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Prescription Drug Abuse And Diversion Increase With Age

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PRESCRIPTION DRUG ABUSE AND DIVERSION INCREASE WITH AGE

by

Don Wunderlin

A Research Project Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Criminology

REGIS UNIVERSITY
June 2011

PRESCRIPTION DRUG ABUSE AND DIVERSION INCREASE WITH AGE
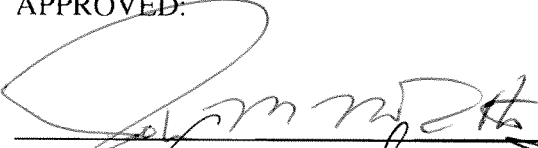
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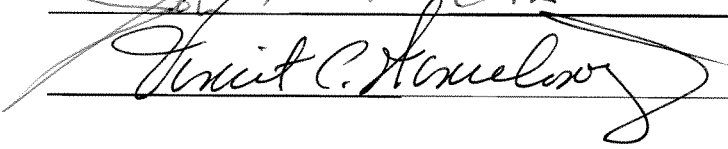
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Has been approved

June 2011

APPROVED:

_____, Faculty Chair/Facilitator

_____, Thesis Advisor

Abstract

This study conducted a secondary analysis of quantitative data collected from 2005

through 2009 from the National Survey on Drug Use and Health. The study found that prescription

drug abuse and diversion from 2005 through 2009 showed an increasing usage, which is

dependent upon age and drug category. While those aged 18-25 demonstrated higher

nonmedical use of prescription drugs for three drug categories, those aged 50 and older were

determined to have a higher usage in only one drug category. Overall the study determined that

after age 50 nonmedical use of prescription drugs and therefore diversion begins to drop

significantly except for one drug category, which is sedatives. Although this study determined

that as age of the prescription drug abuser increases the number of individuals engaging in

nonmedical use of prescription drugs decreases, those individuals 50 and older that reported

nonmedical use had higher averages for days using in a 12-month period.

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Introduction

Prescription drug abuse and diversion of prescription drugs are increasing epidemics in the United States. Yearly studies are conducted on the use of illicit drugs among the American public. The National Survey on Drug Use and Health (NSDUH) reported in 2009 that 21.8 million Americans age 12 or older have taken (or tried) an illicit drug at least once (SAMHSA, 2010, p. 7). Since 1997, there has been a steady increase in illicit drug use. Illicit drugs include heroin, all forms of cocaine, hashish, marijuana, inhalants, hallucinogens, and the nonmedical use of prescription drugs. During this period, no other illicit drug has shown a steady increase among various age groups except the nonmedical use of prescription drugs. The nonmedical use of prescription drugs has surpassed heroin and cocaine to become the second most abused illicit drug category behind marijuana. The abuse of prescription drugs and their diversion has shown a steady increase across all age groups since 1997.

The purpose of this study is to ascertain if aging of the prescription drug abuser associates with increased or decreased usage of prescription drugs across three age groups (18-25, 26-49, and 50+). The role of age in prescription drug abuse is important and one age group is of particular importance which is the baby boomer generation. For purposes of this study, baby boomers are those individuals born between 1946 and 1964 (Census, 2006, p. 2). The age of the prescription drug abuser is important in this study as the number of baby boomers in our society will increase significantly during the years 2011 through 2030. According to Fulton & Allen (2005), the elderly population in the United States (U.S.) will reach approximately 70 million by 2030 (p. 123). This is significant as Patterson & Jeste (1999) indicate baby boomers have surpassed previous generations in regards to substance abuse (p. 1187).

This study will examine the following questions:

1) Will nonmedical use of prescription drugs in three age groups (18-25, 26-49, and

50+) demonstrate increasing trends of abuse and diversion?

2) Does nonmedical use of prescription drugs and/or diversion increase with age?

The first limitation for this study is the use of second source data. Second source data

collections in the area of nonmedical use of prescription drugs have been somewhat limited to

the NSDUH. This national survey uses self reported data from individuals aged 12 and older

that were recruited for the study and reports on various types of illicit drug, alcohol, and tobacco

use. Self reported data can have under or over reporting of usage. The second limitation is the

use of arrest data drawn from the Federal Bureau of Investigation's Uniform Crime Report

(UCR). The UCR groups together the nonmedical use of prescription drugs and the abuse of

other drugs into a category called drug abuse violations. Therefore, the data sets from these two

agencies are not uniform and the NSDUH is based upon self-reported data. Delimitations of this

study are the use of limited variables being age and time. Other variables such as race, gender,

education, and employment were not reviewed. The NSDUH reports do however report on the

subcategories such as gender, education, and employment. This study is purely focusing upon

age of the prescription drug abuser.

According to NIDA, n.d., "Prescription drug abuse means taking a prescription

medication that is not prescribed for you or taking it for reasons or in dosages other than

prescribed" (NIDA, n.d.). The nonmedical use of prescription drugs such as Opioids, Central

Nervous System (CNS) depressants, and stimulants is prescription drug abuse. For this study,

prescription drug abuse and the nonmedical use of prescription drugs is synonymous. These

medications are obtained through various means such as doctor shopping, drug dealers, friends,

family, and diversion. Our society views the use of illicit drugs such as marijuana, heroin,

methamphetamines, and cocaine differently from the nonmedical use of prescription drugs. The

nonmedical use of prescription drugs is viewed by many in society as a medical disease and not

one of illegal activity. There is no stereotypical prescription drug abuser as prescription drugs

are abused by a wide variety of individuals. No matter what the gender, race, education, or

occupation, prescription drug abuse knows no boundaries.

Drug diversion is an often-overlooked issue in the realm of prescription drug abuse. The

focus of society and law enforcement has been the abuse of illicit drugs such as cocaine, heroin,

methamphetamine, and marijuana. Prescription drug abuse has occurred for decades; however, it

did not become a topic of discussion until the introduction of several opioid medications into the

pharmaceutical market in the 1990's. This led to an increase in abuse and diversion of these new

medications.

Controlled substances including illicit drugs fall under the Controlled Substances Act

(CSA). The CSA "... places all substances which were in some manner regulated under existing

federal law into one of five schedules. This placement is based upon the substance's medical

use, potential for abuse, and safety or dependence liability" (DEA, n.d.). The Drug Enforcement

Administration (DEA) is responsible for placing controlled substances into the appropriate

schedule.

The following clarifies the terms drug diversion, methods of diversion, and scheduled

drugs. The state of Tennessee Drug Diversion Task Force (TDD) defines drug diversion as

"...the illegal distribution, abuse, or unintended use of prescription drugs" (TDD, n.d.).

According to the National Association of Drug Diversion Investigators (NADDI), drug diversion

is defined as "any criminal act involving a prescription drug" (NADDI, 2011). Prescription drug

diversion can occur at any point and is often accomplished through theft, doctor shopping,

internet pharmacies, forgery of prescriptions, and illicit prescribing by health care providers. These terms are defined below.

- Doctor shopping involves an individual who goes to several doctors complaining of a variety of symptoms in order to obtain prescriptions.

- Illegal internet pharmacies operate under the guise of legitimate pharmacies. These sites provide controlled substances without prescriptions and often times are located in foreign countries.

- Theft can occur at any point from the manufacturing facility to the patient. Pharmacies and doctors' offices are also known to have controlled substances on the premises making them easy targets. Unscrupulous pharmacists will also entice federal health care program beneficiaries such as Medicare/Medicaid patients to divert drugs by purchasing prescribed controlled substances back from these patients. For example, a Medicaid patient obtains a prescription for 30 OxyContin pills. The pharmacist will buy the bottle back from the patient for a nominal fee of $300. The patient makes money since their co-payment is usually a low amount (under $10). The pharmacist makes money since the prescription removes 30 pills from the pharmacy's inventory and the pharmacist can now sell these pills making hundreds (if not thousands) of dollars depending on the dosage and street value of the pills.

- Prescription forgery involves either legitimate prescription pads that have been stolen or the altering of a legitimate prescription, which is typically done to increase the quantity to be dispensed.

