines as well as alcohol and marijuana for comparison purposes. Derived and/or adapted from Johnston and colleagues most recent *MTF* study (2009), and

inquiring about the level of risk associated with prescription drug abuse (e.g., feeling harm physically or in other ways), a sample attitude question (Q9) was as follows, “How much do you think people risk harming themselves (physically or in other ways) by taking someone else’s prescription drug (examples: Xanax[®], Valium[®])?”

Perceived Behavioral Control. The instrument included three items to measure perceived behavioral control, derived and/or adapted from Hansen’s *Commitment to Not Use Drugs* scale (1996), to inquire about decisions that the respondent feels capable of making regarding living a drug-free life. A sample perceived behavioral control item (Q17) included the following statement: “I have made a final decision to stay away from abusing prescription drugs (examples: Xanax[®], Valium[®])” and the answer choices were listed as “strongly disagree, “disagree, “agree,” and “strongly agree.”

Behavioral Intentions. Behavioral intentions were measured to determine the likelihood of future actions, and these items were also derived and/or adapted from Hansen’s *Commitment to Not Use Drugs* scale (1996). Intention items inquired about short-term plans of the respondent (e.g., less than one year) and about any plans to get drunk, smoke marijuana, or abuse prescription drugs. A sample behavioral intention item (Q14) included the following statement: “I plan to abuse prescription drugs (examples: Xanax[®], Valium[®]) in the next year,” and the answer choices were listed as “strongly disagree, “disagree,” “agree,” and “strongly agree.”

Composite Score. The hypothesis test for differences in drug use attitude by type of drug required creating a composite score comprising subjective norms, perceived harm, perceived behavioral control, and behavioral intention for each type of drug. The internal consistency of the composite measure was computed using Kuder-Richardson Formula 20

(KR-20; Cortina, 1993). KR-20 is a measure of internal consistency similar to Cronbach's alpha, except it is used for scores with dichotomous choices, which was the case with the drug use attitude measures, because they were dichotomized to address significant skew-ness found in the continuous-level scores. The KR-20 for the alcohol, tobacco, and prescription drug use attitude scores was .77, .84, and .79, respectively, all of which are considered acceptable (Robinson, Shaver, & Wrightsman, 1991). Higher scores on the composite measures reflect unhealthy attitudes (e.g., low perceived harm).

Demographic Information. Demographic questions (3 items) were included to collect race/ethnicity, age, and gender information from participants for descriptive purposes and to analyze any differences in hypotheses variables based upon these factors.

Data Collection

CSD administrators encouraged a passive consent process, in which parent/guardians were asked to sign the form only if they did *not* wish for their child to participate. The administrators described that it had been common within the school district that at-risk students often do not return active permission forms (e.g., when parents are asked to sign and complete a consent form and indication permission for participation *or* to deny participation) due to low levels of family involvement and parent communication. To include as many at-risk students as possible, passive consent forms (see Appendix D) were sent home with each student roughly two weeks before data collection, and signed consent forms indicating denial of participation were collected until the date of survey administration. All parents provided consent for their child to participate. A copy of the survey was available in the middle and high school offices should any parent/guardians have requested to review the survey.

Snacks were provided to all participants at the time of data collection. Prior to survey administration, participants were read a verbal script for student assent purposes (see Appendix E). The administrator provided clear instructions that participation was voluntary and participants could stop participation at any time. If a student declined participation, he or she was provided an alternative classroom activity during the survey session.

Survey administration took place in a classroom, media center, or computer lab setting. The survey was given by the classroom teacher and administered online to 8th grade students at Beach Middle School, and to 10th and 12 graders at Chelsea High School in Chelsea, MI, utilizing the computer software *Zoomerang*[®]. The surveys were automatically encoded, using Secure Locket Layer (SSL) technology, which encrypted and securely protected survey responses so that individuals (other than the researcher) were not able to access the data.

To ensure that all participants were aware of the definition of “prescription drug abuse” as it related to the study, as well as to provide general information on benzodiazepines, the following definition was read aloud to all respondents, prior to data collection, by the survey administrator. The information was also included within the text of the survey instrument:

“For the purpose of this survey, “prescription drug abuse” means:

1) taking a prescription drug in HIGHER doses than prescribed by a doctor,

OR

2) taking a prescription drug that was NOT prescribed for you,

OR

3) taking a prescription drug TOGETHER with alcohol or other drugs.

The types of prescription drugs we are asking about on this survey are drugs used to treat anxiety, stress, or sleep problems. These drugs include Xanax® and Valium®.”

The classroom teacher was present during survey administration to assist any students with technical support, including those with learning disabilities and/or having trouble reading the survey, and to answer any questions as needed. Students were asked to provide one answer choice for each item. To prepare for any technical difficulties during data collection, paper copies of the survey were made available by the researcher, so that respondents could complete the survey in paper/pencil format. There were no reported technical difficulties during data collection. As expected, each survey period took no longer than 10 minutes.

Data Analysis

Preliminary Analyses. Descriptive statistics were provided for all demographic and hypothesis variables. Analysis of the distribution of scores revealed significant positive or negative skew-ness for all hypothesis variables ($p < .001$). Therefore, the scores for all variables were dichotomized based upon previous research or common practice in the field. Items measuring perceived behavioral control and behavioral intentions were recoded as “no” (strongly disagree and disagree coded as “0”) and “yes” (agree and strongly agree coded as “1”; Hansen & Graham, 1991). The subjective norms survey items were dichotomized as “none” (“no friends use” coded as “0”) and “at least one” (“some,” “most,” or “all” coded as “1”; Michigan Department of Education [MDE], 2011). Items assessing perceived harm were dichotomized as “low risk” (no or slight risk coded as “0”) and “high risk” (“moderate risk” and “great risk” coded as “1”; MDE, 2011).

Chi-square tests were conducted to identify any differences in drug use norms, attitudes, and perceptions (all dichotomous variables) by the demographic characteristics of grade, gender, and ethnicity (all categorical variables). Any demographic variables found to be statistically significant ($p < .05$) were treated as a covariate in hypothesis testing.

Hypothesis Testing. This involved two approaches. For the prediction of behavioral intentions by subjective norms, perceived harm, and perceived behavioral control, a binary logistic regression was used with grade, gender, and ethnicity serving as covariates. Odds ratios were calculated for the relationship between behavioral intentions (dependent variable) and each independent variable. The test for differences in subjective norms, perceived harm, perceived behavioral control, and behavioral intentions by drug type (alcohol, marijuana, and prescription drugs) was conducted using one-way analysis of covariance with repeated measures, by comparing average scores on a composite measure of each variable by drug type and using grade, gender, and ethnicity as covariates.

Additional Analyses. A portion of the present study focused on the development of a final report and fact sheet to provide a local school district a snapshot of their students' current subjective norms, attitudes, perceptions, and intentions about prescription drug abuse as compared to alcohol and marijuana. To make the results user-friendly to students, staff, and parents, a fact sheet was developed using survey results, and odds ratios were converted to relative risk ratios using the formula developed by Zhang and Yu (1998). The relative risk ratios comparing each construct of the TPB to behavioral intentions were reported for prescription drug abuse.

Chapter 4: Results

Results were provided for descriptive assessment of drug use attitudes by demographic groups (i.e., gender, grade, and ethnicity) and for each hypothesis tested.

Descriptive Assessment

Shown in Table 2 are percentages for each variable for the total sample and by grade level, gender, and ethnicity.

Table 2.

