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Drug Users with Suspended or Revoked Driving Licenses and Use

of Public Transportation

Grace L. Reynolds, D.P.A.
California State University, Long Beach
Health Care Administration

Abstract

Background: Suspension and revocation of driving licenses are used as sanctions for driving under the influence (DUI) of alcohol and/or drugs, but little research has investigated whether or not these sanctioned individuals would use public transportation (PT) as an alternative to driving.

Methods: Cross-sectional data on 638 drug users, from Long Beach, California, 121 (19%) of whom had suspended/revoked driving licenses were analyzed to determine predictors of (a) having a suspended/revoked driving license; and (b) using public transportation.

Results: The sample reported lifetime use of powdered cocaine, crack cocaine, heroin, speedball (heroin and cocaine together), opiates other than heroin and amphetamine. Individuals with suspended/revoked licenses were more likely to be male and either White or Hispanic compared to African American, and more likely to report income from unemployment insurance. Forty-two percent (268/637) of the sample reported using public transportation (PT). Individuals who reported using PT were more likely to be female. They were less likely to: be African American, be disabled, to use powdered cocaine, to have physical limits on their activities, and to have a suspended/revoked driving license.

Conclusions: Future research should explore reasons why out-of-treatment drug users whose driving licenses have been revoked are not using PT.

Introduction

Individuals convicted of driving under the influence (DUI) of alcohol and/or

drugs represent a portion of the adult population that may have had their driver's

license suspended or revoked as a punishment for placing others at risk. Previous

research has focused on the hazards caused by drivers whose license to drive has been

suspended or revoked, but who continue to drive. Research in California suggests that

these drivers are over-involved in traffic accidents (DeYoung, Peck, & Helander, 1997)

and that estimating the numbers of such drivers on the road is difficult due to lack of

knowledge regarding prevalence of this behavior and limitations of administrative

data. However, prevalence of driving while one's license is suspended or revoked

appears to be high. One study that interviewed 1,111 persons who had had their

driving licenses suspended, revealed that, overall, 65% of them had driven during the

time period that their license was subject to suspension (Williams, Hagen, & McConnel,

1984).

While most of the literature on DUI focuses on alcohol use related to DUI

(Caetano & McGrath, 2004; Nochajski & Stasiewicz, 2006), a growing body of literature

is reporting on the role of other drugs, such as cocaine, Rohypnal and

methamphetamine, in DUI arrests (Buchan, Walsh, & Leaverton, 1998; Crouch, Hersch,

Cook, Frank, & Walsh, 2002; Raymon, Steele, & Walls, 1999; Schwilke, Sampaio dos Santos, & Logan, 2006).

Schwilke et al. (2006) looked at toxicology screens from drivers involved in fatal car accidents in Washington State. In that study, 43% of drivers whose blood alcohol concentration (BAC) was less than .08 had other potentially impairing drugs found in their specimens; 41% of drivers whose BAC was greater than or equal to .08 had potentially impairing drugs in their specimens. The Schwilke et al. data came from drivers who had died within four hours of a car accident, highlighting the risk of driving while under the influence of alcohol and drugs.

The merits of driving license suspension and revocation have been debated as sanctions for DUI however, recent research has focused on repeat offenders. Nochajski and Stasiewicz (2006), in a review article on relapse to DUI, noted that the number of DUI arrests and the number of alcohol involved fatalities have remained relatively constant since 1995. Two factors contributing to a failure to bring about a significant reduction in DUI arrests are those individuals who persist or relapse to DUI behavior after a first arrest, and the increasing numbers of drivers who drive under the influence of both drugs and alcohol (Nochajski & Stasiewicz, 2006). Drivers arrested for driving under the influence of drugs are more likely than those arrested for driving under the influence of alcohol alone to be rearrested for DUI (Marowitz, 1998).

There are several actions that can be taken against recidivist DUI drivers. Deterrent actions attempt to avoid recurrences of DUI behavior and include heavy fines, suspension/revocation of driving licenses, the requirement that drivers install breath alcohol ignition interlock devices, and jail time (Nochajski, 1999; Nochajski & Stasiewicz, 2006; Raub, Lucke, & Wark, 2003). These deterrent actions have met with mixed success, but research indicates that, regardless of the deterrent action taken, individuals who engaged in drugged driving compared to driving under the influence of alcohol alone, were more likely to relapse to DUI (Marowitz, 1998; Nochajski & Stasiewicz, 2006).