- Illicit prescriptions involve health care providers who divert prescription drugs for profit. These providers usually own and operate medical offices that are referred to as "pill mills". Prescription medications are prescribed without medical necessity to so-called "patients" for a fee. (Kraman, 2004, pp. 7-8)

All prescription medications have the potential to be diverted; however, this study will focus on schedule II, III, IV, and V prescription drugs. The two agencies responsible for classifying controlled substances are the DEA and the Food and Drug Administration (FDA). The DEA provides the following definitions for each schedule:

- Schedule I - Substances in this schedule have a high potential for abuse, have no current use in medical treatment in the United States, and are not considered safe for use even under medical supervision. Schedule I substances include, but are not limited to, heroin, marijuana, and crystal methamphetamine.

- Schedule II - Substances in this schedule have a high potential for abuse that may lead to severe psychological or physical dependence. Examples include prescription drugs such as Oxycodone, OxyContin, Percocet, Morphine, and Dilaudid.

- Schedule III - Substances in this schedule have a potential for abuse less substantial than substances in schedules I or II and abuse may lead to moderate or low physical dependence or high psychological dependence. Examples include Anabolic steroids, Buprenorphine, and Ketamine.

- Schedule IV - Substances in this schedule have a low potential for abuse relative to substances in schedule III. Examples include Xanax, Klonopin, Darvon, and Valium.

- Schedule V - Substances in this schedule have a low potential for abuse relative to substances listed in schedule IV and consist primarily of preparations containing limited quantities of certain narcotics. Examples include certain Codeine preparations. (DEA, n.d.)

The criminology theory that best fits the issues of prescription drug abuse and diversion is established in classical criminology. Rational Choice Theory is associated with classical criminology and was developed by two theorists, Cesare Beccaria and Jeremy Bentham. This theory emphasizes that offenders have free will. Rational Choice Theory also suggests that the offender will weigh his/her personal gain against the sanctions imposed if caught. The prescription drug abuser will weigh the possibility of punishment against the benefits of getting high. Since little law enforcement effort is focused on prescription drug abuse and diversion, the chances of the prescription drug abuser being arrested and prosecuted is low.

Literature Review

Research of peer-reviewed articles relating to the subject areas of prescription drug abuse and diversion was conducted using search terms such as "prescription drug abuse", "prescription drug diversion", "drug diversion", "prescription drug abuse among the elderly", "nonmedical use of prescription drugs", and "nonprescription drug use". A majority of studies involving prescription drug abuse and diversion have focused on the younger population that encompasses those aged 12 to 18. As Patterson & Jeste (1999) state, "A plethora of studies have estimated the incidence and prevalence of drug abuse in younger populations" (p. 1184), but several studies were found that discuss the nonmedical use of prescription drugs among older age populations.

"The "Black Box" of Prescription Drug Diversion" authored by Inciardi, et al., (2009) discusses how prescription drug diversion and abuse is not a new issue. The authors discuss that in the 18th century a British physician by the name of Thomas Sydenham was a believer in the use of opium to treat disease (p. 332). Thomas Dover, a student of Thomas Sydenham, developed his own medicinal opium powder, which was introduced to the American colonies. During the 18th and 19th centuries, opium was readily available and abuse of this medicinal drug was widespread. The authors used a mixed methods approach for their study. Using data from NSDUH, Researched Abuse Diversion and Addiction-Related Surveillance (RADARS) system, and four focus groups, the authors collected data on how prescription drugs were being diverted and abused. The conclusion drawn from their study showed that prescription drug diversion and abuse has been a part of the American culture for centuries. Diversion sources of prescription drugs tended to vary, but the study found that major sources of prescription drug diversion were drug dealers, friends, relatives, and internet pharmacies.

Bringing to light the disparity between illicit drugs and the nonmedical use of prescription drugs was an article titled "Black Beauties, Gorilla Pills, Footballs, and Hillbilly Heroin: Some Reflections on Prescription Drug Abuse and Diversion Research over the Past 40 Years" authored by Inciardi and Cicero. These two authors provided a history of the past 40 years regarding prescription drug diversion. The article focused on past trends of prescription drug diversion as well as recent trends. Although prescription drug diversion has a long history, the drug that really pushed it to the forefront was OxyContin. The drug "...OxyContin galvanized the attention of the media, the government, and the public at large" (Inciardi & Cicero, 2009, p. 105). The introduction of more powerful opioids to help treat pain opened a Pandora's box as the abuse of these prescription drugs began to increase along with their diversion.

When discussing prescription drug abuse and diversion, one cannot begin without discussing the prescription drug OxyContin. The article titled "The OxyContin Epidemic and Crime Panic in Rural Kentucky" studied the diversion and abuse of OxyContin in the rural areas of Kentucky where the abuse and diversion of OxyContin has been an issue. OxyContin was first approved by the FDA in 1995 and is a schedule II opioid prescribed for medium to severe pain. "OxyContin reportedly is 16 times more powerful than similar narcotics" (Tunnell, 2005, p. 226). OxyContin is a synthetic opioid medication. Opioids include such drugs as morphine, codeine, hydrocodone, oxycodone, opium, and heroin since they are all derived from the opium poppy plant. OxyContin abuse is attributed to its diversion from normal medical use to abuse of the drug. "During the 1980's, the National Household Survey on Drug Abuse reported generally fewer than 500,000 people yearly who first used prescription drugs for nonmedical purposes" (Tunnell, 2005, p. 229). By 1998, this figure more than doubled to 1.6 million. The unique

nature of this literature is that it mentions the culpability of the pharmaceutical manufacturer of

OxyContin, Purdue Pharma.

> Purdue for a time manufactured a single OxyContin tablet of 160 milligrams. By
>
> comparison, Percocet….contains 5 milligrams of oxycodone, and Percodan contains 2.25
>
> milligrams. Allegations were raised that Purdue did not provide adequate instructions for
>
> physicians, who prescribed OxyContin for minor rather than for intense, cancer related
>
> pain. Furthermore, there is some intimation that Purdue offered incentives to doctors for
>
> prescribing the drug. (as cited in Tunnell, 2005, p. 232)

The author detailed how the eruption of prescriptions for opioids in the year 2000 reached a level

of 190 million and the largest distributions per capita were in California, Florida, West Virginia,

and Kentucky.

Due to the abuse and diversion of OxyContin and other schedule II and III drugs, Purdue

Pharma, Inc., using advice from the FDA developed a risk-management program to deal with the

increased abuse of its drug, OxyContin. What Purdue Pharma assembled was the Researched

Abuse, Diversion, and Addiction Related Surveillance System (RADARS). The objective of this

program was to evaluate the prevalence of abuse among OxyContin® and other schedule II and

III narcotics. This program received data from sources such as the Drug Abuse Warning

Network (DAWN), poison control centers, quarterly surveys of drug abuse experts, and surveys

of law enforcement agencies. This accounted for approximately 80 percent of the of the nation's

zip codes. The study concluded that prescription drug abuse is prevalent nationwide. Data was

collected from other sources to include law enforcement agencies. What should be noted is that

the DEA declined to participate.

The main goal of RADARS was to develop proactive, timely, and geographically

sensitive methods to assess the abuse and diversion of OxyContin along with a

number of other Schedule II and III opioids with the aim of using this information

to guide risk reduction interventions. (Cicero, et al., 2007, p. 157)

Multiple authors that have published research studies on prescription drug abuse and diversion

are affiliated with RADARS. The authors use the data compiled to conduct further research in

these areas.

Review of peer-reviewed articles for this study additionally focused on studies regarding

overall drug diversion of prescription drugs. These studies focused on health care workers and

young adults as both prescription drug abusers and diverters. One such study was "The

Diversion of Prescription Drugs by Health Care Workers in Cincinnati, Ohio". This study was

conducted to illustrate cases investigated by the Cincinnati Police Division's Pharmaceutical

Diversion Squad. Results of the research showed that "...the majority of these health

professionals were women (73%) and almost all were whites (92.4%)" (Inciardi, Surratt, Kurtz,

& Burke, 2006, p. 256). Nurses comprised the largest population of diverters among the

healthcare workers, which is more than likely due to their duties and overall access to

medications. A far second was physicians. The most heavily diverted drugs were opioids such

as hydrocodone and oxycodone. Benzodiazepines were the second most diverted drug group.

