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Catherine D. Marcum, Bryan Lee Miller, John M. Stogner, Laura E. Agnich (2013) "Purple drank prevalence and characteristics of misusers of codeine cough syrup mixtures" *Addictive Behaviors* 38 pp. 2445-2449 Version of Record Available @ (<http://dx.doi.org/10.1016/j.addbeh.2013.03.020>) (ISSN: 0306-4603)

Purple drank prevalence and characteristics of misusers of codeine cough syrup mixtures

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H I G H L I G H T S

- Purple drank use was most prevalent among Native Americans and Hispanics.
- Males reported purple drank use more than females.
- LGBT students were more likely to have used purple drank than heterosexuals.
- Students from urban areas were more likely to have used purple drank.

a r t i c l e i n f o

Keywords:

Codeine
Promethazine
Cough syrup
CPHCS
Purple drank
Novel drugs

a b s t r a c t

A mixture of codeine cough syrup with alcohol and/or a soft drink known as “purple drank” has gained media attention in recent years as a drug associated with professional athletes and southern rap music. The existing research on purple drank consumption has primarily utilized samples of African Americans residing in the Houston, Texas area. This is the first scholarly study of purple drank use outside of the Houston, Texas area among a general population of young adults, and indicates that purple drank use is not limited to African American males. The findings depict higher odds of the use of purple drank among other racial and ethnic groups, males, and homosexual, bisexual, and transgender college students from urban areas.

1. Introduction

Following recent high profile arrests of National Football League (NFL) players and the deaths of popular rap artists, the misuse of codeine cough syrup began to draw the attention of the national media. While codeine is abused unaltered in both pill and syrup forms (Compton & Volkow, 2005), these celebrities were reported to use it in a mixture referred to as “purple drank.” Also known as “syrup,” “sizzurp,” “barre,” and “lean” (nicknamed for the posture that users assume when intoxicated), purple drank is a concoction that can take several forms (see Elwood, 2001; Peters, Amos et al., 2007). Most involve some form of codeine cough syrup containing the opiate painkiller codeine and promethazine hydrochloride, an antihistamine with sedative properties (Hickson, Altemeier, & Clayton, 1990). The cough syrup is typically mixed with a soft drink and candy, with some variants including alcohol (Peters et al., 2003). Other forms of this mixture can include over-the-counter cough syrups, which are easier to obtain and much cheaper than prescription strength codeine cough syrup, but produce

different effects. For example, misuse of dextromethorphan can result in hallucinogenic effects (Schwartz, 2005), rather than the sedative effects of the traditional form of purple drank containing codeine and promethazine.

The high-profile arrest of former Oakland Raiders Quarterback JaMarcus Russell in 2010 for possession of codeine, and allegations of his habitual misuse, led to heightened awareness of a potential purple drank problem (Saraceno, 2010). Russell's arrest followed the 2008 arrest of Johnny Jolly, a former Green Bay Packer, for possession of 200 g of codeine. Their arrests prompted the ESPN network to do a special report on purple drank in their series *Outside the Lines*, which raised questions about the popularity of the misuse of codeine among professional athletes (ESPN, 2011; Reischel, 2012). The use of purple drank first began among rappers in Houston, Texas in the 1990's (Elwood, 1999). Rap artist/producer DJ Screw created a genre of music inspired by intoxication on codeine and promethazine; “chopped and screwed” music featured significantly slower beats, mimicking the effects of the cardiovascular depressants contained in purple drank. DJ Screw died of a codeine overdose along with two other Houston rappers who suffered complications related to codeine misuse (Rieken, 2008; Serwer, 2010). Despite the apparent dangers of the drug, numerous rap artists have included messages about purple drank in their music and public appearances (e.g. CBSNews, 2009). The harmful effects of codeine abuse