Subjective Norms, Perceived Harm, Perceived Behavioral Control, and Behavioral Intentions by Grade Level, Gender, and Ethnicity

Variable/Item	Percent							
	Total sample (n = 371)	Grade level			Gender		Ethnicity	
		8 (n = 107)	10 (n = 113)	12 (n = 149)	Male (n = 204)	Female (n = 167)	White (n = 324)	Other (n = 47)
Subjective norms for drug use								
1. No closest friends were drunk in past 30 days	48.0	82.2	49.6	21.5 ^a	48.0	57.5	48.5	44.7
2. No closest friends used marijuana in past 30 days	48.1	80.4	41.2	28.9 ^a	47.8	57.5	48.9	42.6
3. No closest friends abused BPD in past 30 days	78.2	87.9	81.6	67.8 ^b	80.0	75.4	79.4	70.2
4. Best friends would be angry if I got drunk	28.1	54.2	23.0	12.2 ^a	26.6	29.9	28.8	23.4
5. Best friends would be angry if I used marijuana	40.4	67.3	34.2	24.0 ^a	36.5	44.6	42.2	27.7 ^a
6. Best friends would be angry if I abused BPD	54.6	64.5	55.3	46.3 ^b	46.8	63.5 ^a	55.7	46.8
Perceived harm from using drugs								
7. Moderate/high risk from binge drinking	79.1	86.1	75.9	76.2	75.4	82.9	80.6	66.7 ^a
8. Moderate/high risk from smoking marijuana	65.3	88.1	62.3	50.7 ^a	62.5	68.3	67.6	48.9 ^a
9. Moderate/high risk from taking another's BPD	87.8	91.8	87.4	85.1	86.1	89.2	89.0	79.1
10. Moderate/high risk from exceeding BPD dosage	88.9	90.0	87.9	88.0	85.9	91.9	89.9	82.2
11. Moderate/high risk from BPD use with other drugs	92.4	95.0	88.9	92.4	90.6	93.8	93.9	81.4 ^a
Behavioral intention to use drugs								
12. Plan to get drunk within next 12 months	32.2	8.5	27.2	53.4 ^a	30.4	34.9	31.9	34.0
13. Plan to smoke marijuana within next 12 months	23.9	7.5	25.4	35.6 ^b	21.5	27.5	22.8	31.9
14. Plan to abuse BPD within next 12 months	7.0	6.5	8.0	7.4	6.9	7.9	6.2	12.8
Perceived behavioral control against drug use								
15. Made promise not to drink alcohol	48.4	68.9	50.0	32.9 ^a	48.8	48.2	48.3	48.9
16. Made final decision not to smoke marijuana	65.2	84.0	64.3	53.4 ^b	67.2	62.3	66.9	53.3
17. Made final decision not to abuse BPD	82.5	86.9	81.4	80.5	80.9	83.8	84.6	68.1 ^a

Notes. 2-tailed tests were used in all analyses, $p < .05$. n , sample size; BPD, Benzodiazepine Prescription Drugs.

^aStatistically significant difference between each subgroup (e.g., Grade 8, 10 & 12).

^bStatistically significant difference between Grade 8 and 12.

Tests for gender differences revealed that more females had a best friend who would be angry if the student abused benzodiazepine prescription drugs ($\chi^2_{(1)} > 10.27, p = .001$). There were several significant differences by grade level and ethnicity ($\chi^2_{(2)} > 5.99, p < .05$). More 8th graders than 12th graders reported low subjective norms for abuse of benzodiazepines, plus low behavioral intentions and high perceived behavioral control for marijuana use. In addition, more students in grade 8 than in grades 10 and 12 reported low subjective norms and behavioral intentions for alcohol and marijuana use as well as high perceived harm for marijuana use and perceived behavioral control for alcohol use.

Regarding ethnicity, more White students than their non-White peers reported having a best friend who would be angry if the student used marijuana; high perceived harm from binge drinking, smoking marijuana, and abusing benzodiazepines together with alcohol or other drugs; and having made a final decision not to use benzodiazepines.

Prevalence. In general, it was found that most students were familiar with CNS depressants, as approximately 7% of respondents reported unfamiliarity with the drugs Xanax[®] and Valium[®]. In addition, most respondents exhibited healthy attitudes toward benzodiazepine prescription drug abuse, as over 81% of students in all grades surveyed believed that *great* or *moderate risk* was involved in taking someone else's prescription medication (e.g., Xanax[®] and Valium[®]), 84% agreed the same for taking prescription medication in higher doses than as prescribed by a doctor, and 88% felt that *great* or *moderate risk* was associated with taking prescription medication together with alcohol or other drugs. Overall, just 12% believed there was *no risk* or a *slight risk* in taking someone else's benzodiazepine prescription drug. In addition, 11% felt *no risk* or a *slight risk* for

taking such a drug in higher doses than prescribed, and 8% agreed when asked about taking a prescription medication together with alcohol or other drugs. There were no significant differences ($p < .05$) regarding age and perceived harm when comparing attitudes (e.g., perceived harm) of 8th, 10th, and 12th graders.

Although perceived harm was high for prescription drugs (over 60% of students felt *great risk* was associated for the different types of prescription drug abuse), rates were significantly lower for alcohol and marijuana abuse. Just 41% felt that drinking five or more drinks once or twice each weekend involved *great risk*, and 39% felt *great risk* was associated with smoking marijuana regularly (e.g., more than once a week). When reviewed by grade, there was a difference of 38 percentage points in perceived harm about smoking marijuana.

Intentions for drug abuse were much greater for alcohol and marijuana, as compared to prescription drugs. Less than half (48%) of the respondents reported that they have made a promise to not drink alcohol, and one-third of students (33%) plan to get drunk in the next year. One-quarter of respondents have not made a final decision to stay away from marijuana, and roughly the same amount (25%) plan to smoke the substance in the next year. As compared to alcohol and marijuana intentions, a considerably smaller number of youth (8%) plan to engage in prescription drug (e.g., Xanax[®] and Valium[®]) abuse in the next year, but 18% of students believed that prescription drug abuse has occurred among some, most, or all of their closest friends.

Only about half (54%) of respondents thought their best friends would be angry with them if they were to abuse prescription drugs, just 40% felt their best friend would be angry

with them if they smoked marijuana regularly, and only 28% felt the same when asked about binge drinking.

Hypothesis Testing

Presented in Table 3 are results of the binary logistic regression analysis predicting behavioral intentions from subjective norms, attitudes and perceptions regarding prescription drugs.

Table 3.

Binary Logistic Regression Predicting Intention to Abuse Benzodiazepine Prescription Drugs (BPD) from Subjective Norms, Perceived Harm, and Perceived Behavioral Control

Predictor Variable	N	Criterion Variable: Intention to Abuse Benzodiazepine Prescription Drugs (0 = No; 1 = Yes)					
		B	Wald	p	Odds Ratio (OR) ^a	95% CI for OR	
						Lower	Upper
High subjective norms for BPD^b							
At least one friend abused BPD in past 30 days	366	2.506	22.56	.001	12.25	4.36	34.45
Best friend would not be angry if I abused BPD	366	1.830	7.39	.007	6.23	1.67	23.33
Low perceived harm from using BPD^c							
Low risk from using others' BPD	326	-2.352	14.37	.001	13.10	3.85	27.96
Low risk from exceeding PBD prescription dosage	326	-.749	.860	.354	.32	.10	2.30
Low risk from using BPD with alcohol or other drugs	326	-1.128	1.69	.193	.47	.06	1.77
Low perceived behavioral control against BPD use^d							
Have not made a promise to avoid BPD abuse	365	-4.254	43.08	.001	19.21	6.32	46.58

Notes. 2-tailed tests were used in all analyses. *n*, sample size; *p*, probability level; BPD, Benzodiazepine Prescription Drugs; CI, Confidence Interval.

