

Factors Associated with Using Study Drugs among Young Adults

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The use of stimulant drugs such as Adderall has been on the rise in the U.S. Using data from the 2011 National Survey on Drug Use and Health (NSDUH), this study explored to what extent young adults use nonmedical prescription stimulant such as Adderall and investigated factors associated with nonmedical Adderall use. The total sample of 19,302 young adults between the ages of 18 and 25 were analyzed. The descriptive result reveals that about 11.3 percent of the young adults reported their use of Adderall without a prescription. The logistic regression results show that the use of other nonmedical prescription stimulants such as Methamphetamine, Ritalin, or stimulant Diet pill increased the likelihood of nonmedical Adderall use. Implications for parents, consumer educators, and college administrators include ways to identify predictors and provide support for young adults at risk of using study drugs illegally.

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OVERVIEW AND LITERATURE

The most used substances by young adults include alcohol, nicotine, illegal drugs (e.g. marijuana and cocaine), and prescription drugs. The use and abuse of these various substances has ebbed and flowed over the past several decades. These substances are often used to medicate pain, debilitation, or illness, however they are commonly abused for diversion. One substance in particular, prescription stimulants, is currently prescribed more often and for more reasons than ever before (Diller, 2011; Sepúlveda, Thomas, McCabe, Cranford, Boyd, & Teter, 2011). Additionally, as a potentially concerning trend, prescription stimulants have been increasingly used as study aids among adolescents and young adults (Arria & DuPont, 2010; Dodge, Williams, Marzell, & Turrisi, 2012; McCab, Knight, Teter, & Wechsler, 2004; Stolz, 2012).

A broadly prescribed Attention Deficit and Hyperactivity Disorder (ADHD) medication, Adderall, is one of the most abused prescription stimulants in America (Ricker & Nicolino, 2010; Stolz, 2012). Long before the deleterious effects were known, stimulants were used for weight-loss and depression solutions, World War II pilots used stimulants to stay awake and alert, and professional baseball players used them to enhance their athletic performance (Center for Substance Abuse Treatment, 1999). As more and more children were being diagnosed with ADHD, stimulants re-emerged as a treatment for the associated maladies in the 1990s. During the 1992 to 2002 period, the prescriptions written for ADHD medications increased more than 300%. Mixed reports around the world on the potential side-effects of stimulants created concern surrounding the use of many ADHD medications.

In the mid-1990s, Adderall was developed by pharmaceutical companies in response to some of the weaknesses and side effects found in earlier forms of ADHD medication (Diller, 2011). Adderall is a brand name and legal prescription drug which contain a combination of Amphetamine and

Dextroamphetamine, and it stimulates the individual's brain and helps one increase in memory and retention of information (Diller, 2011; Drugs Laws, 2012). In Canada, Adderall was temporarily banned following a number of unexpected deaths (Sichilima & Rieder, 2009). According to the 2006 Food, Drug, and Cosmetic Act, Adderall is a federally controlled substance which can lead to dependence when it is not used appropriately; thus, it can only be distributed by a health practitioner's prescription and Adderall use without a prescription is illegal (Food and Drug Administration, 2012). However, Adderall is one of the most abused prescription stimulants in America today (Ricker & Nicolino, 2010; Stolz, 2012), increasingly misused by college students because it helps them concentrate or stay awake longer to study (Arria, O'Grady, Caldeira, Vincent, & Wish, 2008; Garnier-Dykstra, Caldeira, Vincent, O'Grady, & Arria, 2012; Simons, Gaher, Wray, & Reed, 2012).

Adderall has various potential side effects such as anxiety, depression, pervasive aggression, heart palpitations, seizures, stroke, and cardiovascular risks (Food and Drug Administration, 2012; Huffpost, 2010; Ricker & Nicolino, 2010; Teter, Falone, Cranford, Boyd, & McCabe, 2010). Like other powerful stimulant drugs such as methamphetamine and cocaine, Adderall elevates mood, increases feelings of well-being, and increases energy and alertness. Adderall is also considered seriously addictive and has been found to be a gateway drug that may lead to other illicit drugs such as cocaine or heroin (Jacobs, 2005; Ricker & Nicolino, 2010).

