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## Initiation into Prescription Drug Misuse: Differences between Lesbian, Gay, Bisexual, Transgender (LGBT) and Heterosexual High-Risk Young Adults in Los Angeles and New York

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### Abstract

**Objective**—Prescription drug misuse is an important public health problem in the U.S, particularly among adolescents and young adults. Few studies have examined factors contributing to initiation into prescription drug misuse, including sexual orientation and childhood abuse and neglect. The purpose of the present study is to investigate the relationship between initiation into the misuse of prescription drugs (opioids, tranquilizers, and stimulants), sexual identity, and individual and family determinants.

**Method**—Results are based upon data from a cross-sectional survey of 596 youth (polydrug users, homeless youth, and injection drug users) aged 16 to 25 who reported current prescription drug misuse. Participants were recruited in Los Angeles and New York City between 2009 and 2011. We compared initiation behaviors between sexual minority and heterosexual youth and examined factors modifying the relationship between sexual identity and earlier initiation into prescription drug misuse.

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#### Contributors

Stephen Lankenau developed the study design and implementation protocols. Ellen Iverson oversaw participant recruitment. The initial version of the manuscript was prepared by Aleksandar Kecojevic, and all authors subsequently contributed to preparing the final version of the manuscript. All authors have approved the final version.

#### Conflict of interest

All authors declare that they have no conflicts of interest.

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**Results**—Sexual minority youth were more likely to report histories of initiation into misuse of prescription opioids and tranquilizers. Further, they were more likely to report various types of childhood abuse than heterosexual youth. However, multivariate analyses indicated that age of first prescribed drug was the most significant factor associated with initiation into misuse of all three categories of prescription drugs.

**Conclusions**—The correlates of initiation into prescription drug misuse are multidimensional and offer opportunities for further research. Identifying additional factors contributing to initiation into prescription drug misuse is essential towards developing interventions that may reduce future drug use among young adults.

## Keywords

prescription drug misuse; sexual identity; access; childhood abuse

## 1. Introduction

Previous research indicates heightened rates of substance use among lesbian, gay, bisexual and transgender (LGBT) adolescents and young adults (Marshall, *et al.*, 2008; CDC, 2011). While patterns of illicit substance use among LGBT youth have been extensively researched (Thiede, *et al.*, 2003), little is known about their prescription drug misuse patterns. This is concerning given recent evidence indicating differences in prescription drug misuse between LGBT and heterosexual youth, particularly during adolescence (Corliss, *et al.*, 2010).

Second only to cannabis, prescription drugs are the most commonly used substances at drug initiation (SAMHSA, 2010). While research is limited on initiation into prescription drug misuse, socio-demographic variables, such as race (Kosterman, *et al.*, 2000), gender (Kandel & Logan, 1994) and sexual identity (Corliss, *et al.*, 2008), and family-related variables, such as single-parent households (Hemovich, *et al.*, 2011), lack of parental monitoring (Bousman, *et al.*, 2005), and family substance abuse (Kumpfer, *et al.*, 1998), have been identified as important factors associated with initiation into tobacco, alcohol, and illicit drug use. While these factors are also expected to impact prescription drug misuse among LGBT youth, additional factors such as adverse childhood experiences may predispose them to misuse of prescription drugs. LGBT youth have been found to experience significantly higher rates of childhood abuse compared to heterosexual youth (Friedman, *et al.*, 2011). These experiences have in turn been associated with negative outcomes for LGBTs including mental health problems (Huebner, *et al.*, 2004), increased HIV risk-taking behaviors (Brennan, *et al.*, 2007), and increased substance abuse (Kalichman, *et al.*, 2001). Initiation into use of licit and illicit drugs may reflect attempts to cope with stress and trauma from maltreatment, as growing evidence points to the association between emotional, physical and sexual abuse and initiation of tobacco, alcohol and illicit drug use among adolescents and young adults (Savin-Williams, 1994; Ompad, *et al.*, 2005; Roy, *et al.*, 2011). Experiences of childhood abuse may thus play an important role in LGBT youths' initiation into prescription drug misuse.

