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STATE HIGHWAY ADMINISTRATION

RESEARCH REPORT

A SOCIAL NETWORK ANALYSIS OF ALCOHOL-IMPAIRED DRIVERS IN MARYLAND: AN EGOCENTRIC APPROACH

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16. Abstract

This study examined the personal, household, and social structural attributes of alcohol-impaired drivers in Maryland. The study used an egocentric approach of social network analysis. This approach concentrated on specific actors (alcohol-impaired drivers), called *egos*, and those with whom the actors interact, called *alters*. In sum, egos and alters were similar in many aspects of their driving, drinking behavior and background. They influenced each other mostly in positive ways. The size of social networks affected the context of drinking behavior and the number of traffic violations. Receiving citations did show some deterrent effect. Thus, there are implications for intervention programs.

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EXECUTIVE SUMMARY

With the understanding from the literature that social networks influence personal behavior, this study examined the driving and drinking behavior of alcohol-impaired drivers in the context of their social networks. More specifically, it aimed to understand the personal, household, and social structural attributes of alcohol-impaired drivers in Maryland; the communication and activity-travel patterns that emerge from social networks; and the extent to which a change in knowledge within a network influences or modifies behavior. A proper understanding of drinking and driving behavior in social networks may help address the problem of impaired driving.

The study used an egocentric approach of social network analysis, relying on survey research to unveil the underlying social network structure of first-time DUI offenders (i.e., those who have received one administrative sanction from the Maryland Motor Vehicle Administration). This approach concentrated on specific actors (alcohol-impaired drivers), called *egos*, and those with whom the actors interact, called *alters*. It required driver-level data (drivers' characteristics and overall network features) and ego-alter level data (characteristics of each alter and alter-ego ties with reference to drinking episodes).

The study population was first-time DUI offenders in Maryland from 2008 to 2009. The Maryland Motor Vehicle Administration (MVA) invited 6,212 first-time DUI offenders to participate in the study. In response, 214 people sent back a signed consent form, indicating their agreement to participate in the study. Of those, 163 were available for interview along with 82 alters (closest person in the social network and with the ego on the day of receiving a citation). Each ego was given $25 and each alter received $15 for participating in the study. The interviews were conducted on the telephone by trained student interviewers.

The analysis of the data was carried out using various statistical methods. The results were presented in frequency distributions and cross tabulations as percentages, means, odds ratios, and, when appropriate, risk ratios. In addition, exploratory factor analysis was used to create composite scales of the context of drinking. Two scales—social facilitation and emotional pain—were developed to relate social networks and other relevant factors for a better understanding of the social context. A reliability test, Chronbach's alpha, was used to examine the appropriateness of the scales. Various statistical tests—namely z-test, t-test, F-test—were used, when appropriate, to assess the statistical significance of the results.

Egos with many friends were relatively younger than those with few friends. Most of the egos with many friends were white and unmarried. They were almost equally male or female. They were more likely to drink frequently in a social context (such as at a party, to be sociable, to have a good time, and at a public function). However, egos with few friends were more likely to drink to relieve emotional pain.

On the day of the citation, 44 percent of egos were drinking at a bar, which was even higher for egos with many friends. A quarter of egos were drinking at a friend's house, with a slightly higher percentage for egos with many friends.

Egos with many friends had more friends with them at the drinking location, and they visited this location more frequently than egos with few friends. Two-thirds of both types of egos drove to this location from home. A larger percentage of egos with few friends went from work. On average, both types of egos drove a distance of about 14 miles.

About half of egos selected the drinking location in consensus with alters. Notably, one-third of egos with few friends selected the place by themselves. Over half of both types of egos drove back home alone; however, the percentage was lower among alters (42%). About 15 percent of both types of egos thought they might have a problem driving back from this location. Alters (35.7%) were more likely to feel they might have a problem driving back home from this location.

The researchers compared the driving behavior of egos (both groups) and alters. Egos had on average more moving violations than alters did. The average is also higher for egos with few friends than for egos with many. Egos with many friends had slightly more at-fault insurance claims than egos with few friends and alters did. However, egos with few friends had more police-reported crashes than egos with many friends did, but alters had fewer police-reported crashes than both groups.