Though only approved for the medication of symptoms related to ADHD, Adderall has been increasingly abused as a "study drug" (Garnier-Dykstra et al., 2012; Simons et al. 2012). Non-medical Adderall is used by college students and young adults as a concentration aid during prolonged study periods (i.e. cramming) in an effort to improve academic performance (Desantis & Hane, 2010; Dodge et al., 2012; Jacobs, 2005; Schwartz, 2012). More than 67 percent of college students at multiple universities reported knowing other college students who had used ADHD medication without a prescription (Huff, 2012). However, McCabe, Trevino, and Butterfield (2001) indicated that the number of college students who use unfair practices to achieve academic success has remained constant over the years.

Students, who believe that others are cheating by using illicit drugs, are more likely to commit these behaviors themselves (Engler, Landau, & Epstein, 2008). Similarly, Joireman, Kees, and Sprott (2010) asserted that individuals who were motivated by immediate contentment were more likely to justify unprincipled behavior. More than 60 percent of all college students had ever "diverted" (shared, sold, etc.) their ADHD prescriptions (Garnier, Arria, Caldeira, Vincent, O'Grady & Wish, 2010). ADHD medications were shared or sold by college students almost twice as much as any other prescribed medication (Garnier et al., 2010; Rabiner, Anastopoulos, Costello, Hoyle, McCabe, & Swartzwelder, 2009).

It is evident that many students acquire Adderall without a prescription (Garnier et al., 2010; Huff, 2012; Stolz, 2012). While this prescribed stimulant is known as a "smart drug" that could create academic advantages, college students who took ADHD medication without a prescription were actually more likely to experience poorer academic performance (Arria & Dupont, 2010). College students who reported abusing drugs or illicit substances had a low commitment to their schooling (Stephen & Joshua, 2002). Nonetheless, some young adults express that the use of drugs for cognitive enhancement should not be illegal (Greely, Shaakian, Harris, Kessler, Gazzaniga, Campbell, & Farah, 2008).

There might be a lack of understanding of its numerous negative effects as well as a lack of concern or awareness by parents, educators, college administrators, and the public. It is, therefore, important to conduct research in this area to better understand the potential costs to individuals, families, and society. It is noted that young adults were more likely to use positive behaviors when those principles were taught in the home (Robb, 2011). Besides the consumer, legal, and health consequences of illicit Adderall abuse, pharmacological performance enhancement of body and mind can be considered

cheating (Arria & DuPont, 2010; Dodge et al., 2012; Goodman, 2010) although the argument is by no means a consensus (Aikins, 2011; Desantis & Hane, 2010). College administrators should recognize and target with appealing campaigns, students who abuse Adderall and their families to influence and educate others who are using Adderall without a prescription.

Using data from the 2011 National Survey on Drug Use and Health (NSDUH), this study was designed to explore to what extent young adults use Adderall without a prescription, to examine any association between the college context and nonmedical Adderall use, and to investigate socio-demographic factors associated with nonmedical Adderall use in the United States. Identifying these factors can shed additional light on existing literature and provide implications for parents, consumer educators, college administrators, health care professionals, and law-makers.

METHODS

Data and Sample

This study employed data from the 2011 National Survey on Drug Use and Health (U.S. Department of Health and Human Services, 2011). The U.S. Department of Health and Human Services (2011) provides Substance Abuse and Mental Health Data Archive. The National Survey on Drug Use and Health (NSDUH) series measures the prevalence and correlates of drug use in the United States. The surveys are designed to provide information on the use of illicit drugs, alcohol, and tobacco among nearly 70,000 randomly selected study participants aged 12 and older.

To understand the prevalence of nonmedical Adderall use and to explore the factors associated with nonmedical Adderall use, this study focused on young adulthood. In particular, to capture the relationship between the college context and nonmedical Adderall use, a sample of 19,302 young adults between the ages of 18 and 25 was analyzed. The majority of the study sample (72.9%) was not enrolled in college, and only 27.1 percent reported that they were enrolled as fulltime college students.

TABLE 1: Measurement of Variables and Summary Statistics of Young Adults Aged 18-25 (N=19,302)

Variables	Measurement	Percent
Dependent Variable:		
Adderall Use	1 if R ever used that was not prescribed, 0 if otherwise	11.3%
Explanatory Variables:		
College Enrollment:		
Enrolled full-time	1 if R full time college students, 0 if otherwise	27.1%
(Not enrolled)	1 if R not enrolled in college, 0 if otherwise	72.9%
Education:		
(Less than high)	1 if R high school drop-out, 0 if otherwise	17.8%
High school diploma	1 if R high school graduate, 0 if otherwise	36.0%
Some college	1 if R some college, 0 if otherwise	33.0%
College degree	1 if R college graduate, 0 if otherwise	13.2%
Ritalin:		
User	1 if R ever used Ritalin, 0 if otherwise	5.2%

