

**Alcohol Consumption Patterns in North Dakota:
Survey of DUI Offenders**

Andrea Huseth, Associate Research Fellow

Andrew Kubas, M.S.

Upper Great Plains Transportation Institute
North Dakota State University
Fargo, North Dakota

September 2012

Disclaimer

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented. This document is disseminated under the sponsorship of the North Dakota Department of Transportation (NDDOT) in the interest of information exchange. The NDDOT assumes no liability for the contents or use thereof.

North Dakota State University does not discriminate on the basis of age, color, disability, gender expression/identity, genetic information, marital status, national origin, public assistance status, race, religion, sex, sexual orientation, or status as a U.S. veteran. Direct inquiries to the Vice President for Equity, Diversity and Global Outreach, 205 Old Main, (701)231-7708.

Table of Contents

1. INTRODUCTION.....	1
2. BACKGROUND.....	3
2.1 A Comparison of Multiple-DWI Offenders to First-Time Offenders	3
2.2 A Comparison of Rural and Urban DUI Tendencies	3
2.3 Drinking Places and the Relationship to Drunk Driving.....	3
2.4 Drinking Reasons Among College Students	4
2.5 DUIs as Related to Where Liquor is Purchased	4
2.6 DUI Offender Intervention Strategies	5
2.7 Place of Last Drink and the Impact it has on DUI Offenders	5
2.8 On-Premise Intervention Strategies to Prevent Drunk Driving.....	6
2.9 Relationships Between Drinking Problems and Drinking Locations.....	6
2.10 Effectiveness of Screening Programs for Long-Term DWI Offenders.....	7
2.11 Characteristics of Impaired Drivers: A Texas Case Study.....	7
2.12 Gaps in the Literature	8
3. METHOD.....	9
4. RESPONSE.....	10
5. RESULTS: ALL DUI OFFENDERS.....	14
5.1 Drinking Patterns.....	14
5.2 Impaired Driving Behaviors	18
5.3 Arrest Characteristics	23
5.4 DRINKING PLACE AS A RISK FACTOR FOR DUI.....	26
5.4.1 Special Promotions at Place of Last Drink.....	29
5.4.2 Identification Policies at Place of Last Drink.....	30
5.5 Intervention Attempts.....	31
5.6 DUI Offender Perceptions.....	33
6. RESULTS: REPEAT OFFENDERS.....	35
6.1 Repeat Offender Demographic Information.....	35
6.2 Repeat Offender Drinking Patterns	35
6.3 Repeat Offender Impaired Driving Behaviors	36
6.4 Repeat Offenders and Drinking Place	37
6.5 Repeat Offender Perceptions.....	38
6.6 Intervention Attempts and Repeat Offenders	39
7. CONCLUSION.....	40
8. DISCUSSION.....	42
9. REFERENCES.....	43
APPENDIX A. SURVEY INSTRUMENT	45
APPENDIX B. MISSING RESPONSE FREQUENCIES.....	47

List of Tables

Table 1.1	All Traffic Fatalities and Percent Involving Alcohol, 2003 - 2010	1
Table 4.1	Response, by Age and Gender	11
Table 4.2	Respondents, by State of Residence	12
Table 4.3	North Dakota Respondent County Origin.....	12
Table 4.4	Minnesota Respondent County Origin.....	13
Table 5.1	Mean BAC Levels at Time of Arrest, by Age	15
Table 5.2	Mean BAC by Age, Factoring for Gender.....	15
Table 5.3	Correlations of Drinking Patterns	18
Table 5.4	Correlations of Impaired Driving Behaviors	23
Table 5.5	Proof of Identification Rates, by Age	30
Table 5.6	Summary of DUI Offender Perceptions	33
Table 6.1	Age and Gender Characteristics for Repeat and First-Time Offenders	35
Table 6.2	Drinking Patterns Among Repeat and First-Time DUI Offenders	36
Table 6.3	Impaired Driving Behaviors Among Repeat and First-Time DUI Offenders	36
Table 6.4	Drinking Place as Related to Repeat and First-Time DUI Offenders.....	37
Table 6.5	Perceptions of Repeat and First-Time DUI Offenders	38
Table 6.6	Intervention Attempts Among Repeat and First-Time DUI Offenders	39

List of Figures

Figure 4.1	Response, by Gender	10
Figure 4.2	Response, by Age.....	11
Figure 5.1	Self-Reported Blood Alcohol Content Responses.....	14
Figure 5.2	Amount of Alcohol Consumed Factoring for Time Spent Drinking	16
Figure 5.3	Proportion of Drinks Consumed by DUI Offenders, by Drink Type	17
Figure 5.4	Distance Traveled from Place of Last Drink Prior to Being Arrested.....	19
Figure 5.5	Type of Vehicle Operated by DUI Offender on Day of Arrest	20
Figure 5.6	DUI Offender Crash Involvement, by Crash Type.....	20
Figure 5.7	Proportion of DUI Offenders Involved in Crash, by Blood Alcohol Content	21
Figure 5.8	Number of Passengers in Vehicle with DUI Offender at Time of Arrest, by Proportion	22
Figure 5.9	DUI Offenders Using Drugs on Day of Arrest, by Drug Type.....	22
Figure 5.10	North Dakota DUI Offender County of Origin and County of Arrest.....	24
Figure 5.11	Minnesota DUI Offender County of Origin and County of Arrest.....	24
Figure 5.12	DUI Offender Arrests, by Law Enforcement Agency	25
Figure 5.13	DUI Offender Place of Last Drink.....	27
Figure 5.14	DUI Offenders Drinking at Own Residence, by Drinking Environment.....	27
Figure 5.15	DUI Offenders Drinking at Other Residence, by Drinking Environment	28
Figure 5.16	Proportion Drinking Elsewhere Prior to Last Place of Drink, by Location.....	29
Figure 5.17	Intervention Attempt, by Person Intervening.....	31
Figure 5.18	Proportion of Intervention Attempts, by Amount Consumed.....	32
Figure 5.20	Type of Intervention Used	33

1. INTRODUCTION

The state of North Dakota consistently has one of the highest rates of traffic fatalities involving alcohol in the nation (Table 1.1). Since 2003, the state has led the nation twice, has been in the top four on five occasions, and has been in the top quarter every year for the proportion of traffic fatalities that involve any alcohol.

Table 1.1 All Traffic Fatalities and Percent Involving Alcohol, 2003 - 2010

State	Year	BAC = 0.00	BAC 0.01 – 0.07	BAC > 0.08	BAC > 0.16	Any Alcohol	Rank*
ND	2003	51%	5%	44%	31%	49%	3 rd
USA	2003	64%	5%	31%	19%	36%	
ND	2004	61%	5%	34%	27%	39%	13 th
USA	2004	65%	5%	30%	18%	35%	
ND	2005	54%	9%	37%	28%	46%	4 th
USA	2005	65%	5%	30%	19%	35%	
ND	2006	58%	5%	37%	27%	42%	11 th
USA	2006	63%	6%	32%	21%	37%	
ND	2007	42%	5%	48%	36%	53%	1 st
USA	2007	62%	6%	32%	21%	37%	
ND	2008	50%	4%	46%	35%	50%	1 st
USA	2008	63%	6%	32%	22%	37%	
ND	2009	58%	4%	38%	29%	42%	11 th
USA	2009	62%	6%	32%	22%	38%	
ND	2010	52%	4%	44%	38%	48%	2 nd
USA	2010	63%	5%	31%	22%	36%	

*Ranking includes all 50 states and the District of Columbia

Source: NHTSA Traffic Safety Facts: Alcohol-Impaired Driving; 2003 – 2010

Because of the high rates of impaired driving in North Dakota, the North Dakota Department of Transportation’s Traffic Safety Office created a DUI offender survey to better understand the tendencies and behaviors of those who choose to drink and drive. Initiated in Fiscal Year 2010, the survey was designed to identify consumption patterns in North Dakota’s driving population. The survey was designed to assist with both traffic safety program development and evaluation to help state officials better understand the nature of impaired driving in the state. The survey was distributed through a partnership with the state’s alcohol assessment and treatment providers.

The survey asked individuals about a variety of topics related to their decision to drink and drive. The survey included questions about the last place where alcohol was consumed, the type of vehicle the offender was driving, if a designated driver was available, the amount of alcohol they had been consuming, if anyone tried to prevent the offender from driving, and other similar questions. The purpose of the survey was to understand the decisions and behavior patterns of individuals who have chosen to drive after drinking. State officials and others can then use this knowledge in media efforts, goal setting, and preventative measures. The objective of this study

was to analyze data from past DUI offender surveys. The goal was for the findings to be a resource for improving traffic safety program functionality and effectiveness in reducing the tendency of North Dakotans to drive after drinking alcohol.

2. BACKGROUND

A variety of literature exists which studies the behaviors, actions, tendencies, and characteristics of impaired drivers. The following literature review highlights various research projects and studies aimed at understanding drunk driving offenders. The literature review spans multiple demographics and examines several factors believed to play a role in determining if one will operate a vehicle while impaired. The overall message from scanning the literature is vital when attempting to understand consumption patterns: many factors influence particular demographics in different ways. Moving forward, it is important to understand that there is no one strategy that universally prevents drunken driving across all demographics.

2.1 A Comparison of Multiple-DWI Offenders to First-Time Offenders

Various studies have hypothesized that there is a stark contrast in criminal tendencies between first-time DWI offenders and repeat offenders – with repeat offenders having overall higher levels of criminality (Gould and Gould 1992). Gould and Gould found that repeat offenders had significantly higher BAC levels than did first-time offenders. Moreover, individuals with a prior DWI arrest or a prior criminal arrest had a greater likelihood of having a higher BAC level at the time of arrest than did first-time offenders. This led the researchers to conclude that multiple-DWI offenders may be more immersed in drinking subculture and may consume more in one drinking episode than other individuals. Gould and Gould also found that repeat offenders may have patterns of weak self-control, weak social control, or a combination of both negative behaviors.

2.2 A Comparison of Rural and Urban DUI Tendencies

Webster et al. (2004) studied differences in rural and urban DUI offenders in Kentucky. The study was conducted to examine any similarities and differences between rural and urban DUI offenders with the expectation that there would be few differences between the two groups in Kentucky. Results indicated that the severity of DUI offenders may be greater in rural areas than in urban ones. Webster et al. reveal that “DUI offenders in rural counties were found to have significantly lower compliance rates than those in urban counties.” The study contends that rural residents living nonadjacent to an urban area are especially susceptible to drug and alcohol abuse. In general, remote areas have significantly fewer drug and alcohol programs, rehabilitation facilities, and support networks available than urban regions. This may play a direct role in explaining why rural residents in Kentucky exhibited greater tendencies to drive while under the influence of alcohol.

2.3 Drinking Places and the Relationship to Drunk Driving

Snow and Anderson (1987) studied the reasons why convicted drunken drivers chose to consume alcohol at specific locations. Six drinking location factors were examined: drinking for “entertainment, ambience, facilities, friendship, avoidance, and service” (Snow and Anderson 1987). Snow and Anderson found that not only are there “major variations among drunk drivers in terms of factors such as personality characteristics, sociodemographic characteristics, reasons

for drinking, and risk of traffic accident involvement,” but that there are also substantial differences among drunk drivers “in terms of their stated reasons for selecting a drinking place.” Selecting a place to drink is dependent upon different environmental settings and thus varies greatly by different subgroups of drunk drivers. Since different subgroups choose places to drink differently, it is difficult for any one preventative measure to broadly affect all subgroups. Different types of drinkers respond in different ways to methods that can be utilized to stop impaired driving.

2.4 Drinking Reasons Among College Students

Pang et al. (1989) address drinking factors for college students. The study compares a sample of collegians with a sample of Mississippi DUI offenders. Among college students, drinking either for pleasure or to meet members of the opposite sex were statistically significant and associated with “heavier consumption” patterns. Although these reasons were also mentioned by the sample of DUI offenders, it was noted that the DUI offender sample were much more likely to drink more amounts of alcohol more often for “escapism” rather than any other factor. It appears as though some DUI offenders simply have addiction problems and thus driving under the influence of alcohol may stem from problems with alcoholism. Pang et al. also found that when young adult males drink “with the expected and desired result of reducing inhibitions and meeting females,” this behavior is especially “dangerous in terms of accident risk.” Young adult males drinking for these reasons are more likely to have an accident than when they drink for any other reason.

2.5 DUIs as Related to Where Liquor is Purchased

Lewis et al. (1998) analyzed the locations where liquor was purchased by convicted drunk drivers immediately prior to being arrested. Specifically, the study addressed whether or not there were differences between those who purchased liquor at a drive-up liquor window and those who purchased liquor elsewhere. The results of the study were straightforward: the odds of being either Hispanic, a high-risk problem drinker, or someone choosing to drink inside the vehicle prior to the arrest were all significantly higher for drive-up window users than for all other offender groups. Thus, there is a distinct relationship between the use of drive-up liquor windows and certain high-risk drinking behaviors.

As a whole, the study reached a number of important conclusions. For example, drive-up windows were the most common source of liquor purchase among the DWI offenders studied in the sample. More than one-third (37%) of those in the study purchased liquor “at a drive-up window.” This is especially concerning when one considers the fact that in Santa Fe County – the location of this particular study – drive-up windows are “the least common retail package location.” Also, note that Lewis et al. found a distinct correlation between individuals who purchase liquor at a drive-up window and certain characteristics of alcoholics. In all, “the odds of having a severe alcohol problem...were 67% higher for drive-up window users than for offenders who purchased package alcohol elsewhere.” Severe alcohol problems are a predictive factor of recidivism. Thus, knowing how alcohol is accessed by various groups can allow for a better understanding of how to target not only problem drinkers but also casual drinkers who purchase liquor from other establishments as well.

2.6 DUI Offender Intervention Strategies

Wells-Parker et al. (1989) examined recidivism data in Mississippi over a nine-year period where various intervention strategies were introduced to offenders. The study utilized a multivariable regression model factoring for such variables as drinker risk, age, race, education, and such intervention strategies as probation and short-term intervention. Although some significant conclusions could be made – for example, short-term rehabilitation was more effective for those with less than 12 years of education – the overarching conclusion made by the researchers is that intervention strategies vary substantially in their effectiveness depending on characteristics of the offender. Ultimately, the research suggests that “it is unlikely that any single intervention strategy will be consistently effective across diverse groups of offenders.” As a result, “specific interventions will only be effective for specific types of offenders, and the same intervention strategy, such as probation, will have very different overall effects when evaluated within demographically diverse samples.” In other words, although some conclusions can be made regarding the effectiveness of certain prevention and intervention strategies to specific groups, there is no generalizable strategy that can be broadly and effectively applied across all demographics.

2.7 Place of Last Drink and the Impact it has on DUI Offenders

Padilla and Morrissey (1993) addressed the relationship between the place of last drink and driver demographics for a random sample of 527 second-time or third-time DUI offenders. The researchers noted that the establishments where the last drink took place could be broadly categorized into nine groups: bar, home, friend’s home, party, restaurant, public event, recreational activity, work, and vehicle. The most common place where the last drink took place was at a bar; 41.6% of respondents indicated that this was where they consumed their last beverage before being arrested for driving under the influence. A smaller proportion, 14.9% and 14.8% of respondents, respectively, indicated that they had their last drink at a friend’s home or their own house prior to being arrested. These were the second and third most common places where the last drink took place.