Because most of the research literature on relapse to driving under the influence of drugs and/or alcohol appears in criminal justice or psychological journals, less attention has been paid to the extent to which suspended/revoked drivers use public transportation to meet their needs, or use friends or family to drive them around. However, this is an important aspect of the context within which DUI and relapse to DUI occurs. A broader theoretical approach such as the one offered by social control theory posits that not all behavior is rational, but takes place within a larger context (Nochajski & Stasiewicz, 2006). This larger context takes into account substance abuse severity, substance abuse and dependence as a chronic, relapsing condition, as well as structural barriers to behavior change (Green, French, Haberman, & Holland, 1991; Pratt, Holsinger, & Latessa). Research in public health has recognized that

transportation barriers impact individuals in many ways and the existence of public

transportation as an alternative to driving within the community does not mean that it

is an option for all members of that community (Besser & Dannenberg, 2005; Bostock,

2001).

This project has two aims:

1. What predicts having a suspended/revoked driving license in a sample of

   out-of-treatment drug users?

2. What predicts use of public transportation in this out-of-treatment drug-

   using sample?

The Center for Behavioral Research and Services (CBRS), part of California State

University, Long Beach (CSULB), has been conducting research on out-of-treatment

drug users recruited in the City of Long Beach, California, and the South Bay area of

Los Angeles County since 1988. This project used data gathered from out-of-treatment

drug-using participants recruited from 2003 to 2005.

Method

Data from 638 out-of-treatment drug users completed the Quality of Well-Being

Scale (QWB) (Kaplan & Anderson, 1988) and the Risk Behavior Assessment (RBA)

(Dowling-Guyer, et al., 1994; Johnson, Fisher, & Reynolds, 1999).

The QWB measures quality of life by eliciting information in three domains:

current physical symptoms/ailments, mobility, and activities of daily living. The QWB

Scale is based on a three-component model of health. The three domains it assesses are mobility (the Mobility Scale), physical activity (Physical Activity Scale) and social functioning (Social Activity Scale). The reliability coefficient for the functional level domain of the QWB has been reported at .90 (McDowell & Newell, 1996). The one-week (1-8 day) test-retest reliability coefficient is .93 (McDowell & Newell, 1996). The interviewer-administered version of the questionnaire takes approximately 10 minutes.

The RBA elicits data including general demographics, such as race and gender, perceived homelessness, current and lifetime substance use, income and education level, living situation, and sexual activity. The RBA has been shown to have good reliability and validity (Dowling-Guyer et al., 1994; Fisher et al., 1993; Johnson, Fisher, & Reynolds, 1999; Needle et al., 1995; Weatherby et al., 1994).

This research effort obtained a Certificate of Confidentiality (CoC) from the federal government. Due to the nature of the questions, including elicitation of information on illegal behaviors including use of illicit drugs, the CoC protects research data from subpoena. The research protocol was reviewed and approved by the California State University, Long Beach (CSULB) Institutional Review Board (IRB) and participants provided informed consent, and were given information concerning the CoC prior to beginning each interview.

Of particular interest in this study were the symptom and mobility data obtained using the QWB. The symptom data includes a listing of twenty-seven health conditions

that the respondent can endorse as having been a problem for them in the last week.

Mobility data included information on whether the respondent has a valid driver's

license, and reasons why the respondent did not have a valid driver's license

(including suspension or revocation). Information was also collected on the use of

public transportation and the reasons, health related or other, that public transportation

was used or not used. As with the symptoms and health conditions questions, these

mobility questions ask the respondent to refer to the week immediately preceding the

date of the interview.

Participants were drawn from among the clients served in the Counseling and

Food Program (CFP), a locally funded HIV prevention and foodbank program serving

out-of-treatment drug users. This program has provided researchers with direct access

to out-of-treatment drug users, and has been described in other studies (Reynolds,

Fisher, Klahn, & Wood, 2003; Reynolds, Fisher, Henry, & Perez, 2005; Reynolds, Fisher,

Jaffe, & Edwards, 2006).