^aAfter controlling for variance associated with grade, gender and ethnicity.

^b0 = no friends use BPD; 1 = some, most or all friends use BPD.

^c0 = no or slight risk; 1 = moderate or great risk.

^d0 = strongly disagree or disagree; 1 = agree or strongly agree

Subjective Norms and Behavioral Intentions. A positive relationship between subjective norms and behavioral intentions to abuse prescription drugs was found for prescription benzodiazepine abuse. Behavioral intentions for abuse were predicted by high subjective norms; specifically, when at least one close friend abused the drug in the past 30

days (OR = 12.25, 95% CI = 4.36, 34.45, $p = .001$); and when a respondent felt that best friends would not be angry if he or she were to abuse benzodiazepines (OR = 6.23, 95% CI = 1.67, 23.33, $p < .05$).

Attitudes (e.g., Perceived Harm) and Behavioral Intentions. A negative relationship existed between behavioral intentions to abuse prescription drugs and low perceived harm from taking someone else's prescription (OR = 13.10, 95% CI = 3.85, 27.96, $p = .001$). No relationship was found for intentions and perceived harm about taking a prescription drug in higher doses than prescribed or together with alcohol or other drugs.

Perceived Behavioral Control and Behavioral Intentions. A negative relationship was identified between behavioral intentions to abuse prescription drugs and low perceived behavioral control, specifically, when a final decision was not made to avoid prescription drug abuse (OR = 19.21, 95% CI = 6.32, 46.58, $p = .001$).

Attitudinal Differences by Drug Type. One-way repeated measures analysis of covariance was used to test for differences in drug use norms, attitudes, perceptions, and intentions by type of drug, with grade, gender, and ethnicity serving as covariates. Shown in Table 4 are the estimated marginal means for each drug use attitude score by drug type, adjusting for grade, gender, and ethnicity.

Table 4.
Mean Drug Use Attitudes Score by Type of Drug (n = 369)

Variable	Mean ^a	Std. Dev.	95% Confidence Interval	
			Lower Bound	Upper Bound
Alcohol use attitudes	1.46	.34	1.43	1.49
Marijuana use attitudes	1.41	.37	1.38	1.45
Prescription drug use attitudes	1.18	.24	1.16	1.20

^a Adjusted for grade, gender, ethnicity; high scores reflect unhealthy attitudes.

Results showed overall significant differences between norms, attitudes, perceptions, and intentions of prescription drug abuse as compared to those for alcohol and marijuana. The test within subjects effects was statistically significant ($F_{(2,365)} = 3.02, p < .05$). Post-hoc tests of within-subjects differences (using Scheffé tests) showed significantly lower ($p < .05$) pro-drug use social norms, attitudes, perceptions, and intentions for prescription drug use as compared to alcohol and marijuana. Drug-use attitudes for alcohol and marijuana were not significantly different when compared to each other ($p > .05$).

Chapter 5: Discussion

The present study examined the relationships between constructs of the TPB and behavioral intentions to abuse certain types of prescription drugs. Based upon results of the study, it was possible to address a gap in national research as well as provide theory-driven prevention education recommendations to the school district in which students were surveyed.

Utilizing Theory

Overall, a greater likelihood to abuse benzodiazepine prescription drugs was found when subjective norms were high, perceived harm was low for certain factors, and perceived behavioral control was low. As expected, when norms, attitudes, perceptions, and intentions about prescription drugs were collectively compared to those regarding alcohol and marijuana abuse, it was found that healthier attitudes for benzodiazepine prescription drug use existed for most students.

Relative risks were high based upon variables from the TPB. It was found that youth were 11 times more likely to report intentions to abuse prescription drugs within the next year if they thought their close friends abused them, too. Youth who felt like their best friends didn't care or accepted drug abuse were six times more likely to report intentions to abuse prescription drugs within the next year. Youth were 12 times more likely to report intentions to abuse prescription drugs within the next year if they felt there was *no risk* or just a *slight risk* involved. Respondents who did not make a decision or promise to stay drug-free were 16 times more likely to report intentions to abuse prescription drugs within the next year.

In general, a strong correlation was found between the independent variables (subjective norms, perceived harm, and perceived behavioral control) and benzodiazepine abuse intentions in the present study. Because of the relative risk findings from this study, and considering previous alcohol and marijuana findings that predicted intentions (Marcoux & Shope, 1997; Sayeed et al., 2005), more theory-based (i.e., TPB) prevention efforts are encouraged for these types of drugs. More research is needed to validate and generalize the results of the present study and to determine if the theory would be applicable for other types of prescription drug abuse (e.g., pain relievers, stimulants, etc.), over-the-counter drugs, tobacco, and illegal substances (e.g., cocaine, heroin).

Prevention Education Recommendations

In the CSD, 22% of students surveyed felt that some, most, or all of their closest friends had indeed abused prescription drugs such as Xanax[®] or Valium[®]. Should these perceptions be accurate, this number is higher than national averages regarding self-reported adolescent tranquilizer abuse. More assessment is required to determine if youth perceptions are accurate as compared to rates of self-reported abuse. Because students in CSD self-reported unhealthier perceptions for alcohol and marijuana abuse than those about prescription drug abuse, improved drug education and prevention efforts are recommended to address a variety of substance abuse intentions for students in this district.

Eighth graders in the present study felt slightly less perceived harm toward alcohol and marijuana abuse than national findings. For example, 70% of eighth graders in the United States recently perceived “great risk” in using marijuana regularly (Johnston et al. 2009), and 67% of eighth graders in the CSD felt the same. Nationally, 56% of eighth

graders felt “great risk” was involved in having five or more drinks of alcohol once or twice each weekend (Johnston et al., 2009), and 51% of eighth graders in the present study agreed.

In higher grades, perceived harm was dramatically lower in the CSD as compared to national rates, as 52% of 12th graders nationwide perceived “great risk” in using marijuana regularly (Johnston et al., 2009); however, only 20% of 12th graders in the CSD agreed. Regarding binge drinking, nearly half (48%) of 12th graders in the United States associated “great risk” with having 5 or more drinks once or twice each weekend, but only about a third (35%) of 12th graders in the CSD felt the same. Since low perceived harm is an established risk factor that leads to an increase in drug use intentions (Johnston et al., 2009), prevention education in higher grades is needed to reach older adolescents.

Because perceived harm was not measured for benzodiazepines and other tranquilizers in previous studies, no comparisons can be made for the perceived harm attitudes in the present study versus national findings. The levels for perceived harm in the CSD were high (i.e., more than 80% of students in all grades surveyed felt great risk or moderate risk was associated with this type of prescription drug abuse); however, targeted prevention education is needed for the minority group of students (less than 20%) who do not feel that these drugs are dangerous to abuse, as well as the small number of students (7%) who were unfamiliar with the drug examples listed in the survey.