Findings from the study indicate that a few statistically significant patterns must be considered when addressing how the place of last drink relates to DUI offenders. First, among non-Hispanic males, roughly 50% “indicated that a licensed liquor establishment was the place of last drink.” Among Hispanic males, those under 35 years of age showed an altogether different pattern: they were statistically more likely to have consumed their last drink either at their own home or the home of a friend. Another trend to be noted is that women, on average, had higher blood alcohol contents upon being arrested than their male counterparts. This information from Padilla and Morrissey led them to suggest that interventions may need to be targeted differently depending on whether programs are intended for younger, older, Hispanic, non-Hispanic, male, or female populations. This conclusion reaffirms the sentiment of others in this literature review: prevention and intervention strategies must cater to specific demographics; no one strategy works universally across all driver groups.

2.8 On-Premise Intervention Strategies to Prevent Drunk Driving

Graham (2000) highlighted eight on-premise intervention strategies and discussed the benefits and limitations of such strategies. On-premise drinking refers to consumption that physically takes place at the establishment. Intervention strategies such as server training, designated driver programs, and community ride services are the most common forms of on-premise drunk driving prevention.

The eight intervention strategies discussed by Graham are as follows: (1) training programs for bar staff and managers, (2) risk assessment to adopt house policies that decrease risks of intoxication or problem behavior, (3) implementing Codes of Practice at establishments, (4) enforcement such as proactive policing at the local level, (5) regulation of licensed premises, (6) designated driver and ride service programs, (7) community mobilization, and (8) patron education.

Ultimately, Graham suggests that the eight intervention strategies can all increase safety in bars. However, Graham cautions that hard data “to support the effectiveness of most interventions does not currently exist and will be difficult and expensive to obtain.” Her overarching conclusion is that more information and further research is needed concerning the eight strategies in order to learn whether they effectively curtail drunk driving and other poor driver behaviors.

2.9 Relationships Between Drinking Problems and Drinking Locations

Snow and Wells-Parker (2001) examined the relationship between drinking problems and the frequency of drinking in eight different establishments. They used a sample of convicted Mississippi DUI offenders as the basis of the research project. The eight drinking places highlighted in the study were: (1) own home, (2) outdoors, (3) someone else’s home, (4) at a party, (5) bar, lounge, or tavern, (6) while riding in or driving a car, (7) restaurant, and, (8) parking lot or parked car. Unlike other similar studies, Snow and Wells-Parker factored for the frequency with which convicted offenders drank at each location. Offenders were asked to provide data for all drinking places on a 6-point scale which included “never,” “less than once a year,” “not every month, but at least once a year,” “not every week, but at least once a month,” “not every day, but at least once a week,” and “every day.”

Like similar studies, Snow and Wells-Parker concluded that drivers who had their last drink in an unlicensed establishment had a higher chance of being involved in an accident. Similarly, offenders who drank at more than one location prior to the arrest had a higher propensity of having alcohol problems. Snow and Wells-Parker postulate that the link they found between alcohol problems and drinking in automobiles is perhaps “found because people with severe alcohol problems tend to drink anywhere and everywhere, including automobiles, while those who do not have alcohol problems may not drink in cars. Whatever the reason, from a highway safety perspective, a moving automobile would seem to be an especially inappropriate place to drink.” Just as other studies have concluded, it appears as though individuals with legitimate

addiction, self-control, and alcohol problems tend to exhibit the most dangerous drinking-driving practices.

2.10 Effectiveness of Screening Programs for Long-Term DWI Offenders

Lapham (2010) studied 583 first-time DWI offenders with known substance abuse disorders in New Mexico. If offenders met certain criteria, they were admitted into a county-level screening program which provided services for first-time offenders to help mitigate some substance abuse consequences. Prior to joining the program, offenders were categorized into one of four groups: (1) did not complete screening, (2) not referred to treatment, (3) noncompliant with treatment, and, (4) completed treatment.

Results from the study were as expected. Those individuals that were not referred to treatment had the lowest levels of substance abuse during the 15-year checkup period. Those who did not complete screening and those who required treatment were “over twice as likely to have a current SUD [substance use disorder], compared with the group that was not referred to treatment.”

Lapham discusses that her research parallels findings from others in the field. Comparable studies have found that, within a similar checkup timeframe, roughly one-quarter of the offenders in the study are deceased and anywhere from 26% to 68% are still alcoholics. The overall message is alarming but similar to what other sources in this literature review have found: individuals with self-control issues, chemical dependency problems, and a history of alcoholism have a greater likelihood of engaging in dangerous driving behaviors – not necessarily due to external factors – but due to psychological and behavioral problems.

2.11 Characteristics of Impaired Drivers: A Texas Case Study

Maxwell et al. (2007) analyzed DUI offenders entering treatment programs in Texas, a state that consistently ranks among the highest in DUI offenses annually. The article noted that there are four main countermeasures to prevent future DUI offenses for those entering treatment programs: (1) specific deterrence-based sanctions, such as fines, license loss, and incarceration, (2) voluntary or mandatory enrollment in treatment programs for individuals who are alcohol or drug dependent, (3) vehicle control mechanisms and other technologic advances, such as alcohol ignition interlocks, and, (4) offender monitoring and probation, including electronic monitoring.

Maxwell et al. studied nearly 30,000 offenders between 2000 and 2005 and provided 90-day follow-ups to assess the status of the client since entering a treatment program. The results found that an overwhelming majority of patients had no DUI arrests within 90 days of being discharged. A logical finding was that clients who stayed sober during the treatment program were more likely to continue with after-care treatment beyond what was provided, such as “participating in 12-Step meetings.” Another finding was that individuals who were treated in a residential program were more likely to not be sober, perhaps due to living in a non-structured environment with alcohol available. Like many other sources referenced in this literature review, Maxwell et al. found that, although punishment is a crucial element in maintaining public

confidence in the criminal system, “there remains a need to look beyond punishment approaches and to focus on the underlying causes of the offending behaviors” whether that be a predisposition to alcoholism or other factors that may lead one to drink and drive.

2.12 Gaps in the Literature

This literature review has outlined various studies aimed at understanding the behaviors, attitudes, and tendencies of DUI offenders and the actions they take in the time leading up to the arrest. A few conclusions can be made concerning the literature. First, it appears the state of Mississippi has taken the lead in understanding the behaviors and characteristics of drunk drivers. The state has various programs and strategies aimed at intervening and preventing drunk driving altogether. Second, in regards to DUI offenders in North Dakota, very little information exists on offenders, their tendencies, and decisions leading up to the moment they choose to drive while impaired. Third, no studies were found that examine the characteristics of North Dakota drivers that may predispose them to choose to drink and drive. As many articles in the literature review highlighted, addiction is a legitimate situation which many find difficult to escape. Problems with addiction, self-restraint, and alcoholism may predetermine some individuals to behave as they do. No studies in North Dakota were found that track DUI offenders and also explain what underlying factors may push offenders to act and behave in certain ways.

3. METHOD

A survey was used to collect data for this project. The survey contains 24 questions and asks respondents to identify how many drinks were consumed, where they were consumed, what was consumed, if an intervention from driving was attempted, the impact that the DUI has had on the offender, and other aspects concerning the time leading up to and following the arrest for driving under the influence. The complete survey instrument is provided in Appendix A.

The survey was designed by the North Dakota Department of Transportation's (NDDOT) Traffic Safety Office (TSO). It was initiated in Fiscal Year 2010 and was distributed again in 2011. The goal of the survey is to identify consumption patterns in the behaviors of the driving population. Identifying these patterns will help with program development and evaluation and will aid in creating intervention and prevention strategies geared toward stopping future incidents of driving under the influence.

Surveys were distributed through a partnership with the State of North Dakota's alcohol assessment and treatment providers. The survey is sent to all of the North Dakota DUI evaluation providers. The providers then ask their clients who come in to take the required DUI evaluation if they are willing to fill out the survey. It should be emphasized that taking the survey is completely voluntary.

Responses to the questions from the survey were codified into quantitative scales. A database was created from these responses in SPSS and queries for various statistical testing. Although certain demographic data such as age, gender, and zip code were obtained, all responses were kept confidential and no individually identifiable information was obtained through the survey.

4. RESPONSE

Survey responses were collected over a two-year timeframe: Fiscal Year 2010 and Fiscal Year 2011. Because the surveys were completely voluntary, a specific response rate is unknown. What is known, however, is that between the two years, 1,066 surveys were collected. In Fiscal year 2010, 611 surveys were obtained and an additional 455 surveys were collected during Fiscal Year 2011. It should be emphasized that the goal of this project is not to track trends or changes over time, but rather is to understand the tendencies and behaviors of offenders prior to their arrests. Thus, the two years of data are not meant to be compared with one another but, rather, are meant to be addressed as an overall timeframe to be studied.

Of the valid responses obtained, 72.6% are male and 27.4% are female (Figure 4.1, n=1,052). This number appears consistent with the findings from the literature review: in general, males are much more likely to be convicted of a DUI than their female counterparts.

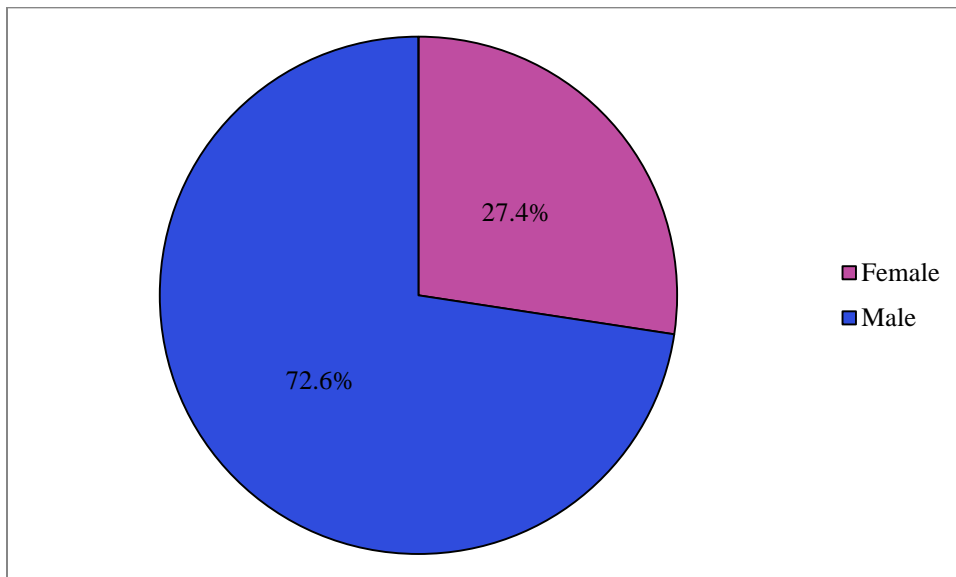


Figure 4.1 Response, by Gender

The majority of DUI offenders in this survey are under the age of 34 (Figure 4.2). DUI offenders over the age of 55 are the smallest proportion of the sample size. Only 47 (4.5%) respondents were at least 55 years old. Note that, in general, statistical analyses examining relationships with fewer than 30 responses are not considered large enough to be extrapolated to fit the entire population. These instances are marked with asterisks throughout the analysis. In terms of extrapolating data by age, all age cohorts have at least 30 responses and any generalizations made about age in this report can fit the entire North Dakota DUI offender population.

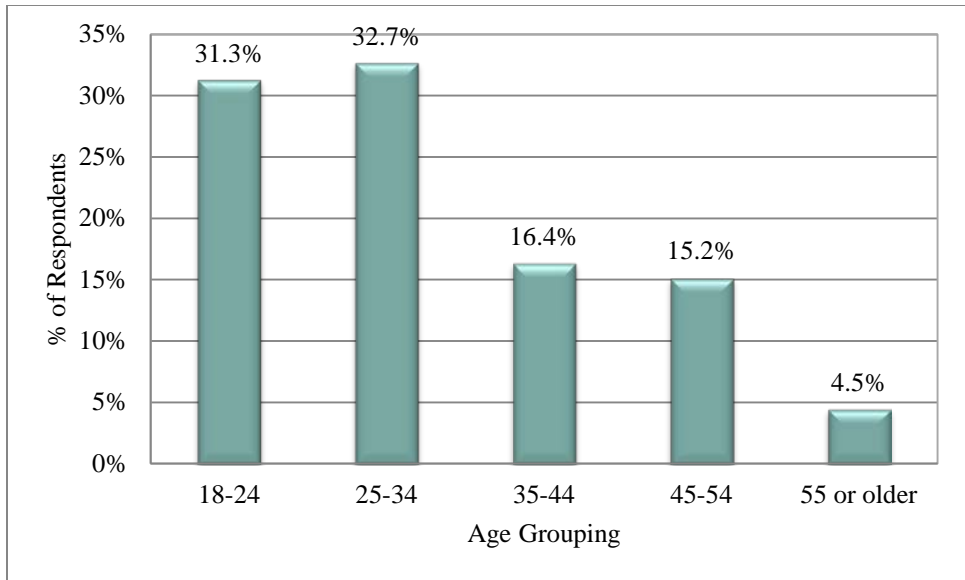


Figure 4.2 Response, by Age

When addressing the North Dakota DUI offender population by both gender and age, it appears the proportion of males and females is consistent across age cohorts (Table 4.1), with, males outnumbering females at approximately a 3:1 ratio. However, in the 55 and older age cohort, there were only 10 females. Because this number is fewer than 30, any conclusions made in this report about females over the age of 55 cannot be considered representative of the entire North Dakota over-55 female DUI offender population.

Table 4.1 Response, by Age and Gender

Age	Gender		Total
	Male	Female	
18-24	232 (70.9%)	95 (29.1%)	327
25-34	251 (73.6%)	90 (26.4%)	341
35-44	124 (72.5%)	47 (27.5%)	171
45-54	114 (73.1%)	42 (26.9%)	156
55 and older	37 (78.7%)	10* (21.3%)	47

*Statistical estimates for this group will be uncertain due to limited sample size
 Frequency missing: 24

Although the DUI offender survey applies only to respondents who received a DUI within the state of North Dakota, it does not mean that all drivers were from the state. Some out-of-state drivers were cited for driving under the influence of alcohol within North Dakota’s borders. Although these individuals do not live in the state, they were asked to participate in the survey via the state’s alcohol assessment and various DUI evaluation providers. Table 4.2 summarizes the state of origin for all drivers participating in this survey. The table reveals that an overwhelming majority of participants in the survey currently reside in either North Dakota or Minnesota. All other states are miniscule and contribute little to the survey sample.