This research also pointed out the lack in law enforcement and regulatory agencies that focus on

prescription drug diversion. "Of the 23,500-25,000 police, law enforcement, and regulatory

agencies in the United States, it would appear that less than 10% have officers who focus on

diversion" (Inciardi et al., 2006, p. 259). This lack of law enforcement and regulatory agencies

investigating drug diversion only emphasizes the fact that individuals who participate in the

nonmedical use of prescription drugs are overlooked. Those law enforcement agencies and regulatory agencies investigating drug diversion place their focus mainly upon health care workers and most notably physicians, nurses, and pharmacists. What was noticed was a lack of law enforcement interest in prescription drugs compared to illicit drugs such as marijuana, cocaine, heroin, and methamphetamine. This may be attributed to society's view of prescription drug abuse compared to illicit drug abuse. This cultural assumption that prescription drugs are not as harmful as illicit drugs is skewed.

The article entitled "Prescription Drug Abuse" was published in the journal of Psychology in the Schools in 2009. This article focused on high school and college students who used prescription drugs for nonmedical uses and how these drugs were obtained. The author conducted a literature review pertaining to prescription drug abuse among high school and college aged individuals. The review found that rates of prescription drug abuse among these groups are increasing, but as with most research in this area it only focused on high school and college aged individuals. The author also brought to light the new abuse and diversion of Adderall®, which is prescribed for Attention-Deficit/Hyperactivity Disorder (ADHD). Adderall® is a stimulant and is popular among college students as the students reported they use it to assist them with their studies since it allows them to focus their concentration (Hamilton, 2009, p. 893). "Stimulants prescribed for ADHD were responsible for 48% of emergency room visits for nonmedical use of stimulant drugs (Hamilton, 2009, p. 893). The way in which these drugs were obtained was mainly though diversion of drugs from family or friends. "Approximately 54% of students with prescriptions for stimulants reported having been approached to sell or give their drugs to students who did not have prescriptions for stimulants" (Hamilton, 2009, p. 894).

A strong argument is made that there is a misconception when it comes to prescription drug abuse. These drugs are viewed by society as legitimate and safe. Although this is a true statement under controlled conditions, it has conditions such as the drug must be prescribed and used for a legitimate medical need. The nonmedical use of these medications is illegal and potentially harmful to the individual ingesting them. The article pointed out how easily students can obtain medications just by going into the family medicine cabinet and how education should be provided to students and the parents. One interesting caveat mentioned by the author is how pharmaceutical companies can assist in these educational efforts by changing the way they market their pharmaceuticals. There has been a shift in how pharmaceutical companies market their drugs. In the past, marketing was targeted mainly at physicians, but companies now market to the consumer.

The research conducted for the article "Mechanisms of Prescription Drug Diversion Among Drug-Involved Club- and Street-Based Populations" was done to achieve an understanding of how drugs are diverted among street drug users. The focus was on several drug-using populations in the Miami, Florida area. These groups consisted of club goers, HIV positive patients, methadone patients, and illicit drug users. While researching, the authors found that information on drug diversion was absent from literature. The method used to conduct the research was the use of focus groups. The authors concluded "...there are numerous active street markets involving patients, Medicaid recipients, and pharmacies as well" (Inciardi, Surratt, Kurtz, & Cicero, 2007, p. 177). The diversion of prescription drugs was spread among sources such as dealers, patients, pharmacists, and physicians. The ability to obtain these drugs on the street was not difficult.

The following literature was reviewed as it highlighted the nonmedical use of prescription drugs in the elderly population and baby-boomers. It is important to study drug abuse in these populations as these populations make up the most prescription drug recipients. Data from the Centers for Disease Control shows that an increase in prescription drug use increases with age. (Gu, Dillion, & Burt, 2010). The amount of medications also appears to increase with age as well.

The article "Prescription Drug Misuse/Abuse in the Elderly" discusses drug abuse among the elderly population and the concerns with treating the elderly population. "One quarter of the prescription drugs sold in the United States are used by the elderly, often for problems such as chronic pain, insomnia, and anxiety" (Culberson & Ziska, 2008, p. 22). Aging plays a factor in how the human body metabolizes medications and normal adult dosages may be too high for the elderly. Regular adult dosages could lead to addiction and abuse. Elderly patients usually prefer to "doctor shop" and receive multiple prescriptions from several physicians. They will also stock pile medications or obtain them from family and friends. These are all means of drug diversion.

Analysis found a recurring theme regarding the baby boomer generation. As this population ages, there will be an increase in the number of older adults needing substance abuse treatment. "As the number of persons 65 years of age and older skyrockets with the aging of baby boomers, experts predict that prescription drug abuse among the elderly also will rise significantly" (McHenry-Martin, 2008, p. 930).

The 2009 NSDUH study found increases from 2002 to 2009 in the nonmedical use of prescription drugs. In 2009, the current nonmedical use of prescription drugs was 7 million or 2.8 percent of the population. The most significant increases were found in the 50-59 year old

population. The reporting of illicit drug use increased from 2.7 percent in 2002 to 6.2 percent in 2009 among this group per the NSDUH study. "These patterns and trends partially reflect the aging into these age groups of members of the baby boom cohort, whose rates of illicit drug use have been higher than those of older cohorts" (SAMHSA, 2010, p. 21).

One article placed a different spin on the nonmedical use of prescription drugs among the elderly. Culberson & Ziska authored "Prescription Drug Misuse/Abuse in the Elderly" in 2008 in which they discussed that the elderly do not take prescription drugs to get high. They concluded that prescription medication abuse later in life was both quantitatively and qualitatively different than younger age groups. They suggested that elderly individuals see multiple doctors due to multiple ailments and that can lead to overprescribing of addictive medications. This can lead to unsafe combinations of medications as well.

Arkes & Iguchi authored "How Predictors of Prescription Drug Abuse Vary by Age" in 2008. This research used NSDUH data compiled from 2001 to 2003. They looked at how the correlates of prescription drug abuse varied among several age groups, but they only looked at pain relievers and stimulants. They also factored in other illicit drug use such as marijuana as predictors for nonmedical use of prescription drugs. Their finding was that the NSDUH oversamples younger populations, which is used to gauge drug use patterns in those age groups. The NSDUH is designed to be a national representation of the population once weights are factored into the study. The authors suggested further research should be conducted on various age group populations and not just high school and college aged individuals.

Methods

Prescription drug abuse and diversion through previous research and studies has shown an increasing trend among the U.S. population. However, the majority of these studies have strictly focused upon youths and young adult populations. What has not been looked at in these studies is the aging of the prescription drug abuser. The significance of this study will be the findings of prescription drug abuse and the aging of the abuser by posing the following research questions:

1) Will nonmedical use of prescription drugs in three age groups (18-25, 26-49, and 50+) demonstrate increasing trends of abuse and diversion?

2) Does nonmedical use of prescription drugs and/or diversion increase with age?

This study used data already collected from the NSDUH survey that interviews approximately 68,000 individuals each year.... "and is the primary source of statistical information on the use of illegal drugs, alcohol, and tobacco by the U.S. civilian, noninstitutionalized population aged 12 or older" (SAMHSA, 2010, p. 7). This study also used data from the FBI UCR. The FBI collects data from law enforcement agencies regarding arrests of individuals and their offense and uses this data to compile the UCR. Table 38 of the UCR data displays this arrest information by age group and offense. Approximately 11,000 agencies report their arrest data to the UCR.

The method employed for this study is secondary quantitative analysis. "Secondary analysis, like content analysis, makes use of already existing data sources" (Trochim & Donnelly, 2008, p. 152). According to Babbie (2010), the reanalysis of secondary source data has positive and negative connotations (p. 288). The positive connotations are that the use of secondary analysis can be at little to no cost and it is faster than collecting original data. The

negative connotation involves the issue of validity. Since the research data collected was for

another purpose, there is no guarantee that the data will fit the needs of the research. For this

study, the use of secondary source data from NSDUH was found to be relevant and assessable.

The use of this data for secondary analysis has allowed the researcher to focus upon data already

collected in a large study and not struggle with developing survey questions, target population,

and collection of the data itself.

In this secondary analysis, the utilization of quantitative data that was originally

collected by the NSDUH and the UCR was conducted. Both quantitative data sources are used

to estimate prescription drug abuse, diversion, and arrests in the United States overall. Data

collected from NSDUH surveys has been utilized in several studies regarding prescription drug

abuse and diversion. For purposes of this study, the age groups from both sources were

narrowed to those that were 18 years old and older. This reduced the number of participants

included in this study from the overall population in the NSDUH data. Table 1 displays the

number of participants in each age group used for this study and can be found at Appendix A.