Based upon the relative risk findings and other results of this study, and to provide theory-driven education for prevention of benzodiazepine prescription drug abuse for students in the CSD, a two-page fact sheet was developed by the researcher. The fact sheet entitled, *Not What the Doctor Ordered: How Prescription Drug Abuse Can Affect You* (see Appendix F), was part of a final report developed for the CSD (see Appendix G). The

researcher recommended that the report be distributed to CSD staff and the fact sheet be distributed to students and their families in grades 8-12. The fact sheet contained information and resources for benzodiazepine and other types of substance abuse, and it was developed using elements and constructs of the TPB. Information for the fact sheet was collected from NIDA (e.g., *Facts on CNS Depressants*), the CDC, and the *PATS* survey results, as well as results from the present study.

Evidence from effective substance abuse prevention strategies were incorporated into the fact sheet. These included increasing knowledge and skills and providing resources (Johnston, 1990; Botvin et al., 1990; Connell, Turner, & Mason, 1985). Also incorporated were correcting perceived social norms around prevalence, identifying risks and benefits of abusing such drugs, considering other risk factors in addition to perceived harm, and not stigmatizing the legitimate use of prescription drugs (Twombly & Holtz, 2008; Arria et al., 2008).

Prevention efforts in the Chelsea school community do exist. In March of 2011 the district began planning toward implementing a CSHP, and the team is currently in the needs assessment phase of addressing the eight components of the model. The district's CSHP team includes multiple sectors of the school community (e.g., administrators, health teachers, physical education teachers, students, parents, community health professionals, food services staff, counselors, etc.) to collectively identify the health needs of students, staff, and families. It was encouraged to CSD administrators that the final report from the present study be shared with the CSHP team.

Related to the health education component, the CSD currently offers the *Michigan Model for Health*[®] education curriculum and includes drug prevention at the eighth grade

level. In the final report, CSHP team members and administrators in the CSD were encouraged to explore the possibility of extending health education into higher grades, specifically in grades 10-12.

Currently in the CSD, the *Michigan Model for Health*[®] curriculum is taught in grades kindergarten through nine, but this comprehensive health education program, developed by the MDE and the Michigan Department of Community Health (MDCH), also includes lessons for grades 10-12 and addresses serious health issues including alcohol, tobacco, and other drugs (MDE and MDCH, 2011). Because the CSD already implements the curriculum through grade 9, and intentions for different types of drug abuse were dramatically different when comparing grade 8 to grade 12, it is recommended that the evidence-based health education is offered and evaluated for adolescents in grades 10-12 as well.

The CSD currently offers physical education as an elective in high school, but it is not mandatory for students to take beyond the 9th grade. This subject was addressed at the most recent CSHP planning meeting, per suggestions from physical education teachers, and the possibility of extending physical education mandates for the higher grades was discussed. In the final report to CSD, exploring the potential to modify curriculum requirements to increase physical activity was encouraged as a priority for CSHP team members and school administration.

A community coalition in the Chelsea area, focused on preventing youth risk behaviors, recently incorporated an adult awareness campaign concerning prescription drug abuse in the community, as parents were encouraged to talk with their children about the dangers of prescription drugs. For example, brochures were available at various outlets in the community, such as doctor's offices and pharmacies, and information about prescription

drugs was included on the coalition's website. The campaign has not yet targeted youth, but organizers plan to do so in the future. If coordinated with the CSHP team, this could result in an improved community involvement component of the model. Sharing the results of the present study with the community coalition was suggested. To date, no school-based efforts around prescription drug abuse have taken place in the CSD, but such efforts were encouraged in the final report.

Sharing the survey results and prevention education fact sheet with school staff, including school counselors, to address the counseling, psychological, and social services component, and parents, to include family and community involvement, was also recommended, in order to maximize efforts to reach at-risk students.

Additional Limitations

There are several additional limitations to consider. The present study focused on benzodiazepines, which are a small subset of prescription drugs. Despite precise definitions and examples provided on the survey, respondents may have confused benzodiazepines with other prescription drugs (e.g., pain relievers, stimulants), or even other CNS depressants (e.g., sedatives). Stronger confidence in results of the present study would come from further investigations that replicate these results, as well as focus on other drug classes.

Another limitation may have been measurement of perceived harm in abusing prescription drugs. Behavioral intentions for prescription drug use was not predicted by two out of the three items measuring perceived harm, including 1) taking a prescription drug in higher dosage than prescribed, and 2) taking prescription medication together with alcohol or other drugs. The wording of these items was adapted from previous studies that did not focus on tranquilizers. Therefore, it is possible that because the items were newly developed,

they may not have been sensitive enough to find a correlation with behavioral intentions. In addition, these items were the most highly skewed of all the items on the survey. Because of this, the ability to find a significant correlation was limited. Further research is recommended to explore perceived harm and behavioral intentions for prescription drug abuse using items with more variability in observed scores.

In addition, there were several differences in drug use norms, attitudes, perceptions, and intentions by ethnicity. The small proportion of non-White students in this study precluded further examination of these differences. Future research should include a larger, more diverse sample in order to investigate ethnic group difference in these variables.

A final limitation is that actual drug use behaviors were not assessed, as the focused outcomes were intentions. Even though behavioral intentions have been shown to predict use of a variety of drugs (Marcoux & Shope, 1997, Sayeed et al., 2005), this link has not been established for prescription drug abuse. Furthermore, it was assumed that adolescents with increased intentions to abuse prescription drugs had voluntary control over their actions, as measured in the perceived behavioral control items. However, some adolescents may have surpassed the experimental stage of drug use and already be dependent or addicted to such substances.

While perceived behavioral control was assessed by inquiring about final decisions made to avoid such substances, the study did not focus on actual behaviors to compare self-control perceptions with actual substance abuse. Future studies should include all variables relevant to the TPB, including behaviors.

Despite the above-mentioned limitations, the pattern of significant results provides a preliminary rationale for including attitudinal items about tranquilizers, specifically

benzodiazepines, on state and national surveillance instruments. Obtaining additional evidence of these results using representative samples is recommended.

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APPENDICES

Appendix A: School District Participation Letter



Andrew D. Ingall
Executive Director of Instruction
500 Washington Street
Chelsea, MI 48118
Phone: (734) 433-2208
Fax: (734) 433-2218

January 13, 2011

To Whom It May Concern:

This letter is to document the intent of the Chelsea School District to partner with Angie O'Neill to conduct a survey of students in grades 8, 10, and 12 in early 2011. The topic for the survey is perceptions related to the unauthorized use of prescription medication (drugs).

Please note that the district recommends "passive parental consent" for student participation in this survey at both the middle and high school levels.

We look forward to this partnership.

Sincerely,

Andrew D. Ingall
Executive Director

Appendix B: Human Subjects Review Committee Approval Letter

EASTERN
MICHIGAN UNIVERSITY
Education First

COLLEGE of HEALTH & HUMAN SERVICES
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February 24, 2011

Angela O'Neill
c/o Kathleen Conley
Eastern Michigan University
School of Health Promotion and Human Performance
Ypsilanti, Michigan 48197

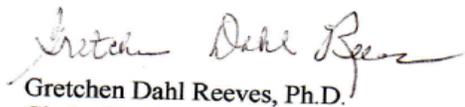
Dear Angela O'Neill,

The CHHS Human Subjects Review Committee has reviewed the revisions to your proposal entitled: "Norms, Attitudes, Perceptions, and Intentions for Benzodiazepine Prescription Drug Abuse Among Adolescents" (CHHS 11-011).

The committee reviewed your proposal and its revisions and concluded that the risk to participants is minimal. Your study is approved by the committee.

Good luck in your research endeavors.