were recognized by the medical community well before purple drank was popularized (e.g. Davis, Baum, & Graham, 1991; Gerostamoulos, Burke, & Drummer, 1996; Romach, Sproule, Sellers, Somer, & Busto, 1999), and a recent study has associated codeine cough syrup abuse with serious brain damage (Hou et al., 2011). Still, the abuse of codeine cough syrup has been documented in the United States (Blakley & Schilling, 2008), India (Mattoo, Basu, Sharma, Balaji, & Malhotra, 1997; Wairagkar et al., 1994), Hong Kong (Lam, Lee, Shum, & Chen, 1996; Shek & Lam, 2008), and various other countries. The few studies that have specifically focused on codeine cough syrup misuse in the form of purple drank have been limited to Houston, Texas (e.g. Elwood, 1999; Peters et al., 2003, 2010). These studies have largely focused on purple drank use among African Americans and suggest that its use among young African Americans is associated with high levels of sexual activity, the use of other drugs, and listening to hip-hop music (Peters et al., 2003; Peters, Amos et al., 2007). A qualitative study of 61 college students in Texas revealed that while doctors and pharmacists facilitated the acquisition of codeine cough syrup, students' peers reinforced beliefs that cough syrup misuse was "cool" (Peters, Yacoubian et al., 2007). In a sample of African American crack cocaine users, codeine cough syrup abuse was linked to lower levels of education, younger age, a higher likelihood of trading sex for money, using marijuana and PCP, and not having a main sexual partner (Peters, Williams, Ross, Atkinson, & Yacoubian, 2007). Finally, a recent study indicates a link between post-traumatic stress following Hurricane Ike, and the use of codeine cough syrup among African American males in Houston, Texas (Peters et al., 2010).

Because of its association with rap music and recent high profile cases involving African American NFL players, popular beliefs about purple drank consumption hold that it is a drug primarily used by young African American males. However, use of purple drank in the U.S. has not been studied systematically outside of the Houston, Texas area, and most of the studies focus only on its use within the African American community. The aim of the present study is to determine the prevalence and characteristics of purple drank users among a sample of college students in the southeastern United States.

2. Materials and methods

2.1. Data

Data utilized in this study were collected as part of a print survey exploring substance use and other high risk behaviors, such as operating motor vehicles while under the influence of drugs and alcohol (IRB protocol H12032) at a large public university in the southeastern United States. The six page, thirty-minute survey was administered in the fall of 2011 and spring of 2012 by a single graduate assistant to students in 40 classes that were selected randomly from all courses that had more than 30 enrolled students. No identifying information was reported on the survey. In the event that a student was in two selected classes, they only completed the survey once. In total, 2,349 students completed the survey which represents a response rate of 80.4%.¹ The sample was 51.6% female, 68.9% White, 24.4% African American, 2.8% Hispanic, and 3.0% Native American, had a mean age of 20.06 (SD = 3.01), and 2.8% identified as lesbian, gay, bisexual, or transgender (LGBT). The characteristics of the sample were similar to those of the university (51.5% female, 65.5% White, 25.0% African American, 3.8% Hispanic, 2.6% Native American).

¹ This represents the proportion of those enrolled in the courses at the end of the class registration period that completed the survey. The 80.4% response rate represents the most conservative estimate of response rate as students were likely to have dropped or withdrawn from the courses throughout the semester. We were unable to obtain access to these records to provide a more accurate estimate. The majority of students present on the survey day completed the survey. Those who did not wish to participate were instructed to return the blank survey. Less than 50 students selected this option.

2.2. Measures

Misuse of codeine cough syrup was assessed with a single item that asked respondents if they had "ever used 'purple drank' or mixed cough syrup with alcohol". Responses were limited to 'yes' and 'no.'

2.3. Analytic strategy

The prevalence of purple drank use was explored across a number of different demographic characteristics. Table 1 presents the purple drank prevalence within each gender, race, class year, employment level, Grade Point Average (GPA) range, etc., and differences were evaluated using χ^2 tests. This allowed for the identification of traits associated with purple drank use or, put another way, the development of a user profile. In addition, a logistic regression model was estimated predicting the use of purple drank to evaluate each demographic characteristic's association with purple drank use controlling for the others. A second model

Table 1
Purple drank use by demographics and drug use.

