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Race-ethnicity and Prescription Drug Misuse: Does Self-esteem Matter?

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Abstract

The research here investigates race-ethnicity and self-esteem in the misuse of prescription drugs. While there has been much research into the demographic factors that predict prescription drug misuse (PDM), we lack a full accounting of psychosocial factors of possible importance in influencing patterns of race-ethnicity and PDM. One possible influence is self-esteem. We use data from the National Longitudinal Survey on Adolescent Health to investigate race-ethnicity, PDM and self-esteem. Findings indicate first that race-ethnicity is significant for PDM. Secondly, results indicate that self-esteem is important in understanding patterns of prescription drug misuse among young adults, but only among whites.

Keywords: Prescription drug use; Race and prescription drug use; Self-esteem and drug use

Introduction

In this paper, we seek to expand our understanding of race-ethnicity in the misuse of prescription drugs. We examine self-esteem as a possible factor in this relationship. While there has been much research into the demographic factors that predict prescription drug misuse (PDM), we lack a full accounting of all of the factors that may be important in influencing patterns of race-ethnicity and PDM. Though the focus here is on self-esteem, we suspect there are many other psychosocial factors that may impact the relationship between race-ethnicity and PDM, just as has been found in research concerning other substances of misuse. Some possibilities that demand attention are parents, peers, support and religion [1-7].

By the mid-twentieth century, the United States was a major market for drug use. The use of drugs such as cocaine, heroin, and marijuana received significant attention from the media, yet the exceptional growth of prescription drug use had received less attention. Since that time, there has been immense approval to turn toward legitimate drug therapy as a solution to society's ills [8]. Unfortunately, the approval and attention of legitimate drug therapy may have inadvertently sanctioned illegal drug therapy, as indicated by increasing prescription drug misuse (PDM), particularly among adolescents and young adults [9-19]. The decline in the use of drugs such as cocaine and methamphetamines, and the transition of those drugs from being seen as glamorous to undesirable, may have a significant impact in individuals turning more frequently to nonmedical prescription drugs. Recent data show that PDM is larger than other illicit drug use other than marijuana (Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health (NHSDUH), 2014). Only alcohol, tobacco, and marijuana use outpace prescription drug misuse in the U.S. adolescent population [20]. The availability and accessibility of prescription drugs may also play an important role in this use. Many adolescents and young adults are able to access prescription drugs through friends, relatives, and medical professionals, making prescription drug accessibility more readily available and less risky than attempts to acquire other drugs. In 2012-13, "more than half of individuals aged twelve or older received nonmedical prescription drugs from a friend or relative for free" [20]. Most importantly, less than five percent bought the drug from a drug dealer or stranger [20]. The most common source for prescription drugs that are used for non-medicinal purposes is from friends and relatives, followed by (about 24%) getting the prescription from a doctor [20].

This data also indicates that most people who are misusing prescription drugs do not pay to use them. Instead, they are obtained for free, or at a discounted price, from someone they know and trust. On the one hand, this reduces their risk of having to interact with strangers, and it may also decrease the likelihood that they will have to enter unfamiliar neighborhoods to purchase illegal prescription drugs. However, both the decreased price of the substance, and the increased accessibility of prescription drugs, may lead to a greater likelihood that individuals will abuse prescription drugs more regularly.

Many who misuse prescription drugs may assume they are safe because they are legally regulated and legally administered by physicians. However, the safety of these drugs can only be guaranteed when used and distributed legally to the person for whom they are prescribed. In addition, when legally prescribed to an individual, that person is under the care of physicians who are knowledgeable about the drug, its dosage, interactions, and side effects. Unfortunately, as noted by researchers, "individuals who receive abuseable prescription medication from family members and peers are unlikely to receive the appropriate information about its actions and possible negative interactions with other substances" [21]. This is likely because these family members and peers, as well as the illicit user, are not fully knowledgeable of the adverse consequences of PDM. Being unaware of the adverse consequences of PDM can have many deleterious effects. One is that PDM is known to increase the possibility of substance abuse in the future. For example, one study found that young adults who obtained prescription medication from non-family sources reported higher rates of alcohol and other drug use [21]. It is also the case that long term misuse of PDM can eventually lead to addiction and withdrawal symptoms. It may also impact an individual's future options for the legitimate treatment of physical symptoms of illness, and medical conditions [11,22].