The approach used was to download the data from NSDUH and the UCR and import it

into Microsoft Excel® for further data manipulation and development of figures. Results from

the 2005 through 2009 NSDUH were downloaded from the Substance Abuse & Mental Health

Data Archive in SAS format. As the NSDUH data included items not relevant to this study, SAS

was utilized to filter only those items necessary. Table 2 displays the fields used for this study

and their description and can be found at Appendix B. The relevant data needed was then

imported into Microsoft Excel® for further data manipulation. Utilizing Microsoft Excel®, the

age groups previously mentioned were filtered from the rest of the age groups. The data was

further filtered separating each category of prescription drugs used for nonmedical purposes.

The NSDUH collects data on four nonmedical use categories: pain relievers (i.e. opioids to

include such drugs as OxyContin, oxycodone, hydrocodone, and fentanyl to name a few.);

tranquilizers (i.e. central nervous system depressants); stimulants (i.e. Adderall®); and, sedatives

(i.e. valium).

Further utilization of pivot charts in Microsoft Excel® was used to develop figures 1

through 9. The data for the first set of figures (figures 1-4) provided in the results section

illustrates overall percentage of the study population that use prescription drugs for nonmedical

use. This was completed by first filtering those respondents who answered "yes" to using non-

prescription drugs for each drug category and dividing that total by the total number of

participants in that age group. This provided the percentage of the age group that used

prescription drugs nonmedically. The use of pivot charts to construct the figures allows for easy

visualization of the data among the differing age groups.

An ancillary analysis was also conducted to examine the average number of days

individuals reported nonmedical use of prescription drugs during 2005 through 2009. This was

conducted by using Microsoft Excel® pivot charts as well. For each age group, individuals who

answered "yes" to using prescription drugs nonmedically were also asked the total number of

days they used the drug in the past 12 months. After filtering for each drug category, an average

was done for each age group for the five-year period. This is reflected in figures 5-8. All tables

used to construct figures 1-8 can be found at Appendix C.

FBI UCR data for arrests from 2005 through 2009 was downloaded into Microsoft

Excel®. The data was then filtered for only those arrests under the heading of "Drug Abuse

Violations". This accounts for arrests involving all drugs, as the UCR does not report on the

abuse and diversion of prescription drugs. The UCR arrest data provided by the FBI presents

arrests by age for 31 categories. These age groups listed by the FBI did not match the NSDUH

data, so the UCR data was manipulated by combining the age groups to mirror the NSDUH data

age groups as closely as possible. Utilizing a pivot chart, figure 9 was developed to illustrate the

number of arrests from 2005 through 2009 for drug abuse violations.

Results

The prevalence of prescription drug abuse showed variations of prescription drug abuse depending upon the drug category and age. Pain relievers had the highest overall percentage of abuse among the drug categories. This is consistent with literature regarding the abuse and diversion of opioids. Tranquilizers and stimulants were noted to be closely related in their overall percentage of abuse among the study population except for those 50 and older. After the age of 25, it began to decrease significantly and for those aged 65 and older it was almost nonexistent. One noted drug category in which the older population groups showed higher abuse was sedatives. Sedative abuse was almost nonexistent in the younger populations.

The UCR data shows similar trends in drug abuse violation arrests in the age groups being studied. In 2006, the highest number of arrests is in the age group 35-49 with 332,232 arrests. Since 2006, arrests in this age group have dropped, but they still outnumber other age groups in this study. The second highest arrests were in the age group of 24-29 with the average number of arrests being 263,993 from 2005 through 2009.

The average number of days a prescription drug was used nonmedically had different results than anticipated. Although those aged 65 and older reported little nonmedical use of prescriptions, those that did report nonmedical use had high averages of days of use in a 12-month period for several of the drugs. Although the older population reported using sedatives nonmedically more than the younger population groups, the average number of days' usage was higher for the younger population.

Pain relievers were noted to be the highest abused prescription drug category in this study. The highest usage group was those aged 22-23 with percentages of .39 to .41 with the highest being in 2006. Although this group was the highest shown to abuse, this study also

determined that those in their early 20's were the highest abusers of this drug category.

Significant drops in usage were seen in those age groups 30 to 50 with percentages of .28

dropping to .14 respectively. Figure 1 illustrates the nonmedical use of pain relievers by

percentage of the study population.

Figure 1. Nonmedical Use of Pain Relievers
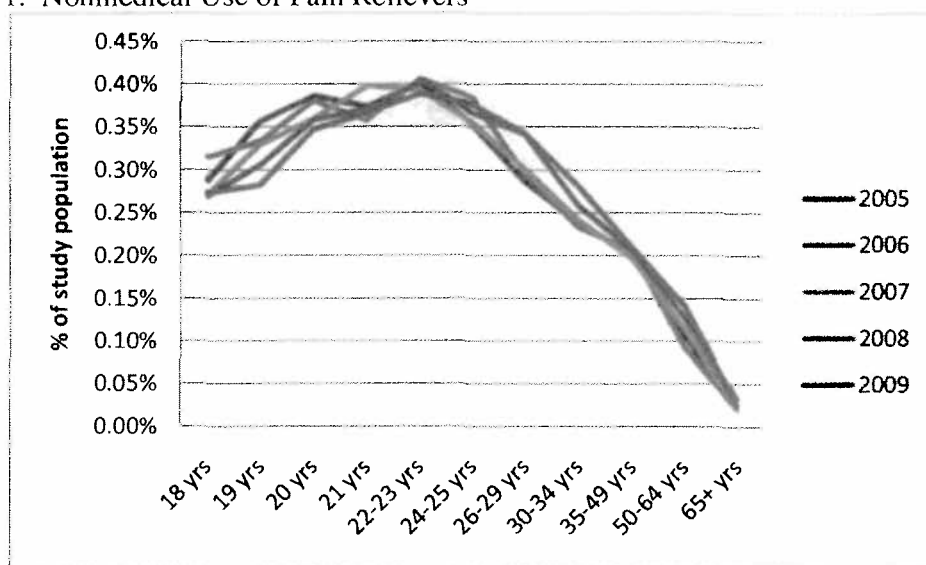
The nonmedical use of tranquilizers was found to be the second highest abused drug

category. The 22-23 age group was once again one of the highest abusing populations along

with the 24-25 year olds. Both age groups ranged from .17 percent to .19 percent with the

highest being in 2009. The nonmedical use of tranquilizers appears to be stable throughout the

18-49 year olds with significant drops once again seen in those 50 and older. Figure 2 illustrates

the nonmedical use of tranquilizers by percentage of the study population.

Figure 2. Nonmedical Use of Tranquilizers
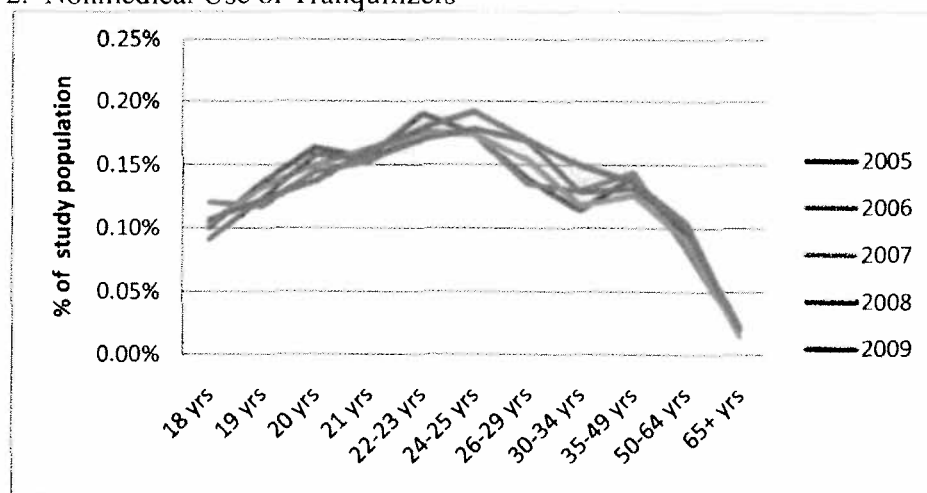
The next drug category studied was the nonmedical use of stimulants. The reported

nonmedical use of this drug category was very similar to that of tranquilizers. The highest

overall users were those in age group 24-25 with percentages being .14 percent to .16 percent

with .16 percent reaching the highest point in 2006. Those individuals aged 21 through 29 were

the highest to report nonmedical use of stimulants among the study population. Again, those

aged 50 and older showed lower nonmedical use of stimulants compared to the other age group

populations. Figure 3 illustrates the nonmedical use of stimulants by percentage of the study

population.