Sincerely,



Gretchen Dahl Reeves, Ph.D.
Chair, CHHS Human Subjects Review Committee

Appendix C: Student Health Survey

STUDENT HEALTH SURVEY

Your participation in taking this survey is voluntary. If you decide not to complete the survey, you may stop at any time. There are no known risks to taking this survey. Your answers will be anonymous, as your name will NOT be included on the survey. Please be as honest as possible in your answers. Your participation will allow adults to better understand how students in your grade currently feel about prescription and other drug abuse. If you have questions, please raise your hand. The survey will take less than 10 minutes to complete. Thank you!

HELPFUL INFORMATION:

For the purpose of this survey, “**prescription drug abuse**” means:

- 1) taking a prescription drug in **HIGHER** doses than prescribed by a doctor, OR
- 2) taking a prescription drug that was **NOT** prescribed for you, OR
- 3) taking a prescription drug **TOGETHER** with alcohol or other drugs.

The types of prescription drugs we are asking about on this survey are drugs used to treat anxiety, stress, or sleep problems. These drugs include Xanax[®] and Valium[®].

DIRECTIONS: For the following questions, choose the ONE answer that best fits you. Mark your answer by checking the box next to the correct response.

1. **How many of your closest friends do you think have been drunk during the past 30 days?**
None of them Some of them Most of them All of them
2. **How many of your closest friends do you think have used marijuana during the past 30 days?**
None of them Some of them Most of them All of them
3. **How many of your closest friends do you think have abused prescription drugs (examples: Xanax[®], Valium[®]) during the past 30 days?**
None of them Some of them Most of them All of them
4. **What would your best friends think if you got drunk once in a while?**
They would be angry with me
They would be a little upset
They wouldn't care one way or another
They would accept me
They would be glad
5. **What would your best friends think if you tried marijuana?**
They would be angry with me
They would be a little upset
They wouldn't care one way or another
They would accept me
They would be glad
6. **What would your best friends think if you abused prescription drugs like Xanax[®] or Valium[®]?**
They would be angry with me
They would be a little upset
They wouldn't care one way or another
They would accept me
They would be glad

7. **How much do you think people risk harming themselves (physically or in other ways) by having five or more drinks of alcohol once or twice each weekend?**
No risk Slight risk Moderate risk Great risk Can't say/Drug unfamiliar
8. **How much do you think people risk harming themselves (physically or in other ways) by smoking marijuana regularly (more than once a week)?**
No risk Slight risk Moderate risk Great risk Can't say/Drug unfamiliar
9. **How much do you think people risk harming themselves (physically or in other ways) by taking someone else's prescription drug (examples: Xanax[®], Valium[®])?**
No risk Slight risk Moderate risk Great risk Can't say/Drug unfamiliar
10. **How much do you think people risk harming themselves (physically or in other ways) by taking a prescription drug (examples: Xanax[®], Valium[®]) in higher doses than what a doctor prescribed?**
No risk Slight risk Moderate risk Great risk Can't say/Drug unfamiliar
11. **How much do you think people risk harming themselves (physically or in other ways) by taking a prescription drug (examples: Xanax[®], Valium[®]) together with alcohol or other drugs?**
No risk Slight risk Moderate risk Great risk Can't say/Drug unfamiliar
12. **I plan to get drunk sometime in the next year.**
Strongly disagree Disagree Agree Strongly agree
13. **I plan to smoke marijuana sometime in the next year.**
Strongly disagree Disagree Agree Strongly agree
14. **I plan to abuse prescription drugs (examples: Xanax[®], Valium[®]) sometime in the next year.**
Strongly disagree Disagree Agree Strongly agree
15. **I have made a promise to myself that I will not drink alcohol.**
Strongly disagree Disagree Agree Strongly agree
16. **I have made a final decision to stay away from marijuana.**
Strongly disagree Disagree Agree Strongly agree
17. **I have made a final decision to stay away from abusing prescription drugs (examples: Xanax[®], Valium[®]).**
Strongly disagree Disagree Agree Strongly agree

Demographic Information:

18. **Are you male or female? *Circle one choice:*** Male Female
19. **What grade are you in? *Circle one choice:*** 8 9 10 11 12
20. **What best describes your ethnic background? *Check one choice:***
White/Caucasian Black/African American Latino/Hispanic
Native American/Alaskan Native Asian/Pacific Islander Multi-racial

THANK YOU!

Appendix D: Parent Consent Form

Eastern Michigan University: School of Health Promotion and Human Performance

PARENT CONSENT

ABOUT THE STUDY:

The study that we are asking your child to be a part of will help us learn more about attitudes about prescription drug abuse for students in 8th, 10th, and 12th grades, and determine if more prevention education is needed for students in the Chelsea School District (CSD).

WHAT WILL HAPPEN?

If you approve of your child's participation in this study:

- He or she will be asked to complete a survey about how they feel about prescription drug abuse.
- A survey will be given during school hours and will take approximately 10 minutes to complete. The survey will be given one time only, anticipated in March, 2011.

WILL ANYONE KNOW MY CHILD WAS IN THE STUDY?

- NO. Your child will not have his or her name on the survey.
- Your child's participation and his or her answers to the survey are strictly confidential.
- The survey results will be reported with all of the students' data combined; therefore, your son/daughter's information will NOT be identifiable.

ARE THERE ANY RISKS/BENEFITS FOR PARTICIPATION IN THE STUDY?

- There are no known risks to your child for participating in this study. Benefits of this study include a free snack and prevention education recommendations will be provided to CSD based upon survey results. Parents, if you would like a copy of a prevention education fact sheet, please e-mail aoneill5@emich.edu and it will be e-mailed directly to you.

IS MY CHILD REQUIRED TO PARTICIPATE IN THE STUDY?

- NO. Participation in this study is completely voluntary. An alternative activity will be given to your child while his/her classmates complete the survey.
- Your son or daughter may stop taking the survey, or choose not to answer any of the questions on the survey at any time.

ABOUT THE RESULTS OF THE STUDY:

- A final report will be provided to the Chelsea School District.

WHO CAN I ASK IF I HAVE ANY QUESTIONS?

- If you have any questions, please call:
Angela O'Neill, Project Director, at 734-272-9002 or e-mail aoneill5@emich.edu or
Kathleen Mullen Conley, Ph.D., Advisor, at 734-487-0090 or e-mail kconley@emich.edu

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from February, 2011 to February, 2012. If you have questions about the approval process, please contact Gretchen Dahl Reeves, Ph.D., Chair, CHHS-HSRC, at 734-487-0077.

Eastern Michigan University in partnership with Chelsea School District



PARENT CONSENT FORM

PARENTS: Please sign and return this form **ONLY** if you **DO NOT** want your child to take the survey. Please return to your child's school by February 28, 2011. Thank you!

IF YOU AGREE TO HAVE YOUR CHILD TO PARTICIPATE:

DO NOT RETURN ANY FORM. A free snack will be provided to each participant for taking the survey. If you would like to review the contents of the survey, a copy is available for viewing at the school office. A prevention education fact sheet will be provided after the project is complete. If any parent/guardians would like a copy of the prevention education fact sheet, please e-mail aoneill5@emich.edu and it will be sent directly to you.

IF YOU DO NOT PERMIT YOUR CHILD TO PARTICIPATE:

PLEASE 1) CHECK THE BOX, 2) SIGN/PRINT YOUR NAME/DATE, AND 3) PRINT YOUR CHILD'S NAME/GRADE BELOW.