When asked the number of driving rules they violated in the past 30 days, egos with many friends had more violations than the egos with few friends. However, egos had slightly fewer violations than alters did. With the exception of cell phone use and driving while drowsy, egos with many friends had a higher incidence of violations than egos with few friends. With the exception of driving 20 miles over the speed limit, egos had much lower incidences of violations than alters. Similarly, egos with many friends had slightly lower seatbelt use.

Forty-four percent of alters are a friend of the ego, 16 percent are the boyfriend or girlfriend of the ego, 14 percent are the spouse of the ego, and the rest are some kind of relative. Both egos and alters have people in their social networks who received citations and engage in risky driving. Despite this driving behavior, there is clear evidence that egos and alters influence each other to drink less. A significant percentage of alters offered egos rides back home.

In sum, egos and alters are similar in many aspects of their driving, drinking behavior and background. They influence each other mostly in positive ways. The size of social networks affects the context of drinking behavior and the number of traffic violations. Receiving citations does show some deterrent effect. Thus, there are implications for intervention programs.

INTRODUCTION

According to data of the National Highway Traffic Safety Administration, alcohol-related fatalities on Maryland roads for the past few years have been about 30 percent of all highway fatalities (National Highway Traffic Safety Administration, 2008). This percentage has declined steadily over the last two decades. However, between 2008 and 2009, the number of alcohol-related fatalities in Maryland increased by 12 percent, despite a drop in total motor vehicle deaths (Karp, 2010). Various public information and education programs have been implemented to reduce alcohol-related fatalities, but success has been elusive. Many of these programs, particularly those relying on mass media or lecture programs, have been ineffective (Research Results Digest 322, 2007). Programs that have been more successful at promoting safe driving behavior have involved face-to-face encounters and interactions.

Social and medical scientists have known for a long time that the spread or diffusion of industrial innovations, epidemics, rumors, fads, and ideas are dependent on face-to-face interaction within social and densely populated spatial networks, i.e., a collective enterprise among individuals trading and communicating with or "infecting" others (Ridley, 2010 and Castellano, 2009). Density and thus distance between individuals modifies the level of interaction. A social network is a group of social actors who interrelate or exchange information. Social network analysis (SNA) studies dynamic flows of communication between members of a social network. SNA is supposed to provide a better understanding of how an actor of particular characteristics communicates with members of a network.

This study was designed to understand the personal, household, and social structural attributes of alcohol-impaired drivers in Maryland; the communication and activity-travel patterns that emerge from social networks; and the extent to which a change in knowledge within networks influences or modifies behavior.

Objectives

Human behavior is influenced by personal, household and social network characteristics. The primary objective of the study was to identify how these characteristics influence the behavior of alcohol-impaired drivers in Maryland. Specifically, it was designed to

1. identify personal and household characteristics of alcohol-impaired drivers
2. identify social network characteristics
3. identify social activity-travel behaviors
4. identify social activity-travel behavior with respect to episodic events (driving to and from bars, restaurants, and parties for social drinking)
5. identify the structure of behaviors and relationships in the network

LITERATURE REVIEW

Researchers in sociology, psychology, communications, applied anthropology, epidemiology, and social physics are using SNA to understand the behavior of human interaction and model social structures. Nicholas Christakis and James Fowler (2008), using the wealth of longitudinal medical data from the well-known Framingham Heart Study (FHS), have shown that smoking cessation, happiness, and obesity are contagious among people beyond the first degree of separation (Belluck, 2008; Aubrey, 2008). The social network's structure and the physical distance between the social network's members influence outcomes. In the smoking cessation study, friends and family influenced individual behavior even when distance between residences was great (Christakis and Fowler, 2008; Belluck, 2008). The influence of friends and family on happiness diminished rapidly with distance and time (Fowler and Christakis, 2008). In the obesity case, immediate friends and family were influential, but close-by neighbors were not (Aubrey, 2008). Although each of these studies was published in a respected journal, it should be noted that other researchers have suggested that additional factors may influence the results.

Christakis and Fowler teamed with John Cacioppo to study the spread of loneliness, again using the FHS data (Cacioppo et al., 2009; Stein, 2009). Loneliness is an important predictor of various adverse health effects, including alcoholism (Cacioppo et al., 2009; Akerlind and Hornquist, 1992). Loneliness apparently spread through a "contagious process" by three degrees of separation. The spread was stronger for friends than spouses or other family members. The spread was also stronger for women. Geographical distance played a role in that the effect was stronger for proximal friends than for ones who were more distant. Loneliness spreads but also loosens the ties of individuals within networks. Lonely individuals move to the periphery of their social networks, becoming more isolated but influencing the behavior of those with whom they might still interact (Stein, 2009 and Aubrey, 2008).