Table 4.2 Respondents, by State of Residence

State	Frequency	Percent
Arizona	2	0.19%
Colorado	1	0.096%
Idaho	1	0.096%
Maryland	1	0.096%
Minnesota	80	7.65%
Montana	2	0.19%
North Dakota	954	91.20%
South Dakota	1	0.096%
Tennessee	1	0.096%
Utah	2	0.19%
Wyoming	1	0.096%

Frequency missing: 20

In addition to querying for place of residence by state, the sample of DUI offenders provided information about county-level residence as well. Among those DUI offenders residing in North Dakota, the largest share lives in Cass County. Cass County residents comprised 41.3% of all North Dakota DUI offenders and 37.7% of the total sample (Table 4.3). Aside from Cass County, no other North Dakota county accounted for more than 8% of the sample size. Note that counties with the largest cities in North Dakota – Cass (Fargo, West Fargo), Grand Forks (Grand Forks), Stark (Dickinson), Ward (Minot), Burleigh (Bismarck), and Stutsman (Jamestown) – were all among the top eight counties with the largest proportions of DUI offenders in the survey sample size.

Table 4.3 North Dakota Respondent County Origin

State	County	Percentage of Respondents	
		Within State	Overall
North Dakota (n=954)	Cass	41.3%	37.7%
	Grand Forks	8.0%	7.3%
	Ramsey	7.3%	6.7%
	Benson	5.0%	4.6%
	Stark	4.4%	4.0%
	Ward	4.0%	3.6%
	Burleigh	3.8%	3.4%
	Stutsman	3.2%	3.0%
	All Other Counties	23.0%	20.9%

Among Minnesota drivers, the four most common counties in which DUI offenders in this sample have residence are Clay County, Marshall County, Polk County, and Becker County. All four are in northwestern Minnesota and, with the exception of Becker County, border North Dakota. A majority of Minnesota residents (51.3%) were from Clay County, although when factoring for the overall sample, these individuals comprised less than 4% of the total (Table 4.4).

Table 4.4 Minnesota Respondent County Origin

State	County	Percentage of Respondents	
		Within State	Overall
Minnesota (n=80)	Clay	51.3%	3.9%
	Marshall	10.0%	0.8%
	Polk	10.0%	0.8%
	Becker	6.3%	0.005%
	All Other Counties	22.4%	1.7%

Part of the survey response process included self-reported blood alcohol levels at the time of arrest. Three responses were eliminated from the average on account of the self-reported BAC levels being 0.89, 0.90, and 0.95, respectively; these three values are implausible. These values are clearly not accurate and although not quantified into the average, these three were categorized as “.32 or greater” for analysis purposes.

5. RESULTS: ALL DUI OFFENDERS

In North Dakota, drivers are not allowed to operate a vehicle with a blood alcohol content greater than 0.08%. In some instances, driving recklessly or dangerously with a blood alcohol content of less than 0.08% but greater than 0.00% is also grounds for receiving a DUI or DWI. Self-reported blood alcohol content (BAC) levels provide insight regarding the state of impairment among those individuals receiving a DUI.

5.1 Drinking Patterns

Based on the self-reported levels, a majority of respondents (61.9%) had a blood alcohol content of less than 0.15% (Figure 5.1). Roughly one-fifth of respondents indicated that they had a blood alcohol content that was less than 0.07%. About two-fifths (38.2%) of respondents had a BAC over 0.16% at the time they were arrested; this value represents a BAC at least twice the legal limit. About one in twenty (5.4%) received a DUI while driving with a blood alcohol content at least three times the legal limit. Only 0.8% drove with a BAC greater than four times the legal limit.

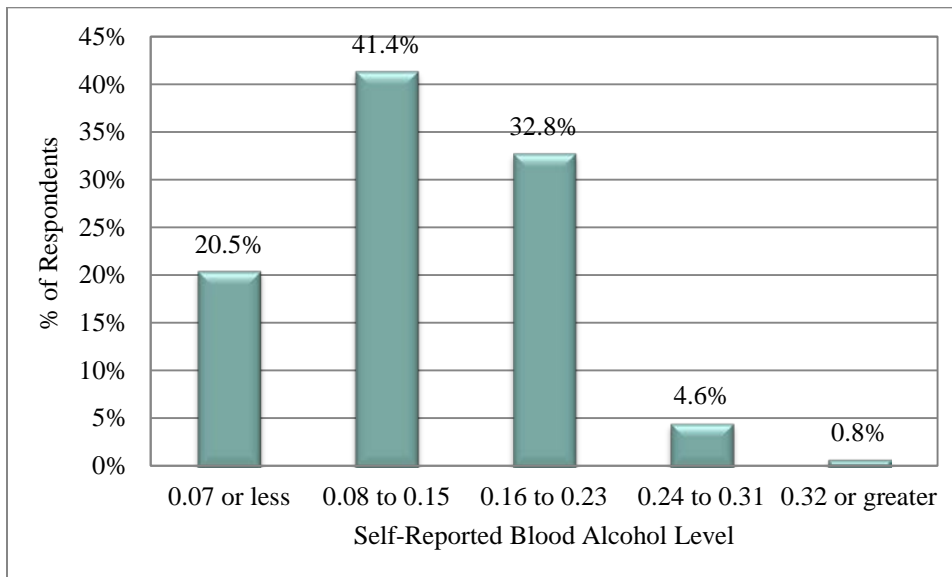


Figure 5.1 Self-Reported Blood Alcohol Content Responses

There was no statistically significant difference between males and females in terms of average BAC at the time of arrest ($F=.062$, $df=1$, $p=0.803$). Among males, the mean BAC at the time of arrest was 0.1264%. For females, the mean value was 0.1222%.

Those under the age of 34 had higher BAC averages than all other age groups (Table 5.1). The 25-34 age cohort had the highest mean BAC at 0.1321%. Drivers over the age of 55 had the lowest self-reported BAC levels with a mean of 0.1085%. An independent t-test for equality of means revealed that the difference between mean self-reported BAC levels of 25-34 year-olds

and drivers over the age of 55 was statistically significant at the 5% level ($t=2.036$, $df=382$, $p=0.042$).

Table 5.1 Mean BAC Levels at Time of Arrest, by Age

Age Group	Mean BAC%	N
18-24	0.1286	323
25-34	0.1321	336
35-44	0.1171	167
45-54	0.1211	153
55 and older	0.1085	47
Total	0.1258	1,026

Frequency missing: 40

There is also some disparity between mean BAC and age when factoring for gender (Table 5.2). Responses show 18-24 year-old males have higher blood alcohol contents at the time of arrest than their female counterparts. Their propensity to drink more is statistically significant at the 5% level (Chi. Sq.=45.459, $df=27$, $p=0.015$). In terms of the 35-44 age cohort, males are once again statistically more likely to have a higher blood alcohol content at the time of arrest than are 35-44 year-old females (Chi. Sq.=40.869, $df=22$, $p=0.009$). There were no statistical differences between all other age cohorts and gender.

Table 5.2 Mean BAC by Age, Factoring for Gender

Gender	Age	Mean BAC%	N	Significance
Male	18-24	0.1296	230	*
Female	18-24	0.1261	93	*
Male	25-34	0.1296	247	
Female	25-34	0.1391	89	
Male	35-44	0.1284	122	**
Female	35-44	0.0864	45	**
Male	45-54	0.1217	112	
Female	45-54	0.1195	41	
Male	55 and older	0.1076	37	
Female	55 and older	0.1120 [#]	10	
Male	<i>Total</i>	<i>0.1271</i>	<i>748</i>	
Female	<i>Total</i>	<i>0.1224</i>	<i>278</i>	

*Significant difference at the 5% level for Pearson Chi-Square Test

**Significant difference at the 1% level for Pearson Chi-Square Test

[#]Estimate may be uncertain due to limited sample size

Frequency missing: 40

Prior to being arrested, convicted DUI offenders drank for an average of 4.20 hours. On average, men drank for a longer period of time (4.33 hours) compared to women (3.90 hours) which was statistically significant at the 5% level ($F=5.304$, $df=1$, $p=0.021$). With regard to differences in age, the 45-54 age cohort drank for the longest period of time prior to being arrested (4.45 hours)

and the 55 or older cohort drank for the shortest amount of time prior to their DUI arrest (3.42 hours). The difference in time spent drinking prior to arrest factoring for age was not statistically significant ($F=2.222$, $df=4$, $p=0.065$).

Roughly two-fifths (39.1%) of respondents indicated that they consumed between 6 and 9 alcoholic beverages on the day they were arrested. A comparable portion, 37.7%, drank between 3 and 5 alcoholic drinks on the day of their arrest. Roughly 1 in 6 (15.6%) convicted DUI offenders consumed more than 10 drinks on the day of their DUI arrest. Only 5.4% of respondents revealed that they had 1 to 2 alcoholic beverages prior to being arrested for driving under the influence.

The relationship between the amount of time spent drinking and the number of drinks consumed on the day of the arrest is expected: individuals who spent a longer amount of time drinking prior to being arrested had consumed more alcoholic beverages over that period (Figure 5.2). This indicates that some DUI offenders may have habitual patterns of alcohol abuse. Note the self-reported number of drinks consumed within shorter amounts of time as well. For example, 68.3% of those reporting that they only drank for one hour prior to their arrest consumed between 3 and 9 alcoholic beverages in that period. Moreover, 89.9% of individuals who reported that they drank for 2 hours prior to being arrested for a DUI had consumed at least 3 drinks within that period. This suggests that binge drinking may be a defining characteristic of some DUI offenders in the state.

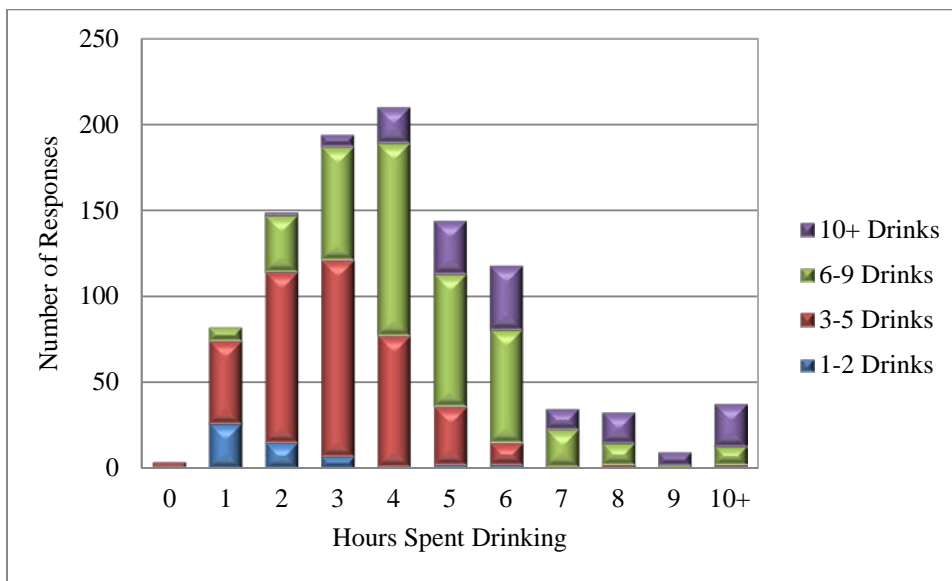


Figure 5.2 Amount of Alcohol Consumed Factoring for Time Spent Drinking

The idea that binge drinking may be a notable characteristic of the DUI offender population in North Dakota is reaffirmed by self-reported drinking behavior in the hour prior to being arrested. Overall 15.0% of respondents reported having at least four drinks in the hour before being arrested for driving under the influence. For some respondents, this was above and beyond the alcohol they had already consumed throughout the day. One in eight (12.5%) respondents

admitted to consuming three alcoholic beverages in the hour immediately before being arrested. About three in ten (30.6%) had two drinks prior to their arrest. A smaller proportion, 23.6%, only had one drink in the hour before being arrested. Of the convicted DUI offenders, 18.3% did not have any alcoholic drinks in the hour prior to being arrested. Perhaps these individuals were attempting to “sober up” before operating a vehicle. This implies that some of the convicted DUI offenders in North Dakota may be cognizant of their illegal behavior and may have been actively attempting to avoid the very crime of which they were convicted.

Among those receiving a DUI, beer was the most common beverage consumed on the day of arrest, with 45.1% reporting they had consumed only beer on the day they received a DUI (Figure 5.3). About one-fifth (19.0%) of respondents drank only mixed drinks they day they were arrested for driving under the influence. A notable portion, 30.8%, consumed multiple types of beverages they day they were arrested. About one in nine (11.0%) consumed both beer and shots prior to being arrested. A smaller proportion, 8.2%, had both beer and mixed drinks. All other beverages or combinations of beverages were consumed by less than 3.5% of those reporting.

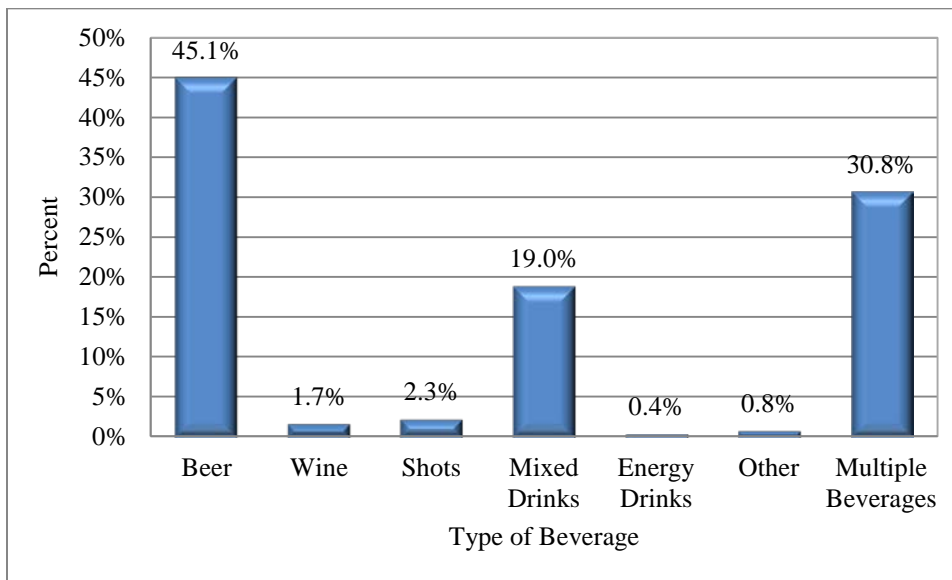


Figure 5.3 Proportion of Drinks Consumed by DUI Offenders, by Drink Type

To investigate some relationships among drinking patterns of convicted DUI offenders, measures of association are calculated based on survey responses. The Pearson coefficient measures the strength of association between two variables; in this case it measures responses to survey questions. Correlation coefficients range from -1 to +1 with values closer to these extremes considered strong relationships. Relationships between -0.5 and +0.5 are generally considered weak and inconsequential. Two values that indicate a substantive relationship, albeit a weak one, are for the number of hours spent drinking prior to being arrested and the total number of drinks consumed on the day of the arrest (Pearson Corr.=0.513, $p < .001$, $n = 1,017$) (Table 5.3). These two variables share roughly 26% of their variability. Questions regarding these two variables are clearly related: if an individual chooses to drink for an extended period of time, it is likely that

the person may consume more drinks than over a shorter period of time. Although several other relationships are found to be statistically significant at the 1% and 5% levels, the relationship measures are between the -0.5 and +0.5 levels and thus are not considered substantive.