Figure 3. Nonmedical Use of Stimulants
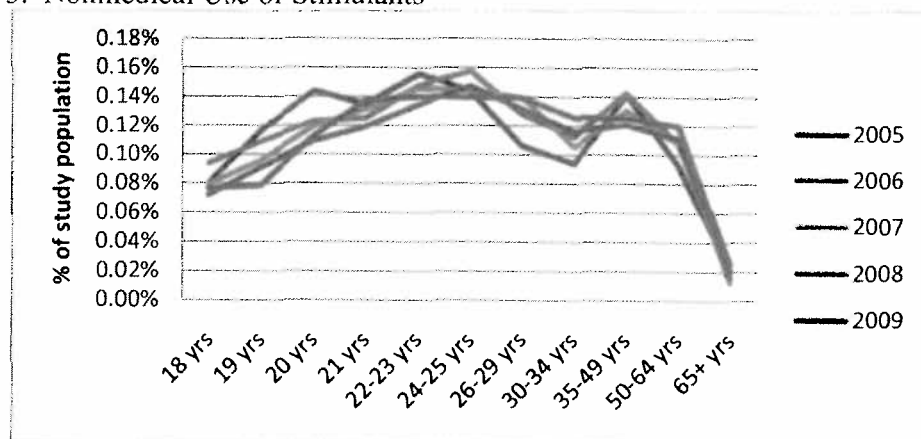
The drug category that showed significantly different results than the previous drug

groups was the nonmedical use of sedatives. The use of sedatives was almost nonexistent among

the age groups of 18-34. The age groups of 35-49 and 50-64 showed higher reported nonmedical

use of sedatives. The population of 18-34 year olds made up .01 percent to .02 percent in most

years except for 2008 with .03 percent for nonmedical use of sedatives. Those aged 35-49 and

50-64 made up the largest population for nonmedical use of sedatives in this study. For years

2005 and 2006, those 35-49 reported higher nonmedical usage while in 2007 through 2009 those

50-64 reported the highest percentage of nonmedical use with .08 percent. For those 65 and

older, the usage was almost nonexistent. Figure 4 illustrates the nonmedical use of sedatives by

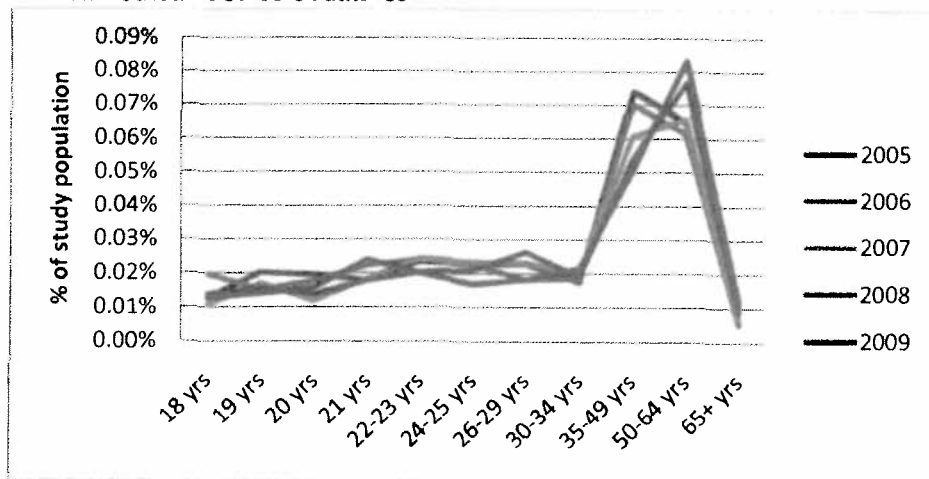percentage of the study population.

Figure 4. Nonmedical Use of Sedatives

In reviewing the UCR arrest data on drug abuse violations for 2005 through 2009, it

appears that those in age group 35-49 account for the most arrests. Arrests for drug abuse

violations start an upward trend at age 22 and seem to peak at age group 35-49. After age 49, the

trend drops significantly. The average number of arrests for drug abuse violations for those aged

35-49 from 2005 through 2009 was 306,784 individuals. The second largest group was those

aged 24-29 with an average of 263,993 individuals being arrested from 2005 through 2009.

Figure 5 illustrates the drug abuse violation arrests for those aged 18 and older from 2005

through 2009.

Figure 5. Arrests for Drug Abuse Violations
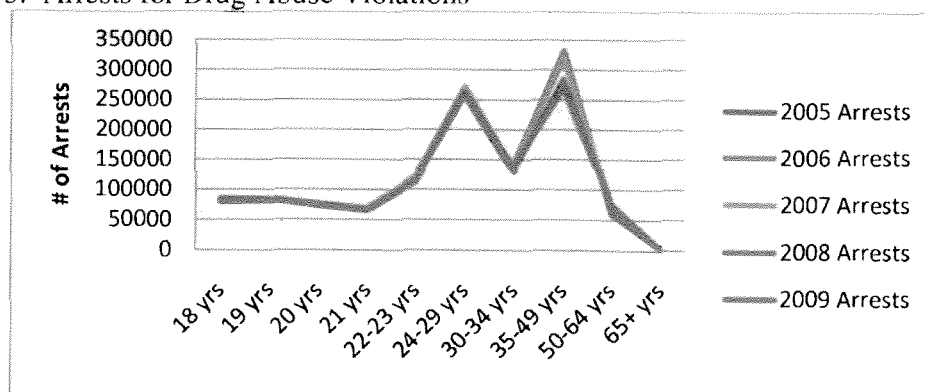
Additional analysis was done in this study looking at average number of days of

nonmedical use for each drug category. The NSDUH study asks participants who report

nonmedical use of prescription drugs to report the average number of days they used in the last

12 months. For the nonmedical use of pain relievers, the average number of days of use was

surprising. The age group of 65 and older, even though they had the lowest percentage of use

among the study population with .02 percent from 2005 through 2009, they had the highest

average number of days' usage except in 2007. The average number of days of use for all five

years for this age group was 54 days. The second highest average was 52 days of use by those in

the 50-64 age group. Their average was 52 days. Figure 6 illustrates the average number of days

of use for pain relievers.

Figure 6. Average Number of Days Use for Pain Relievers
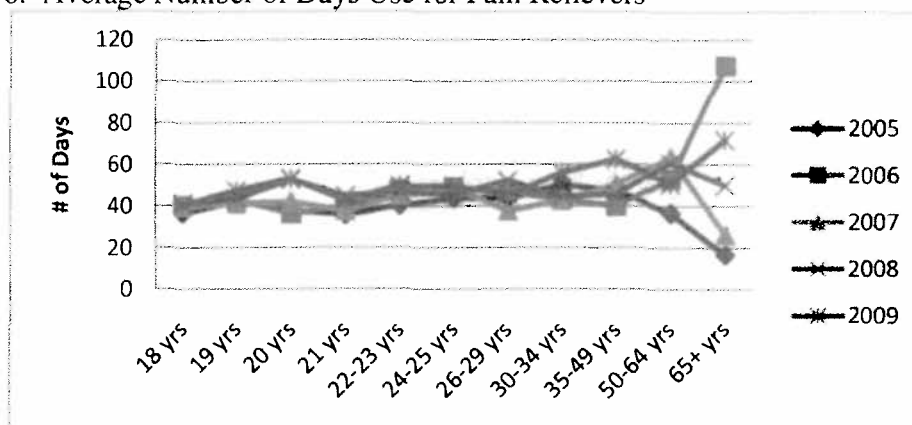
As seen with the pain reliever average number of days the older population once again

had more average number of days usage in the tranquilizer category. The 65 and older age group

had an average number of 67 days of use for the study period. Close behind was the 50-64 age

group with 56. All other age groups ranged from 36 to 40 days of usage. Figure 7 illustrates the

average number of days of use for tranquilizers.