In keeping with the previous studies, Rosenquist et al. (2010) analyzed the FHS data to determine whether alcohol consumption exhibited social network effects. According to the analysis, alcohol drinkers and abstainers clustered within three degrees of separation in their large social networks of family, friends, co-workers, and neighbors. A social network's consumption changes affected an individual member's consumption. Friends and family were associated with a change in drinking behavior, but neighbors and co-workers were not. The authors suggested that the results support group-level public health interventions to reduce problem drinking. Research has also shown that college students overestimate the percentage of their peers who drink excessively (Perkins et al., 1999). Therefore, one could conclude that if the social network's alcohol consumption influences an individual's consumption, then accurate information on the network's levels of consumption may reduce that individual's drinking.

The SNA results have implications for travel behavior because distance can affect the social network's influence and its members' interaction. Social activity travel, as with other forms of travel, has demand derived from the distance between the supply of and demand for activities. The social network's structure, the members' propensity to interact, and the physical distance between the network's members often convert to travel. Alcohol consumption, which can sometimes be a social activity, has detrimental impacts on such travel.

Decades ago, transportation geographers used mental mapping to identify an individual's action space, which is the area that contains the majority of an individual's destinations. They realized that location decisions or the propensity for interaction was best studied on the individual level in the context of psychological, cultural, and behavioral considerations (Lowe and Moryadas, 1975). Transportation engineers used individual socioeconomic characteristics to develop models that explained trip generation. By integrating theoretical and empirical data, Habib (2008) observed that individuals' travel scheduling processes (time, space, and duration) are not only influenced by the individuals' characteristics, but also by the characteristics of other people with whom they interact.

Carrasco and Miller (2006; 2007) observed that there is an individual social dimension in social activity trip generation. They proposed and tested a model for incorporating the social dimension into travel behavior, using data from a survey and interviews of 84 people near Toronto. They identified four components to the social dimension: personal attributes (ego), attributes of the individual(s) with whom activities are performed (alter), social network composition and structure (connectivity and specialization), and information and communication technology (social media) use. Socioeconomic characteristics of the ego and alter(s) and the distances between them influence the frequency of face-to-face social interaction. The numbers and closeness of relationships between ego and alters and the number of subgroups within the network influence interaction. High-income females who are not living with a partner have more frequent social activities, such as visiting and gathering at homes, bars, and restaurants. Many close relationships with family and friends within more subgroups are associated with a greater amount of interaction. When the distance between the network's members increases, their interaction decreases. The use of social media may reinforce or substitute for face-to-face interaction, and distance plays a role in either outcome.

SNA is thus a valid approach for analyzing the social networks and travel behavior of alcohol-impaired drivers. The research literature has revealed strong associations between social networks and behavior (including travel). Causal factors have been inferred, but if interventions are to be developed for alcohol-impaired drivers, then one must know more about the attributes and dynamics of the interaction between egos and alters.

METHODOLOGY

Study Organization

A problem statement from the Maryland Highway Safety Office prompted this study. The problem statement was in response to a solicitation for research from the Maryland State Highway Administration (SHA) Research Division. The problem statement was selected through the SHA peer review process, and Morgan State University's National Transportation Center was asked to submit a proposal for study. NTC put together the study team, which consisted of the authors of this report. In addition, the NTC provided supplemental funding for the project and organized the collaboration with the University of Maryland College Park (UMCP) School of Public Health and the Maryland Motor Vehicle Administration (MVA). Because MVA recognized that the research results could potentially reduce drunk driving, the agency committed to providing data on DUI-cited drivers and other logistical support. Based on the proposed scope of work and the collaborations, SHA approved the project and sent the notice to proceed in late summer 2008. The collaborations with UMCP and MVA required formal agreements with Morgan State University, which required much time and negotiation. The collaborations have been successful and beneficial to the conduct of the research.

Study Design

The study used the SNA egocentric network approach, relying on survey research to unveil the underlying social network structure of first-time DUI offenders (i.e., those who have received one administrative sanction from MVA). The investigators believed that first-time offenders could be influenced to modify their drinking and driving behavior through some sort of social network intervention, but that those with more than one citation would have to be dealt with through more onerous legal sanctions.