In this study, we first compared prescription drug misuse initiation between a self-identified group of LGBT youth and their heterosexual counterparts. Given previous findings that LGBT individuals initiate use of tobacco, alcohol, and illicit drugs earlier, we hypothesized that LGBT participants would also report earlier initiation of prescription drugs. Next, we examined the relationships between sexual identity, childhood experiences of abuse, and initiation into prescription drug misuse, while accounting for important socio-demographic and family/environmental risk factors. We hypothesized that sexual identity would moderate associations between childhood abuse and earlier initiation into prescription drug misuse,

such that the negative effects of childhood abuse on initiation of prescription drug misuse would be more pronounced among LGBT youth compared to heterosexual youth.

## 2. Methods

### 2.1. Participants and Procedures

Data come from a previously reported study (Lankenau, *et al.*, 2012) examining prescription drug misuse among a sample of 596 young adults in Los Angeles and New York City. Eligible participants were 16–25 years old and had misused a prescription drug, i.e., opioid, tranquilizer, or stimulant, or any combination, at least three times in the last 90 days. Institutional review boards at Drexel University, Children’s Hospital Los Angeles, and the National Development and Research Institutes, Inc. approved the study.

### 2.2. Measures

**2.2.1. Demographic variables**—Study participants self-reported a variety of demographic information including race/ethnicity (coded as 0=“White” or 1=“non-White minorities”) and gender at birth (0=“male, 1=female”). We also assessed homelessness before age 16 (0=no, 1=yes), socio-economic status (SES) growing up (0=“middle/upper class”, 1=“poor/working class”) and sexual orientation (dichotomized into 0=heterosexual and 1=LGB(T)). Eight transgendered participants, although self-reporting straight sexual identity, were also classified as LGBT.

**2.2.2. Prescription drug misuse variables**—Prescription drug misuse was defined as taking prescription drugs “when they were not prescribed for you or that you took only for the experience or feeling it caused” (SAMSHA, 2010). The primary outcome was age of initiation for each type of prescription drug. Variables describing prescription drug misuse history, including being prescribed prescription pills, age of first prescription, access to, and source of prescription drugs, were examined as covariates in the multivariate models. We approximated access by asking how much access participants had to their own prescriptions and to prescriptions belonging to members of their household. “No access” (0) was defined by responses characterizing the drugs being in a locked or unknown location; “having access” (1) was defined by responses characterizing the drugs being located in unlocked or open places. Sources of participants’ first misused prescription drugs were dichotomized as participants’ own prescription/prescription within the household (1), or as outside sources (0).

**2.2.3. Childhood abuse history**—Questions defining emotional, physical, and sexual abuse were adopted from the Childhood Trauma Questionnaire (CTQ) (Bernstein, *et al.*, 1994). Fifteen items assessed abuse during childhood. Responses were scored on a Likert-type scale that ranged from 1=“never” to 5=“very often”. Cronbach’s alpha for the overall scale was 0.94 ( $\alpha=0.90, 0.90, 0.96$  for the emotional, physical, and sexual subscales, respectively).

### 2.3. Analyses

We first examined bivariate differences between LGBT and heterosexual youth on a range of variables related to initiation into prescription drug misuse. An alpha level of 0.05 was used to determine significance for all tests. Due to the large number of comparisons, all p-values have been adjusted using the false discovery rate controlling procedure (Benjamini, & Hochberg, 1995).

Key covariates for inclusion in models predicting ages of initiation for all three prescription drugs types were determined in bivariate analyses, and were retained for inclusion in

regression models if  $p < 0.05$ . Next, a series of multiple linear regression models with forward entry were used in which the first block of variables included socio-demographic characteristics. The second block included prescription drug history, access, and source variables. The final two blocks included childhood abuse variables and their interactions with sexual orientation. All independent continuous variables were mean-centered (Kraemer & Blasey, 2004). Analyses were performed using SPSS (version 18.0).