Figure 7. Average Number of Days Use of Tranquilizers
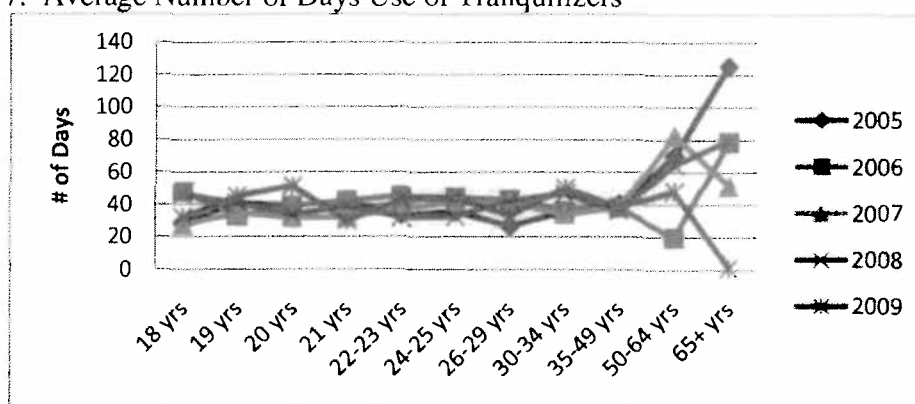
The average number of days of nonmedical use of stimulants showed that those in the 30-

34 and 65 and older age groups had the highest average number of days' usage for the period

with an average of 88 days. The 50-64 age group was a close second with an average of 84 days.

This is in contrast to the overall percentage use, which was highest in the 24-25 age group

compared to the other age groups. Figure 8 illustrates the average days of nonmedical use of

stimulants.

Figure 8. Average Number of Days Use of Stimulants
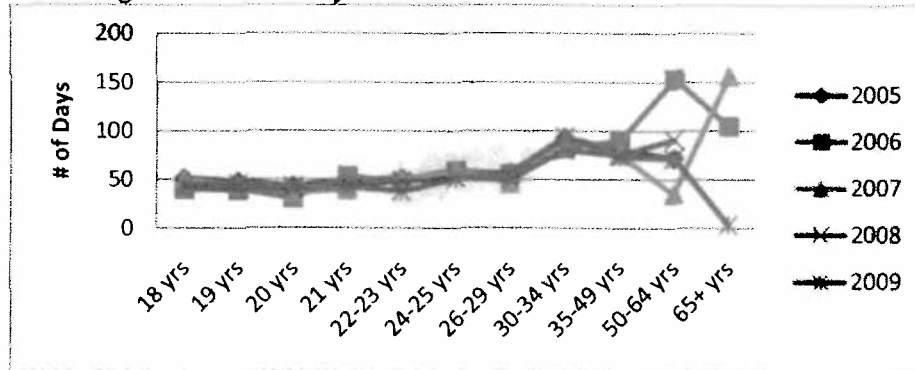
Sedative usage as stated earlier appeared to be occurring in the 35 to 64 age groups

however the age group that reported the highest average days of usage was the 26-29 year olds.

Their average days of use was 56 days for 2005 through 2009. A surprising second was the 19-

year-old group with an average usage of 53 days. Both of these age groups had percentage of

use at .02 percent whereas the highest percentage of usage was the 35-39 year olds.

Figure 9. Average Number of Days Usage for Sedatives
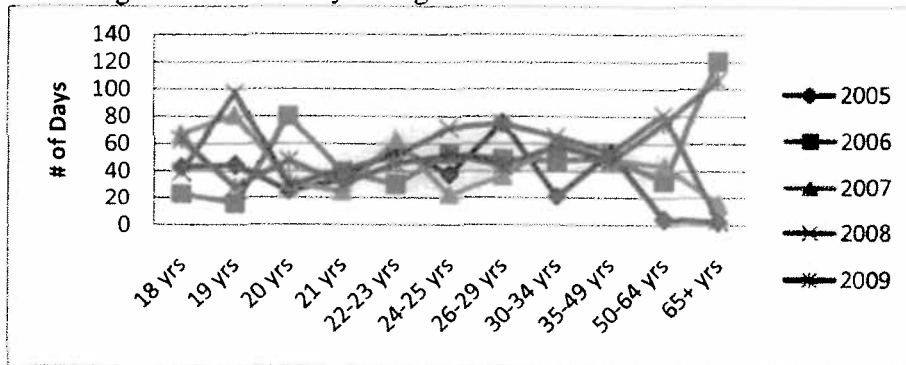
Discussion

The nonmedical use of prescription drugs has become the second most abused illicit drug category and yet there is little research to date that fully understands the abuse and diversion of these drugs among the differing age groups. What this study has contributed to this area of research is that age is a factor in the nonmedical use of prescription drugs. The differences in age of the nonmedical prescription drug user is that younger age groups may be using the drugs to get high or enhance a high, while older age groups may actually have a medical need for the drugs but do not have a legitimate prescription or are using prescriptions they have obtained from multiple physicians for various ailments.

The majority of past research and even current research focuses upon younger nonmedical users of prescription drugs. The few studies that have actually researched older populations either focus on one drug category or have small study populations so it is difficult to extrapolate those findings to such a large demographic. The baby-boomers are now entering the elderly population until 2030. This demographic will make up the majority of the U.S. population and this generation has been known to have higher instances of substance abuse. The percentages shown in this study are small, but the sample size must be taken into consideration. The NSDUH survey recruits approximately 68,000 participants each year. Age groups from 12-49 encompass more participants than do those 50 and older. This could account for the lower overall percentages of nonmedical use compared to other age groups.

Two research questions were posed early on in this study and they are:

1. Will nonmedical use of prescription drugs in three age groups (18-25, 26-49, and 50+) demonstrate increasing trends of abuse and diversion?

2. Does nonmedical use of prescription drugs and/or diversion increase with age?

The results do show increasing trends of nonmedical use among these three age groups; however, diversion is dependent upon the drug category. Those individuals in the study aged 18-25 did show increasing trends of abuse, but this was also dependent upon the drug category. With individuals aged 26-49, the increase varied among the group and was drug category dependent. For pain relievers, the nonmedical use seemed to decrease as the population aged, but for stimulants the use was somewhat stable. Once individuals reached their 50's, the nonmedical use seemed to drop significantly except for the use of sedatives. The drug category of sedatives was the stand out for nonmedical use for the older age groups. This could be due to the fact that sedatives include drugs used to help induce sleep and older populations tend to have trouble getting to and staying asleep.

From the data, it appears the largest group that engages in nonmedical use of prescription drugs is the 18-23 year olds. This age demographic includes those entering or currently attending college. The nonmedical use of prescription drugs was used for various reasons such as stimulants used to stay awake for studying or finishing projects. The use of pain relievers and tranquilizers was used to induce or enhance a high, so purely for recreational use. The study asked the question: Will the nonmedical use of prescription drugs in three age groups (18-25, 26-49, and 50+) demonstrate increasing trends of abuse and diversion? The study does demonstrate increasing trends of abuse and diversion, but it is drug category dependent. The younger age groups tend to abuse pain relievers, tranquilizers, and stimulants more than those 50 and older. Those prescription drug abusers 50 and older are shown to abuse sedatives more than the younger age groups. It appears that as the prescription drug abuser ages their choice of drug category also changes for nonmedical use.

Regarding the second question, it does appear that those who reported nonmedical use of prescription drugs in the 65 and older population had higher average days of nonmedical use of prescription drugs. There could be several reasons for this such as hording of prescription medications or like Arkes & Iguchi (2008) state "People with poor health may be more likely to obtain prescription drugs for legitimate reasons, which could then lead to abuse" (p. 1033). These individuals also are most likely to have insurance coverage such as Medicare so access to prescription drugs is readily available. Those individuals aged 50 and older also tend to have more medical issues which require prescription medications.