Methamphetamine:		
User	1 if R ever used Methamphetamines, 0 if otherwise	3.1%
Diet pills:		
User	1 if R ever used stimulant Diet pill, 0 if otherwise	1.7%
Illicit Drug Dependence:		
Yes	1 if R illicit drug dependence, 0 if otherwise	5.1%
Age:		
Ages 18-19	1 if R's age 18-19, 0 if otherwise	26.9%
Ages 20-21	1 if R's age 20-21, 0 if otherwise	25.2%
Ages 22-23	1 if R's age 22-23, 0 if otherwise	24.1%
(Ages 24-25)	1 if R's age 24-25, 0 if otherwise	23.8%
Gender:		
(Female)	1 if R female, 0 if otherwise	52.0%
Male	1 if R male, 0 if otherwise	48.0%
Race:		
White	1 if R Non-Hispanic White, 0 if otherwise	60.3%
Black	1 if R Black/African American, 0 if otherwise	13.2%
Asian	1 if R Asian, 0 if otherwise	3.6%
Hispanic	1 if R Hispanic, 0 if otherwise	17.3%
(Other race)	1 if R more than one race, 0 if otherwise	5.6%
Overall health:		
Poor	1 if R poor/fair, 0 if otherwise	5.7%
Good	1 if R good, 0 if otherwise	65.0%
(Excellent)	1 if R excellent, 0 if otherwise	29.3%
County type:		
Large metro	1 if R living in large metro area, 0 if otherwise	43.0%
Small metro	1 if R living in small metro area, 0 if otherwise	36.6%
(Rural area)	1 if R living in rural area, 0 if otherwise	20.4%

Note. () represent reference groups in multivariate analysis.

Table 1 shows that 5.2 percent, 3.1 percent, and 1.7 percent of young adults reported having used Ritalin, Methamphetamine, and Diet pills, respectively. Among the sample, 5.1 percent reported they were dependent on any illicit drug. Table 1 presents the age distribution of the sample: e.g., 26.9 percent were between the ages of 18 and 19, 25.2 percent were between the ages of 20 and 21, 24.1 percent were between the ages of 22 and 23, and 23.8 percent were between the ages of 24 and 25.

The study sample consisted of 48 percent males and 52 percent females. The largest portion (60.3%) of the sample were Whites, 13.2 percent were Blacks, 3.6 percent were Asians, 17.3 percent were Hispanics, and 5.6 percent identified as having more than one race/ethnicity. Approximately, 94.3 percent reported excellent or very good health, while only 5.7 percent reported their health to be poor or fair. The majority (79.6%) lived in large or small metropolitan areas, only 20.4 percent reported living in non-metro areas.

Analysis

To obtain the descriptive information for the study sample -young adults between the ages of 18 and 25, univariate analyses for selected socio-demographic variables were performed. Cross-tabulations were employed to examine socio-demographic differences between the Adderall users and non-users. In the multivariate analysis, a logistic regression analysis was conducted to investigate factors associated with using nonmedical Adderall among young adults.

The dependent variable in the multivariate analysis was whether the respondents had ever used Adderall without a prescription. In the empirical model, a dichotomous variable was included where a “1” represented “yes” that they ever used Adderall without a prescription, whereas the value of zero was assigned to those who had never used Adderall without a prescription. To identify factors associated with the likelihood of nonmedical Adderall use, the following independent variables were included in the logistic regression model: college full-time enrollment status, college attendance experience, experiencing other nonmedical prescription stimulant, age, gender, race, health status, and county size. The measurements of variables included in the multivariate analysis can be seen in the Table 1.

FINDINGS

Descriptive Results

The results of the χ^2 -test indicate that there were significant differences between the Adderall users (n=2,178) and non-users (n=17,124). Table 2 presents the association between the college context variables and nonmedical use of Adderall among young adults. A larger portion of full-time enrolled college students reported using Adderall (12.9%) than not enrolled group (10.7%). It shows that a larger portion of those who had attended some college (13.8%) or received a college degree (16.8%) reported using Adderall more than in those who reported either graduated or dropped out of high school (8.4% and 8.4%, respectively). As for the other stimulant drugs, it is noteworthy that young adults who had used Ritalin reported to have used Adderall (83.2%), whereas those who had never used Ritalin reported never having used Adderall. Additionally, nearly 10 percent of those who reported having illicit drug dependence also reported using Adderall.