Univariate and bivariate statistics were used to examine variables associated

with having a suspended/revoked driving license and with using public transportation.

Two logistic regression models were developed, one predicting having a

suspended/revoked driving license, and the second modeling which participants used

public transportation among the entire sample, whether or not their driving license was

suspended/revoked.

Results

Demographic characteristics of the sample can be found in Table 1. The majority

of respondents had monthly incomes of $500 or less, were male and African American.

Mean age of respondents was 44.93 years (SD = 8.49), the mean number of lifetime

arrests was 11.25 (SD = 40.29), and the mean number of years spent in jail was 4.36 (SD =

6.94). Of the 121 participants who reported that their driving license was suspended or

revoked, 43 (35%) of them reported using public transportation in the last week, and

117 (99%) of them reported that they drove at least once in the last week. Three

participants (2.5%) with a suspended or revoked driving license reported that they

drove every day in the last week.

There was no difference in age between those who had a suspended/revoked

driving license (M = 44.29, SD = 6.76) compared to those whose license was not

suspended revoked (M = 45.07, SD = 8.83, $t(606)$ = .89, p = ns). There was no difference

between the participants with suspended/revoked driving licenses and the mean

number of times they had been arrested compared to those without a

suspended/revoked license. There was also no difference between the two groups on

the mean number of years spent in jail or prison.

Participants reporting that their driving license had been suspended or revoked

were more likely to be White or Latino/Hispanic ($\chi^2(3)$ = 19.12, p=.0018), and were less

likely to report that they lived with children under the age of 18. Among the list of

health issues obtained from the QWB, there was one characteristic that was marginally

associated with having a suspended or revoked driving license, and that was having

eye problems. Individuals with a suspended or revoked license were less likely to

report eye problems but this was not statistically significant ($\chi^2(1) = 3.35$, p=.06).

The mean Quality of Well-Being (QWB) score was .67 (SD = .11). There was no

difference in scores for those with a suspended/revoked driving license (M = .67, SD =

.11) compared those who did not report having a suspended/revoked license (M = .68,

SD = .12), t(552) = .58, p = ns). There was also no difference in mean QWB scores

between those who reported using public transportation and those who did not. The

top six health problems that were reported most frequently by the overall sample of

respondents included some limited activities (23.82%), use of cane/crutches (23.82%),

physical limitations (18.97%), pain in chest area (18.65%), trouble with stairs (16.93%)

and sense of feeling tired (10.66%), however, there were no statistically significant

differences in these health problems between those with and those without a suspended

or revoked driving license.

Individuals with a suspended or revoked driving license used marijuana fewer

days in the last month (M=3.09, SD = 7.26) compared to those without a

suspended/revoked license (M=6.28, SD = 10.24, $t(609)$ = 3.12, p = .0019); and they used

other opiates more days in the last month (M = 1.51, SD = 5.56) compared to individuals

who did not have a suspended/revoked driving license (M = .054, SD = 2.71, $t(609)$ =

2.71, p = .007).

There was no difference in the mean number of days in the last month that the

participants with suspended/revoked driving licenses used alcohol, cocaine (powered

form), crack (smokable cocaine), methamphetamine, or speedball compared to the

participants who did not have a suspended or revoked driving license. With respect to

lifetime drug use, individuals reporting that they had a suspended/revoked driving

license were more likely to have ever used powdered cocaine, more likely to have ever

used speedball (cocaine and heroin mixed together) and more likely to have used

opiates other than heroin (Table 1).

When looking only at those participants with a suspended or revoked license

and dividing them between those who used public transportation in the previous week

and those who did not, some differences in drug use emerged (Table 2). Those

participants with a suspended or revoked license who used public transportation in the

last week had a higher mean number of days using cocaine in the last month (M=1.31,

SD = 5.07) compared to those who did not use public transportation (M=0.24, SD = .96,

$t(112)$ = 1.77, p = ns), however this was not statistically significant; these same

participants also had a greater mean number of days using heroin (M=3.38, SD = 9.14)

compared to those who did not use public transportation (M=0.67, SD=3.61) $t(111)$ =

2.24, p =.02). Finally, the clients with suspended or revoked driving licenses who also

reported using public transportation had a lower mean number of days used other

opiates (M = .05, SD = .32) compared to those who did not use public transportation (M

= 2.28, SD = 6.76, t(111) = 2.05, p = .04).