As we age we tend to require more medical care and often this includes prescription medications. According to Patterson & Jeste (1999), the elderly use prescription medications approximately three times more than the general population, and often receive prescriptions for longer periods than younger patients (p. 1185). Although this study population was small for those 50 and older they did have more average days of nonmedical usage of prescription drugs compared to the other age groups. If the survey population for those 50 and older were increased, would we also see an increase in reported nonmedical use of prescription drugs? The study asked the question: Does the nonmedical use of prescription drugs and/or diversion increase with age? The data does show that as prescription drug abusers age the nonmedical use of prescription drugs and/or diversion does increase, but this appears to be dependent upon the drug category. The data shows that those individuals 18 to 25 had higher instances of nonmedical use of prescription drugs, however; those individuals 50 and older that reported nonmedical use of prescription drugs actually had higher averages of days use.

Conclusion

The nonmedical use of prescription drugs is an increasing problem that is overlooked in our society. Prescription drugs are viewed as safe as there are manufacturing guidelines and the ingredients are precisely measured. This could be the lure of prescription drugs as illicit drugs such as cocaine and heroin often contain impurities that can have deadly consequences. However, prescription drugs can also have deadly consequences especially when taken nonmedically and in quantities not usually prescribed.

What does the future hold in the realm of prescription drug abuse/diversion? If one were to look at the data presented in this study one could conclude that prescription drug abuse/diversion will remain an issue in the U.S. For example if we look at the younger age groups, they do demonstrate a pattern of steady nonmedical use. It is possible that younger generations view prescription drugs as a safe alternative to street drugs (cocaine, heroin, and methamphetamines). The misconception that prescription drugs are safer than street drugs will continue to fuel the nonmedical use of prescription drugs for years to come.

Further research is needed in the area of nonmedical use of prescription drugs. Research should not focus only on high school and college aged individuals, but also the older population as well as it appears they have gone unnoticed in the majority of studies. Education of prescribers, pharmacists, patients, parents, and students on the dangers of taking these drugs without a legitimate need is warranted. Very little education regarding prescription drugs is provided by physicians or pharmacists unless a patient requests it. The role of the pharmaceutical companies should also be researched. Have increases in the nonmedical use of prescription drugs increased since pharmaceutical companies began directly marketing to society? Lastly, at what point will law enforcement agencies begin to see nonmedical use of

prescription drugs as a problem that has overtaken cocaine and heroin? Why do these agencies still focus more efforts on these drugs than drugs that are shown through studies to be abused more often? As seen with Rational Choice Theory offenders will weigh his/her personal gain against possible sanctions if caught. If law enforcement is not focusing their efforts on prescription drug abuse, and sanctions are not severe enough to deter the offender then prescription drug abuse will continue to be a growing problem in the U.S.

References

Arkes, J., & Iguchi, M. Y. (2008). How Predictors of Prescription Drug Abuse Vary by Age. *Journal of Drug Issues, 38*(4), 1027-1043.

Babbie, E. (2010). In C. Caldeira (Ed.), *The Practice of Social Research* (12th ed.). Belmont, Ca: Wadsworth.

Census. (2006). *Selected Characteristics of Baby Boomers 42 to 60 Years Old in 2006.* US Census Bureau. Retrieved from

http://www.census.gov/population/www/socdemo/age/2006%20Baby%20Boomers.pdf

Cicero, T. J., Dart, R. C., Inciardi, J. A., Woody, G. E., Schnoll, S., & Munoz, A. (2007). The Development of a Comprehensive Risk-Management Program for Prescription Opioid Analgesics: Researched Abuse, Diversion, and Addiction-Related Surveillance (*RADARS*). *Pain Medicine, 8*(2), 157-170. doi:10.1111/j.1526-4637.2006.00259.x

Culberson, J. W., & Ziska, M. (2008). Prescription Drug Misuse/Abuse in the Elderly. *Geriatrics, 63*(9), 22-31.

DEA. (n.d.). *Controlling Drugs or Other Substances: Formal Scheduling.* Retrieved from http://www.justice.gov/dea/pubs/abuse/1-csa.htm#Controlling

Fulton, M. M., & Allen, E. R. (2005). Polypharmacy in the Elderly: A Literature Review. *Journal of the American Academy of Nurse Practitioners, 17*(4), 123-132. doi:10.111/j.1041-2972.2005.0020.x.

Gu, Q., Dillion, C. F., & Burt, V. L. (2010). Prescription Drug Use Continues to Increase: U.S. Prescription Drug Data for 2007-2008. *NCHS Data Brief,* (42), 1-8.

Hamilton, G. J. (2009). Prescription Drug Abuse. *Psychology in the Schools, 46*(9), 892-898. doi:10.1002/pits.20429

Inciardi, J. A., & Cicero, T. J. (2009). Black Beauties, Gorilla Pills, Footballs, and Hillbilly

    Heroin: Some Reflections on Prescription Drug Abuse and Diversion Research over the

    Past 40 Years. *The Journal of Drug Issues, 39*(1), 101-114.

Inciardi, J. A., Surratt, H. L., Cicero, T. J., Kurtz, S. P., Martin, S. S., & Parrino, M. W. (2009).

    The "Black Box" of Prescription Drug Diversion. *Journal of Addictive Diseases, 28*(4),

    332-347. doi: 10.1080/10550880903182986

Inciardi, J. A., Surratt, H. L., Kurtz, S. P., & Burke, J. J. (2006). The Diversion of Prescription

    Drugs by Health Care Workers in Cincinnati, Ohio. *Substance Use & Misuse, 41*(2),

    255-264. doi: 10.1080/10826080500391829

Inciardi, J. A., Surratt, H. L., Kurtz, S. P., & Cicero, T. J. (2007). Mechanisms of Prescription

    Drug Diversion Among Drug-Involved Club-and Street-Based Populations. *Pain*

    Medicine, 8(2), 171-183. doi:10.1111/j.1526-4637.2006.00255.x

Kraman, P. (2004). Prescription Drug Diversion. *Trends Alert: Critical Information for State*

    Decision Makers, 1-28. Retrieved from

    http://www.csg.org/knowledgecenter/docs/TA0404DrugDiversion.pdf

McHenry-Martin, C. (2008). Prescription Drug Abuse in the Elderly. *The Consultant*

    Pharmacist, 23(12), 930-942. doi:10.4140/TCP.n.2008.930

NADDI. (2011). *National Association of Drug Diversion Investigators*. Retrieved from

    http://naddi.associationdatabase.com/aws/NADDI/pt/sp/home_page

NIDA. (n.d.). *Prescription Medications*. National Institute on Drug Abuse. Retrieved from

    http://www.nida.nih.gov/drugpages/prescription.html

Patterson, T. L., & Jeste, D. V. (1999). The Potential Impact of the Baby-Boom Generation on

    Substance Abuse among Elderly Persons. *Mental Health & Aging, 50*(9), 1184-1188.

SAMHSA. (2010). *Results from the 2009 National Survey on Drug Use and Health: Volume I.*

    Summary of National Findings. Rockville, MD: Office of Applied Studies. Retrieved

    from http://www.oas.samhsa.gov/NSDUH/2k9NSDUH/2k9ResultsP.pdf

TDD. (n.d.). *Tennessee Drug Diversion Task Force.* Retrieved from

    http://www.tndrugdiversion.org/what%20is%20drug%20diversion.htm

Trochim, W. M., & Donnelly, J. P. (2008). In M. Baird (Ed.), *Research Methods Knowledge*

    Base (3rd ed.). Mason, Ohio: CENGAGE Learning.

Tunnell, K. D. (2005). The Oxycontin Epidemic and Crime Panic in Rural Kentucky.

    Contemporary Drug Problems, 32(2), 225-258.