Characteristics	N (%)	Users % (N)	Non-users % (N)	p-value
Gender				
Male	1136 (48.4%)	9.3% (105)	90.7% (1028)	p b .001
Female	1210 (51.6%)	3.9% (47)	96.1% (1162)	
Race				
White	1574 (68.9%)	6.1% (96)	93.9% (1478)	p = .001
African-American	557 (24.4%)	5.4% (30)	94.6% (526)	
Hispanic	64 (2.8%)	15.6% (10)	84.4% (54)	
Asian	20 (0.9%)	5.1% (1)	94.7% (18)	
Native American	70 (3.1%)	14.7% (10)	85.3% (58)	
Age				
17-19	1214 (51.9%)	6.2% (75)	93.8% (1138)	p = .913
20-22	951 (40.7%)	7.0% (66)	93.0% (883)	
23-25	95 (4.1%)	6.3% (6)	93.7% (89)	
26 or older	77 (3.3%)	6.6% (5)	93.4% (71)	
Class year				
Freshman/sophomore	1619 (70.0%)	6.5% (105)	93.5% (1511)	p = .907
Junior/senior	695 (30.0%)	6.6% (46)	93.4% (648)	
GPA				
3.01-4.0	1025 (43.6%)	5.1% (52)	94.9% (972)	p b .001
2.01-3.0	828 (35.2%)	8.4% (69)	91.6% (757)	
1.01-2.0	143 (6.1%)	9.9% (14)	90.1% (128)	
0.0-1.0	14 (0.6%)	28.6% (4)	71.4% (10)	
No GPA	339 (14.4%)	3.8% (13)	96.2% (326)	
Student athlete				
No	2222 (94.6%)	6.5% (145)	93.5% (2073)	p = .679
Yes	125 (5.3%)	5.6% (7)	94.4% (118)	
Fraternity/sorority				
No	1978 (84.3%)	6.4% (127)	93.6% (1847)	p = .807
Yes	369 (15.7%)	6.8% (25)	93.2% (344)	
Employed				
No	1646 (70.1%)	6.6% (109)	93.4% (1535)	p = .909
Part-time	622 (26.5%)	6.1% (38)	93.9% (582)	
Full-time	79 (3.4%)	6.3% (5)	93.7% (74)	
Home location				
Rural	949 (41.2%)	4.0% (38)	96.0% (911)	p b .001
Suburban	1078 (46.7%)	7.3% (79)	92.7% (999)	
Urban	279 (12.1%)	12.2% (34)	87.8% (245)	
Family income				
Under \$24,999	200 (8.9%)	6.6% (13)	93.4% (185)	p = .408
\$25,000-\$49,999	317 (14.1%)	4.1% (13)	95.9% (304)	
\$50,000-\$74,999	442 (19.6%)	6.6% (29)	93.4% (412)	
\$75,000-\$99,999	374 (16.6%)	7.0% (26)	93.0% (347)	
Over \$100,000	921 (40.9%)	7.3% (67)	92.7% (854)	
Sexual orientation				
Heterosexual	2254 (97.2%)	6.3% (141)	93.7% (2110)	p = .012
LGBT	64 (2.8%)	14.1% (9)	85.9% (55)	
Alcohol use				
No	287 (12.2%)	0% (0)	100% (286)	p b .001
Yes	2058 (87.8%)	7.4% (152)	92.6% (1904)	
Marijuana use				
No	980 (41.9%)	0.7% (7)	99.3% (971)	p b .001
Yes	1361 (58.1%)	10.7% (145)	89.3% (1215)	

Table 2
Logistic regression model predicting purple drank use.