Table 2: Association between College Context, Socio-demographics, and Nonmedical Adderall Use among Young Adults Aged 18-25 (N=19,302)

Variables		Adderall		Test-Statistics
		Non-Users (n=17,124)	Users (n=2,178)	
College enrollment:	Enrolled full-time	87.1%	12.9%	$\chi^2 = 19.69^{***}$
	Not enrolled	89.3%	10.7%	
Education:	High school drop-out	91.6%	8.4%	$\chi^2 = 203.71^{***}$
	High school diploma	91.6%	8.4%	
	Some college attendance	86.2%	13.8%	
	College degree	83.2%	16.8%	
Ritalin:	Ever used	16.8%	83.2%	$\chi^2 = 254.09^{***}$
	Never	52.5%	47.5%	
Methamphetamine:	Ever used	49.3%	50.7%	$\chi^2 = 117.49^{***}$
	Never	23.8%	76.2%	
Diet pills:	Ever used	39.7%	60.3%	$\chi^2 = 9.86^{***}$
	Never	30.7%	69.3%	

Illicit Drug Dependence:	Yes	90.3%	9.7%	$\chi^2 = 850.58^{***}$
	No	60.2%	39.8%	
Age:	Ages 18-19	91.1%	8.9%	$\chi^2 = 54.19^{***}$
	Ages 20-21	87.4%	12.6%	
	Ages 22-23	86.9%	13.1%	
	Ages 24-25	89.2%	10.8%	
Gender:	Male	87.1%	12.9%	$\chi^2 = 46.99^{***}$
	Female	90.2%	9.8%	
Race/Ethnicity:	White	84.5%	15.5%	$\chi^2 = 573.53^{***}$
	Black	97.8%	2.2%	
	Asian	93.7%	6.3%	
	Hispanic	95.2%	4.9%	
	More than one race	89.7%	10.3%	
Health status:	Poor	90.4%	9.6%	$\chi^2 = 19.06^{***}$
	Good	88.0%	12.0%	
	Excellent	90.0%	10.0%	
Country size:	Large metropolitan	88.6%	11.4%	$\chi^2 = 13.86^{***}$
	Small metropolitan	88.0%	12.0%	
	Rural	90.3%	9.7%	

* P < .05 ** P < .01 *** P < .001

Table 2 also profiles the socio-demographic characteristic of young adults who reported using Adderall. Larger percentages of Adderall users were found between the ages of 20 and 23, whereas larger percentages of Adderall non-users were found either between the ages of 18-19 or 24-25. This finding might suggest that Adderall is being used more by college sophomores or juniors. Among those who reported using Adderall, there were more males than females (12.9% vs. 9.8%, respectively). Additionally, White young adults reported using Adderall more often than any other ethnic group. Young adults who rated their health as either “good” or “excellent” were more likely to report using Adderall than those who rated their health as “poor”. Finally, when compared to those living in rural areas, young adults living in metropolitan areas were more likely to report using Adderall.

Multivariate Results

Table 3 shows the factors associated with the likelihood of ever using Adderall without a prescription ($\chi^2 = 4180.705^{***}$). The results of logistic regression analysis reveal significant predictors of non-medical Adderall use by young adults aged 18-25. The significant predictors are full-time college enrollment, some college education, college degree, Ritalin use, Methamphetamine use, stimulant Diet pill use, illicit drug dependence, age, gender, race, health status, and county size.

Table 3: Logistic Regression Results: Study Drugs Use among Young Adults Aged 18-25 (N=19,302)

Variables	Parameter Estimates	Odds Ratio Estimates	95% Wald Confidence Limits	
College enrollment: (Not enrolled)				
Enrolled full-time	0.1659*	1.181	1.016	1.372
Education: (Less than high school)				
High school diploma	-0.0465	0.955	0.791	1.152
Some college attendance	0.4758***	1.609	1.313	1.972
College degree	0.7851***	2.193	1.736	2.769
Other nonmedical stimulant use:				
Ritalin	3.7007***	40.475	33.538	48.847
Methamphetamine	1.2886***	3.628	2.826	4.657
Diet pills	1.4471***	4.251	3.049	5.928
Illicit drug dependence	1.5295***	4.616	3.852	5.532
Age: (Ages 24-25)				
Ages 18-19	0.2449*	1.278	1.043	1.564
Ages 20-21	0.4237***	1.528	1.271	1.836
Ages 22-23	0.3229***	1.381	1.175	1.623
Gender: (Female)				
Male	0.3551***	1.426	1.277	1.594
Race: (White)				
Black	-1.8090***	0.164	0.122	0.220
Asian	-1.0401***	0.353	0.246	0.507
Hispanic	-1.1451***	0.318	0.262	0.387
Other race	-0.4326***	0.649	0.505	0.833
Overall health: (Poor)				
Good	0.2103	1.234	0.944	1.613
Excellent	0.0627	1.065	0.802	1.413
County type: (Non-metro)				
Large metro	0.4026***	1.496	1.278	1.750
Small metro	0.3011***	1.351	1.156	1.580
Intercept	-3.6032			