I DO NOT PERMIT my child to participate in the study described above and understand that he/she will be given an alternative activity while the survey is being given.

Parent/Guardian Signature

Print Name

Date

Print Child's Name

Child's Grade

Angela O'Neill, Project Director
School of Health Promotion and Human Performance
Eastern Michigan University, Ypsilanti, MI 48197
Phone: (734) 272-9002
E-mail: aoneill5@emich.edu

Andrew Ingall, Executive Director of Instruction
Chelsea School District
500 Washington Street
Chelsea, MI 48118
Phone: (734) 433-2208
E-mail: aingall@chelsea.k12.mi.us

Appendix E: Student Assent Script**STUDENT ASSENT**

At the time of survey administration, students will be read aloud the following script:

“Your participation in taking this survey is voluntary. If you decide not to complete the survey, you may stop at any time. There are no known risks to taking this survey. Your answers will be anonymous, as your name will NOT be included on the survey. Please be as honest as possible in your answers. Your participation will allow adults to better understand how students in your grade currently feel about prescription and other drug abuse. If you have questions, please raise your hand. The survey will take less than 10 minutes to complete. Thank you!”

In addition to being read aloud by the survey administrator, the script is provided in writing on the Student Health Survey (see Appendix C).

Appendix F: Prevention Education Fact Sheet

Not What the Doctor Ordered:***How Prescription Drug Abuse Can Affect You*****Did you know?**

- In the United States today, 20% of teens report they have abused prescription drugs.
- Most teens report prescription drugs are easy to get from family or friends.
- Prescription drug abuse includes:
 1. Taking someone else's prescription drugs
 2. Taking drugs in higher doses than prescribed
 3. Taking prescription drugs together with alcohol or other drugs

**In Chelsea, prescription drug abuse intentions are higher when...**

- **Friends are doing it, too.** 22% of teens reported at least some of their closest friends have abused prescription drugs like Xanax[®] or Valium[®]. Youth were **11 times more likely** to report intentions to abuse prescription drugs within the next year if they thought their close friends abused them, too.
- **Best friend support is missing.** Only 54% of teens reported that their best friends would be angry with them if they abused prescription drugs. Youth who felt like their best friends didn't care or accepted drug abuse were **6 times more likely** to report intentions to abuse prescription drugs within the next year.
- **Teens don't think it's dangerous.** Over 85% of teens felt taking someone else's prescription drug like Xanax[®] or Valium[®] involved great or moderate risk. Youth were **12 times more likely** to report intentions to abuse prescription drugs within the next year if they felt there was no risk or just a slight risk involved.
- **Promises are not made.** Over 80% of teens have made a final decision to not abuse prescription drugs like Xanax[®] or Valium[®]. Those who did not make a decision or promise to stay drug-free were **16 times more likely** to report intentions to abuse prescription drugs within the next year.

Turn over >>>

Drugs that help people can't be *that* dangerous...can they?

- The drugs listed below treat problems like stress and anxiety. Doctors often prescribe them to help people, but they can be abused:

Type	Conditions	Street Names
Benzodiazepines Diazepam (Valium) Alprazolam (Xanax) Estazolam (ProSom)	Acute stress reactions Anxiety, Panic attacks Convulsions, Sleep disorders	Candy, downers, sleeping pills, or tranks

- These drugs have **serious consequences** when abused, including:
 - **Addiction**
 - **Seizures**
 - **Vomiting/Diarrhea**
 - **Trouble Sleeping**
 - **Anxiety**
 - **Shaking**
 - **Suicidal Thoughts**
 - **Confusion**
 - **Depression**
 - **Death**

What can I do for myself and my friends?

- Talk to your **friends** about the risks. **Support their healthy choices** to not abuse drugs, and let them know that **you care about their decisions**. Make a **promise to yourself** to stay away from abusing prescription drugs.
- If you or someone you know someone is abusing prescription drugs, **ask for help**. Talk to your parent, teacher, doctor, or other trusted adult.
- The Treatment Referral Helpline (**1-800-662-HELP**) can refer you to treatment programs, support groups, and other places that can help you.

Where can I get more information?

- You can find more information on all types of drug abuse, including prescription drugs, as well as alcohol, tobacco, marijuana, and other drugs at <http://teens.drugabuse.gov/peerx/the-facts>.

For information on the 2011 Student Health Survey about prescription drug abuse in Chelsea, MI: e-mail Angela O'Neill: aoNeill5@emich.edu

Fact Sheet information retrieved from:
 National Institute on Drug Abuse, <http://nida.nih.gov>
 Centers for Disease Control and Prevention, <http://cdc.gov>
 Partnership Attitude Tracking Survey, <http://drugfree.org>
 Substance Abuse and Mental Health Services Administration, <http://samhsa.gov>

Appendix G: Report to School District

Results from the 2011 Student Health Survey

Provided to:

Chelsea School District

Chelsea, MI

Developed by:

Angela O'Neill

Eastern Michigan University

School of Health Promotion and Human Performance

Date: April 28, 2011

Project Summary

Angela O'Neill, graduate student at Eastern Michigan University (EMU), developed a research study implemented in the Chelsea School District (CSD) in Chelsea, MI to measure perceptions of adolescents regarding prescription and other drug abuse. A cross-sectional, quantitative survey was administered to a sample of 371 students in 8th, 10th, and 12th grades in March, 2011.

The purpose of the study was to utilize theory to address a gap in national research (Johnston, O'Malley, Bachman, & Schulenberg, 2009) related to perceived harm about tranquilizers (e.g., benzodiazepines such as Xanax[®] and Valium[®]), as well as to provide recommendations at the local level regarding prevention education for prescription and other drug abuse. The CSD currently collects student data on a variety of risk and protective factors and behaviors by participating in the bi-annual *Michigan Profile for Healthy Youth* (MiPHY) survey; however, perceptions and attitudes for many prescription drugs (particularly tranquilizers) are not included on the survey. Below is a brief summary of this project's findings. The entire thesis project is available by e-mailing aoneill5@emich.edu.

The study addressed perceptions about tranquilizers by using constructs from the Theory of Planned Behavior (Ajzen, 1991). Tranquilizers, referred to as central nervous system (CNS) depressants (e.g., benzodiazepines) were chosen as the focus of study due to the lack of information about perceived harm from using these particular anti-anxiety drugs (Johnston et al, 2009), and because they are widely prescribed and abused. It is known that a high number of teens (73%) nationally report self-medicating with drugs to deal with stress and anxiety (Partnership Attitude Tracking Survey, [PATS], 2009), and 63% reported that prescription drugs are easy to get from family and friends (PATS, 2009). A decade ago, it was estimated that 11 to 15% of the population had taken a benzodiazepine medication in the last 12 months (Longo & Johnson, 2000), and, it is estimated that over a period of ten years, benzodiazepine prescriptions have increased in the United States population by 49% (Califano, 2005). Because Xanax[®] and Valium[®] are the most commonly used benzodiazepines by students (Johnston et al., 2009), these two medications were listed as examples in the survey.

Independent variables in this study included subjective norms, attitudes (e.g., perceived harm), and perceived behavioral control regarding benzodiazepine prescription drug abuse, whereas the dependent variable was behavioral intentions to abuse such drugs. Perceptions about alcohol and marijuana also were assessed for comparison purposes. Results were analyzed utilizing the statistical software package SPSS, and descriptive statistics were used to report student responses. Testing of the null hypotheses involved the use of inferential statistics, including binary logistic regression, chi-square, and repeated measures ANCOVA. Conclusions of the study included that more prevention education is needed for students in the CSD, and further assessment is recommended.