Characteristics	Model A				Model B			
	b	O.R.	95% CI	p-value	b	O.R.	95% CI	p-value
Gender (1 = male)	.99	2.68	1.83-3.93	.00	.72	2.05	1.29-3.24	.00
Race (1 = non-White)	.01	1.01	.67-1.54	.95	.29	1.34	.81-2.21	.25
Age	-.06	.95	.86-1.04	.27	-.01	.99	.88-1.11	.86
Student athlete	-.73	.48	.19-1.23	.13	-.26	.77	.28-2.15	.62
Fraternity/sorority	-.08	.92	.56-1.52	.75	-.45	.64	.35-1.16	.14
Employment [†]								
Part-time	.06	1.06	.70-1.62	.78	.14	1.15	.70-1.89	.58
Full-time	-.40	.67	.19-2.39	.54	-.58	.56	.12-2.56	.46
Marital status (1 = married)	.79	2.21	.60-8.11	.23	.98	2.67	.53-13.45	.23
Family income	.09	1.09	1.00-1.19	.06	.05	1.05	.95-1.17	.35
Housing (1 = off-campus)	.07	1.08	.71-1.62	.72	-.33	.72	.44-1.18	.19
Home location [‡]								
Suburban	.63	1.88	1.23-2.89	.00	.37	1.45	.88-2.39	.15
Urban	1.13	3.10	1.79-5.37	.00	.75	2.12	1.09-4.11	.03
Sexual orientation (1 = LGBT)	1.43	4.19	1.92-9.18	.00	.73	2.07	.74-5.75	.16
Last month alcohol use	-	-	-	-	.17	1.19	1.02-1.39	.03
Last month marijuana use	-	-	-	-	.33	1.40	1.25-1.56	.00
Last month tobacco use	-	-	-	-	.13	1.14	1.01-1.28	.03
Last month ecstasy/club drugs use	-	-	-	-	.27	1.31	1.01-1.70	.04
Last month novel drug use	-	-	-	-	.90	2.45	1.23-4.88	.01
Last month pharmaceutical misuse	-	-	-	-	.18	1.20	1.02-1.41	.03
Constant	- 3.163	-	-	-	- 5.76	-	-	-
Model χ^2	64.70	-	-	-	189.86	-	-	-
Pseudo R ²	.08	-	-	-	.27	-	-	-
N (N users)	2095 (139)				1704 (117)			

[†]Not employed is the reference category for employment; rural is the reference category for home location.

was created by adding the frequency of last month use of eleven categories of substances in a stepwise fashion. Each of these measures represented the number of days in the last month that the respondent reported using the substance. Only those six that significantly improved the model were included in the model presented.

3. Results

The percentage of each demographic category that reported having ever used purple drank is displayed in Table 1. Overall 152 (6.5%) of students self-reported having ever used. Use was significantly more common among males than females. The proportion of males that had used at least once was twice that of females (9.3% vs. 3.9%). While significant racial differences emerge, the data do not reflect the racial distributions that previous academic studies and anecdotal news reports suggest. Asian Americans (5.1%), African Americans (5.4%), and Whites (6.1%) self-report the lowest use. Additional analyses demonstrated that these three groups were not significantly different from one another. Use was significantly more common among Hispanics (15.6%) and Native Americans (16.7%) than in the other three groups. Those raised in major urban environments (likely Atlanta, GA) were significantly more likely to report use (12.2%) than those raised in suburban communities and moderate sized cities (7.3%) and both of these groups were significantly more likely to report use than those from rural areas (4.0%).

The majority of other demographic characteristics was not associated with purple drank use. Use did not significantly vary with age, class year, Greek affiliation, family income, employment status, or marital status. Similarly, use among student athletes was not significantly different from non-athletes. A trend was apparent with GPA. Use in the highest GPA category (5.1%) was significantly lower than the second highest category (8.4%) which was lower than the lower two categories (9.9% and 28.6%). Interestingly, the lowest rate (3.8%) was associated with the students who have yet to establish a GPA (first semester students and transferees). This suggests that for the majority of users initiation occurs after enrolling at the university; however, the data cannot directly address this issue.

A significantly larger proportion of those identifying themselves as homosexual, bisexual, or transgender reported having used purple drank (14.1%) than heterosexuals (6.3%). Use of purple drank was also significantly more common among users of other drugs. No alcohol abstainers reported ever using purple drank; all 152 purple drank users reported having also used alcohol in the past month. Similarly, marijuana users were more likely to report purple drank use (10.7%) than marijuana non-users (0.7%).