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Although much research has been done over the years regarding the nonmedical use of prescription drugs, it is clear that there is still much research to be done. In past studies, the relationship between PDM and demographic factors has been examined [9,10,12,13,15,16,23-25]. Age and sex, as well as race-ethnicity have been examined. Regarding age, adolescents and young adults are more likely to abuse prescription drugs than older adults [15-18,23] but this may vary depending on the particular prescription drug an individual abuses [25]. Gender is also an important factor, but studies differ on the direction of effects. Some studies find that girls and women are more likely to abuse prescription drugs than boys and men [9,13,16,19,25,26]. However, other studies find limited effects of gender on PDM [15,17,27,28].

There are relatively clear findings regarding race-ethnicity. Prescription drug misuse is generally found to be higher among White adolescents and young adults, compared to ethnic minority adolescents and young adults [12,13,15,16,23,25]. Whites have greater access to prescription drugs and are more likely to misuse prescription drugs than Blacks, Hispanics, and Asians [29]. Support for racial/ethnic differences has been found in both adult and adolescent samples [12,15,16,23,30].

While there has been a great deal of research into the topic of PDM, we lack a full consideration of many possibly important factors that may help us to understand why people misuse prescription drugs. In this paper, we investigate self-esteem as one of possible factor. Scholars have long discussed negative views of the self as a possible reason for a variety of self-destructive behaviors. In our quest for greater understanding of race-ethnicity and PDM, we suggest that studying self-esteem may help increase our understanding of PDM [31]. Our attention is drawn to this construct because of the theoretical discussions of its possible importance. Kaplan et al. [31] has argued persuasively that self-referent constructs are of great importance in understanding a variety of health-related outcomes, including substance use. Two theories, cultural identity theory and the self-derogation perspective, have addressed the role of self-perceptions in the use of drugs. Let us turn to a discussion of these ideas below.

Cultural identity theory "seeks to inform substance abuse etiology by understanding how individual (i.e, micro) and environmental (i.e., meso and macro) phenomena influence the construction of drug-related identities and drug abuse" [32]. In particular, cultural identity theorists posit that drug abuse arises through a drug-related identity reformation process that occurs primarily through personal and social marginalization that materializes on the micro, meso, and macro levels [32].

Personal marginalization is a "micro-level concept that helps initiate the drug-related identity change process" [32] through early childhood and adolescent experiences that tear individuals away from mainstream standards of what is socially acceptable. These experiences often negatively differentiate marginalized children from other children, by fracturing the positive linkages they once had with each other. In addition, such experiences can change an individual's status from one that is socially acceptable to one that is highly stigmatized [32]. Thus far, research on the cultural-identity theory has connected 14 of these childhood experiences to the drug-related identity change from non-drug user to drug abuser, including: separation or divorce of parents, early experiences with death, moving around a lot, sexual abuse, neglect due to caretaker responsibilities for others, rigid domestic responsibilities, premature parenthood, being physically beaten or disciplined by caretakers, stern guidelines and expectations, repeated physical and/or verbal chastisement at school, suspension from school, placement into a different school program, recurrent involvement in fights, and interaction with police or arrest [32]. Many of these experiences traumatize children and are important factors in determining drug misuse.

The self-derogation perspective [33,34] is also concerned with marginalization. Kaplan et al. [33] argued that factors such as peer rejection, parental neglect, school failure and being stigmatized for a variety of reasons led to low self-esteem. This argument is similar to that of cultural identity theory's construct of personal marginalization. Thus, these two frameworks have both posited that self-perception is a factor in substance abuse.

There is some limited evidence that self-esteem may be of importance in substance abuse. A recent study found that self-esteem in adolescence was predictive of drug dependence in young adulthood [35]. Another study reported lower levels of several risk-taking behaviors among adolescents if self-esteem levels were higher [6]. However, there are few studies that have examined this issue, and we argue that this is an oversight, for several reasons. For one, given the legal status and the availability of prescription drugs, an individual with a negative self-perception may more readily turn to this substance. Second, while there has been a great deal of research on PDM, as we have highlighted, the research is largely descriptive in nature and focuses on demographic factors in PDM. While this is very important, moving beyond this focus may help us to more fully understand PDM. We now turn to a discussion of the methods of the study.