This approach concentrated on specific actors (alcohol-impaired drivers), called *egos*, and those with whom actors interact, called *alters* (Carrasco et al. 2006). It required driver-level data (drivers' characteristics and overall network features) and ego-alter level data (characteristics of each alter and alter-ego ties with reference to drinking episodes).

Sample Size

The study attempted to achieve 304 responses to have 80 percent power (see power curve and corresponding statistical report in Appendix A) and, when analyzed, yield statistically significant results. To achieve this number, the investigators considered the following factors when selecting the sample size: non-response, refusal to participate, unavailability, death, or change of address. The investigators hoped for a 10 percent response rate, which would require a sample of 3,040 potential egos. However, each ego requires an alter in order to achieve 304 complete pairs. To compensate for the response rate factors and the ego/alter pair requirement, the target sample size was doubled to 6,080. It was thought that it would be possible to obtain the 304 pairs with the larger sample size because of the financial incentive for each respondent. Each ego would receive $25 and each alter would receive $15 for participating in the study.

In reality, the participation was much lower than expected. MVA provided names and contact information for 6,212 drivers who received an MVA administrative sanction for driving with a blood alcohol concentration of .08 or more. Each driver received a letter explaining the study, a consent form, and a return envelope. Two hundred fourteen drivers agreed to participate. Student assistants performed the interviews from fall 2009 through spring 2010. In that time, some respondents changed their minds about participating, were consistently unavailable, moved, or disconnected their telephone service. Ultimately, 163 egos and 88 alters participated in the telephone surveys. The investigators understood that it would be difficult to gather participants because of the small monetary incentive and because participation was not tied to a legal or administrative benefit. Embarrassment and privacy concerns were perhaps additional factors.

Even though the sample size was smaller than desired, the researchers received enough responses to perform an analysis that provides insight into the attitudes and networks of a significant portion of DUI drivers in the state. However, the sample does not statistically represent the population of DUI drivers as a whole.

Survey Method

The investigators prepared separate questionnaires for the egos and alters (See Appendix B).The questionnaires were pretested and modified slightly. The alter questionnaire was relatively shorter than the ego questionnaire. The questionnaires, a letter of introduction from MVA (see Appendix C), and a confidentiality form were submitted to the Institutional Review Boards (IRB) of both Morgan and UMCP for approval. Because Morgan was the contractor to SHA for the study, UMCP deferred to the IRB at Morgan. Upon receipt of Morgan's IRB approval, the investigators sent a copy of the MVA letter, the approved protocol, and all informed consent documents to be used during the study to SHA and MVA for their files. Before they solicited any information from MVA, each member of the research team filled out the MVA Privacy Protection Form and sent it to MVA for recording.

MVA then drew the population of drivers who received MVA administrative sanctions. In addition to addresses, MVA provided demographic information (age, gender, race, vehicle type, location, and day and time of citation) for each of the 6,212 drivers.

MVA's letter to the sanctioned drivers described how the study would improve highway safety. The investigators and MVA cooperatively developed the contents of the letter and all accompanying materials. In addition to the letter and a confidentiality agreement, MVA sent each driver a description of the interview process and the financial incentive associated with it, and a stamped, return envelope addressed to Morgan. The investigators had no contact with the drivers before they agreed to participate in the study. Morgan reimbursed MVA for the postage costs associated with the mailings.

Each ego received $25 and each alter received $15 for their participation in the study. The names and addresses of the study participants were provided to the comptroller of Morgan State University, whose office issued the incentive checks. The NTC collected the checks from the comptroller's office and mailed them to the participants.

Quality Control

To ensure the quality of interview data, 5 percent of the ego-alter pairs were re-interviewed by a different interviewer. Appropriate measures were taken to improve the quality of the interviews and the accuracy of the data. Approximately 15 egos and 15 alters were re-interviewed. They received a second incentive check for the re-interview.