Table 2 displays results from logistic regression models predicting use of purple drank. Model A depicts that, prior to controlling for substance use, males (OR = 2.681), homosexuals/bisexuals (OR = 4.194), and, as compared to those raised in rural settings or small towns, those raised in suburban (OR = 1.884) or urban settings (OR = 3.096) were significantly more likely to self-report purple drank use. Family income was marginally significant (OR = 1.089, $p = .064$). Race, age, Greek affiliation, employment status, marital status, athletic participation, and living arrangement were not significantly associated with purple drank use. The frequency of past month use for eleven categories of substances was then considered as potential additions to Model A. Six of these (alcohol, tobacco, marijuana, ecstasy or MDMA, novel drugs [salvia, synthetic cannabinoids, or 'bath salts'], and pharmaceutical misuse) significantly improved the fit of the model whereas five (heroin, cocaine, inhalants, methamphetamines, and hallucinogens) did not. We present Model B which incorporates the six relevant substances with the demographic variables in Model A. Males (OR = 2.048) and those raised in urban areas (OR = 2.117) were more likely to report use controlling for other factors. Unlike Model A, sexual orientation, family income, and being raised in a suburban environment were not significantly associated with purple drank use. Increased frequency of past month alcohol use (OR = 1.190), marijuana use (OR = 1.397), tobacco use (OR = 1.139), ecstasy use (OR = 1.309), novel drug use (OR = 2.452), and pharmaceutical misuse (OR = 1.199) were each significantly associated with increased odds of purple drank use.

4. Discussion

The current study is the first to examine the prevalence of purple drank consumption in the United States outside of the Houston, Texas

area where its use first became popular in the 1990's. The survey was administered at a large, residential campus in a rural town, although over one-fourth of the students at the university come from the metropolitan Atlanta area. Purple drank use was much higher among students from urban areas, which is not surprising given the association with hip-hop culture in urban settings, particularly in the South (Grem, 2006).

This research utilized a random sample of college students with varying racial and ethnic backgrounds, rather than focusing solely on African Americans' use of the drug. The findings indicate that, contrary to popular conceptions, African Americans, along with Asian Americans, self-report the lowest rates of purple drank use. By contrast, use among Hispanics and Native Americans was significantly higher, and differed from the rates of use reported by the other racial and ethnic groups. Substantial gaps exist in substance abuse treatments for Asians and Latinos, rendering these populations underserved compared to African Americans and Whites (Mulvaney-Day, DeAngelo, Chen, Cook, & Alegria, 2012). And although binge drinking among Native Americans is well-established in prior research (see Chen, Balan, & Price, 2012; SAMHSA, 2010), abuse of purple drank among Native Americans and Hispanics has not been systematically studied to date. Therefore, significant gaps in treatment may exist for both Hispanic and Native American college students who experiment with codeine cough syrup mixtures. The popularity of purple drank among racial and ethnic groups other than African Americans points to the need for future research on codeine cough syrup misuse among populations outside of the African American community. Additionally, practitioners and prevention efforts may need to expand their scope to include other groups.

This research identifies several demographic and other characteristics associated with purple drank consumption. Students who had lower GPAs, identified as a member of the LGBT community, and used marijuana and alcohol were more likely to report purple drank use. When controlling for substance use in the past month, gender and being raised in an urban environment are the only significant predictors. Popular depictions of purple drank are prevalent in the masculine cultures of football and hip-hop/rap music. Therefore, it is not surprising that purple drank use was more prevalent among males, although many substances are consumed more by men, especially novel drugs (Miller, Boman, & Stogner, 2013). However, it is somewhat surprising that use is higher among those who identified themselves as being homosexual, bisexual, or transgender, as purple drank is associated with rap music and competitive, violent male sports (such as American football and basketball)—which scholars have argued often foster traditional views of masculinity and a homophobic culture (Abrams, 2000; Anderson, 2002; Kubrin, 2005; Messner, 1992; Messner & Sabo, 1990; Plummer, 1999). Although, the higher use of purple drank among LGBT individuals may simply reflect a higher rate of drug use in general (see Brewster & Harker Tillman, 2012; Cochran & Cauce, 2006; Corliss et al., 2010; Hughes & Eliason, 2002; Hughes, Szalacha, & McNair, 2010; McCabe, Botswick, Hughes, West, & Boyd, 2010; McKirnan & Peterson, 1989; Stall & Wiley, 1988; Talley, Sher, & Littlefield, 2010). LGBT individuals in the survey reported significantly higher levels of other drug abuse (such as 3,4-methylenedioxymethamphetamine (MDMA), synthetic cannabinoids, heroin, cocaine; not reported) in addition to purple drank. Prevention and education efforts, therefore, may need to target males and provide outreach to the LGBT community. Rather than viewing purple drank use as a problem of young African Americans, practitioners should consider urban male youth of all racial backgrounds as potential misusers of codeine cough syrup, and note that misuse may be more common within the LGBT community.