The following are key findings from the project:

- **Relative risks were high, and were supported by theory-driven elements of substance abuse.** Constructs from the Theory of Planned Behavior (TPB) (Ajzen, 1991) were the foundation for the study, as it focused on norms, attitudes, perceptions, and intentions for prescription drug abuse. In Chelsea:
 - **22% of teens reported at least some of their closest friends** have abused prescription drugs like Xanax[®] or Valium[®]. Youth were **11 times more likely** to report intentions to abuse prescription drugs within the next year if they thought their close friends abused them, too.
 - **54% of teens reported that their best friends would be angry with them** if they abused prescription drugs. Youth who felt like their best friends didn't care or accepted drug abuse were **6 times more likely** to report intentions to abuse prescription drugs within the next year.
 - **Over 85% of teens felt *great or moderate risk*** was associated with taking someone else's prescription drug like Xanax[®] or Valium[®]. Youth were **12 times more likely** to report intentions to abuse prescription drugs within the next year if they felt there was *no risk* or just a *slight risk* involved.
 - **Over 80% of teens have made a final decision** to not abuse prescription drugs like Xanax[®] or Valium[®]. Those who did not make a decision or promise to stay drug-free were **16 times more likely** to report intentions to abuse prescription drugs within the next year.
- **Most Chelsea teens exhibited healthy attitudes toward prescription drug abuse.** Across all grades, 81% believed that *great or moderate risks* were involved in taking someone else's prescription medication (e.g., Xanax[®] and Valium[®]). Targeted prevention education is recommended for the students who do not feel this behavior is dangerous.
- **Most students were familiar with CNS depressants.** Approximately 7% reported unfamiliarity with the drugs Xanax[®] and Valium[®]. Prevention education may be beneficial to the small number of students who were unfamiliar with the drugs.
- **Peer support to prevent drug abuse may be lacking for many students.** Only about half (54%) of Chelsea teens thought their best friends would be angry with them if they were to abuse prescription drugs, just 40% felt their best friend would be angry with them if they smoked marijuana regularly, and only 28% felt the same when asked about binge drinking.

- **Chelsea youth intentions for drug abuse were much greater for alcohol and marijuana, as compared to prescription drugs.** Although this survey was designed to measure prescription drug abuse intentions, it was found that less than half of Chelsea youth surveyed (48%) reported that they have made a promise to not drink alcohol, and 1/3 of students (33%) plan to get drunk in the next year. One quarter of Chelsea teens have not made a final decision to stay away from marijuana, and roughly the same amount (25%) plan to smoke the substance in the next year. As compared to alcohol and marijuana intentions, a considerably smaller number of Chelsea youth (8%) plan to engage in prescription drug (e.g., Xanax[®] and Valium[®]) abuse in the next year, but 22% of students believed that prescription drug abuse has occurred among some, most, or all of their closest friends. Prevention education is needed to reach the at-risk students.
- **Perceived harm was significantly lower for alcohol and marijuana, as compared to prescription drugs.** Although perceived harm was high for prescription drugs (over 60% of students felt *great risk* was associated for the different types of prescription drug abuse), rates were significantly lower for alcohol and marijuana abuse. For example, just 41% felt that drinking five or more drinks once or twice each weekend involved *great risk*, and 39% felt *great risk* was associated with smoking marijuana regularly (e.g., more than once a week).
- **Perceived harm rates are lower for Chelsea teens as compared to national findings.** When only *great risk* is assessed, CSD youth, particularly 12th grade, have dramatically lower perceptions than national averages. For example, 52% of 12th graders nationally felt that *great risk* was associated with using marijuana regularly (Johnston et al., 2009), but only 20% of Chelsea 12th graders felt the same. Regarding binge drinking, almost half (48%) of 12th graders in the United States (Johnston et al., 2009) felt *great risk* was associated with binge drinking, and only about a third (34%) of 12th graders in the CSD agreed. National studies have not measured perceived harm of abusing the prescription drugs Xanax[®] and Valium[®].
- **Future prevention efforts are encouraged for multiple substances, and more research is needed.** Although prescription drug abuse norms, attitudes, perceptions and intentions were the focus of this study, (and results did demonstrate a need for prevention education for this topic), intentions toward alcohol and marijuana abuse were more prevalent. It is recommended that data collection is continued in future years (e.g., MiPHY, other tools as needed) to measure other substance abuse perceptions, such as other types of prescription drug abuse (e.g., pain relievers, stimulants, etc.), as well as over-the-counter drugs, tobacco and illegal substances (e.g., cocaine, heroin). Comprehensive health education and physical education are effective prevention methods to improve knowledge and skills for healthy lifestyle choices, while decreasing anxiety and other risk factors for substance abuse.

Recommendations

Because prescription drug perceptions were the primary purpose of this study, a 2-page prevention education fact sheet was developed by the researcher, entitled, *Not What the Doctor Ordered: How Prescription Drug Abuse Can Affect You* (attached). To ensure that all students are provided with correct knowledge, and equipped with reliable resources for any kind of drug abuse, particularly benzodiazepines (as they were the primary focus of this study), it is encouraged that the prevention education fact sheet is disseminated to all students in Grades 8-12 in the CSD.

Because previous research (Twombly & Holtz, 2008; Arria et al., 2008) supports certain prevention strategies to address the problem of prescription drug abuse in adolescents (e.g., correcting perceived social norms around prevalence, identifying risks and benefits of abusing such drugs, considering other risk factors in addition to perceived harm, and not stigmatizing the legitimate use of prescription drugs), such ideas were incorporated into the fact sheet.

It is encouraged that the final report, which includes the fact sheet, is e-mailed to parent/guardians, school staff (classroom teachers, health teachers, physical education teachers, school counselors, etc.), and the Coordinated School Health Program (CSHP) core team. Any community health agencies (e.g., community coalitions) who work with CSD youth on decreasing risk behaviors are also encouraged to receive a copy of the final report.

In addition to disseminating the fact sheet, it is also suggested that extending health education and physical education for Grades 10-12 is considered, as both efforts have been shown to improve knowledge and skills for healthy decision-making, while decreasing anxiety and other risk factors for substance abuse. For example, the district currently mandates health and physical education until Grade 9, and drug prevention is provided to eighth graders. Exploring the possibility of extending requirements into higher grades is encouraged.

Given that the current health curriculum (i.e., *Michigan Model for Health*[®]) modules are designed for K-12, the CSD may consider options to extend health education for older students. Information for the *Michigan Model for Health*[®] program specific to drug prevention for high school grades can be found at <http://www.emc.cmich.edu/products/curriculum/9-12/912substance.htm>.

Table 1. Subjective Norms, Perceived Harm, Perceived Behavioral Control, and Behavioral Intentions by Grade Level, Gender, and Ethnicity.