Methods

Data

The data used are from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative study of U.S. individuals who have participated in four waves of in-home interviews, starting in adolescence (Wave I) and ending with the most recent wave where respondents were aged 24-32 (Wave IV) [36,37]. A multistage, stratified, school-based, cluster sampling design was used to collect data in schools that later determined who would be chosen to participate in the in-home interviews. Approximately 120,000 adolescents were eligible for a school interview, and more than 90,000 adolescents completed the in-school questionnaire. From among those eligible for the school interview, a portion of the students were selected for in-home interviews. Interviews took from one to two-hours and were conducted in person using a laptop computer and audio-CASI for sensitive questions. Topics covered in the in-home interview include health status, nutrition, peer networks, decision-making processes, family composition and dynamics, educational aspirations and expectations, employment experience, and involvement in sexual activity, substance use, and criminal activities.

Wave I data consists of responses from 20,745 adolescents and was collected between 1994-1995, when respondents were in grades 7-12. Wave II data surveyed the same sample of adolescents a year later during in-home interviews in 1996 and yielded a N of 14,736. Questions in the Wave II interview were almost identical to those asked in Wave I. Wave III data were collected in 2001-2002, from 15,197 respondents and Wave IV data were collected in 2007-2008 from 15,701 respondents. All of the respondents from Wave I were interviewed again in Waves III and IV.

We excluded the Wave II data in the following analysis for two reasons. First, by design, the Wave II data did not include high school seniors or disabled children from Wave I. Thus, there is substantial missing data from this wave, and the data are not missing at random.

While it is possible to utilize imputation procedures to randomize this missing data, the systematic nature of the missing data violates the assumption of many statistical procedures, including those proposed for use in this analysis. Secondly, there is minimal change in substance use from Wave I to Wave II, making Wave II data repetitive, yet less statistically sound than Wave I data.

Measures

Demographic measures of age, sex, and race were self-reported by respondents. Sex was a dummy coded variable with male = 1. Race was dummy coded for racial and ethnic groups including non-Hispanic White, non-Hispanic Black, Hispanic, and others, with "others" as the reference group. Age, sex and race are used from Wave I. We use these wave one measures because the measures either do not change (i.e., sex); change by a constant (i.e. age), or may change for some respondents [38], but use of the Wave 1 measure goes with the respondent's first choice. Educational level is measured (at Wave III) using five categories: 8th grade or less and some high school; high school graduate; some vocational/technical training (after high school) and some college; completed college (bachelor's degree); and some or completed post-graduate education. Self-esteem is measured at Wave 1 using four statements, 1) I feel I have many good qualities; 2) I have a lot to be proud of; 3) I like myself just the way I am; and 4) I am doing things just about right. Each was measured using a strongly agree to strongly disagree format, and reverse coded so that higher scores indicate greater self-esteem. They were then summed to create a self-esteem scale, which has an alpha value of 0.79. These four items are similar to items from the well-known Rosenberg self-esteem scale, which has been widely used for many years in research [39]. While the scale used here consists of only four items, research has demonstrated that even one item is sufficient to measure self-esteem well [40].

Substance use in adolescence (coded from Wave I) was assessed using measures from Wave I, which asked respondents about their alcohol and marijuana use. Each measure is constructed based on questions which asked about both the quantity and frequency of substance use. Both measures of alcohol and marijuana used assessed the quantity and frequency of use on a five-point scale ranging from "never" (0) to "more than thirty (uses) drinks in the past month" (4). Because of infrequent responses, the marijuana measure ranges from 0 to 3. Measures are based on those of prior studies [41].

Prescription drug misuse is measured at Wave IV from questions asking 'Have you ever taken prescription drugs that were not prescribed for you, in larger amounts than prescribed, more often than prescribed, for longer periods than prescribed, or that you took only for the feeling or experience they caused?' The question was a yes-no answer, and is dummy coded 1 = yes, misused prescription drugs and 0 = no, did not misuse prescription drugs. We also used measures that asked about the use of specific prescription drugs. The question asked 'which of the following types of prescription drugs have you taken that were not prescribed for you, in larger amounts than prescribed, more often than prescribed, for longer periods than prescribed, or that you took only for the feeling or experience they caused?' The specific drugs asked about were 1) sedatives or downers, such as barbiturates, sleeping pills, Quaalude, or Seconal; 2) tranquilizers, such as Librium, Valium, or Xanax; 3) stimulants or uppers, such as amphetamines, prescription diet pills, Ritalin, Preludin, or speed; and 4) painkillers, or opoids, such as Vicodin, OxyContin, Percocet, Demerol, Percodan, or Tylenol with codeine. For these four variables, dummy variables were created to represent 1 = used the drug, and 0 = never used the drug.