### 3. Results

#### 3.1. Descriptive findings

Participants' demographics, initiation to prescription drug misuse, and severity of childhood abuse are presented in Table 1. The study recruited 596 young adults; two participants refused to answer and were excluded from analysis, resulting in a final sample of 594: 201 (34%) self-identified as LGBT and 393 (66%) as heterosexual. Statistically significant differences between LGBT and heterosexual youth were found regarding race, gender, age of initiation into opioids and tranquilizers misuse, being prescribed tranquilizers, family members being prescribed opioids and tranquilizers, access to their own and family's tranquilizers, and household as a source of first misused opioid and tranquilizer. Finally, high rates of abusive experiences in childhood were reported, with LGBT participants reporting substantially higher scores on all three scales of childhood abuse.

#### 3.2. Regression findings

After controlling for socio-demographic and childhood abuse factors, sexual identity was no longer associated with initiation into opioid, tranquilizer, or stimulant misuse. Age of first prescription was the strongest predictor of earlier misuse (opioids:  $\beta=0.34$ , 95% CI[0.27, 0.41],  $p<0.001$ ; tranquilizers:  $\beta=0.37$ , 95% CI[0.27, 0.47],  $p<0.001$ ; and stimulants:  $\beta=0.21$ , 95% CI [0.12, 0.29],  $p<0.001$ ). Further, participants with unmonitored access to tranquilizers were more likely to start misusing these tranquilizers ( $\beta=-0.90$ , 95% CI[-1.81, 0.01],  $p<0.05$ ), and having household as the source of first misused stimulant predicted earlier stimulant initiation ( $\beta=-2.16$ , 95% CI[-2.94, -1.37],  $p<0.001$ ). Experiencing sexual abuse was significantly associated with earlier tranquilizer initiation ( $\beta=-0.11$ , 95% CI[-0.22, -0.003],  $p<0.05$ ) and nearly associated with earlier stimulant initiation ( $\beta=-0.11$ , 95% CI[-0.22, 0.001],  $p=0.05$ ). Having experienced physical abuse was also nearly associated ( $\beta=-0.11$ , 95% CI[-0.22, 0.001],  $p=0.05$ ) with earlier stimulant initiation.

Because we were interested in whether sexual identity modifies the effects of childhood abuse on prescription drug misuse initiation, we tested interactions between sexual identity and variables related to childhood abuse. In the tranquilizer initiation model, the emotional abuse and sexual identity interaction was significant ( $\beta=-0.19$ , 95% CI[-0.36, -0.03],  $p<0.05$ ), and the interaction between sexual abuse and sexual identity was nearly significant ( $\beta=0.12$ , 95% CI[-0.02, 0.26],  $p<0.1$ ), indicating that the effects of childhood abuse on tranquilizer initiation differed between LGBTs and heterosexuals. To understand the nature of these interactions, we computed and graphed predicted values. The endpoints represent the expected age of initiation for individuals high and low in experiences of emotional or sexual abuse (i.e., one standard deviation above and below the means of these variables) who were LGBT or heterosexual. As shown in Figure 1a, high emotional abuse was associated with earlier tranquilizer initiation for LGBT youth, whereas heterosexual youth who experienced higher emotional abuse delayed initiation into tranquilizers misuse. While Figure 1b indicates that overall, LGBT youth initiated the use of tranquilizers at earlier ages, heterosexual youth who experienced high levels of sexual abuse appear to initiate the use of tranquilizers at a similar age as LGBT youth.

## 4. Discussion and Conclusions

Results suggest that young adults who currently misuse prescription drugs initiated misuse during adolescence. As hypothesized, the results of this study revealed that LGBT youth start misusing prescription drugs at earlier ages than heterosexual youth, confirming previous findings (Corliss *et al.*, 2010). LGBT identity was associated with earlier initiation of opioids and tranquilizers but not stimulants. However, the factors predicting initiation into prescription drug misuse are complex and multifaceted. Our findings confirm that drug availability is a powerful predictor of substance abuse among youth (Sung, *et al.*, 2005). In addition to their own prescriptions, the main source of prescription drug diversion for adolescents is within their households (McCabe, *et al.*, 2007; SAMHSA, 2010).