4.1. Limitations

While this study provides a valuable contribution to the literature, especially as it dispels assumptions of the demographic using purple

drank, further research is necessary. First, within cultures that endorse its use, purple drank is somewhat of an amorphous term. The survey was unable to differentiate between various types of purple drank (for example, codeine cough syrup with sprite/cough syrup with alcohol). Future research should explore these differences. In addition, given the cross-sectional nature of the data, we cannot delineate whether purple drank use preceded or followed the use of other drugs. Additionally, a number of students were not present at the time of the survey which opens the possibility of a non-response bias. Although the study gives insight into the demographic profile of purple drank users in the U.S. outside of the Houston, Texas area, its generalizability is limited. Given its increased references in popular culture, we suggest future research explore purple drank use in other geographical regions and age groups.

Role of funding sources

This study was supported in part by funds from the Office of the Vice President for Research and the Jack N. Averitt College of Graduate Studies at Georgia Southern University. The office and college had no role in the study design, collection, analysis or interpretation of the data, writing the manuscript, or the decision to submit the paper for publication.

Contributors

John Stogner, Bryan Miller, and Cathy Marcum worked on the study design and protocol. Laura Agnich conducted the literature review and wrote the introduction. John Stogner conducted the statistical analysis and wrote the Materials and methods and Results sections. Laura Agnich wrote the first draft of the Discussion section. All authors contributed to and have approved the final manuscript.

Conflict of interest

The authors declare that they have no conflicts of interest. All authors are university employees and have no connections with the pharmaceutical industry.

Acknowledgments

The authors wish to thank the Office of the Vice President for Research and the Jack N. Averitt College of Graduate Studies at Georgia Southern University for funding the project and research assistants Melanie Hart, Justin Hoyle, Jessica Renner, Amber Sanders, and Michael Singleton for assistance in collecting and entering data.