The interviewers collected data for the following variables:

a. **Personal and household characteristics of the impaired driver:** age, gender, income, race, marital status, work status, household size, living arrangement
b. **Social context of drinking:** the situational and motivational factors that define the drinking environment and context, using composite scales namely social facilitation scale and emotional pain scale
c. **Impaired driver's network:** number of network members who are immediate family, friends, neighbors or work/school/organizational (sports or social club) colleagues
d. **Network members' preferred method of communication:** cell phone call, regular phone call, e-mail, instant message
e. **Network interaction by visit or host:** hosting or visiting bar or restaurant by frequency, distance, purpose
e. **Knowledge**: other alcohol-impaired drivers within their network
f. **Frequency and places**: alcohol use among people in and outside of their network
g. **Most personal relationship**: identify member outside the household
h. **Alters' characteristics**: age, gender, income, race, marital status, work status, household size, living arrangement
i. **Ego-alter relationships**: initiation of face-to-face interaction, time, place, and events

Methods

The results are mostly presented in frequency distribution and cross tabulation as percentages, means, odds ratios, and risk ratios. To assess the statistical significance of the results, various tests—z-test, t-test, F-test—were used when appropriate. In addition, two psychometric measures or composite scales—social facilitation and emotional pain—were created using a principal components factor analysis.

Items related to the drinking's social context were analyzed to determine their link to the social network variables, drinking location, and driving behaviors. Social context refers to where, why, when, and with whom a person drinks. Previous studies with high school (Beck & Treiman, 1996; Beck, Thombs & Summons, 1993) and college students (Beck et al., 1995; 2008) have identified distinct patterns in drinking's social context. A preliminary investigation of DUI offenders showed that they tend to drink alone, in their own home, and to relieve stress (Beck & Summons, 1985). The social context measures for this investigation were adapted from an existing scale that measured the social context of drinking among college students (Beck et al., 2008).

A principal components factor analysis with varimax rotation was conducted on the social context items. The analysis identified two significant factors that were labeled "social facilitation" and "emotional pain." Social facilitation refers to drinking that is done with friends and in an atmosphere of conviviality. Emotional pain refers to drinking that usually occurs alone and for the relief of physical or emotional distress.

The participants were asked how often they consumed alcohol in the following social contexts. The response choices were [1] never, [2] seldom, [3] occasionally, and [4] frequently.

- at a party with friends
- alone
- to relieve fatigue or tension
- to be sociable
- for a sense of well being
- to get drunk
- to get rid of depression
- to relieve stress
- to have a good time
- at home with your family
- to "blow off steam"
- before or after work at a bar or restaurant
- to feel better about yourself
- at a public function (e.g., football or baseball game)

Social Facilitation Scale

The following items had factor loadings greater than 0.4: at a party with friends, to be sociable, to have a good time, and at a public function. They were factored into one group.

A reliability test for these items found the reliability coefficient, Cronbach's $\alpha = .737$. The scale values then summed to create a composite score for the social facilitation scale. The range of the scale was 4-16, with a mean of 11.09 and a standard deviation of 2.98.

Emotional Pain Scale

The following items were grouped into one factor: alone, to relieve fatigue or tension, for a sense of well being, to get rid of depression, to relieve stress, to blow off steam, after work at a bar or restaurant, and to feel better about yourself. These items, which also had factor loadings greater than 0.4, were used to create the emotional pain scale. The score values were then summed to get a composite score. The reliability coefficient was Cronbach's $\alpha = .844$. The range of the scale was 8-32, with a mean of 14.39 and a standard deviation of 5.28.

These findings are consistent with the results of previous studies (e.g., Beck et al., 2008). The items comprising both factors demonstrated acceptable reliability (Chronbach's alpha $\geq .73$). These scale scores were then related to the measures of the social network and others of interest using a variance analysis.

To assess the influence of the social network using frequency distributions and cross tabulations, the research team classified egos into two categories: those with many friends and those with few friends. The analyses then compared the results between these groups and compared them to the results for the alters.

ANALYSIS AND FINDINGS

Population and Sample

The incidence of impaired driving citations varies substantially by the location's urban-rural characteristics. Based on MVA data, populous urban counties appear to have a higher DUI incidence than rural counties. Montgomery County had the highest DUI incidence (see Table 1). The high incidence may be due to law enforcement that may be more robust than other jurisdictions, more drunk driving among the general population, or a combination of the two. Baltimore County has the second-highest DUI incidence in the state. Anne Arundel, Prince George's, Frederick, and Harford counties had an incidence greater than or equal to 6.0 percent.