A major strength of this study is the assessment of childhood trauma, which addresses one of the most important stress factors in childhood. Even after considering the effects of earlier prescribing and access to these drugs, childhood sexual abuse was a significant predictor for earlier initiation into tranquilizer misuse, and sexual and physical abuse were nearly significant predictors of earlier initiation into stimulant misuse. This complements an earlier finding that survivors of sexual abuse exceeded the tranquilizer use of people reporting no sexual abuse by 70% (Zierler, *et al.*, 1991).

Our study provides evidence that segments of the young adults exposed to various forms of childhood abuse are at risk for earlier initiation into prescription drug misuse. Consistent with our hypothesis, LGBT youth who experienced emotional abuse in childhood were at significantly increased risk for earlier initiation into tranquilizers. This implies that effects of childhood emotional abuse on problematic drug behavior may be just as severe as physical or sexual abuse, in particular for the LGBT population. Although the interaction between sexual identity and sexual abuse was only marginally significant, it appears that LGBT youth initiated tranquilizers at a young age regardless of any sexual abuse experiences. Moreover, heterosexual youth who reported higher sexual abuse initiated tranquilizers at earlier ages as well, suggesting a strong relationship between experiences of sexual abuse and younger age of tranquilizer initiation.

Despite substantial increases in prescription drug misuse among adolescents and young adults in recent years, information on risk factors contributing to initiation into prescription drug misuse is sparse. Prior research indicates that studying initiation events among young drug users contributes towards a fuller comprehension of emerging drug use trends (Lankenau & Clatts, 2004), user populations (Fuller, *et al.*, 2003), risk behaviors (Lankenau, *et al.*, 2010), and potential prevention and intervention strategies (Miller, *et al.*, 2006). Our findings, which parallel those of other studies indicating that certain groups are at higher risk for prescription drug misuse (McCabe, Knight, *et al.*, 2005; McCabe, Teter, *et al.*, 2005), help address this research gap.

Despite study limitations, which include its cross-sectional design, inability to generalize to the larger population of young adults, and reliance on self-reported data, this study shows that LGBTs may initiate prescription drugs earlier than heterosexual youth. Thus, the timing of education programs for LGBT youth may need to be adjusted. We also found a link between childhood trauma experiences and the initiation of tranquilizers, with the effects of emotional abuse being particularly detrimental among LGBT youth. In addition to establishing more stringent guideline to control prescribing practices of prescription drugs, prevention efforts should focus on curtailing the consequences of early stressful life experiences that may be related to sexual minority status.

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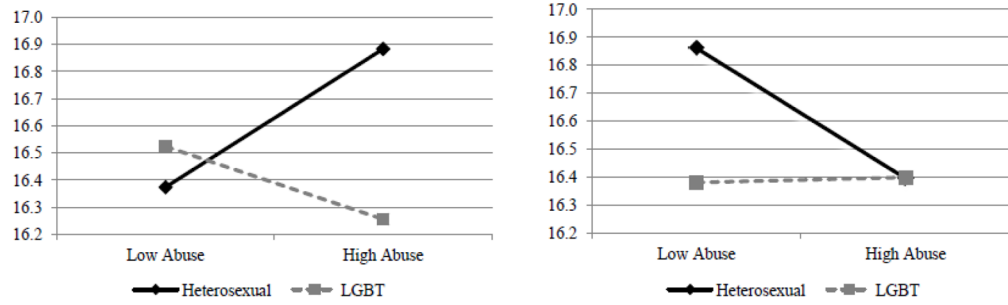
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### Highlights

- LGBT youth report earlier initiation into misuse of prescription opioids and tranquilizers.
- LGBT youth were more likely to report childhood abuse.
- Age of first prescription was associated with initiation.
- LGBT youth experiencing emotional abuse initiated earlier misuse into tranquilizers.