For the statistical analysis, the complex survey design was also taken into account through the use of cluster and weight variables. Because the dependent variable is dichotomous, logistic regression was used for the multivariate analysis.

Results

Demographically, the sample well represents the larger U.S. population. Note that in all tables, White and Black refer to non-Hispanic whites and blacks. Table 1 shows the demographic makeup of our sample.

On average, respondents were 29 years of age, with ages ranging from 25-34 during Wave IV. Respondents were equally divided between men and women. The majority of the sample (52%) was white, while 22% was black and the remaining 17% was Hispanic. On average, respondents had completed some vocational/technical training (after high school) or some college, without completing a college degree. Respondents reported relatively high levels of self-esteem. On average, respondents reported self-esteem levels of 6.33 on a scale of 1-10. During the first wave of this longitudinal study (Wave 1) we see relatively low average use of alcohol and marijuana use. Sixteen percent of respondents reported prescription drug abuse at Wave IV.

Table 2 presents data on PDM and self-esteem across race-ethnicity. All race-ethnic differences are significantly different at $p<0.001$. We can see that whites are significantly more likely to engage in PDM than are blacks or Hispanics. Column two shows that blacks have the highest levels of self-esteem as teens. Both findings are consistent with the research literature [12,13,15,16,23,25], for results on PDM, and Bachman et al. [42].

Table 3 presents results of a logistic regression of PDM on the demographic predictors, alcohol and marijuana use as teens, and self-esteem. Looking at the results, we can see that age, sex, race-ethnicity, previous alcohol and marijuana use, and self-esteem as a teen are all of significance in future prescription drug misuse. The proportion of people misusing prescription drugs decreases with age. Males are more than one and a half times more likely to report prescription drug abuse

	Mean	Range
Age (Wave 1)	16.1	12-21
Age (Wave 4)	29.1	25-34
Sex (1 = male)	0.50	0-1
White	0.52	0-1
Black	0.21	0-1
Hispanic	0.17	0-1
Education (Wave 3)	2.61	1-5
Alcohol use (Wave 1)	1.26	0-4
Marijuana use (Wave 1)	0.42	0-3
Prescription Drug use (Wave 4)	0.16	0-1
Self-esteem (Wave 1)	6.33	1-10
In all Tables, White and Black refer to non-Hispanic whites and blacks. Wave 1 measures are used unless otherwise indicated.		

Table 1: Descriptive Data for the Sample (Means).

	PDM (Wave 4) %	Mean Self-esteem (W1)
White	0.22	6.28
Black	0.07	6.89
Hispanic	0.11	6.08
Race-ethnic difference is statistically significant at $p < 0.001$		

Table 2: Prescription Drug Misuse by Race-Ethnicity and Self-esteem (Means).

	Wave 4
Age W1	0.79***
Sex W1 (1 = male)	1.65***
White	1.37*
Black	0.32***
Hispanic	0.71*
Education W3	0.94
Alcohol use W1	1.26***
Marijuana use W1	1.52***
Self-esteem W1	0.95**
Constant	5.30
N =	11,754
*p<.05 **p<.01 ***p<.001	

Table 3: Logistic Regression of Prescription Drug use in Later Young Adulthood (Wave 4) on Predictors (Odds Ratios).

than females. Race-ethnicity is of importance in patterns of prescription drug misuse. Immediately obvious is the fact that blacks and Hispanics are much less likely than whites to report misuse of prescription drugs, as shown by their lower average levels of use. Educational level was not a statistically significant determinant of prescription drug misuse.

Adolescents who used alcohol and marijuana at W1, as teens, are more likely to misuse prescription drugs later on in life (W4). Respondents who previously used alcohol were 26% more likely to misuse prescription drugs in the future, and respondents who previously used marijuana were 52% more likely to misuse prescription drugs in the future. These numbers suggest that marijuana may have a slightly larger impact on determining future prescription drug misuse than alcohol. We also see in Table 3 that self-esteem is of significance in PDM. Respondents who reported higher levels of self-esteem were less likely to misuse prescription drugs.

Because we were interested to explore race-ethnicity, we examined the possibility that self-esteem differed in its effects on PDM across race-ethnicity. Examining interactions between race-ethnicity and self-esteem, we did find evidence of an interaction. This is presented in Table 4.