The majority of respondents with a suspended or revoked driving license

reported ever having been in a drug/detox program χ^2(1) = 10.36, p=.0013) and

approximately 14% of them reported they tried, but were unable, to get into drug

treatment. When looking at the individuals who reported their driving license was

suspended or revoked and who also used public transportation in the last week, they

were more likely to report they had tried but failed to get into drug treatment χ^2(1) =

6.45, p=.0110).

The multivariate model predicting suspended/revoked driving license can be

found in Table 3. Factors positively associated with having a suspended/revoked

driving license were ever having been in drug treatment, being Hispanic or White

compared to African American, having income less than $1000 per month, and having

income from unemployment insurance. Factors negatively associated with having a

suspended/revoked driving license include being female compared to male, and having

income from welfare or social security. The Hosmer-Lemeshow Goodness-of-Fit

statistic indicates good model fit (χ^2(8) = 6.55, p=.58).

The multivariate model predicting use of public transportation includes one

variable positively associated with the use of public transportation: having spent at

least one day in bed all day in the last week. Factors negatively associated with the use

of public transportation include having a suspended/revoked driving license, being

African American, having some limitations on activities, and being disabled (see Table

4). The Hosmer-Lemeshow Goodness-of-Fit statistic indicates good model fit ($\chi^2(8)$ =

5.88, *p*=.65).

Conclusion

This study presented a unique opportunity to assess predictors of having a

suspended/revoked driving license in a sample of illicit drug users recruited through a

community based venue. It also assessed whether this sample was using public

transportation, especially among those who had been sanctioned by having their

driving license suspended/revoked.

The bivariate analysis exploring the health conditions the sample endorsed on

the Quality of Well-Being Scale found no statistically significant differences between

those who had had their driving license suspended/revoked, and those who had not.

The QWB has been used with diverse populations (Kaplan et al., 1995), including at

least one study in which it was used with a sample of drug-using veterans in treatment

(Rippeth, 1997). Differences between the two groups were found on drug treatment

experience, with significantly more respondents whose driving license was

suspended/revoked reporting any drug treatment compared to the never

suspended/revoked group. There was no difference between the two groups on the

number of lifetime arrests, nor on the total number of years spent in jail or prison.

Within the suspended/revoked license subgroup, differences appeared when

they were divided into those who had used public transportation in the last week and

those who had not. Those who reported using public transportation were more likely

to report having used marijuana, heroin, and speedball in the last month; they were less

likely report having used crack cocaine or other opiates in the last month. There were

no statistically significant differences on mobility factors between those who did and

did not use public transportation.

In the multivariate model predicting use of public transportation, there is

overwhelming evidence that supports the notion that the more limited a person is

physically, the less likely they are to be a user of public transportation. Having

limitations on some daily activities and being disabled were both factors that will

decrease the likelihood that one will use public transportation.   In a 2004 study

regarding urban public transportation, researchers found the most common limitations

on a person's ability to utilize public transportation included poor vision, poor balance,

limitations in stamina, or difficulty navigating curbs and stairs (Carlsson, 2004).

Clearly, poor health and health conditions that restrict mobility, impact this sample's

ability to make use of public transportation, though this finding was evident in the

multivariate model only, and not in the bivariate analyses.

The remaining variables in the model were all negatively associated with use of public transportation. These variables were being African American, having used cocaine in the previous 48 hours, and having a suspended or revoked driver's license. It is possible that being African American is negatively associated with use of public transportation because the cost of public transportation for this group may be prohibitive. A study of DUI recidivism in Northern California (Cherpitel & Bond, 2003) addressed racial/ethnic differences in recidivism rates between Hispanics and Whites previously convicted of DUI. Our finding that Whites and Hispanics were significantly more likely to report having a suspended/revoked driving license is consistent with the Cherpitel and Bond study, but more research on African Americans is clearly needed.

It is possible that those respondents who had a suspended or revoked driver's license chose to either ride with friends or family instead of driving their own vehicle illegally or using public transportation. The multivariate model predicting who, in the sample, has a suspended/revoked license is informative here. Those individuals with suspended/revoked licenses are more likely to have income from unemployment. Because of the need to demonstrate on-going, active efforts to achieve employment while receiving unemployment benefits, these individuals may find public transportation to be inconvenient for job-search activities. More research will be needed to fully understand what methods of travel unemployed individuals with a

suspended/revoked driving license prefer or why they choose not to utilize public transportation.