Table 5.3 Correlations of Drinking Patterns

	Q2	Q3	Q4	Q5	Q6
Q2 Times DUI Arrest	1	-.016	.074*	.081**	.042
Q3 BAC at Arrest		1	.059	.093**	-.049
Q4 Hours Drinking Prior			1	.513** .000	.072* .023
Q5 # Drinks on Day of Arrest				1	.148** .000
Q6 # Drinks Hour Before					1
**Correlation is significant at the 1% level *Correlation is significant at the 5% level Bold: Correlation and p-value indicate a substantive relationship Note: Correlations between -0.5 and +0.5 indicate a weak relationship and are not addressed in this study					

5.2 Impaired Driving Behaviors

The driving activity of impaired drivers sheds light on the behaviors and actions that this demographic takes when choosing to drive after drinking. Nearly half (47.2%) of all drivers who chose to operate a vehicle under the influence were stopped by police less than ½ mile from the last place at which they drank alcohol (Figure 5.4). As the distance increases, the proportion of drivers stopped by law enforcement continually decreases, implying that most DUI offenders do not choose to travel long distances while under the influence. A majority of offenders (61.2%) were pulled over less than one mile from the place where they last had an alcoholic beverage.

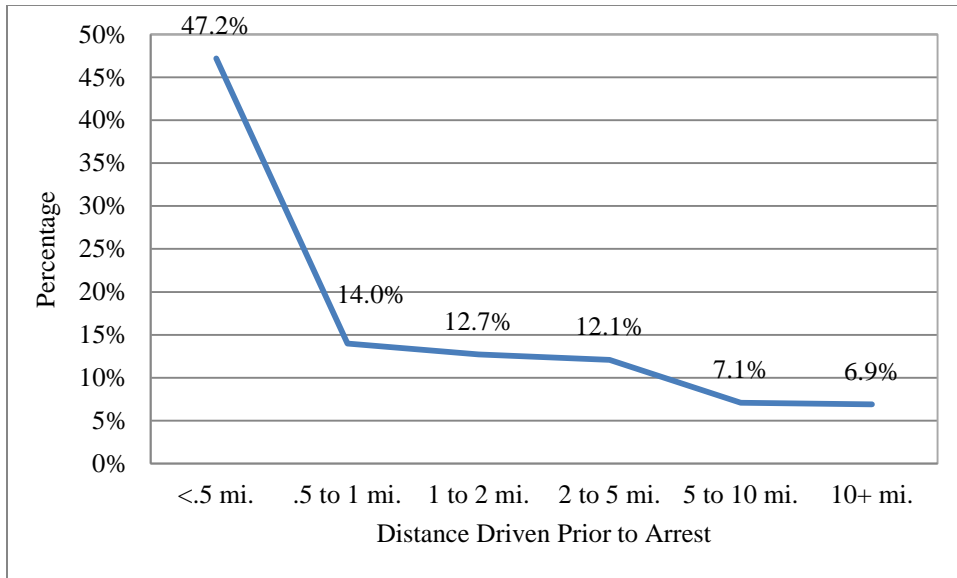


Figure 5.4 Distance Traveled from Place of Last Drink Prior to Being Arrested

There was no statistical difference between the distance driven by men and women prior to being pulled over (Chi. Sq.=7.715, df=5, p=0.173). The distance traveled prior to being arrested for driving under the influence does, however, seem to vary when factoring for age. Younger drivers will travel much farther while under the influence of alcohol than their older counterparts (Chi. Sq.=38.600, df=20, p=0.007). Similarly, older drivers are more likely to have been pulled over less than ½ mile from the place they last consumed alcohol than any other age group. For example, 78.7% of drivers over age 55 were pulled over less than one mile from the place at which they last imbibed and only 4.8% were pulled over more than five miles from the last place they had a drink. In contrast, only 54.6% of 18-24 year-olds were pulled over less than one mile from the place they had their last drink at and 12.6% were pulled over more than five miles from said place. Thus, it can be concluded that younger drivers are willing to take more risks when consuming alcohol by driving greater distances than other age cohorts.

The majority (51.6%) of drivers choosing to operate a vehicle after consuming alcohol choose to drive a car (Figure 5.5). Over one-quarter (27.3%) drove a pick-up truck. A smaller proportion (15.0%) drove a sports utility vehicle (SUV) immediately after drinking alcohol. Less than one percent (0.8%) of DUI offenders reported that they operated a motorcycle under the influence of alcohol. About one in twenty (5.3%) DUI offenders sampled chose to operate some other type of vehicle.

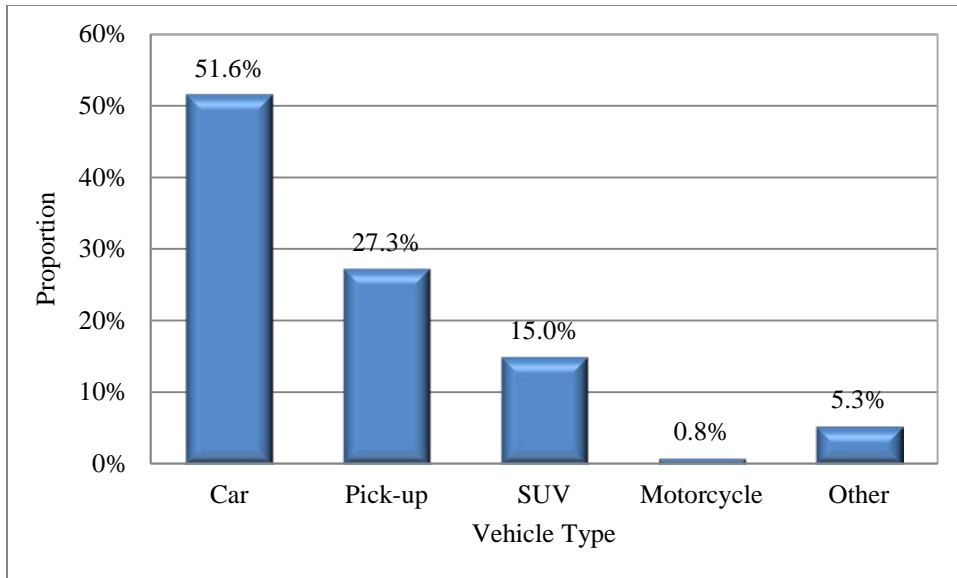


Figure 5.5 Type of Vehicle Operated by DUI Offender on Day of Arrest

Roughly one in ten (9.9%) DUI offenders in this survey reported that their DUI arrest involved a crash. Of those reporting a crash, about three-fourths (74.3%) were property-damage-only crashes (Figure 5.6). Approximately one-tenth (9.5%) of DUI offenders involved in a crash reported that the crash resulted in personal injury. About one in six (16.2%) indicated that the crash involved both a personal injury and property damage. Neither gender, age, nor blood alcohol content was a statistically significant determinant of one's propensity to crash while under the influence of alcohol (Chi. Sq.=0.787, df=1, p=0.375; Chi. Sq.=4.868, df=4, p=0.301; Chi. Sq.=7.914, df=4, p=0.095). Crash rates among males, females, and all five age cohorts were comparable to one another.

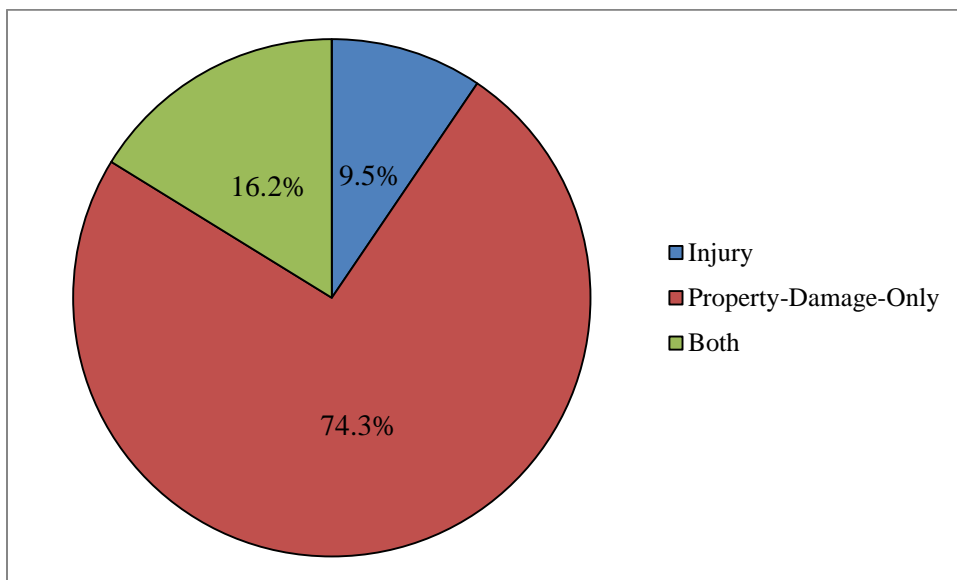


Figure 5.6 DUI Offender Crash Involvement, by Crash Type

Although not statistically significant, there were notable differences in crash rates when factoring for blood alcohol content (Figure 5.7). For example, 12.0% of those with blood alcohol contents under 0.07% were involved in a crash. This suggests that, although these drivers were under the legal drinking limit and were not considered to be drunken drivers, alcohol nonetheless may have been a contributing factor in the accident and may have justified why the individual received a DUI despite not being over the legal limit. Similarly, there is a noticeable trend among drivers that are in fact over the legal drinking limit: as blood alcohol content increases, so too does the proportion of DUI offenders involved in a crash. Whereas 7.4% of drivers with blood alcohol contents between 0.08% and 0.15% were involved in a crash, a linear trend emerges with 16.7% of drivers with blood alcohol contents between 0.24% and 0.31%, based on self-reported values, being involved in crashes. Although there were zero crashes for drivers with blood alcohol contents over 0.32%, it should be mentioned that there were only five drivers with legitimate blood alcohol contents greater than this amount. Thus, generalizations made for this group cannot be extrapolated to fit other drivers choosing to operate a vehicle while at least four times over the legal blood alcohol limit.

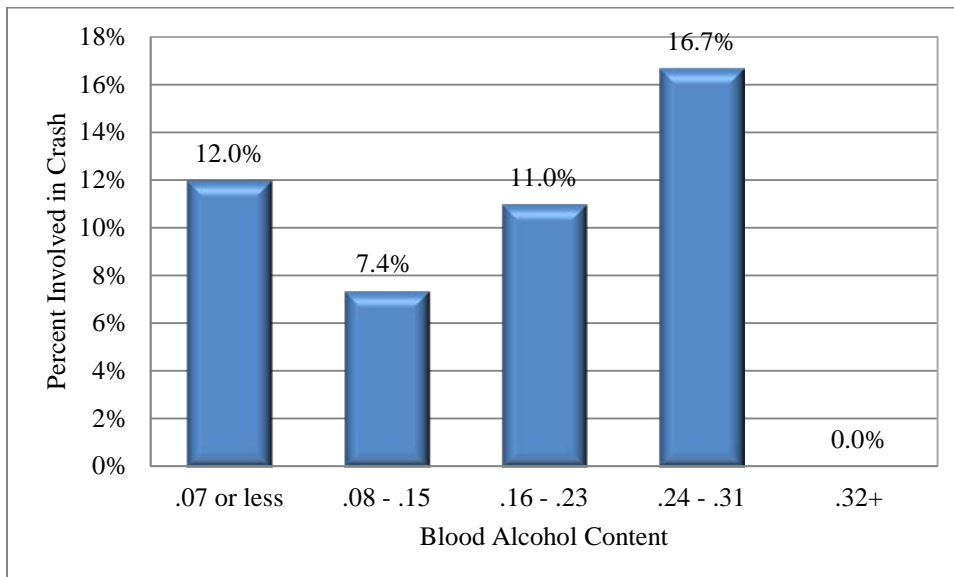


Figure 5.7 Proportion of DUI Offenders Involved in Crash, by Blood Alcohol Content

Some drivers indicated that they operated a vehicle while under the influence of alcohol with at least one passenger present. This behavior puts not only the well-being of the driver at risk, but it also endangers any passengers that choose to drive with such an offender. A majority of drivers (61.8%) do not drive under the influence of alcohol with a companion in the vehicle (Figure 5.8). Approximately one-quarter (25.2%) of all DUI offenders drove with one passenger in the vehicle. Among those respondents indicating that they did drive with passengers in the vehicle, a majority (65.9%) only drove with one passenger. Approximately 13% of all DUI offenders drove with more than two passengers at the time of their arrest.

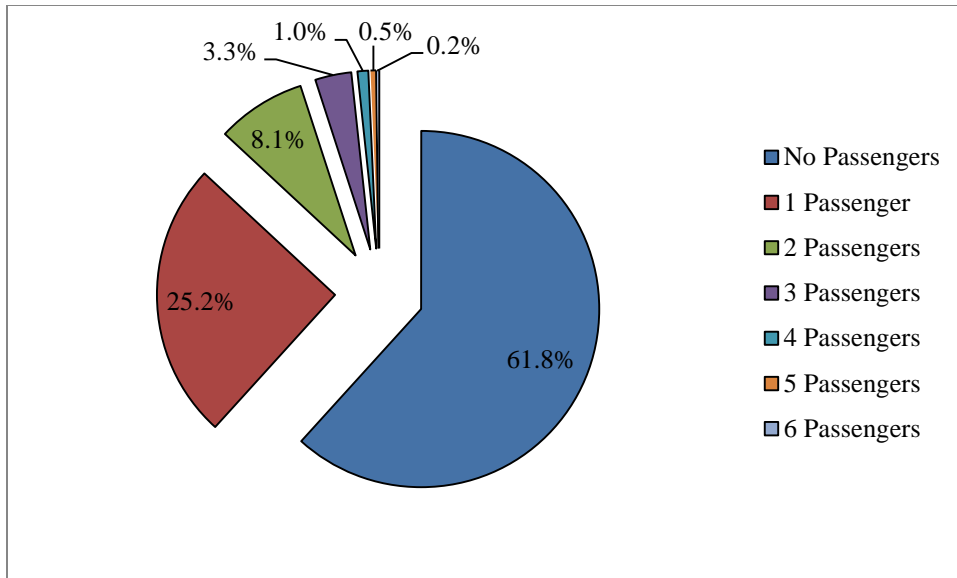


Figure 5.8 Number of Passengers in Vehicle with DUI Offender at Time of Arrest, by Proportion

DUI penalties are not limited to those only operating vehicles under the influence of alcohol. In addition, drivers may be convicted of driving under the influence if illegal drugs are used. Only 2.7% of responses revealed that illegal drugs had been used on the day of the arrest (Figure 5.9). Of those that used illegal drugs, a clear majority (89.7%) used marijuana prior to driving. Only two individuals stated that they used methamphetamine prior to driving. One person reported using a drug not listed on the survey, although that individual did not indicate which drug it was.