Table 4 presents results of a logistic regression of PDM on the demographic predictors, alcohol and marijuana use as teens, and self-esteem across race-ethnicity. We can see that the relationship between the various predictors and PDM is very similar across race-ethnicity, with the exception of self-esteem. Only for whites is self-esteem a significant factor in PDM. For whites only, higher levels of self-esteem in adolescence are associated with lower levels of PDM in young adulthood.

Table 5 presents results of a logistic regression of the separate prescription drugs on the demographic predictors, alcohol and marijuana use as teens, and self-esteem across race-ethnicity. Age, gender, alcohol and marijuana use generally have consistent effects on the specific prescription drugs. Older young adults are less likely to have ever used prescription drugs, while men are more likely to have used them. Whites are more likely to have ever used prescription drugs than other race-ethnic groups, while blacks are less likely to have ever used prescription drugs. The coefficient for Hispanics is significant for the case of stimulants and painkillers, but not for sedatives and tranquilizers. Marijuana use and alcohol use are associated with use of prescription drugs in all cases. Self-esteem is significant in all cases save for tranquilizers.

Consistent with the results of Table 4, we did find evidence of an interaction between race-ethnicity and self-esteem in the prediction of the specific prescription drugs. These results are presented in Table 6. Table 6 presents results of a logistic regression of the separate prescription drugs on age, gender, education, alcohol and marijuana use as teens, and self-esteem across race-ethnicity. Age, gender, alcohol and marijuana use generally have consistent effects on the specific

	White	Black	Hispanic
Age W1	0.81***	0.88*	0.80***
Sex W1 (1 = male)	1.64***	1.56**	1.36**
Education W3	0.96	0.92	0.90
Alcohol use W1	1.23***	1.32***	1.15*
Marijuana use W1	1.46***	1.28*	1.36***
Self-esteem W1	0.94***	0.99	1.01
Constant	6.18	0.33	3.39
N =	6,751	2,561	1,912
*p<.05 **p<.01 ***p<.001			

Table 4: Logistic Regression of Prescription Drug use in Later Young Adulthood (Wave 4) on Predictors by Race Ethnicity (Odds Ratios).

	Sedatives	Tranquilizers	Stimulants	Painkillers
Age W1	0.78***	0.78***	0.78***	0.80***
Sex W1 (1 = male)	1.62***	1.57***	1.66***	1.71***
White	1.91***	2.19***	1.57***	1.65***
Black	0.51***	0.42***	0.23***	0.37***
Hispanic	0.96	0.93	0.54***	0.66***
Education W3	0.91*	0.99	1.08	0.96
Alcohol use W1	1.30***	1.35***	1.33***	1.28***
Marijuana use W1	1.56***	1.44***	1.50***	1.48***
Self-esteem W1	0.94**	0.98	0.94**	0.96**
Constant	2.33	1.63	1.67	2.92
N =	12,455	12,455	12,455	12,455
*p<.05 **p<.01 ***p<.001				

Table 5: Logistic Regression of Abusable Prescription Drugs in Later Young Adulthood (Wave 4) on Predictors (Odds Ratios).

	Sedatives			Tranquilizers		
	White	Black	Hispanic	White	Black	Hispanic
Age W1	0.77***	0.84*	0.80***	0.76***	0.82*	0.81***
Sex W1	1.59***	2.12**	1.43	1.55***	2.12**	1.27
Education W3	0.93	0.82	0.80	0.99	1.07	0.80
Alcohol use W1	1.32***	1.50***	1.05	1.34***	1.64***	1.16
Marijuana use W1	1.61***	1.29	1.58***	1.49***	1.09	1.38*
Self-esteem W1	0.92***	1.02	1.00	0.96*	0.99	1.06
Constant	6.54	0.24	2.02	4.86	0.18	1.16
N =	6,751	2,561	1,912	6,751	2,561	1,912
	Stimulants			**Painkillers**		
	White	Black	Hispanic	White	Black	Hispanic
Age W1	0.76***	0.82	0.81**	0.80***	0.84**	0.80***
Sex W1	1.62***	1.82	1.44	1.79***	1.35	1.27
Education W3	1.06	1.09	1.02	0.94	0.94	0.91
Alcohol use W1	1.29***	1.51*	1.33*	1.26***	1.39***	1.21*
Marijuana use W1	1.53***	1.31	1.46*	1.49***	1.31*	1.43**
Self-esteem W1	0.93***	0.95	1.04	.94***	1.01	1.02
Constant	3.65	0.11	0.33	5.84	0.37	1.88
N =	6,751	2,561	1,912	6,751	2,561	1,912
*p<.05 **p<.01 ***p<.001						