Equation Log Likelihood =9423.659
 $\chi^2=4180.705^{***}$

* P < .5 ** P < .01 *** P < .001

Note: () represents reference group.

Based on Table 3, it can be said that all else being equal, full-time enrolled college students were more likely to use Adderall without a prescription than were those not enrolled in college. It is also noted that having some college experience or having a college degree increased the likelihood of nonmedical Adderall use among young adults. For example, young adults with some college education and a college degree were, 61% and 119%, respectively, more likely to use Adderall without a prescription than were high school drop-outs. These findings might lend credence to the argument - Adderall is used as “a study drug” in the context of academic enhancement.

The literature suggested that young adults concurrently use drugs or illicit substances in young adulthood (Arria & DuPont, 2010; McCabe et al., 2004). The findings of this study suggest that all else being equal, when young adults have ever used Ritalin non-medically, they were 3,948% more likely to use Adderall without a prescription than those who have never used Ritalin. The reason for this strong association is most likely due to the fact that before Adderall was introduced to the market, Ritalin was commonly prescribed for ADHD. The findings of this study also suggest that all else being equal, when young adults have ever used Methamphetamines non-medically, they were 263% more likely to use Adderall without a prescription than those who have never used Methamphetamines. Similarly, young adults, who have ever used stimulant-based Diet pills, were 325% more likely to use Adderall without a prescription than those who had never used such Diet pills.

It was also noted that those with illicit drug dependence were more likely to use prescription stimulants non-medically (Arria, Wilcox, Caldeira, Vincent, Garnier-Dykstra & O’Grady, 2013). The findings of this study also indicate that young adults addicted to illicit drugs could be more likely to be involved with this prescribed stimulant. For example, the logit results show that all else being equal, young adults, who were dependent on any illicit drugs, were 362% more likely to experiment with nonmedical Adderall than those who were not dependent on any illicit drugs.

Table 3 shows that the coefficients associated with three age dummy variables were statistically significant, suggesting that age of the young adults significantly influenced nonmedical Adderall use. It is interesting to note that those in young adulthood were more likely to experience nonmedical Adderall use than were those in post-college age. That is, those participants age 18-19, age 20-21, and age 22-23 were 28%, 53%, and 38%, respectively, more likely to use Adderall non-medically than were young adults between the ages of 24 and 25. The results imply that the period of time between the ages of 18 and 23 is the most significant for young adults potentially experimenting with Adderall without a prescription.

This study attempted to investigate how gender, race, health status, and type of county in which one resides are associated with nonmedical Adderall use. The logit results suggest that male young adults were 43% more likely to use Adderall without a prescription than were female young adults. Table 3 reveals that Black, Asian, and Hispanic young adults were 84%, 65%, and 68% respectively, less likely to use Adderall without a prescription than White young adults. Table 3 also presents that all else being equal, young adults living in large and small metropolitan areas were 50% and 35%, respectively, more likely to use Adderall without a prescription than were those living in rural areas.

SUMMARY, DISCUSSION, AND CONCLUSIONS

In the United States, “study drugs” are increasingly being used without a prescription and widely being used in the context of academic enhancement. The main purpose of this study was to explore to what extent young adults have ever used Adderall in the college context and to investigate factors associated with the likelihood of using Adderall without a prescription among young adults. The findings of this study reveal that 11.3 percent of young adults have ever used Adderall without a prescription. Descriptive results show that larger proportions of Adderall users are found to have completed at least some college and/or enrolled in college full time. Multivariate results reveal that after holding other variables constant, being enrolled in college full-time or having some campus experience increases the likelihood of using Adderall without a prescription. These results support the evidence from previous studies that Adderall may be “a study drug” or “smart drug” which has been used to enhance academic success among college students (Arria & DuPont, 2010; Dodge et al., 2012; McCabe et al., 2004; Stolz, 2012). Some young adults might permit the use of prescription stimulants because those substances allow for users to have extraordinary levels of sustained concentration (i.e. cramming for exams) potentially enhancing lackluster academic performance.