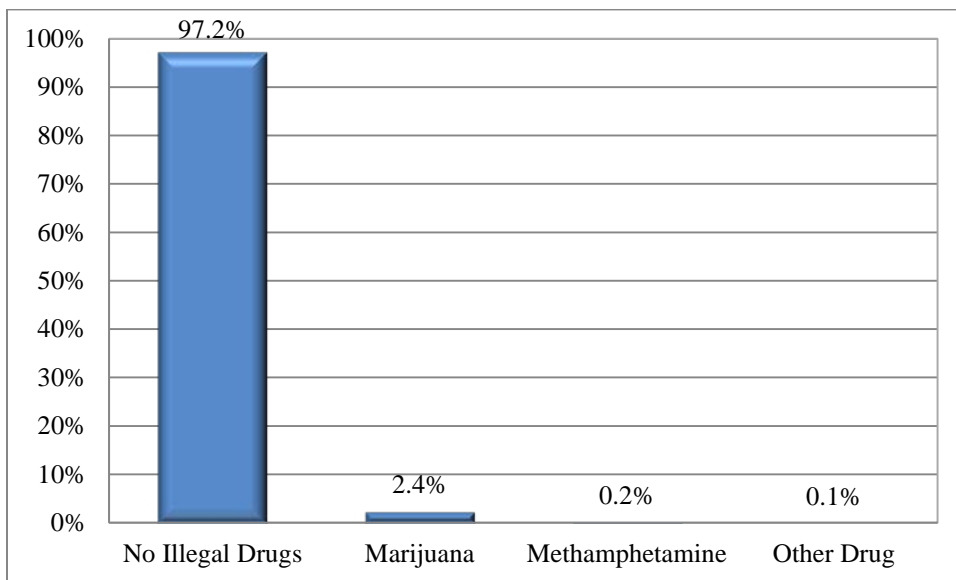


Figure 5.9 DUI Offenders Using Drugs on Day of Arrest, by Drug Type

None of the relationships between impaired driving behaviors are substantive (Table 5.4). Only one relationship is statistically significant: the link between the type of vehicle driven and the number of passengers the DUI offender drove with. Although the relationship is statistically significant at the 1% level, its Pearson Correlation is .099, suggesting that any link between the two variables may be explained due to reasons other than being a characteristic of an impaired driver. As a whole, the driving behaviors of DUI offenders are not linked to one another and it cannot be concluded that driving distance, vehicle, crash likelihood, choice to drive a passenger, or drug use are related behaviors among those choosing to operate a vehicle while impaired.

Table 5.4 Correlations of Impaired Driving Behaviors

	Q8	Q9	Q10a	Q10b	Q11a	Q11b	Q12
Q8 Miles Driven	1	-.016 .628	-.041 .206	.067 .585	.005 .877	-.056 .285	-.008 .814
Q9 Type of Vehicle		1	-.030 .330	-.168 .156	.099** .001	.006 .900	.019 .549
Q10a Crash			1	Constant .000	-.051 .102	.073 .148	.041 .179
Q10b Crash Type				1	-.148 .208	-.074 .742	.028 .815
Q11a Passengers					1	Constant .000	.035 .253
Q11b # of Passengers						1	.022 .659
Q12 Drugs							1

**Correlation is significant at the 1% level
 Note: Correlations between -0.5 and +0.5 indicate a weak relationship and are not addressed in this study

5.3 Arrest Characteristics

In North Dakota, statistics concerning the county of DUI arrest mirror statistics for the offender’s county of origin (Figure 5.10). There were slightly fewer arrests in Cass County, Benson County, Stark County, and Stutsman County than there were offenders from those respective counties. This indicates that offenders from these counties traveled outside of their home county more often than others. This could be attributed to the fact that these counties are home to some of the largest cities in the state (Fargo, West Fargo, Dickinson, Jamestown) but may also be due to dependency issues and, based on analysis from the literature review, the addiction some individuals have to alcohol.

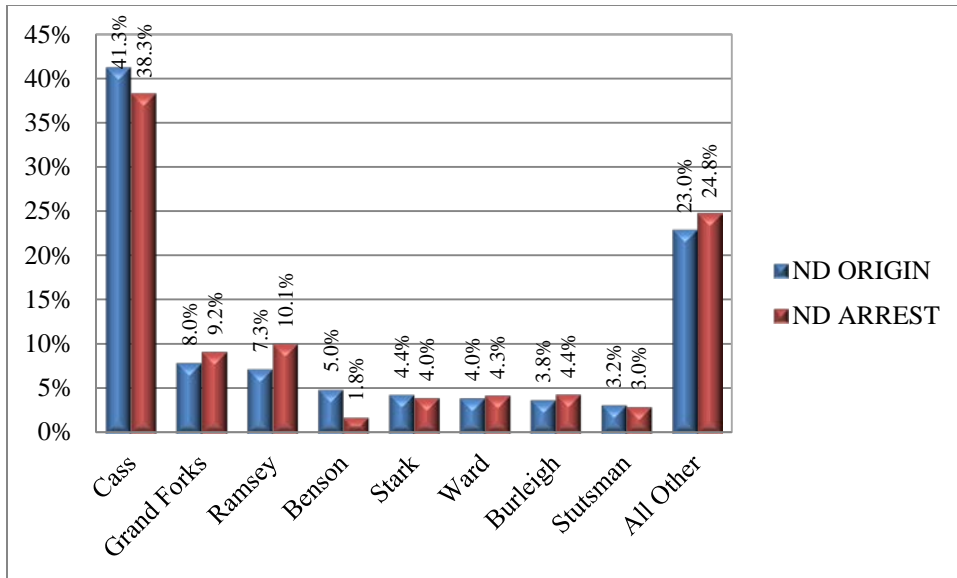


Figure 5.10 North Dakota DUI Offender County of Origin and County of Arrest

In Minnesota, there were some contrasts between the county of origin and the county in which the offender was arrested (Figure 5.11). For example, 10% of all offenders in Minnesota were from Marshall County, yet none of the offenders were arrested there. Similarly, 10% of all offenders in Minnesota were from Polk County, but only 2.7% of the Minnesota offenders in this survey were arrested within Polk County boundaries. In contrast, although only 6.3% of the Minnesota offenders were from Becker County, the county had about one-eighth (12.2%) of all of the Minnesota offender arrests.

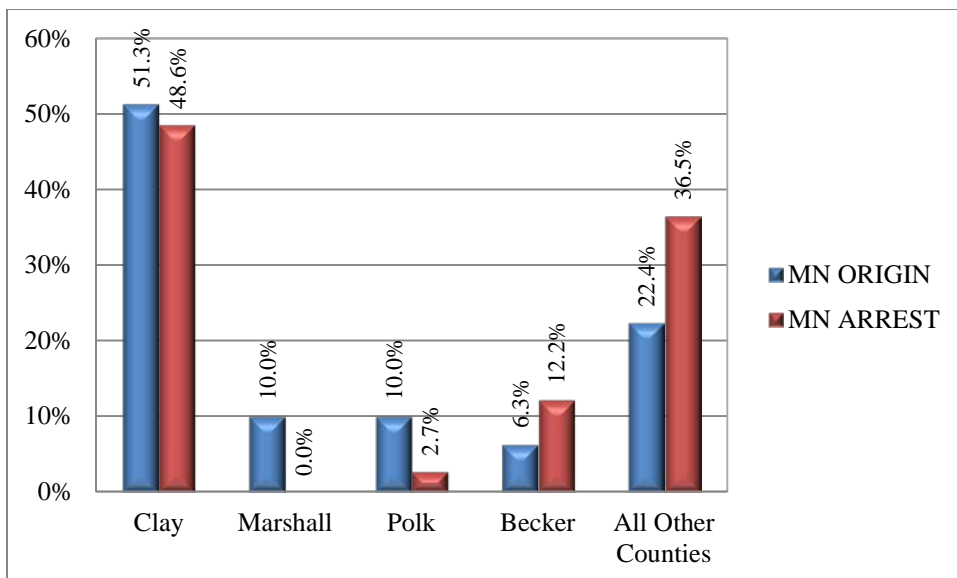


Figure 5.11 Minnesota DUI Offender County of Origin and County of Arrest

The majority (63.3%) of DUI offenders were arrested by local police (Figure 5.12). This goes hand-in-hand with the fact that the majority of DUI offenders drove less than one mile before being arrested. It can be assumed that local police are aware of establishments in their area and may target certain bars or restaurants to prevent habitual alcohol users from driving while intoxicated. About one in six (15.9%) DUI offenders were arrested by county sheriffs. Roughly one-fifth (20.8%) were arrested by members of the North Dakota Highway Patrol. This may be attributed to statewide efforts to target drunk driving.

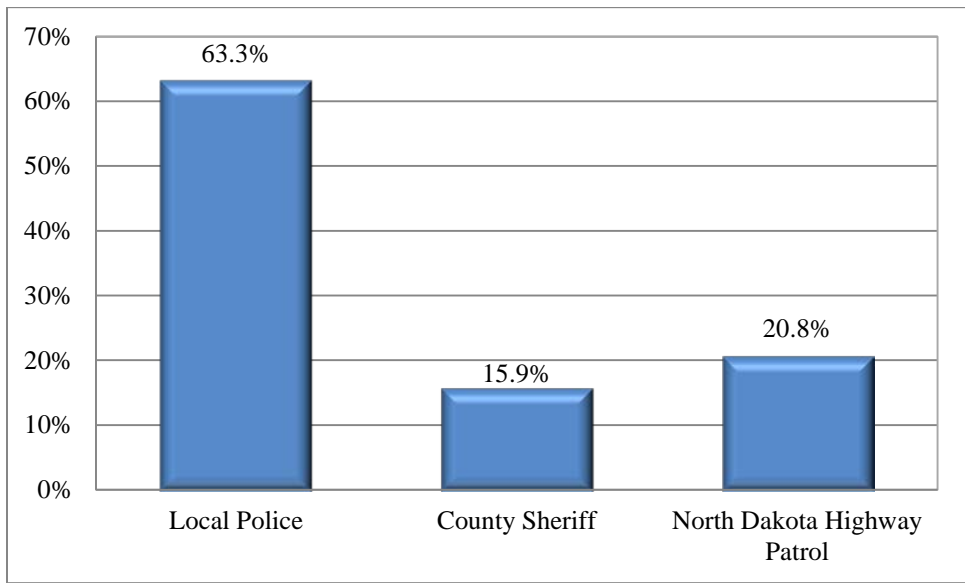


Figure 5.12 DUI Offender Arrests, by Law Enforcement Agency

There were statistically significant differences in the type of law enforcement agency making an arrest when factoring for various characteristics. For example, the miles traveled from the place of the offender’s last drink until the offender was stopped by police varied considerably depending on which agency was making the arrest (Chi Sq.=76.869, df=10, p<0.001). Local police were more likely to have made the arrest within one mile or less of the place where the last drink was consumed. The county sheriff was less likely to make the arrest within one to five miles of the place of last drink, but was more likely to be the arresting agency for drivers traveling more than 5 miles from the place where they last consumed alcohol. The North Dakota Highway Patrol made the most arrests for drivers traveling between two and ten miles from the place where they last chose to consume alcohol.

Although the type of vehicle driven does not determine driver behavior in terms of consuming alcohol, it is interesting to note that there are statistically significant differences between what type of vehicles are being driven when different law enforcement agencies make arrests for driving under the influence (Chi Sq.=36.111, df=8, p<0.001). Local police officers are much more likely to arrest a driver of a car for DUI than the county sheriff or North Dakota Highway Patrol. County sheriffs and the North Dakota Highway Patrol were more likely to pull over drivers of pick-up trucks than were local police. Drivers of SUVs, motorcycles, and other types of vehicles were pulled over at relatively equal rates by all three law enforcement agencies.

There were also statistically significant differences among various law enforcement agencies arresting individuals for driving under the influence based on crash severity. This difference was statistically significant at the 5% level (Chi Sq.=11.423, df=4, p=0.022). The county sheriff and North Dakota Highway Patrol were more likely to arrest a driver for DUI in a crash that resulted in a personal injury. Local police and county sheriffs were more likely to arrest drivers for a DUI that resulted in property damage with four out of every five arrests for DUI violations resulting in property damage made by local police and three out of every four arrests for DUI offenses with property damage made by county sheriffs. These are much higher proportions compared to the 28.6% of all DUI arrests made by the North Dakota Highway Patrol that result in property damage. More than half (57.1%) of all DUI arrests made by the North Dakota Highway Patrol involved both a personal injury and property damage. This was substantially higher than local police and county sheriffs, which were involved in DUI arrests for both personal injury and property damage only 12.7% and 8.3% of the time, respectively. Note that data for both county sheriffs and the North Dakota Highway Patrol had less than 30 responses, and thus these estimates may be uncertain due to a limited sample size.

5.4 Drinking Place as a Risk Factor for DUI

To fully understand the tendencies of convicted DUI offenders, it is necessary to examine the place where alcohol was consumed as a determinant of high-risk behavior such as driving under the influence of alcohol. Based on information from the literature review, it is commonly accepted that ambience, social pressure, and self-control can influence the amount of alcohol consumed by an individual. Thus, different drinking environments can impact the likelihood that an individual may over-drink and subsequently choose to operate a vehicle afterwards.

DUI offenders were asked to identify the place where they consumed their last drink prior to being arrested. A majority, 61.6%, had their last drink at a bar, club, or restaurant (Figure 5.13). Although respondents were asked to provide the name of the establishment, no single establishment had more than 16 (1.5% of the total sample) DUI offenders consume their last beverage at that location. About one-fifth (19.3%) consumed their last drink at someone else's residence. A smaller proportion, 12.0%, had their last drink at their own residence prior to operating a vehicle. Approximately one in twenty-five (4.3%) individuals reported drinking their last alcoholic beverage in their vehicle prior to being arrested. This is comparable to similar studies discussed in the literature review.

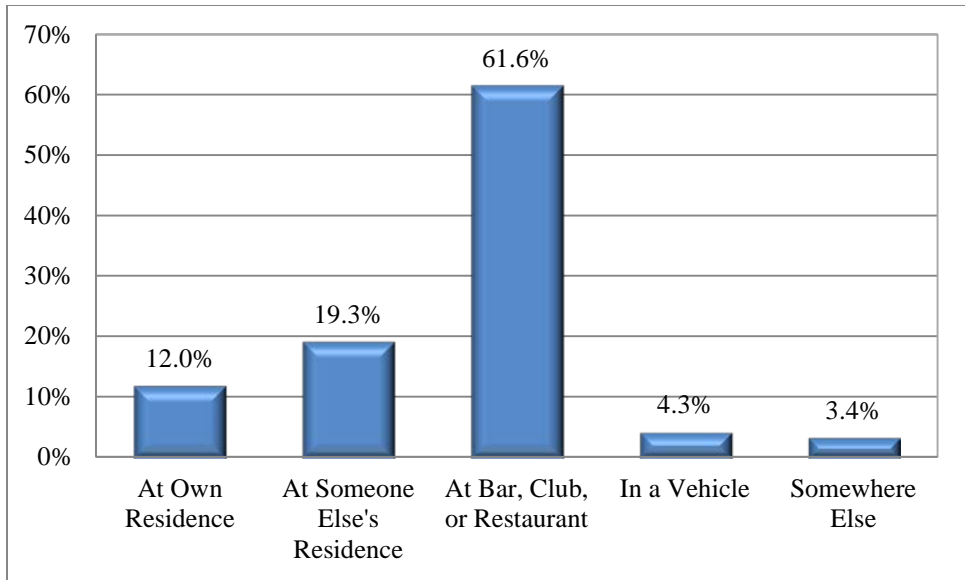


Figure 5.13 DUI Offender Place of Last Drink

Of the 12.0% that drank their last drink at their own residence, about half (50.9%) reported that it was during a house party (Figure 5.14). Two of every five DUI offenders drinking at their own residence indicated that there were at least 10 other individuals at the residence. Only 9.1% indicated that people under the age of 21 were drinking at their residence on the day of their DUI arrest. These numbers suggest that – as the literature review pointed out – the atmosphere in which a convicted DUI offender was in prior to receiving the DUI plays a direct role in influencing how much alcohol is consumed. This, factored with issues of self-restraint and social pressure, may explain why some individuals choose to drink excessively at their residence and then proceed to drive afterwards.