Table 6: Logistic Regression of Abusable Prescription Drugs in Later Young Adulthood (Wave 4) on Predictors by Race-Ethnicity (Odds Ratios).

prescription drugs. Older young adults are less likely to have ever used prescription drugs, while men are more likely to have used them. Education is not of statistical significance. These are consistent patterns across all prescription substances. Prior alcohol and marijuana use varies somewhat in its significance. There are a few instances in which prior use does not significantly predict use of specific prescription drugs. However, it needs to be stated that we could not confirm this differential effect in multivariate analyses. We did find evidence for the differential effect of self-esteem. As is the case with the overall measure, self-esteem is significantly associated with the use of specific prescription drugs for whites only.

Discussion

In this paper, we investigated race-ethnicity in PDM. Our results regarding race-ethnicity were consistent with prior literature. Whites were the race-ethnic group most likely to engage in PDM. Blacks were significantly less likely to engage in PDM as compared to all other race-ethnic groups. We also investigated the role of self-esteem in race-ethnic patterns of PDM. We found support for this association. Self-esteem had significant effects on PDM for whites only. As the level of self-esteem increased, the proportion of people who are white misusing prescription drugs declined. There was no impact of self-esteem on PDM for Blacks and Hispanics.

As we noted before, it is important to examine a variety of psychosocial factors that have been shown to impact the use of drug abuse other than prescription drugs, as we seek to understand more about who engages in PDM and who does not. When we examine these other factors, we may find that we are able to increase our knowledge about the various patterns of PDM, and perhaps to be in a better position to intervene in the misuse of prescription drugs.

Reviewing our results for the other variables, we found our results consistent with prior literature on age effects. Aging through young adulthood decreased the likelihood of PDM [15-17,23,25]. Unlike some prior literature [9,13,16,19,25,26] we found that males were more likely than females to engage in PDM. We found no significance of education in our analyses. Though not shown, we also did not find college attendance to be of significance, unlike some prior research [43,44]. Prior substance use is generally always a factor in later substance use, as people who use substances early in life are more likely to be users later on in life [12].

Our results do have implications for theories of the self, and their role in substance abuse. We did find self-esteem of importance for whites, but not for other race-ethnic groups. This fact argues for a reconsideration of theories about the self as they apply to PDM. It may be that theories about the self are not as useful for explaining prescription drug misuse as it might be for use of other drugs. We discussed reasons for this earlier in the paper. Because people procure prescription drugs through legitimate sources, it may be that a deviant identity is not necessarily adopted for the misuse of this substance. The accessibility of prescription drugs may allow people who want to misuse them to maintain a non-stigmatized identity within mainstream society. One is not marginalized because of the use of prescription drugs, and this may extend to those who misuse the substance. An additional factor is that many see prescription drugs as 'legitimate' and generally think less of misusing them than is the case for illicit substances. Therefore, as procuring and using do not involve as many deviant behaviors as is the case for illicit drugs, there may be little damage to self-image.

The results for self-esteem only for whites may argue that our theories regarding psychosocial factors and race-ethnic use of substances need to be more particular to the lives and experiences of people of different race-ethnic groups. There are many significant differences in the life circumstances of adolescent and young adults across race and ethnicity [45-49]. It may be that these important differences portend differences in substance use across race-ethnicity. As we do more research into differences in substance use across race-ethnicity, a fuller accounting and greater focus on some of these issues will aid us in greater understanding of the patterns in use across race-ethnicity.

Our study is not without limitations. The drug use data are collected via self-report. This usually means that people underreport their substance use. This underreporting can occur because of problems with retrospective recall, that is, people simply forget about the substances they have taken. Underreporting may also occur because people fear the stigma of being a 'drug- user'. This latter factor is likely to be minimized regarding prescription drugs, since they are obtained legally, for the most part. And while forgetting does occur, it has been shown to be systematic, and not random. This means that people from all walks of life tend to forget in the same way and in the same amount. Thus results are generalizable to the broader population.

In conclusion, we investigated the role of self-esteem in race-ethnic patterns of PDM. We found support for this association. Self-esteem had significant effects on PDM for whites only. As the level of self-esteem increased, the proportion of people who are white misusing prescription drugs declined. There was no impact of self-esteem on PDM for Blacks and Hispanics. This is a significant finding and further shows the importance of social marginalization in our society.

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