The logit results show that the use of other nonmedical stimulants and illicit drug dependence are significant predictors for nonmedical Adderall use among young adults. For example, non-medical use of other stimulants such as Ritalin or Methamphetamine significantly increases the likelihood of Adderall use without a prescription. The logit results also suggest that young adults who have been addicted to illicit drugs are more likely to use Adderall without a prescription than are those who report no such addictions. These findings are consistent with the literature that college students, who take other illegal drugs, are more likely to take ADHD medication without a prescription (Arria & DuPont, 2010; McCabe et al., 2004).

Significant socio-demographic predictors of nonmedical Adderall users such as, gender, racial background, and area of residence increased the likelihood of using study drugs among young adults. Young males were more likely to be involved in using Adderall than were young females, and young adults who identified as White were more likely to use Adderall than those who identified with other racial backgrounds. Young adults residing in metropolitan areas were more likely to report nonmedical Adderall use than were those living in rural areas. Consumer educators and interventionists should be made aware of the predictors of nonmedical Adderall use in order to provide guidance to groups who are most commonly using Adderall without a prescription. These predictors could be utilized in consumer education when designing educational or intervention programs to target and inform associated subgroups of young adults or college students.

College administrators need to be educated about the prevalence and dangers of nonmedical stimulants such as Adderall on college campuses and help students recognize the risks or side effects when they are steadily abused. Engler et al. (2008) pointed that consequences, like those delineated in an honor code, are not likely to stop students from cheating. Nonetheless, college students who ignore “prescription sharing” might be enhancing the “public acceptance of this illicit behavior”; therefore, the use of study drugs on college campuses needs to be campaigned as cheating or unethical. Some athletic students caught using steroids during athletic competitions are penalized by forfeiting their accomplishments, their eligibility, and often their enrollment at school. Likewise, similar rules or penalties might need to be emphasized and enacted by administrators to ban any nonmedical use of prescription stimulants on college campuses, while a stigma similar to that of steroid abuse might need to be received by the public.

The findings of this study also imply that parenting could play an important role in educating or deterring young adults from Adderall abuse. Parents need to be aware of the effects of nonmedical

stimulant abuse – illegality, side effects, and risk of losing scholarships. For example, parent permissiveness and modeling (parental attitudes towards drinking or credit card use) negatively impacted consumption behavior among young adults (Abar, Abar, & Turrisi, 2009; Robb, 2011). Based on a better understanding of the predictors highlighted in the current research, programs/education/extension services should work within the students' systems to harness the positive impact of home life (Parsai, Marsiglia, & Kulis, 2010; Robb, 2011) and positive social pressures (McCabe et al., 2001). These initiatives can be developed to help young adults abstain from illicit drug abuse, irrespective the reason. Additionally, when programs are crafted to appeal to the intended population there is a much higher likelihood of participation (Nenkov & Scott, 2014). Peers and parents have been found to be more supportive of the use of drugs when grades and scholarships are on the line (Jacobs, 2005; Schwarz, 2012).

Friends and parents, who have been found to ignore nonmedical stimulant abuse for academic purposes, could be a greater hindrance than a help to this phenomena. However, friends and family should be supportive of healthy living and the pursuit of academic excellence, not of wanton department in the name of good grades or academic success. Notwithstanding the reasons for the nonmedical use of prescription stimulants, there might need to be a greater push for consumer education and understanding of all the health risks, academic, and legal implications.

Adderall is a controlled substance and can only be distributed and used under a health practitioner's supervision. It is an addictive substance and has the potential for several side effects, including severe cardiovascular issues. The findings of this study imply that certain factions of society are more likely to abuse stimulants with and without a prescription. This study can provide additional information to the current literature showing the extent to which young adults use Adderall without a prescription and factors associated with Adderall use. More scholarly and health intervention based research on ADHD medication might be necessary to highlight the potential costs to individuals, families, academia, and society. Under the current laws, those who share or sell and those who abuse nonmedical prescription stimulants, including Adderall, are liable to loss of scholarship, arrest, fines, and imprisonment. However, few are penalized for taking stimulants without a prescription. Thus, the public should be thoroughly informed through the media, consumer educational resources (distributed in doctor's offices and at schools), social net-works, and even word of mouth initiatives about the risky realities of Adderall (as well as other stimulants) abuse.