County and City	Targeted Population	Percent
Baltimore City	255	3.9
Allegany County	154	2.4
Anne Arundel County	614	9.4
Baltimore County	689	10.5
Calvert County	65	1.0
Caroline County	215	3.3
Carroll County	296	4.5
Cecil County	156	2.4
Charles County	200	3.1
Dorchester County	51	0.8
Frederick County	401	6.1
Garrett County	46	0.7
Harford County	392	6.0
Howard County	368	5.6
Kent County	33	0.5
Montgomery County	1305	19.9
Prince George's County	508	7.8
Queen Anne's County	67	1.0
Somerset County	32	0.5
St. Mary's County	191	2.9
Talbot County	58	0.9
Washington County	221	3.4
Wicomico County	110	1.7
Worcester County	117	1.8
Total	6544	100.0

Table 1: Distribution of First-Time DUI Recipients in Maryland from July 2008 to July 2009

Based on the MVA data, males received 71 percent of the DUI citations. However, men were 57 percent of the sample of survey respondents, indicating that disproportionately more women volunteered to participate in the survey (see Table 2). The percentage of white drivers is about the same in both the MVA data and the sample, but African-Americans were slightly overrepresented in the sample. The percentage of non-Hispanics (92.5 percent) was slightly higher in the sample than in the MVA data. Therefore, other than gender (and, to some extent, age), the sample closely reflected the target population.

Characteristics		Targeted Population %	Sample %
Age			
	18-20	3.6	10.6
	21-29	47.0	43.5
	30-45	32.3	23.0
	46-64	15.5	19.3
	65 or older	1.6	3.6
Gender			
	Female	28.7	43.2
	Male	71.3	56.8
Race			
	White (Caucasian)	72.4	72.0
	African American	15.3	19.9
	Asian and Pacific Islanders	3.0	1.9
	Native American	0.0	0.0
	Others	9.6	5.6
Hispanic[1]			
	Yes	9.8	7.5
	No	90.1	92.5
N		6,212	163

Table 2: Socio-Demographics of First-Time DUI Recipients (Targeted Population vs. the Sample)

Socio-Demographic Comparison of Egos and Alters

Table 3 compares the socio-demographic characteristics of egos and alters. Among egos with many friends, males and females are almost equally represented. However, egos with few friends were more likely to be men. Alters are also evenly distributed by gender. About 82 percent of egos with many friends are white, while it is only 67 percent among the fewer friends category.

[1] MVA adopted the Bureau of Census categories for race and ethnicity. The Hispanic category was created to have a non-overlapping category of Caucasians because Hispanics sometimes identify themselves as white.

The percentage of African-American egos with few friends was more than two times higher than those with many friends. There was no difference in this among alters. The percentages of Hispanics are about the same in both categories. Interestingly, about 25 percent of egos with many friends are 18 to 20 years old. Egos with few friends are relatively older than egos with many friends. The egos with many friends are more likely to be employed either full- or part-time (82 percent as opposed to 75 percent). About 83 percent of egos with many friends are unmarried, compared to 62 percent for egos with few friends. However, about 25 percent of alters are married. There is not much difference in education between the two groups of egos or between egos and alters.

Characteristics		Ego			Alter
		Many Friends (%)	Few Friends (%)	All (%)	(%)
Gender	Female	49.0	40.5	43.2	50.2
	Male	51.0	59.5	56.8	49.4
Race	White (Caucasian)	82.4	67.3	72.0	76.5
	African American	9.8	24.5	19.9	18.5
	Asian and Pacific Islander	2.0	1.8	1.9	1.2
	Native American	0.0	0.0	0.0	1.2
	Hispanic	5.0	3.6	4.3	-
	Others	0.0	1.8	5.6	2.5
Hispanic	Yes	6.0	8.1	7.5	
	No	94.0	91.9	92.5	
Age	18-20	23.5	4.5	10.6	6.2
	21-29	43.1	43.6	43.5	44.4
	30-45	19.6	24.5	23.0	29.6
	46-64	11.8	22.7	19.3	19.8
	65 or older	2.0	4.5	3.7	-
Employment Status	Full-time	60.8	58.6	59.3	61.7
	Part-time	21.6	16.2	17.9	12.3
	Unemployed-looking	11.8	13.5	13.0	18.5
	Unemployed-not looking	2.0	6.3	4.9	4.9
	Retired	2.0	4.5	3.7	-
	Others	2.0	0.9	1.2	2.5
Marital Status	Married	6.5	15.8	12.9	25.9
	Divorced	8.7	13.9	12.2	9.9
	Separated	2.2	5.9	4.8	1.2
	Widowed	0.0	2.0	1.4	-
	Never Married	82.6	62.4	68.7	63.0
Educational Level	No high school	2.0	5.4	4.3	2.5
	High school Dip (GED)	31.4	32.4	32.1	33.3
	Some college, no degree	27.5	27.0	27.2	23.5
	Associate's degree	7.8	5.4	6.2	12.3
	Bachelor's degree &above	31.4	29.7	30.2	28.4