**Figure 1.**

**Figure 1a:** Plot depicting the interaction between experiences of emotional abuse in childhood and earlier initiation into tranquilizers misuse for each sexual identity group.

**Figure 1b:** Plot depicting the interaction between experiences of sexual abuse in childhood and earlier initiation into tranquilizers misuse for each sexual identity group.

Table 1

Participant demographics, initiation to prescription drugs, and childhood abuse by sexual identity category

Variable	Categories	LGBT (n=201) (%)	Heterosexual (n=393) (%)	Difference Test	
Age (mean +/- SD)	Range: 16–25	20.71 (2.08)	20.94 (2.04)	<i>ns</i>	
Gender <sup>a</sup>	Male	83 (41)	305 (78)	$\chi^2(1) = 61.1$ ***	
	Female	102 (51)	88 (22)		
	Transgender/Intersex	16 (8)	0 (0)		
Race <sup>b</sup>	Non-Hispanic White	94 (47)	239 (61)	$\chi^2(1) = 10.1$ **	
	Nonwhite:	105 (53)	153 (39)		
Socioeconomic status (SES) growing up	Poor or lower class	87 (44)	176 (45)	<i>ns</i>	
	Middle or upper class	113 (56)	214 (55)		
Homeless or marginally housed growing up		79 (39)	136 (35)	<i>ns</i>	
Age of initiation, Rx drugs (First misuse)	Opioids	15.2 (2.6)	15.7 (2.8)	$t(571) = 2.3$ *	
	Tranquilizers	15.7 (2.9)	16.5 (2.8)	$t(533) = 3.0$ **	
	Stimulants	15.5 (2.7)	16.0 (2.9)	<i>ns</i>	
Age of initiation, illicit drugs (First use)	<i>Marijuana</i>	13.7 (2.9)	13.3 (2.7)	<i>ns</i>	
	Cocaine	16.5 (2.5)	16.7 (2.4)	<i>ns</i>	
	Methamphetamine	17.1 (3.2)	17.0 (2.9)	<i>ns</i>	
	Heroin	17.6 (2.6)	17.5 (2.4)	<i>ns</i>	
	Crack	17.6 (2.6)	17.6 (2.4)	<i>ns</i>	
Ever prescribed Rx	Opioids	149 (74)	283 (72)	$\chi^2(1) = 18.9$ ***	
	Tranquilizers	116 (58)	153 (39)		
	Stimulants	90 (45)	178 (45)		
Age of 1st Rx (mean +/- SD)	Opioids	14.9 (3.9)	15.7 (3.8)	<i>ns</i>	
	Tranquilizers	15.6 (3.4)	16.4 (3.4)	<i>ns</i>	
	Stimulants	11.5 (4.6)	11.4 (4.4)	<i>ns</i>	
Family member ever prescribed Rx	Opioids	147 (73)	249 (63)	$\chi^2(1) = 5.7$ *	
	Tranquilizers	97 (48)	137 (35)		$\chi^2(1) = 10.0$ **
	Stimulants	56 (28)	97 (25)		
Had free access to own or family Rx	Opioids	160 (80)	283 (72)	$\chi^2(1) = 24.3$ ***	
	Tranquilizers	134 (67)	178 (45)		
	Stimulants	101 (50)	186 (47)		
Household as a source of first misused Rx	Opioids	99 (49)	156 (40)	$\chi^2(1) = 5.0$ *	
	Tranquilizers	70 (35)	89 (23)		$\chi^2(1) = 10.1$ **
	Stimulants	53 (26)	93 (24)		
Childhood Trauma Questionnaire Score (mean +/- SD)	Emotional	15.2 (6.2)	12.8 (6.0)	$t(579) = -4.4$ ***	
	Physical	11.8 (6.2)	10.1 (5.3)		$t(582) = -3.4$ **
	Sexual	9.7 (6.8)	6.7 (3.9)		

Note: *ns* = non-significant;\*  
p < 0.05;

\*\*  
p < 0.01;

\*\*\*  
p < 0.001.

<sup>a</sup>Chi-square test based on male vs. female only.