REFERENCES

- Abar, C., Abar, B., & Turrisi, R. (2009). The impact of parental modeling and permissibility on alcohol use and experienced negative drinking consequences in college. *Addictive Behaviors*, 34, 542-547. Retrieved November 7, 2012, from doi:10.1016/j.addbeh. 2009. 03.019.
- Aikins, R. D. (2011). Academic performance enhancement: A qualitative study of the perceptions and habits of prescription stimulant–using college students. *Journal of College Student Development*, 52, 560-576.
- Arria, A. M., O'Grady K. E., Caldeira, K. M., Vincent, K. B., & Wish, E. D. (2008). Nonmedical use of prescription stimulants and analgesics: Associations with social and academic behaviors among college students. *Journal of Drug Issues*, 38, 1045-1060. Retrieved Retrieved November 11, 2012, from doi:10.1177/002204260803800406

- Arria, A. M., & DuPont, R. L. (2010). Nonmedical prescription stimulant use among college students: Why we need to do something and what we need to do. *Journal of Addictive Diseases*, 29, 417-426. Retrieved November 5, 2012, from doi:10.1080/10550887.2010. 509273
- Arria, A. M., Wilcox, H. C., Caldeira, K. M., Vincent, K. B., Garnier-Dykstra, L. M., & O'Grady, K. E. (2013). Dispelling the myth of “smart drugs”: Cannabis and alcohol use problems predict nonmedical use of prescription stimulants for studying. *Addictive Behaviors*, 38, 1643–1650. Retrieved November 10, 2012, from doi:10.1016/j.addbeh.2012.10.002
- Center for Substance Abuse Treatment. Treatment for Stimulant Use Disorders (1999). Rockville (MD): Substance Abuse and Mental Health Services Administration. Treatment Improvement Protocol (TIP) Series, 33, Chapter 1 Retrieved November 3, 2012, from <http://www.ncbi.nlm.nih.gov/books/NBK64337/>
- Desantis, A. D., & Hane, A. (2010). “Adderall is definitely not a drug:” Justifications for the illegal use of ADHD stimulants. *Substance Use & Misuse*, 45, 31-46.
- Diller, L. (2011). The United States of Adderall. *The Huffington Post*. Retrieved September 13, 2012, from http://www.huffingtonpost.com/larry-diller/overuse-of-prescription-drugs_b_950802.html
- Drugs Laws (2012). Everything to know about Adderall, What is Adderall? Retrieved September 17, 2012, from <http://drugs.laws.com/adderall>
- Dodge, T., Williams, K. J., Marzell, M., & Turrisi, R. (2012). Judging cheaters: Is substance misuse viewed similarly in the athletic and academic domains? *Psychology of Addictive Behaviors*, 26, 678. Retrieved November 7, 2012, from doi: 10.1037/a0027872
- Engler, J. N., Landau, J. D., & Epstein, M. (2008). Keeping up with the Joneses: Students' perceptions of academically dishonest behavior. *Teaching of Psychology*, 35, 99-102 Retrieved November 15, 2012, from doi: 10.1080/00986280801978418
- Food and Drug Administration (2012). Safety reporting. Retrieved January 5, 2013, from <http://www.fda.gov/scienceResearch/SpecialTopics/PediatricTherapeuticsResearch/ucm123229.htm>
- Garnier, L. M., Arria, A. M., Caldeira, K. M., Vincent, K. B., O'Grady, K. E., & Wish, E. D. (2010). Sharing and selling of prescription medications in a college student sample. *The Journal of Clinical Psychiatry*, 71, 262. Retrieved October 15, 2012, from doi:10.4088/JCP.09m05189ecr
- Garnier-Dykstra, L. M., Caldeira, K. M., Vincent, K. B., O'Grady, K. E., & Arria, A. M. (2012). Nonmedical use of prescription stimulants during college: Four-year trends in exposure