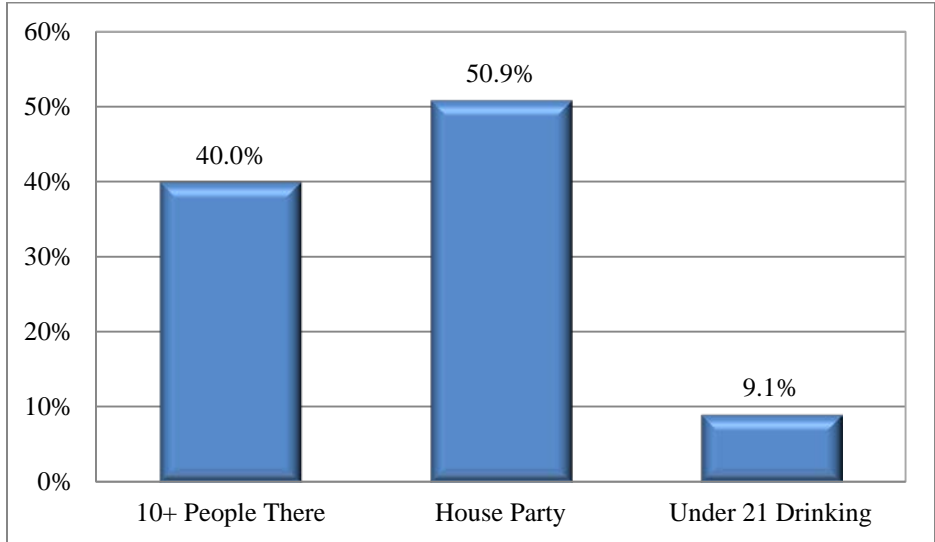


Figure 5.14 DUI Offenders Drinking at Own Residence, by Drinking Environment

Of the 19.3% of respondents reporting that they drank their last drink at someone else's residence prior to receiving a DUI, 45.0% revealed that they were consuming alcohol at a house party (Figure 5.15). One-third indicated that they drank their last drink at someone else's house with at least 10 people present. These numbers are comparable to those that chose to drink their last drink at their own place of residence. Unlike those drinking at their own place of residence, the reported number of those drinking underage more than doubled from 9.1% at their own place of residence to 21.7% for those choosing to drink at someone else's household. Once again, these proportions are indicative of social pressures being a determinant of poor decision-making. It is clear that the environment one chooses to drink in – in this case, house parties, large groups, or a place with underage drinking – is common among DUI offenders, regardless of whether drinking at home or at someone else's household.

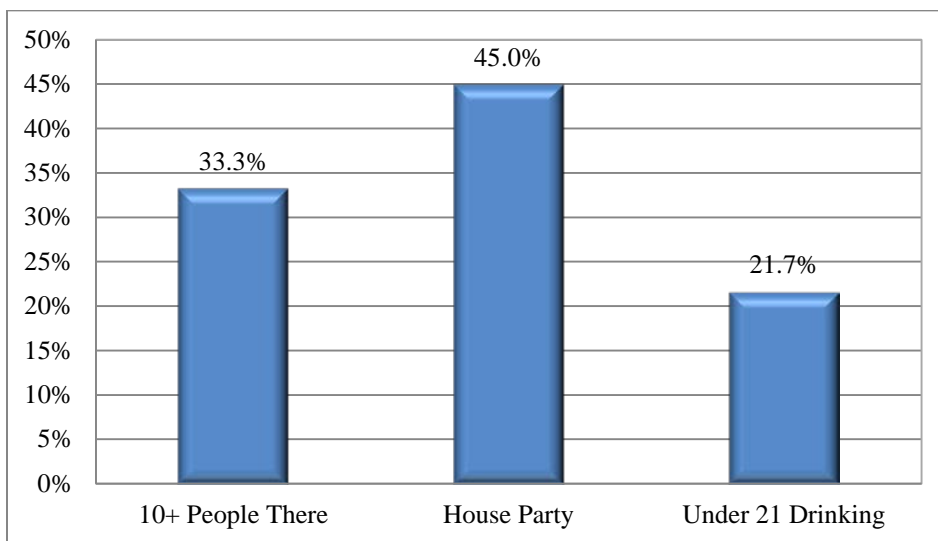


Figure 5.15 DUI Offenders Drinking at Other Residence, by Drinking Environment

A review of the literature indicated that some individuals are predisposed to habitually abuse alcohol via problems with addiction or self-control. These individuals are known to drink at more than one location, binge drink, or drink for escapism more often than others. Respondents were asked to report whether or not they had consumed alcohol anywhere else prior to the place they last drank at on the day of their arrest. Over one-quarter (27.1%) reported that they did drink somewhere else in addition to the place they last drank at on the day of their arrest (Figure 5.16). Of those that did drink somewhere else, a majority (56.6%) drank at a bar, club, or restaurant prior to drinking at the last place they drank at. All other locations were comparably dispersed by those who drank at more than one location.

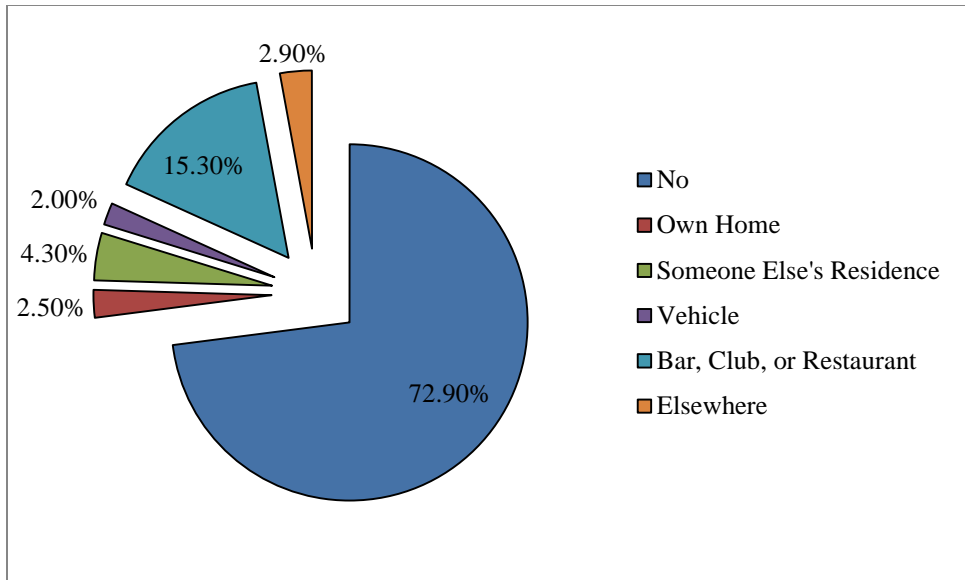


Figure 5.16 Proportion Drinking Elsewhere Prior to Last Place of Drink, by Location

5.4.1 Special Promotions at Place of Last Drink

Special drink promotions are a common strategy employed by establishments to lure in customers. These promotions include “Happy Hour” specials, lowering the price of regular drinks, paying an up-front cover charge for all-you-can-drink specials, or allowing some demographics (i.e. “ladies night”) to drink for free. DUI offenders were asked – for those who had been drinking in a bar, club, or restaurant – whether or not the drinks that were purchased were part of a special promotion. About one in nine (11.8%) reported that they did buy drinks during a special promotion. When factoring for age, there were statistically significant differences between middle-aged DUI offenders and all others. As a whole, 18-24 year-olds, 25-34 year-olds, and those over the age of 55 were more likely to drink during a special promotion than 35-44 year-olds and 45-54 year-olds (Chi-Sq.=10.771, df=4, p=0.029). There was no statistically significant difference when factoring for gender (Chi-Sq.=2.916, df=1, p=0.088).

One would expect those DUI offenders who do drink during special promotions to drink excessively given the economic utility from the special promotions and the issues with self-restraint that are commonly associated with these types of offenders. Results from this sample of DUI offenders, however, do not mirror this expectation. There is no correlation between those choosing to drink during special promotions and health risk factors. For example, there was no difference among those drinking during special promotions and those drinking during regular promotions in terms of blood alcohol content (Chi-Sq.=6.781, df=4, p=0.148). Similarly, the number of hours spent drinking does not differ depending on whether or not drinks were consumed during special promotions (Chi-Sq.=10.863, df=15, p=0.762). The total number of drinks that were consumed prior to being arrested also are not related to whether or not they were consumed during a special promotion (Chi-Sq.=3.092, df=3, p=0.378). Note that neither the probability of getting into a crash (Chi-Sq.=0.030, df=1, p=0.863) nor the crash severity differed

between those that did and did not drink during a special promotion (Chi-Sq.=1.149, df=2, p=0.563).

Surprisingly, drink promotions did not predetermine higher risk factors among this particular sample of DUI offenders. For the study at hand, it appears as though other factors better explain why these DUI offenders chose to drive under the influence.

5.4.2 Identification Policies at Place of Last Drink

A majority (56.8%) of DUI offenders were not asked to show proof of age when purchasing alcohol. This number seems appropriate given the proportion of older drivers in this study. In general, servers and bartenders are taught only to ask for the identification of anyone appearing to be under the age of 40. When proof of identification is addressed by age cohort, it becomes apparent that some identification rates can be improved (Table 5.5). For example, more than one-third (35.5%) of those between ages 18 and 24 were not asked for identification when purchasing alcohol. Considering that this age cohort contains minors, it is imperative that identification be taken in order to prevent underage consumption and the risk factors associated with drunken driving. A larger proportion (37.1%) of 25-34 year-olds were not asked to provide identification. Although this age cohort does not include minors, standard practice suggests that servers and bartenders should be asking this age group for identification at a rate of 100%. Considering that rates of identification among these two age cohorts are similar, it can be concluded that identification rates vary by bartender and, if improved upon, could reduce the number of underage drunk driving incidences.

Table 5.5 Proof of Identification Rates, by Age

Age	ID – Yes	ID – No	Total
18-24	160 (64.5%)	88 (35.5%)	248
25-34	190 (62.9%)	112 (37.1%)	302
35-44	23 (16.0%)	121 (84.0%)	144
45-54	4 (3.1%)	125 (96.9%)	129
55 or older	0 (0.0%)	39 (100.0%)	39
Total	377 (43.7%)	485 (56.3%)	862

5.5 Intervention Attempts

Intervention attempts provide insight regarding characteristics of DUI offenders. Survey responses show that only one in eight DUI offenders were discouraged from driving after consuming alcohol on the day of their arrest. The majority (71.0%) of interventions came from friends. The fewest intervention attempts were made by servers and bartenders, respectively (Figure 5.17). Self-reported values in this survey sample indicated that not one server attempted to prevent a DUI offender from driving. Bartenders tried to intervene with only three (2.4%) of all DUI offenders discouraged from driving after drinking.

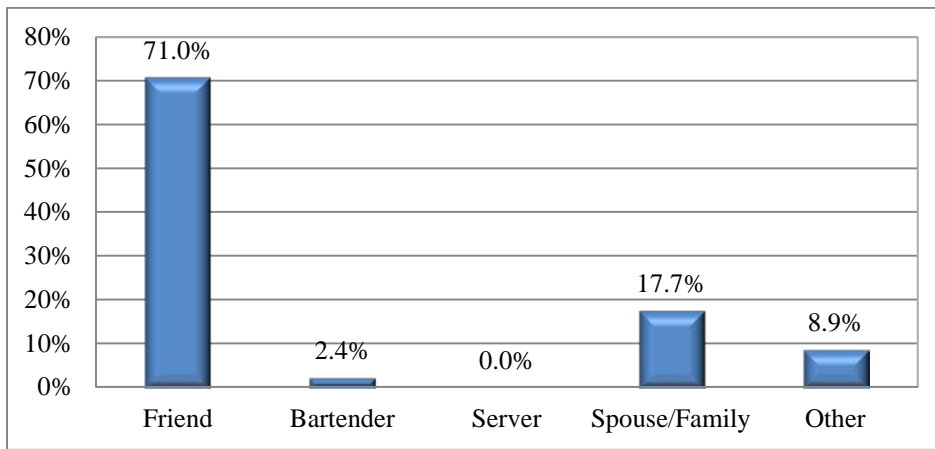


Figure 5.17 Intervention Attempt, by Person Intervening

Neither age nor gender were linked to being discouraged from driving (Chi-Sq.=6.026, df=4, p=0.197; Chi-Sq.=0.985, df=1, p=0.321). Similarly, the blood alcohol content of the DUI offender was found to be unrelated to the likelihood of being discouraged from driving after drinking alcohol (Chi-Sq.=7.420, df=4, p=0.115). Time spent drinking and the number of drinks consumed were related to intervention attempts. As individuals drank for longer periods of time, it was more likely that an intervention attempt occurred (Chi-Sq.=29.083, df=15, p=0.016). A similar pattern emerged depending on the total number of drinks consumed by a DUI offender. DUI offenders were discouraged from drinking at progressively higher rates, especially among those having more than five drinks (Figure 5.18). The relationship between the total number of drinks consumed and an intervention attempt was statistically significant at the 1% level (Chi-Sq.=18.988, df=4, p=0.001).

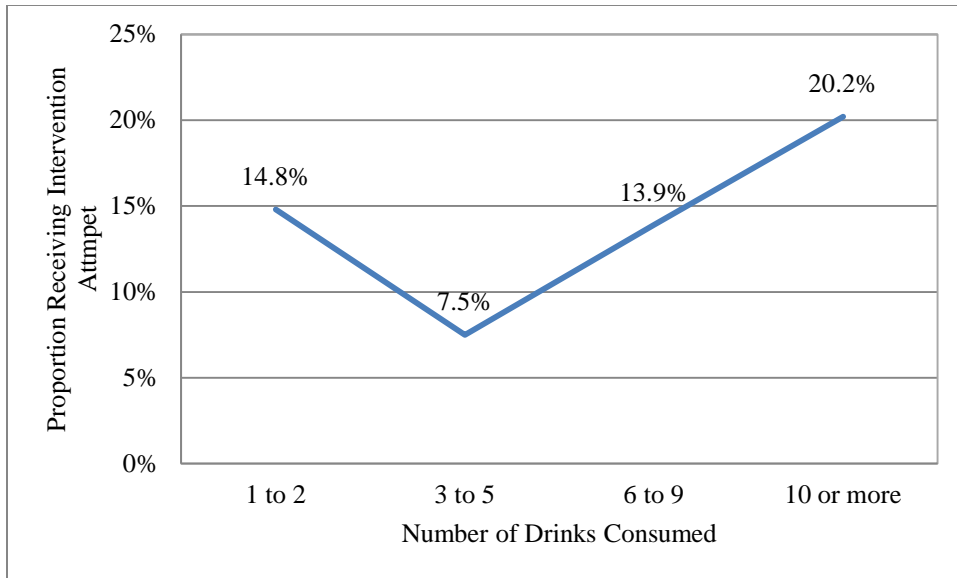


Figure 5.18 Proportion of Intervention Attempts, by Amount Consumed

The most common type of intervention was someone suggesting either not to drive or to wait before driving (Figure 5.19). Of the DUI offenders sampled, 29 indicated that they were offered a ride home at some point during the period in which they were drinking. About one-eighth (12.9%) reported that someone had tried to take their keys away prior to choosing to drive while under the influence. Roughly one-ninth (11.7%) were told by someone to call a friend or family member for a ride home. Only 12 drivers were told that they should take a taxicab rather than drive themselves. Being offered a taxi voucher, being escorted out of the bar, and being refused further service by the bartender or server occurred two or fewer times for those surveyed, respectively. Less than 10% (9.3%) of the DUI offenders in this sample reported that someone else they were driving with could have been a sober designated driver. This implies that the majority of DUI offenders associate with others consuming alcohol – a finding mentioned often in the literature.