Variable/Item	Percent							
	Total sample (n = 371)	Grade level			Gender		Ethnicity	
		8 (n = 107)	10 (n = 113)	12 (n = 149)	Male (n = 204)	Female (n = 167)	White (n = 324)	Other (n = 47)
Subjective norms for drug use								
1. No closest friends were drunk in past 30 days	48.0	82.2	49.6	21.5 ^a	48.0	57.5	48.5	44.7
2. No closest friends used marijuana in past 30 days	48.1	80.4	41.2	28.9 ^a	47.8	57.5	48.9	42.6
3. No closest friends abused BPD in past 30 days	78.2	87.9	81.6	67.8 ^b	80.0	75.4	79.4	70.2
4. Best friends would be angry if I got drunk	28.1	54.2	23.0	12.2 ^a	26.6	29.9	28.8	23.4
5. Best friends would be angry if I used marijuana	40.4	67.3	34.2	24.0 ^a	36.5	44.6	42.2	27.7 ^a
6. Best friends would be angry if I abused BPD	54.6	64.5	55.3	46.3 ^b	46.8	63.5 ^a	55.7	46.8
Perceived harm from using drugs								
7. Moderate/high risk from binge drinking	79.1	86.1	75.9	76.2	75.4	82.9	80.6	66.7 ^a
8. Moderate/high risk from smoking marijuana	65.3	88.1	62.3	50.7 ^a	62.5	68.3	67.6	48.9 ^a
9. Moderate/high risk from taking another's BPD	87.8	91.8	87.4	85.1	86.1	89.2	89.0	79.1
10. Moderate/high risk from exceeding BPD dosage	88.9	90.0	87.9	88.0	85.9	91.9	89.9	82.2
11. Moderate/high risk from BPD use with other drugs	92.4	95.0	88.9	92.4	90.6	93.8	93.9	81.4 ^a
Behavioral intention to use drugs								
12. Plan to get drunk within next 12 months	32.2	8.5	27.2	53.4 ^a	30.4	34.9	31.9	34.0
13. Plan to smoke marijuana within next 12 months	23.9	7.5	25.4	35.6 ^b	21.5	27.5	22.8	31.9
14. Plan to abuse BPD within next 12 months	7.0	6.5	8.0	7.4	6.9	7.9	6.2	12.8
Perceived behavioral control against drug use								
15. Made promise not to drink alcohol	48.4	68.9	50.0	32.9 ^a	48.8	48.2	48.3	48.9
16. Made final decision not to smoke marijuana	65.2	84.0	64.3	53.4 ^b	67.2	62.3	66.9	53.3
17. Made final decision not to abuse BPD	82.5	86.9	81.4	80.5	80.9	83.8	84.6	68.1 ^a

Notes. 2-tailed tests were used in all analyses, $p < .05$. n , sample size; BPD, Benzodiazepine Prescription Drugs.

^aStatistically significant difference between each subgroup (e.g., Grade 8, 10 & 12).

^bStatistically significant difference between Grade 8 and 12.

Not What the Doctor Ordered: How Prescription Drug Abuse Can Affect You

Did you know?

- In the United States today, 20% of teens report they have abused prescription drugs.
- Most teens report prescription drugs are easy to get from family or friends.
- Prescription drug abuse includes:
 - 1) Taking someone else's prescription drugs
 - 2) Taking drugs in higher doses than prescribed
 - 3) Taking prescription drugs together with alcohol or other drugs



In Chelsea, prescription drug abuse intentions are higher when...

- **Friends are doing it, too.** 22% of teens reported at least some of their closest friends have abused prescription drugs like Xanax[®] or Valium[®]. Youth were **11 times more likely** to report intentions to abuse prescription drugs within the next year if they thought their close friends abused them, too.
- **Best friend support is missing.** Only 54% of teens reported that their best friends would be angry with them if they abused prescription drugs. Youth who felt like their best friends didn't care or accepted drug abuse were **6 times more likely** to report intentions to abuse prescription drugs within the next year.
- **Teens don't think it's dangerous.** Over 85% of teens felt taking someone else's prescription drug like Xanax[®] or Valium[®] involved great or moderate risk. Youth were **12 times more likely** to report intentions to abuse prescription drugs within the next year if they felt there was no risk or just a slight risk involved.
- **Promises are not made.** Over 80% of teens have made a final decision to not abuse prescription drugs like Xanax[®] or Valium[®]. Those who did not make a decision or promise to stay drug-free were **16 times more likely** to report intentions to abuse prescription drugs within the next year.

Turn over >>>

Drugs that help people can't be *that* dangerous...can they?

- The drugs listed below treat problems like stress and anxiety. Doctors often prescribe them to help people, but they can be abused:

Type	Conditions	Street Names
Benzodiazepines Diazepam (Valium) Alprazolam (Xanax) Estazolam (ProSom)	Acute stress reactions Anxiety, Panic attacks Convulsions, Sleep disorders	Candy, downers, sleeping pills, or tranks

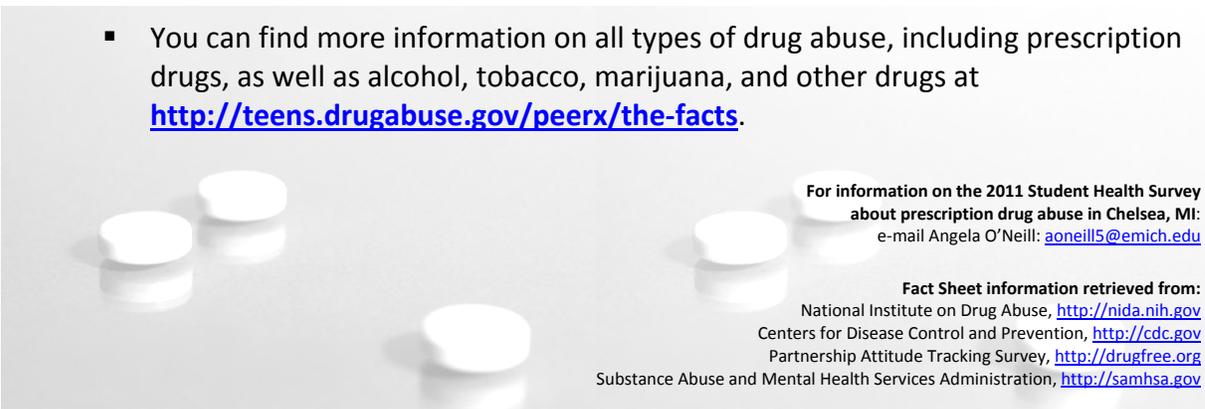
- These drugs have **serious consequences** when abused, including:
 - **Addiction**
 - **Seizures**
 - **Vomiting/Diarrhea**
 - **Trouble Sleeping**
 - **Anxiety**
 - **Shaking**
 - **Suicidal Thoughts**
 - **Confusion**
 - **Depression**
 - **Death**

What can I do for myself and my friends?

- Talk to your **friends** about the risks. **Support their healthy choices** to not abuse drugs, and let them know that **you care about their decisions**. Make a **promise to yourself** to stay away from abusing prescription drugs.
- If you or someone you know someone is abusing prescription drugs, **ask for help**. Talk to your parent, teacher, doctor, or other trusted adult.
- The Treatment Referral Helpline (**1-800-662-HELP**) can refer you to treatment programs, support groups, and other places that can help you.

Where can I get more information?

- You can find more information on all types of drug abuse, including prescription drugs, as well as alcohol, tobacco, marijuana, and other drugs at <http://teens.drugabuse.gov/peerx/the-facts>.



For information on the 2011 Student Health Survey about prescription drug abuse in Chelsea, MI: e-mail Angela O'Neill: aoneill5@emich.edu

Fact Sheet information retrieved from:
 National Institute on Drug Abuse, <http://nida.nih.gov>
 Centers for Disease Control and Prevention, <http://cdc.gov>
 Partnership Attitude Tracking Survey, <http://drugfree.org>
 Substance Abuse and Mental Health Services Administration, <http://samhsa.gov>

Summary References

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