One variable was positively associated with use of public transportation: spending all day in bed. Additional bivariate analyses were done to understand why spending all day in bed was a significant factor associated with public transportation use. This may indicate that someone spending all day in bed is not in poor health, but is someone who works at night, perhaps performing shift work or who is engaged in illegal activities.

Transportation barriers are especially prevalent among those whose physical health does not allow them to use public transportation. Researchers have noted that the use of public transportation requires the ability to walk, sit, and stand for long periods of time. Even with assistive devices that allow wheelchair-bound individuals use buses and other forms of public transportation, such as lifts, and federal laws mandating equal access for individuals with physical disabilities, use of available transportation can be challenging for those with even minor physical complaints. This transportation barrier has been documented in the health care utilization field (Ahmed, Lemkau, Nealeigh, & Mann, 2001; Conover & Whetten-Goldstein, 2002; Kim, et al., 2007).

There are several limitations to this study that must be noted. First, the QWB does not ask respondents if the week they are reporting on is a "typical" week or if it is

atypical. Therefore, we do not know if the respondents who reported using public

transportation use it on a regular basis. Second, all of the data collected as part of the

project are self-reported. All of the instruments used for data collection have

established reliability and validity, however, it is still possible that participants over- or

under-reported either their physical ailments or their drug use. Another limitation is

that, for those individuals who did not use public transportation, the study did not ask

additional questions regarding their primary means of transport. The mobility items on

the QWB only assess driving in cars or using public transportation. Given the wide

array of transportation available, including use of taxis, ambulances and specialty

transportation services, future research could focus on the multiplicity of transportation

modes available.

No questions were asked concerning access to automobiles, including ownership

of the vehicle that was driven by the respondent. Finally, while drug and alcohol use

was elicited for three different time periods (lifetime, past month, last 48 hours), the

time frame for driving and transportation use was the last week. We did not explicitly

ask whether the most recent driving episode with a suspended/revoked license

occurred while the respondent was under the influence of drugs and/or alcohol. Given

the characteristics of the sample, including recent and lifetime illicit drug use,

substantial time spent in jail or prison, and suspended/revoked driving licenses, more

information on the context of driving without a license may shed light on why this

occurs. The participants' report of having a suspended/revoked driving license was not

verified through official sources, such as the Department of Motor Vehicles, and

information was not captured with respect to the participants' current probation status.

Public transportation can be a valuable asset to any community looking to

decrease traffic and/or travel times and increase the convenience and variety of modes

of travel available to citizens. However, the conclusion of this research is that one

group not using public transportation at optimal levels may be individuals with

suspended/revoked driving licenses.

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Table 1. Characteristics of Sample (*N* = 638)

Variable	No Suspended/Revoked Driving License *n* (%)	Suspended/Revoked Driving License *n* (%)
Gender		
Male	369 (71)	98 (81)*
Female	151 (29)	23 (19)
Race/Ethnicity		
African American	294 (59)	44 (39)
White	114 (23)	45 (40)**
Hispanic	69 (14)	20 (18)**
Asian	4 (<1)	2 (2)
Native American	16 (3)	2 (2)
Other	2 (<1)	0 (0)
Income		
< $500/month	307 (61)	69 (61)
$500-$999/month	145 (29)	41 (36)
$1000-$1999/month	41 (8)	3 (3)

$2000-$3999/month	7 (1)	0 (0)
Living Situation		
Homeless	274 (55)	62 (55)
Own House/Apt	106 (21)	21 (19)
Other House/Apt	166 (33)	32 (28)
Hotel	36 (7)	10 (9)
Halfway House	18 (4)	5 (4)
Shelter	56 (11)	11 (10)
Streets	74 (15)	17 (15)
Other Place	40 (8)	17 (15)
Mobility Factors		
Used Public Transport	225 (43)	43 (36)
Drove at least once/		
Past week	442 (95)	117 (99)*
Disabled	151 (29)	27 (22)
Trouble remembering	136 (26)	37 (31)
In Wheelchair	9 (2)	1 (< 1)
Spent all day in bed	26 (5)	6 (5)
Physical Limitation	90 (17)	19 (16)
Trouble with Stairs	64 (12)	19 (16)