- opportunity, use, motives, and sources. *Journal of American College Health*, 60, 226-234. Retrieved November 10, 2012, from doi:10.1080/07448481.2011.589876
- Goodman, R. (2010). Cognitive enhancement, cheating, and accomplishment. *Kennedy Institute of Ethics Journal*, 20, 145-160.
- Greely, H., Sahakian, B., Harris, J., Kessler, R. C., Gazzaniga, M., Campbell, P., & Farah, M. J. (2008). Towards responsible use of cognitive-enhancing drugs by the healthy. *Nature*, 456, 702-705. Retrieved September 9, 2012, from doi:10.1038/456702a
- Huff, M. M. (2012). Cosmetic neurology: Enhancement of the mind and Attention Deficit Hyperactive Disorder medication abuse among college students. Retrieved May 18 2013, from <http://digitalcommons.liberty.edu/honors/318/>
- Jacobs, A. (2005). The Adderall Advantage. *New York Times*, 31. Retrieved September 5, 2012, from http://www.psy.anderbilt.edu/courses/hon182/The_Adderall_Advantage_NYTimes_7_31_05.pdf
- Joireman, J., Kees, J., & Sprott, D. (2010). Concern with immediate consequences magnifies the impact of compulsive buying tendencies on college students' credit card debt. *Journal of Consumer Affairs*, 44(1), 155-178.
- McCabe, S. E., Knight, J. R., Teter, C. J., & Wechsler, H. (2004). Non-medical use of prescription stimulants among US college students: Prevalence and correlates from a national survey. *Addiction*, 100, 96-106. Retrieved October 17, 2012, from doi:10.1111/j.1360-0443.2004.00944.x
- McCabe, D. L., Trevino, L. K., & Butterfield, K. D. (2001). Cheating in academic institutions: A decade of research. *Ethics & Behavior*, 11, 219-232.
- Nenkov, G. Y., & Scott, M. L. (2014). "So cute I could eat it up": Priming effects of cute products on indulgent consumption. *Journal of Consumer Research*, 41(2), 326-341.
- Parsai, M., Marsiglia, F. F., & Kulis, S. (2010). Parental monitoring, religious involvement and drug use among Latino and Non-Latino youth in the southwestern United States. *British Journal of Social Work*, 40, 100-114. Retrieved November 7, 2012, from doi:10.1093/bjsw/bcn100
- Rabiner, D. L., Anastopoulos, A. D., Costello, E. J., Hoyle, R. H., McCabe, S. E., & Swartzwelder, H. S. (2009). The misuse and diversion of prescribed ADHD medications by college students. *Journal of Attention Disorder*, 13, 144-153.

- Ricker, R., & Nicolino, V. (2010). Adderall: The most abused prescription drug in America. *The Huffington Post*. Retrieved October 11, 2012, from http://www.huffingtonpost.com/dr-ronald-ricker-and-dr-venus-nicolino/adderall-the-most-abused_b_619549.html
- Robb, C. A. (2011). Financial knowledge and credit card behavior of college students. *Journal of Family and Economic Issues*, 32(4), 690-698.
- Schwarz, A. (2012). The risky rise of the good grade pill. *The New York Times*. Retrieved September 17, 2012, from <http://www.nytimes.com/2012/06/10/education/seeking-academic-edge-teenagers-abuse-stimulants.html?pagewanted=all>
- Sichilima, T., & Rieder, M. J. (2009). Adderall and cardiovascular risk: A therapeutic dilemma. *Paediatrics & Child Health*, 14, 193.
- Sepúlveda, D. R., Thomas, L. M., McCabe, S. E., Cranford, J. A., Boyd, C. J., & Teter, C. J. (2011). Misuse of prescribed stimulant medication for ADHD and associated patterns of substance use: Preliminary analysis among college students. *Journal of Pharmacy Practice*, 24, 551-560. Retrieved November 7, 2012, from doi:10.1177/0897190011426558
- Simons, J. S., Gaher, R. M., Wray, T. B., & Reed, R. N. (2012). College student drug use: Prevalence and consequences. In Correia, C.J., Murphy, J.G., & Barnett, N.P., (Eds.), *College Student Alcohol Abuse: A Guide to Assessment, Intervention, and Prevention* (1st Ed., pp.25-52). Hoboken, NJ: John Wiley and Sons, Inc.
- Stephen, G. T., & Joshua, N. W. (2002). The interactive effects of low self-control and commitment to school on substance abuse among college students. *Psychological Reports*, 90, 327-337.
- Stolz, S. (2012). Adderall abuse: Regulating the academic steroid. *Journal of Law and Education*, 41, 585-593.
- Teter, C. J., Falone, A. E., Cranford, J. A., Boyd, C. J., & McCabe, S. E. (2010). Nonmedical use of prescription stimulants and depressed mood among college students: Frequency and routes of administration. *Journal of Substance Abuse Treatment*, 38, 292-298. Retrieved November 1, 2012, from doi:10.1016/j.jsat.2010.01.005.
- U.S. Department of Health and Human Services (2011). Substance abuse and mental health data archive. Retrieved September 7, 2012, from <http://www.icpsr.umich.edu/icpsrweb/SAMHDA/studies/34481>