References

- Abrams, Nathan (2000). Gangsta rap. In T. Pendergast, & S. Pendergast (Eds.), *St. James Encyclopedia of Popular Culture*. Farmington Hills, MI: Thomson-Gale.
- Anderson, E. (2002). Openly gay athletes: Contesting hegemonic masculinity in a homophobic environment. *Gender and Society*, 16(6), 860-877.
- Blakley, B. W., & Schilling, H. (2008). Deafness associated with acetaminophen and codeine abuse. *American Journal of Otolaryngology*, 37(4), 507-509.
- Brewster, K. L., & Harker Tillman, K. (2012). Sexual orientation and substance abuse among adolescents and young adults. *American Journal of Public Health*, 102(6), 1168-1176.
- CBSNews (2009). "All Access:" Lil' Wayne. Retrieved from <http://www.cbsnews.com>
- Chen, H. -J., Balan, S., & Price, R. K. (2012). Association of contextual factors with drug use and binge drinking among White, Native American, and Mixed-Race adolescents in the general population. *Journal of Youth and Adolescence*, 41(11), 1426-1441.
- Cochran, B. N., & Cauce, A. M. (2006). Characteristics of lesbian, gay, bisexual, and transgender individuals entering substance abuse treatment. *Journal of Substance Abuse Treatment*, 30(2), 135-146.
- Compton, W., & Volkow, N. (2005). Major increases in opioid analgesic abuse in the United States. *Drug and Alcohol Dependence*, 81(2), 103-108.
- Corliss, H. L., Rosario, M. R., Wypij, D., Wylie, S. A., Frazier, A. L., & Austin, B. (2010). Sexual orientation and drug use in a longitudinal cohort study of U.S. adolescents. *Addictive Behaviors*, 35(5), 517-521.
- Davis, H., Baum, C., & Graham, D. J. (1991). Indices of drug misuse for prescription drugs. *International Journal of Addiction*, 26(7), 777-795.
- Elwood, W. (1999). *Leaning on syrup: The misuse of opioid cough syrup in Houston, Texas*. Austin, Texas: Commission on Alcohol and Drug Abuse.
- Elwood, W. (2001). Sticky business: Patterns of procurement and misuse of prescription cough syrup in Houston. *Journal of Psychoactive Drugs*, 33, 121-133.
- ESPN (2011). *Johnny Jolly, a tale of addiction*. Outside the Lines (Retrieved from <http://www.espn.com>)
- Gerostamoulos, J. B., Burke, M. P., & Drummer, O. H. (1996). Involvement of codeine in drug-related deaths. *The American Journal of Forensic Medicine and Pathology*, 17(4), 327-335.
- Grem, D. E. (2006). "The South Got Something to Say": Atlanta's Dirty South and the Southernization of Hip-Hop America. *Southern Cultures*, 12(4), 55-73.
- Hickson, G., Altemeier, W., & Clayton, E. (1990). Should promethazine in liquid form be available without prescription? *Pediatrics*, 86, 221-225.