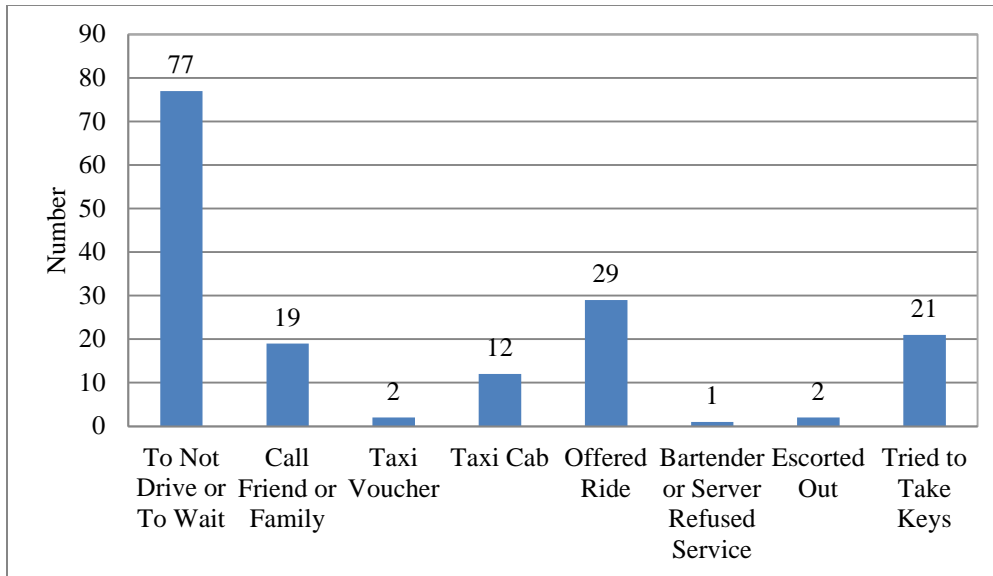


Figure 5.19 Type of Intervention Used

5.6 DUI Offender Perceptions

A three-point Likert Scale was used to measure perceptions of DUI offenders regarding the likelihood of being arrested for driving under the influence. More than three-fourths (76.8%) of DUI offenders indicated they thought it was “unlikely” that they would be arrested for driving under the influence of alcohol on the day they were arrested (Table 5.6). About one in five (19.4%) perceived an arrest to be “somewhat likely.” Less than 4% (3.9%) believed it was “likely” that they would be arrested for driving under the influence. Among convicted DUI offenders there is a clear pattern: as the perceived likelihood of being arrested increases, the number of DUI offenders associating with that value decreases. Progress can be made to improve the perceptions of DUI offenders to believe that the likelihood of arrest is far greater than they presently perceive it.

Table 5.6 Summary of DUI Offender Perceptions

How likely did you think it was that you would get arrested for DUI?							
	Likely	Somewhat Likely	Unlikely				
	3.9%	19.4%	76.8%				
What has been the greatest consequence of being arrested and convicted for DUI?							
	Impact on work	Loss of driver’s license	Conviction on my record	Impact on family	Financial costs	Jail time	Other
	7.3%	37.0%	16.8%	13.5%	13.4%	3.3%	8.6%

DUI offenders were asked to identify the single greatest consequence of being arrested and convicted of driving under the influence. Responses show that 37.0%, the largest proportion, viewed the loss of their driver's license as the greatest concern stemming from their conviction. The number of offenders indicating that having a conviction on their record, the impact a DUI had on their family, and the financial costs associated with being arrested for DUI is relatively equal, with 16.8%, 13.5%, and 13.4% identifying those three issues, respectively, as the greatest consequence of drinking and driving. A smaller proportion, 7.3%, reported that driving under the influence had a negative impact on their employment. Only 3.3% of those surveyed said that jail time was the most significant consequence of being arrested for impaired driving.

6. RESULTS: REPEAT OFFENDERS

A review of the literature highlighted individuals with prior DUI convictions as a group with especially dangerous behaviors and attitudes towards driving under the influence. The North Dakota DUI Offender Survey included a question asking respondents to reveal the number of times – including their most recent arrest – that they had been arrested for DUI. Thus, any individual responding with a number greater than one could be identified as a repeat offender. In all, this survey consisted of 333 repeat offenders. Data were queried factoring for repeat offenders in order to understand the behaviors and characteristics of this high-risk group.

6.1 Repeat Offender Demographic Information

Although the survey only included two demographic characteristics – gender and age – both were statistically significant at the 1% level between first-time and repeat DUI offenders (Table 6.1). A t-test for equality of means revealed that repeat offenders were older, on average, than first-time DUI offenders ($t=-5.105$, $df=1,107$, $p<0.001$). The mean age of a repeat offender was 35.22 years old compared to just 31.31 for first-time offenders.

Repeat offenders were considerably more likely to be males rather than females. Whereas the population of first-time offenders was 68.6% male and 31.4% female, among repeat offenders 81.0% were male and 19.0% were female. This difference was statistically significant at the 1% level ($Chi-Sq.=17.136$, $df=1$, $p<0.001$).

Table 6.1 Age and Gender Characteristics for Repeat and First-Time Offenders

Question	Repeat Offenders n=333	First-Time Offenders n=693	Significance
<i>Demographic Info</i>	Mean Value	Mean Value	
Age	35.22	31.31	##
Gender	Proportion 81.0% Male	Proportion 68.6% Male	**

##Significant difference at 1% level for t-test for Equality of Means
**Significant difference at 1% level for Pearson Chi-Square test

6.2 Repeat Offender Drinking Patterns

Of the drinking patterns identified in the survey, none had statistically significant differences between the first-time and repeat DUI offender groups (Table 6.2). However, mean values of each drinking pattern were larger among repeat offenders, suggesting that this group does behave more dangerously. For example, the mean blood alcohol content for a repeat offender was .135% as compared to .126% for a first-time offender. Similarly, the average repeat offender spent 4.38 hours drinking alcohol on the day of the arrest compared to 4.11 for first-time DUI offenders. In

the hour prior to the arrest, repeat offenders consumed 2.24 drinks as compared to 2.04 for first-time offenders. Although there are not statistically significant differences between the two groups, these mean values do shed light towards an expected result: repeat offenders do have drinking behaviors that are moderately more dangerous than first-time offenders, perhaps due to issues with dependence or self-control.

Table 6.2 Drinking Patterns Among Repeat and First-Time DUI Offenders

Question	Repeat Offenders n=333	First-Time Offenders n=693	Significance
<i>Drinking Patterns</i>	Mean Value	Mean Value	
Blood Alcohol Content	.135	.126	
Number Hours Drinking	4.38	4.11	
Number Drinks	2.71	2.64	
Number Drinks Hour Before Arrest	2.24	2.04	

6.3 Repeat Offender Impaired Driving Behaviors

The use of illegal drugs was found to be statistically different between first-time and repeat DUI offenders at the 5% level. Repeat offenders were more likely to use illegal drugs on the same day of their arrest than first-time offenders (Chi-Sq.=5.900, df=1, p=0.015; Table 6.3). On average, repeat offenders drove a shorter distance than did first-time offenders prior to being arrested; first-time offenders drove an average of 3.57 miles compared to just 3.06 for repeat offenders. This approximately one-half mile difference was not statistically significant (Chi-Sq.=83.453, df=87, p=0.588). In this sample of DUI offenders, repeat offenders had fewer passengers in the car when arrested for DUI and were less likely to drive with a passenger at all. This may be due to a characteristic outlined in the literature which suggests that some repeat offenders drink alone for escapism rather than anything else.

Table 6.3 Impaired Driving Behaviors Among Repeat and First-Time DUI Offenders

Question	Repeat Offenders n=333	First-Time Offenders n=693	Significance
<i>Impaired Driving Behaviors</i>	Mean Value	Mean Value	
Miles Driven Drunk	3.06	3.57	
Crash	0.10	0.10	
Crash Severity	1.95	2.11	
Passengers	0.34	0.40	
Number of Passengers	1.41	1.58	
Drug Use	0.05	0.02	*

*Significant difference at 5% level for Pearson Chi-Square test

6.4 Repeat Offenders and Drinking Place

Repeat DUI offenders more often drank at their own residence or in their vehicle prior to being arrested for DUI than did first-time offenders, although the difference was not statistically significant. Nonetheless, the literature highlighted these behaviors as signs of dependence and possible alcoholism. The fact that repeat offenders drink in these locations with greater frequency than first-time offenders implies that the likelihood of being arrested multiple times for driving under the influence may be directly linked to alcohol addiction rather than anything else. First-time DUI offenders more often consumed their last drink at a retail establishment, although this difference between the two groups was also not statistically significant. There was a statistically significant difference between first-time and repeat offenders in terms of drinking at someone else's residence where minors were consuming alcohol (Table 6.4). Whereas 5.2% of all first-time offenders consumed alcohol at another residence with underage drinking present, less than 1% of repeat offenders drank alcohol in this type of an environment. This difference was statistically significant at the 1% level (Chi-Sq.=11.341, df=1, p=0.001).

Table 6.4 Drinking Place as Related to Repeat and First-Time DUI Offenders

Question	Repeat Offenders n=333	First-Time Offenders n=693	Significance
<i>Drinking Place</i>	Mean Value	Mean Value	
Own Residence	0.14	0.11	
•With 10+ People	0.02	0.02	
•At House Party	0.02	0.02	
•Underage	0.00	0.01	
Drinking			
Other Residence	0.20	0.19	
•With 10+ People	0.06	0.06	
•At House Party	0.07	0.08	
•Underage	0.01	0.05	**
Drinking			
Retail Establishment	0.60	0.63	
Vehicle	0.06	0.03	
Elsewhere	0.04	0.03	
Drink Elsewhere Prior	0.26	0.28	
to Last Drink			
•Own Residence	0.03	0.02	
•Other Residence	0.03	0.05	
•Retail	0.14	0.16	
Establishment			
•Vehicle	0.03	0.01	
•Elsewhere	0.03	0.03	
Drink Specials	0.10	0.12	

**Significant difference at 1% level for Pearson Chi-Square test

6.5 Repeat Offender Perceptions

First-time and repeat DUI offenders had considerable differences in terms of the perceived consequences for being arrested and convicted of driving under the influence of alcohol (Table 6.5). Repeat DUI offenders were more likely to perceive the loss of their driver's license as the greatest consequence stemming from being convicted of driving under the influence (Chi-Sq.=9.494, df=1, p=0.002). First-time offenders were more likely to consider having the conviction on their permanent record as the biggest consequence of getting a DUI (Chi-Sq.=12.560, df=1, p<0.001). This is a logical finding considering that repeat offenders already have a conviction on their permanent record and thus may not perceive an additional conviction to be as great of a consequence. Repeat offenders were more likely to consider the financial costs associated with driving under the influence as being the greatest consequence than were their first-time offender counterparts (Chi-Sq.=6.217, df=1, p=0.013). This may be due to insurance costs, fines, and penalties increasing substantially with each additional DUI on an individual's record. Repeat offenders were also more likely to view the jail time associated with a conviction of DUI as the most significant consequence than were first-time offenders. This difference was significant at the 1% level (Chi-Sq.=12.845, df=1, p<0.001). Interestingly, neither the impact a DUI has on one's work nor the impact a DUI has on one's family had statistically significant differences between repeat and first-time DUI offenders (Chi-Sq.=.397, df=1, p=0.529; Chi-Sq.=.731, df=1, p=0.393). The two groups also perceived the likelihood of being arrested for DUI at comparable levels with no statistically significant difference between the two (F=1.119, df=1, p=0.290).

Table 6.5 Perceptions of Repeat and First-Time DUI Offenders

Question	Repeat Offenders n=333	First-Time Offenders n=693	Significance
<i>Perceptions</i>	Mean Value	Mean Value	
Likelihood Arrest	1.29	1.25	
Greatest Consequence			
•Impact on Work	0.14	0.12	
•Loss of Driver's License	0.50	0.40	**
•Conviction on Record	0.14	0.24	**
•Impact on Family	0.17	0.19	
•Financial Costs	0.26	0.19	*
•Jail Time	0.13	0.06	**

**Significant difference at 1% level for Pearson Chi-Square test

*Significant difference at 5% level for Pearson Chi-Square test

6.6 Intervention Attempts and Repeat Offenders

Examining if differences exist in intervention attempts between first-time and repeat DUI offenders allows for a better understanding of how to reduce rates of recidivism and whether or not certain intervention strategies work more effectively than others. Unfortunately, only one intervention strategy had a statistically significant difference among the two groups being examined; first-time offenders were asked to show proof of identification more often than repeat offenders (Chi-Sq.=4.479, df=1, p=0.029; Table 6.6). This statistically significant difference is likely linked more to the demographics of the two groups rather than the prior DUI history of the two groups: repeat offenders were statistically more likely to be older. As such, first-time offenders may simply look younger to bartenders and servers and thus may have a higher propensity to be asked for proof of identification. This relationship is likely not linked to prior instances of driving under the influence. All other intervention strategies had similar exposure rates to both repeat offenders and first-time offenders.

Table 6.6 Intervention Attempts Among Repeat and First-Time DUI Offenders

Question	Repeat Offenders n=333	First-Time Offenders n=693	Significance
<i>Intervention Attempt</i>	Mean Value	Mean Value	
Intervention	0.11	0.13	
•Wait Before Driving	0.05	0.08	
•Call Friend/Family	0.02	0.02	
•Taxi Voucher	0.00	0.00	
•Taxicab	0.00	0.01	
•Offered Ride	0.03	0.03	
•Bartender/Server Refused Service	0.00	0.00	
•Escorted Out of Bar	0.00	0.00	
•Someone Tried to Take Keys	0.02	0.02	
Ask for ID	0.38	0.46	*
Other Sober Driver	0.09	0.09	

*Significant difference at 5% level for Pearson Chi-Square test

7. CONCLUSION

Characteristics of North Dakota DUI offenders were examined in this study. It is evident that there is some variation in drinking patterns among basic demographic data. In general, men drink for longer periods of time than women. Males typically have a higher blood alcohol content than their female counterparts, a fact that is especially true among 35-44 year-old DUI offenders in North Dakota.