Limited Activities	125 (24)	29 (24)
Use cane/crutches	68 (13)	10 (8)
All day in chair	34 (6)	6 (5)
Drug Treatment Experience		
Ever (any modality)	329 (66)	92 (81)**
Methadone Detox	57 (17)	22 (24)
Methadone Maintenance	64 (19)	15 (16)
Outpatient	118 (36)	26 (28)
Residential	238 (72)	83 (90)**
Prison/Jail TX	57 (17)	3 (3)**
Drug Use, Lifetime		
Ever used alcohol	490 (99)	112 (99)
Ever used marijuana	464 (93)	107 (95)
Ever used crack	460 (92)	104 (92)
Ever used cocaine	318 (64)	87 (77)**
Ever used heroin	216 (44)	57 (50)
Ever used speedball	154 (31)	49 (43)**
Ever used methadone	40 (8)	6 (5)
Ever used other opiates	147 (30)	47 (42)**
Ever used amphetamine	306 (62)	79 (70)

Any use in last 30 days

Alcohol	356 (72)	88 (77)
Marijuana	242 (49)	36 (32)**
Crack	327 (66)	70 (62)
Cocaine	78 (16)	15 (13)
Heroin	54 (11)	15 (13)
Speedball	30 (6)	7 (6)
Methadone	1 (<1)	3 (3)**
Other opiates	38 (8)	11 (10)
Amphetamine	125 (25)	33 (29)

Use in Last 48 Hours

Alcohol	230 (46)	50 (44)
Marijuana	82 (17)	12 (11)
Crack	191 (38)	32 (28)*
Cocaine	6 (1)	0 (0)
Heroin	23 (5)	8 (7)
Speedball	8 (2)	2 (2)
Methadone	1 (<1)	0 (0)
Other opiates	12 (3)	4 (4)
Amphetamine	46 (9)	9 (8)

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Note: *p < .05; **p < .01.

Table 2. Drug Use and Mobility Factors for Participants with Suspended/Revoked Driving Licenses (n = 121)

Variable	No PT Use	Used PT
	n (%)	n (%)
Any drug use, last 30 days		
Alcohol	56 (76)	32 (82)
Marijuana	19 (26)	17 (45)*
Crack	51 (69)	19 (49)*
Cocaine	7 (9)	8 (21)
Heroin	5 (6)	10 (26)**
Speedball	2 (3)	5 (12)*
Methadone	1 (1)	2 (5)
Other opiates	10 (14)	1 (3)*
Amphetamine	21 (30)	12 (31)
Mobility Factors		
Wheelchair	0 (0)	1 (2)
Physical Limitations	9 (12)	10 (23)
Trouble with stairs	10 (13)	9 (21)

| Used cane or crutches | 6 (8) | 4 (9) |

Note: *p* < .05; **p* < .01.

Table 3. Multivariate Logistic Regression model predicting suspended/revoked driving license

Variable	Odds Ratio	95% CI
Native American vs. African American	1.01	0.21, 4.80
Hispanic vs. African American	2.33	1.23, 4.40
White vs. African American	3.35	2.01, 5.62
Female vs. Male	0.55	0.31, 0.96
Income from welfare, social security	0.44	0.26, 0.71
Ever having been in drug treatment	2.76	1.60, 4.75
Having income from unemployment	6.21	2.477, 15.56
Monthly income < $1000	8.76	2.02, 38.06

Note: Hosmer-Lemeshow Goodness-of-Fit $\chi^2(8) = 6.55$, $p = .58$

Table 4. Results of Multiple Logistic Regression Predicting Public Transportation Use

Variable	Odds Ratio	95% CI
All_day_bed	3.37	1.52, 7.48
Used crack in last 48 hours	0.68	0.47, 0.97
African American race	0.67	0.47, 0.96
Disabled	0.67	0.46, 0.97
Suspended driving license	0.59	0.38, 0.92
Limit_activities_some	0.55	0.36, 0.84

Note: Hosmer-Lemeshow Goodness-of-Fit $\chi^2(8) = 5.52$, $p = .69$