- Hou, H., Yin, S., Jia, S., Hu, S., Sun, T., Chen, Q., et al. (2011). Decreased striatal dopamine transporters in codeine-containing cough syrup abusers. *Drug and Alcohol Dependence*, 118(2-3), 148-151.
- Hughes, T. L., & Eliason, M. (2002). Substance use and abuse in lesbian, gay, bisexual, and transgender populations. *Journal of Primary Prevention*, 22(3), 263-297.
- Hughes, T., Szalacha, L. A., & McNair, R. (2010). Substance abuse and mental health disparities: Comparisons across sexual identity groups in a national sample of Australian women. *Social Science & Medicine*, 71, 824-831.
- Kubrin, C. E. (2005). Gangstas, thugs, and hustlas: Identity and the code of the street in rap music. *Social Problems*, 52, 360-378.
- Lam, L. C. W., Lee, D. T. S., Shum, P. P. S., & Chen, C. N. (1996). Cough mixture misuse in Hong Kong—An emerging psychiatric problem? *Addiction*, 91(9), 1375-1378.
- Mattoo, S. K., Basu, D., Sharma, A., Balaji, M., & Malhotra, A. (1997). Abuse of codeine-containing cough syrups: A report from India. *Addiction*, 92(12), 1783-1787.
- McCabe, S. E., Botswick, W. B., Hughes, T. L., West, B. T., & Boyd, C. J. (2010). The relationship between discrimination and substance use disorders among lesbian, gay, and bisexual adults in the United States. *Research and Practice*, 100(10), 1946-1952.
- McKirnan, D. J., & Peterson, P. L. (1989). Alcohol and drug use among homosexual men and women: Epidemiology and population characteristics. *Addictive Behaviors*, 14(5), 545-553.
- Messner, M. A. (1992). *Power at play: Sports and the problem of masculinity*. Boston, MA: Beacon Press Books.
- Messner, M. A., & Sabo, D. F. (Eds.). (1990). *Sport, Men, and the Gender Order: Critical Feminist Perspectives*. Champaign, IL: Human Kinetics Books.
- Miller, B. L., Boman, J. H. I. V., & Stogner, J. M. (2013). Measuring novel drug perceptions: *Salvia Divinorum*, gender, and peer delinquency. *Substance Use & Misuse*, 48(1-2), 65-72.
- Mulvaney-Day, N., DeAngelo, D., Chen, C. N., Cook, B. L., & Alegria, M. (2012). Unmet need for treatment for substance use disorders across race and ethnicity. *Drug and Alcohol Dependence*, 125, 44-50.
- Peters, R. J., Amos, C., Meshack, A., Savage, C., Sinclair, M. M., Williams, L. T., et al. (2007). Codeine cough syrup use among sexually active, African-American high school youths: Why southern males are down to have sex. *The American Journal on Addictions*, 16, 144-145.
- Peters, R. J., Kelder, S. H., Markham, C. M., Yacobian, G. S., Peters, L. A., & Ellis, A. (2003). Beliefs and social norms about codeine and promethazine hydrochloride cough syrup (CPHCS) onset and perceived addiction among Houstonian adolescents: An addiction trend in the city of lean. *Journal of Drug Education*, 33(4), 415-425.
- Peters, R. J., Meshack, A., Amos, C., Scott-Gurnell, K., Savage, C., & Ford, K. (2010). The association of drug use and post-traumatic stress reactions due to Hurricane Ike among Fifth Ward Houstonian youth. *Journal of Ethnicity in Substance Abuse*, 9(2), 143-151.
- Peters, R. J., Williams, M., Ross, M. W., Atkinson, J., & Yacobian, G. S. (2007). Codeine cough syrup use among African-American crack cocaine users. *Journal of Psychoactive Drugs*, 39(1), 97-102.
- Peters, R. J., Yacobian, G. S., Rhodes, W., Forsythe, K. J., Bowers, K. S., Eulian, V. M., et al. (2007). Beliefs and social norms about codeine and promethazine hydrochloride cough syrup (CPHCS) use and addiction among multi-ethnic college students. *Journal of Psychoactive Drugs*, 39(3), 277-282.
- Plummer, D. (1999). *One of the boys: Masculinity, homophobia, and modern manhood*. Binghamton, NY: The Haworth Press, Inc.
- Reischel, R. (2012). 'Packer people' still relevant, fans say. Milwaukee, Wisconsin Journal Sentinel (Retrieved from <http://www.jsonline.com>)
- Rieken, K. (2008). *Cough syrup found in Pimp C's hotel had no label*. The Houston Chronicle (Retrieved from <http://www.chron.com>)
- Romach, M. K., Sproule, B. A., Sellers, E. M., Somer, G., & Busto, U. E. (1999). Long-term codeine use is associated with depressive symptoms. *Journal of Clinical Psychopharmacology*, 19(4), 373-376.
- Saraceno, J. (2010). *JaMarcus Russell case shows danger behind 'purple drank'*. USA Today (Retrieved from <http://www.usatoday.com>)
- Schwartz, R. H. (2005). Adolescent abuse of dextromethorphan. *Clinical Pediatrics*, 44(7), 565-568.
- Serwer, J. (2010). *DJ Screw: From cough syrup to full blown fever*. The Guardian UK (Retrieved from <http://www.guardian.co.uk>)
- Shek, D. T. L., & Lam, C. M. (2008). Beliefs about cough medicine abuse among Chinese young people in Hong Kong. *Social Behavior and Personality*, 36(1), 135-144.
- Stall, R., & Wiley, J. (1988). A comparison of alcohol and drug use patterns of homosexual and heterosexual men: The San Francisco men's health study. *Drug and Alcohol Dependence*, 22(1-2), 63-73.
- Substance Abuse and Mental Health Services Administration (SAMHSA) (2010). *Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings*. Office of Applied Studies, NSDUH Series H-38A, HHS Publication No. SMA 10-4856 Findings (Rockville, MD).
- Talley, A. E., Sher, K. J., & Littlefield, A. J. (2010). Sexual orientation and substance use trajectories in emerging adulthood. *Society of the Study of Addiction*, 105(7), 1235-1245.
- Wairagkar, N. S., Das, J., Kumar, S., Mahanta, J., Saty Anarayana, K., Phukan, R. K., et al. (1994). Codeine containing cough syrup addiction in Assam and Nagaland. *Indian Journal of Psychiatry*, 36(3), 129-132.