A link was discovered between the amount of time spent drinking and the number of alcoholic beverages that were ultimately consumed. As expected, as the time spent drinking increases, so too does the overall number of drinks consumed. Another important finding centered upon the tendencies of inebriated drivers not to have a passenger present in the vehicle. This suggests that some individuals may be drinking alone – an idea which parallels findings in the literature and may support the claim that certain DUI offenders drink for escapism due to preexisting conditions with alcoholism and/or issues with self-control.

Although not found to be a statistically significant difference, initial patterns pointed to an expected trend: as the blood alcohol content of DUI offenders increased, so did the percentage of DUI offenders involved in a crash. This initial trend reaffirms the dangers of drunk driving and should serve as a warning against this behavior.

Arresting agencies varied substantially depending on the distance traveled by the inebriated driver. This knowledge may aid state safety officials in training all law enforcement agencies in spotting a driver choosing to drive under the influence regardless of their proximity to the last place of drink.

Intervention attempts were clearly related to certain drinking behaviors. Those drinking for a longer period of time were more likely to have had an intervention attempt occur. Similarly, those drinking a larger number of drinks were also more likely to have had an intervention attempt take place. Regardless of this correlation, individuals in this survey indicated that they nevertheless chose to operate a vehicle under the influence and subsequently received an arrest and conviction. Thus, two conclusions can be made. First, perhaps, just as some individuals are genetically predetermined to have issues with alcoholism and self-control, some individuals also are predisposed to refuse intervention assistance and choose to act in a dangerous and reckless manner. Second, it can be concluded that those individuals that have the authority to make an intervention must spot potential DUI offenders sooner and more often. Results from this study showed that bartenders and servers intervened with drunk patrons either too late or not at all. Similarly, friends, family members, and acquaintances must exert more influence in the lives of DUI offenders in order to prevent future instances of driving under the influence. Although ad campaigns warning against drunk driving and buzzed driving are undeniably effective at preventing some cases of driving under the influence, DUI rates certainly have room for improvement.

There are definitive differences between first-time and repeat DUI offenders. First-time offenders were more likely to have been drinking at someone else's residence with underage drinking occurring in that household. First-time DUI offenders were also more likely to identify

the biggest consequence of receiving a DUI as the conviction going on their permanent record. First-time offenders were more likely to be asked for proof of identification.

Repeat offenders were statistically more likely to be older than first-time offenders, male, and to have used illegal drugs on the same day as their DUI arrest. Repeat offenders identified losing their driver's license, financial costs, and jail time as the biggest consequences of their arrest and conviction for DUI more often than first-time offenders.

It is undeniable that some patterns have emerged within this sample of the DUI offender population in North Dakota. As a whole, the characteristics of DUI offenders vary depending on age, gender, and previous history of instances of driving under the influence. Ultimately, there are many areas for improvement in North Dakota to reduce the rate of recidivism among convicted impaired drivers, and to reduce the number of first-time DUI arrests and convictions.

8. DISCUSSION

Future research can be improved by mandating that all DUI offenders in North Dakota take this survey as part of addiction counseling services or other steps of the arrest and conviction process. Presently, it is unknown what the response rate is among DUI offenders in North Dakota. Additionally, mandating that all DUI offenders within the state take this survey would vastly improve the generalizability of the study and its application in improving motor vehicle safety.

Moreover, this study would benefit from including questions about offenders' reasons for drinking on the day of their arrest. This would allow for improved insight regarding an individual's decision to drink and drive. A review of the literature indicated that reasons for drinking can sometimes be inextricably linked to alcoholism, issues with dependence, and issues with self-control. It is unfair to stereotype all DUI offenders as alcoholics. Similarly, it is unfair to single out some individuals for the mental, psychological, or emotional problems that lead to the very addiction they cannot control. If the state's alcohol assessment and treatment providers evaluated DUI offenders and identified those with legitimate addiction problems, it would allow for resources to be allocated more appropriately. As the literature suggested, certain tools and strategies are ineffective for those with dependency problems. Thus, identifying high-risk offenders and putting a strategic plan in place to reduce rates of recidivism would likely be more effective than generalizing prevention strategies across all groups of North Dakota drivers.

It should be reaffirmed that present DUI prevention strategies are effective and undoubtedly deter some drivers from making the dangerous decision to operate a vehicle while impaired. However, certain individuals pose higher risks for DUI on the roadway than others. Because of this fact, this survey would be improved by incorporating a variable that identifies those offenders at a high-risk of repeating the violation based on the evaluation from health officials. This would allow for more robust analysis in terms of recidivism rates and would distinguish between strategies that can be targeted at the general public and strategies that can be aimed at those with legitimate addiction issues. It would also pave the way for the state of North Dakota, which historically has some of the highest DUI rates in the nation, to be a leader in understanding and preventing instances of impaired driving.

9. REFERENCES

- Gould, L.A. and K.H. Gould. 1992. "First-Time and Multiple-DWI Offenders: A Comparison of Criminal History Records and BAC Levels." *Journal of Criminal Justice*, 20: 527-539.
- Graham, K. 2000. "Preventive Interventions for On-Premise Drinking: A Promising but Underresearched Area of Prevention." *Contemporary Drug Problems*, 27 (Fall): 593-668.
- Lapham, S. 2010. "Does Screening Classification Predict Long-Term Outcomes of DWI Offenders?" *American Journal of Health Behavior*, 34 (6): 737-749.
- Lewis, N.O., S.C. Lapham, and B.J. Skipper. 1998. "Drive-Up Liquor Windows and Convicted Drunk Drivers: A Comparative Analysis of Place of Purchase." *Accident Analysis and Prevention*, 30 (6): 763-772.
- Maxwell, J.C., J. Freeman, and J. Davey. 2007. "A Large-Scale Study of the Characteristics of Impaired Drivers in Treatment in Texas." *Journal of Addiction Medicine*, 1: 173-179.
- National Center for Statistics and Analysis. 2004. *NHTSA Traffic Safety Facts: Alcohol-Impaired Driving, 2003*. DOT-HS-809-761: 1-8. Accessed online May 29, 2012, <<http://www-nrd.nhtsa.dot.gov/Pubs/809761.pdf>>.
- National Center for Statistics and Analysis. 2005. *NHTSA Traffic Safety Facts: Alcohol-Impaired Driving, 2004*. DOT-HS-809-905: 1-8. Accessed online May 29, 2012, <<http://www-nrd.nhtsa.dot.gov/Pubs/809905.pdf>>.
- National Center for Statistics and Analysis. 2006. *NHTSA Traffic Safety Facts: Alcohol-Impaired Driving, 2005*. DOT-HS-810-616: 1-8. Accessed online May 29, 2012, <<http://www-nrd.nhtsa.dot.gov/Pubs/810616.pdf>>.
- National Center for Statistics and Analysis. 2007. *NHTSA Traffic Safety Facts: Alcohol-Impaired Driving, 2006*. DOT-HS-810-801: 1-6. Accessed online May 29, 2012, <<http://www-nrd.nhtsa.dot.gov/Pubs/810801.pdf>>.
- National Center for Statistics and Analysis. 2008. *NHTSA Traffic Safety Facts: Alcohol-Impaired Driving, 2007*. DOT-HS-810-985: 1-6. Accessed online May 29, 2012, <<http://www-nrd.nhtsa.dot.gov/Pubs/810985.pdf>>.

- National Center for Statistics and Analysis. 2009. *NHTSA Traffic Safety Facts: Alcohol-Impaired Driving, 2008*. DOT-HS-811-155: 1-6. Accessed online May 29, 2012, <<http://www-nrd.nhtsa.dot.gov/Pubs/811155.pdf>>.
- National Center for Statistics and Analysis. 2010. *NHTSA Traffic Safety Facts: Alcohol-Impaired Driving, 2009*. DOT-HS-811-385: 1-6. Accessed online May 29, 2012, <<http://www-nrd.nhtsa.dot.gov/Pubs/811385.pdf>>.
- National Center for Statistics and Analysis. 2012. *NHTSA Traffic Safety Facts: Alcohol-Impaired Driving, 2010*. DOT-HS-606, 1-6. Accessed online May 29, 2012, <<http://www-nrd.nhtsa.dot.gov/Pubs/811606.pdf>>.
- Padilla, A.M. and L. Morrissey. 1993. "Place of Last Drink by Repeat DUI Offenders: A Retrospective Study of Gender and Ethnic Group Differences." *Hispanic Journal of Behavior Sciences*, 15 (3): 357-372.
- Pang, M.G., E.W. Wells-Parker, and D.L. McMillen. 1989. "Drinking Reasons, Drinking Locations, and Automobile Accident Involvement Among Collegians." *The International Journal of the Addictions*, 24 (3): 215-227.
- Snow, R.W. and B.J. Anderson. 1987. "Drinking Place Selection Factors Among Drunk Drivers." *British Journal of Addiction*, 82: 85-95.
- Snow, R.W. and E. Wells-Parker. 2001. "Relationships Between Drinking Problems and Drinking Locations Among Convicted Drinking Drivers." *American Journal of Drug and Alcohol Abuse*, 27 (3): 531-542.
- Webster, J.M., M.F. Dickson, J.L. Duvall, and D.B. Clark. 2010. "Rural and Urban Differences in Kentucky DUI Offenders." *Journal of Addiction Medicine*, 4 (3): 186-190.
- Wells-Parker, E., B.J. Anderson, D.L. McMillen, and J.W. Landrum. 1989. "Interactions Among DUI Offender Characteristics and Traditional Intervention Modalities: A Long-Term Recidivism Follow-Up." *British Journal of Addiction*, 84 (4): 381-390.

APPENDIX A. SURVEY INSTRUMENT

NORTH DAKOTA DUI OFFENDER SURVEY
 North Dakota Department of Transportation, Safety Division
 SFN 59265 (01-2010)

This is a voluntary and anonymous survey. No name is necessary. The information you provide will be used for research purposes only. Please answer the questions below to the best of your recollection based on your most recent DUI arrest. Thank you for taking the time to complete this survey. Remember you cannot be prosecuted based on the information provided in this survey.

Shade Ovals Like This – ● Not Like This – ☒ ☑

PLEASE USE DARK INK AND PRINT CLEARLY

Today's Date: / / Gender: Female Male Age: Home Zip Code:

1. What is the date of your most recent DUI arrest? / /
2. Including your most recent arrest how many times have you been arrested for a DUI?
3. What was your BAC level at the time of your arrest? .
4. How many hours had you been drinking prior to being arrested?
5. How many drinks did you consume on the day you were arrested? (choose one) 1-2 3-5 6-9 10+
6. In the hour before your arrest how many drinks did you consume?
7. What type of beverage(s) did you consume on the day you were arrested? (Mark all that apply)
 Beer Wine Shots of Alcohol Mixed Drinks Energy Drinks Other _____
8. How many miles did you drive from the place of your last drink until you were stopped by police? . Miles
9. What type of vehicle were you driving?
 Car Pick-up SUV Motorcycle Other _____
10. Did your DUI arrest involve a crash? Yes No
 If yes, did the crash involve Personal Injury Property Damage or Both
11. Were there passenger(s) in the vehicle at the time of the DUI arrest? Yes No
 If yes, how many passengers were there?
12. Prior to your arrest had you been using illegal drugs that same day? Yes No
 If yes, which drugs? Mark all that apply
 Marijuana Methamphetamine Heroin Cocaine Other _____
13. In what county did your most recent DUI arrest take place? County
14. What law enforcement agency made the arrest? (choose one)
 Local Police County Sheriff North Dakota Highway Patrol

Mail to: Traffic Safety Office
 ND Department of Transportation
 608 E Boulevard Ave
 Bismarck ND 58505-0700

Funded by: North Dakota Department of Transportation, Traffic Safety Office

24909



15. On the day of your most recent DUI arrest, where did you have your LAST drink prior to being arrested?

- At own residence (choose all that apply)
 10 or more people were there It was a house party People under 21 were drinking
- At someone else's residence (choose all that apply)
 10 or more people were there It was a house party People under 21 were drinking
- At a bar, club or restaurant
What was the name of the bar, club, or restaurant?

- In a vehicle
- Somewhere else (Identify location; park, sporting event, fishing, concert, hotel, etc.)

16. Were you drinking anywhere else prior to the place of your last drink listed above on the day of your most recent DUI arrest?

- Yes No (If yes, go to question 17, if no skip to question 18.)

17. Where were you?

- Own residence Someone else's residence Vehicle
- Bar, club or restaurant (Name of establishment) _____
- Elsewhere (Identify location; park, sporting event, fishing, concert, hotel, etc.)

18. On the day of your most recent DUI arrest, how likely did you think it was that you would get arrested for a DUI?

- Likely Somewhat Likely Unlikely

19. On the day of your most recent DUI arrest, did anyone try to discourage you from driving after consuming alcohol?

- Yes No If no, go to question 21.

If yes, who tried to prevent you from driving that day?

- Friend Bartender Server Spouse or other family member Other

20. Which of the following interventions were made? (Mark all that apply)

- Someone recommended not to drive or to wait before driving Someone offered a ride
- Someone suggested I call a friend or family member The bartender/server refused service
- I was offered a free taxi cab voucher but refused it I was escorted out of the bar
- Someone suggested or offered that I take a taxi cab Someone tried to take my keys

21. If at a bar, club, or restaurant, were the drinks that were purchased part of a special promotion? (For example: purchased during "Happy Hour" or lower priced) Yes No

22. Were you asked to show proof of age at the door or to the server/bartender? Yes No

23. If other people were in the vehicle, could anyone have been a sober designated driver? Yes No

24. What has been the greatest consequence of being arrested and convicted for driving under the influence? (choose only one)

- Impact on work Loss of drivers license Having a conviction on my driving record
- Impact on family Financial costs Jail time
- Other (specify) _____



APPENDIX B. MISSING RESPONSE FREQUENCIES

Question	Valid Responses	Frequency Missing
Age	1,049	17
Gender	1,052	14
Times Arrested DUI	1,026	40
BAC	1,049	17
Hours Drinking Prior	1,029	37
Hours Consumed on Day	1,043	23
Drinks Consumed Hour Before	1,027	39
Types of Beverages Consumed	1,066	0
Miles Driven	973	93
Vehicle Type	1,052	14
Crash	1,055	11
Passengers	1,048	18
Number of Passengers	396	670
Drug Use	1,054	12
Type of Drug	30	1036
County of Arrest	1,066	0
Law Enforcement Agency	1,037	29
Place of Last Drink		
Own Home	128	938
10+ People	22	1,044
House Party	28	1,038
Underage Drinking	5	1,061
Other Home	206	860
10+ People	60	1,006
House Party	81	985
Underage Drinking	39	1,027
Retail Establishment	657	409
Vehicle	46	1,020
Somewhere Else	36	1,030
Prior to Place of Last Drink	1,017	49
Likelihood DUI	1,007	59
Intervention	1,014	52
Drink Specials	892	174
Proof of ID	873	193
Sober Driver	733	333
<hr/>		
N=1,066		