Appendix A: NSDUH Sample Population

Table 1. NSDUH Sample Population

Age	2005	2006	2007	2008	2009
18	3,062	3,055	3,178	3,364	3,392
19	2,894	2,754	2,850	3,009	3,105
20	2,792	2,640	2,714	2,762	2,810
21	2,725	2,830	2,711	2,867	2,786
22	2,784	2,653	2,642	2,823	2,753
23	2,772	2,717	2,721	2,877	2,806
24	2,737	2,684	2,719	2,779	2,775
25	2,745	2,615	2,652	2,724	2,577
26-29	3,209	3,188	3,308	3,232	3,175
30-34	3,647	3,452	3,600	3,373	3,449
35-39	3,164	3,022	3,192	3,118	3,090
40-44	3,535	3,164	3,252	3,179	3,172
45-49	3,400	3,211	3,532	3,474	3,434
50-54	1,511	1,698	1,575	1,601	1,640
55-59	1,279	1,476	1,337	1,360	1,386
60-64	1,045	1,107	1,028	1,121	1,135
65+	2,473	2,665	2,426	2,527	2,589
Total	**45,774**	**44,931**	**45,437**	**46,190**	**46,074**

Appendix B

Table 2. NSDUH Field Descriptions

Label	Description
AGE2	Final Edited Age
ANLEVER	Ever used pain relievers nonmedically
ANLYRTOT	Total # of days used pain reliever NM past 12 months
TRNEVER	Ever used tranquilizers nonmedically
TRNYRTOT	Total # of days used tranquilizers NM past 12 months
STMEVER	Ever used stimulants nonmedically
STMYRTOT	Total # of days used stimulants NM past 12 months
SEDEVER	Ever used sedatives nonmedically
SEDYRTOT	Total # of days used sedatives NM past 12 months

Appendix C

NonMedical Use of Pain Relievers

Row Labels	2005	2006	2007	2008	2009	Grand Total
18 yrs	0.29%	0.32%	0.27%	0.27%	0.27%	0.28%
19 yrs	0.36%	0.33%	0.33%	0.31%	0.28%	0.32%
20 yrs	0.39%	0.38%	0.36%	0.36%	0.35%	0.37%
21 yrs	0.37%	0.36%	0.40%	0.37%	0.37%	0.37%
22-23 yrs	0.40%	0.41%	0.39%	0.40%	0.39%	0.40%
24-25 yrs	0.35%	0.38%	0.36%	0.37%	0.38%	0.37%
26-29 yrs	0.29%	0.29%	0.30%	0.34%	0.34%	0.31%
30-34 yrs	0.24%	0.23%	0.24%	0.26%	0.28%	0.25%
35-49 yrs	0.20%	0.21%	0.20%	0.21%	0.21%	0.20%
50-64 yrs	0.11%	0.09%	0.11%	0.13%	0.14%	0.12%
65+ yrs	0.02%	0.02%	0.02%	0.03%	0.02%	0.02%
Grand Total	0.26%	0.26%	0.26%	0.27%	0.27%	0.26%

NonMedical Use of Tranquilizers

Row Labels	2005	2006	2007	2008	2009	Grand Total
18 yrs	0.10%	0.12%	0.10%	0.09%	0.11%	0.10%
19 yrs	0.14%	0.12%	0.13%	0.12%	0.12%	0.13%
20 yrs	0.16%	0.14%	0.15%	0.16%	0.14%	0.15%
21 yrs	0.16%	0.15%	0.16%	0.15%	0.16%	0.16%
22-23 yrs	0.19%	0.18%	0.18%	0.17%	0.18%	0.18%
24-25 yrs	0.17%	0.17%	0.17%	0.18%	0.19%	0.18%
26-29 yrs	0.14%	0.14%	0.15%	0.17%	0.17%	0.15%
30-34 yrs	0.11%	0.13%	0.12%	0.13%	0.15%	0.13%
35-49 yrs	0.14%	0.14%	0.13%	0.13%	0.14%	0.14%
50-64 yrs	0.09%	0.08%	0.09%	0.10%	0.10%	0.09%
65+ yrs	0.02%	0.02%	0.01%	0.02%	0.02%	0.02%
Grand Total	0.14%	0.13%	0.13%	0.13%	0.14%	0.13%

NonMedical Use of Stimulants

Row Labels	2005	2006	2007	2008	2009	Grand Total
18 yrs	0.08%	0.09%	0.08%	0.07%	0.08%	0.08%
19 yrs	0.12%	0.11%	0.10%	0.09%	0.08%	0.10%
20 yrs	0.14%	0.12%	0.12%	0.11%	0.11%	0.12%
21 yrs	0.13%	0.13%	0.13%	0.12%	0.14%	0.13%
22-23 yrs	0.16%	0.15%	0.15%	0.13%	0.14%	0.14%
24-25 yrs	0.14%	0.16%	0.14%	0.15%	0.14%	0.15%
26-29 yrs	0.11%	0.13%	0.14%	0.13%	0.14%	0.13%
30-34 yrs	0.09%	0.11%	0.11%	0.12%	0.13%	0.11%
35-49 yrs	0.14%	0.14%	0.13%	0.12%	0.13%	0.13%
50-64 yrs	0.09%	0.11%	0.11%	0.11%	0.12%	0.11%
65+ yrs	0.02%	0.01%	0.02%	0.02%	0.02%	0.02%
Grand Total	0.12%	0.12%	0.12%	0.11%	0.12%	0.12%

NonMedical Use of Sedatives

Row Labels	2005	2006	2007	2008	2009	Grand Total
18 yrs	0.01%	0.02%	0.01%	0.01%	0.01%	0.01%
19 yrs	0.02%	0.02%	0.02%	0.02%	0.01%	0.02%
20 yrs	0.02%	0.02%	0.01%	0.01%	0.02%	0.02%
21 yrs	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
22-23 yrs	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
24-25 yrs	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
26-29 yrs	0.02%	0.02%	0.02%	0.03%	0.02%	0.02%
30-34 yrs	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
35-49 yrs	0.07%	0.07%	0.06%	0.05%	0.05%	0.06%
50-64 yrs	0.06%	0.06%	0.07%	0.08%	0.08%	0.07%
65+ yrs	0.01%	0.00%	0.01%	0.01%	0.01%	0.01%
Grand Total	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%

Average Days Use of Pain Relievers

Row Labels	2005	2006	2007	2008	2009	Grand Total	Average
18 yrs	36	40	39	41	41	39	39
19 yrs	42	43	41	44	47	43	43
20 yrs	38	36	42	53	53	44	44
21 yrs	36	40	38	45	43	40	40
22-23 yrs	40	48	45	47	50	46	46
24-25 yrs	44	49	49	46	50	48	48
26-29 yrs	44	47	38	52	45	45	45
30-34 yrs	50	43	43	45	56	48	47
35-49 yrs	47	40	50	46	63	49	49
50-64 yrs	37	53	64	61	51	53	53
65+ yrs	17	107	26	50	72	53	54

Average Days Use of Tranquilizers

Row Labels	2005	2006	2007	2008	2009	Grand Total	Average
18 yrs	29	48	27	46	32	37	36
19 yrs	41	33	35	41	45	39	39
20 yrs	39	39	32	34	51	39	39
21 yrs	41	42	32	38	30	37	37
22-23 yrs	33	45	37	32	43	38	38
24-25 yrs	36	44	42	33	44	40	40
26-29 yrs	26	43	41	42	33	37	37
30-34 yrs	36	36	34	47	50	41	40
35-49 yrs	40	38	38	36	38	38	38
50-64 yrs	70	19	82	64	48	57	57
65+ yrs	125	78	51	79	1	69	67

Average Days Use of Stimulants

Row Labels	2005	2006	2007	2008	2009	Grand Total	Average
18 yrs	51	39	50	44	44	45	46
19 yrs	48	39	44	39	46	44	43
20 yrs	43	31	36	40	43	39	39
21 yrs	50	54	39	43	43	45	46
22-23 yrs	52	48	50	49	38	47	47
24-25 yrs	57	59	61	51	51	56	56
26-29 yrs	57	56	46	51	56	53	53
30-34 yrs	93	83	91	80	95	88	88
35-49 yrs	80	89	75	75	74	79	79
50-64 yrs	72	153	34	91	71	92	84
65+ yrs		104	156		3	88	88

Average Days Use of Sedatives

Row Labels	2005	2006	2007	2008	2009	Grand Total	Average
18 yrs	43	23	67	39	63	43	47
19 yrs	44	16	81	97	28	54	53
20 yrs	25	80	32	29	48	39	43
21 yrs	34	40	25	41	30	34	34
22-23 yrs	58	31	63	51	45	50	50
24-25 yrs	38	53	22	72	52	49	47
26-29 yrs	75	49	37	75	44	55	56
30-34 yrs	21	48	61	65	59	52	51
35-49 yrs	54	49	48	54	47	50	50
50-64 yrs	4	32	44	81	75	48	47
65+ yrs	2	120	16	3	106	54	49