Table 3: Socio-Demographic Comparison of Egos and Alters

Drinking Context by Social Network

Table 4 shows how a social network shapes the context of drinking. There are 14 different context of drinking variables listed in the table. Egos with many friends have a higher mean score for drinking at a party with friends than their counterparts with few friends. Egos with many friends have a higher percentage of drinking frequently. A similar pattern emerges for the categories ‘to be sociable,’ ‘to have a good time,’ and ‘at a public function such as games and sport.’ Egos with few friends have higher mean scores for the categories ‘to get rid of depression,’ ‘to feel better,’ and drinking ‘before or after work at a bar or restaurant.’ The results thus indicate that people with larger social networks are more likely to drink in a social context, and those with smaller networks are more likely to drink alone and because of depression.

	Many Friends					Few Friends				
How often do you drink alcohol:	(1)	(2)	(3)	(4)	Mean score	(1)	(2)	(3)	(4)	Mean score
At a party with friends**	1.9%	23.1%	34.6%	40.4%	3.13	9.0%	29.7%	34.2%	27.0%	2.79
Alone*	55.8	25.0	15.4	3.8	1.67	43.2	26.1	19.8	10.8	1.98
To relieve fatigue or tension	34.6	36.5	23.1	5.8	2.00	36.4	33.6	20.9	9.1	2.03
To be sociable*	3.9	17.6	41.2	37.3	3.12	13.5	23.4	30.6	32.4	2.82
For a sense of well being	74.0	6.0	14.0	6.0	1.52	67.6	17.1	9.0	6.3	1.54
To get drunk	41.2	27.5	19.6	11.8	2.02	44.1	24.3	24.3	7.2	1.95
To get rid of depression	73.1	9.6	7.7	9.6	1.54	62.2	16.2	11.7	9.9	1.69
To relieve stress	30.8	28.8	28.8	11.5	2.21	31.5	35.1	18.0	15.3	2.17
To have a good time	7.7	17.3	28.8	46.2	3.13	10.8	22.5	31.5	35.1	2.91
At home with family	38.5	30.8	26.9	3.8	1.96	37.8	39.6	16.2	6.3	1.91
To blow off steam	42.3	25.0	23.1	9.6	2.00	53.2	24.3	17.1	5.4	1.75
Before or after work at a bar or restaurant	46.2	28.8	21.2	3.8	1.83	47.7	27.3	20.0	10.0	1.97
To feel better about yourself	76.9	13.5	7.7	1.9	1.35	76.6	12.6	8.1	2.7	1.37
While at a public function (i.e., football or baseball game)	26.9	30.8	25.0	17.3	2.33	31.5	26.1	26.1	16.2	2.27
Mean score of social facilitation		11.7 (2.76)					10.8 (3.02)			
Mean score of emotional pain		14.2 (5.12)					14.5 (5.34)			

(1) = never, (2) =seldom, (3) =occasionally, (4) =frequently; **t=2.23, p < .03; *t=1.86, p= .06;*t=1.79, p=.07. Figures in parentheses are standard deviations.

Table 4: Drinking Context by Social Network

Some differences were observed in the drinking location on the day of the citation. Higher percentages of egos with many friends were drinking at a friend's house, at a bar, or at a party (Table 5). The percentages of egos drinking at a restaurant, at a club, or other location are relatively higher among those with few friends. However, 50 percent of those with many friends and 40 percent of those with few friends were drinking at a bar, which was the most frequently mentioned drinking location. The second most frequently mentioned location was a friend's house. There is some discrepancy between egos and alters, partly because not all alters were with egos at the location prior to the citation. However, alters also most frequently reported a bar as the location for drinking.

Location	Ego			Alter
	Many Friends (%)	Few Friends (%)	All (%)	(%)
Friend's house	26.9	24.3	25.2	11.1
Bar	50.0	40.5	43.6	55.6
Restaurant	7.7	12.6	11.0	5.6
Party	5.8	1.8	3.1	-
Club	1.9	8.1	6.1	5.6
Athletic event	1.9	0.9	1.2	-
Other	5.8	11.7	9.8	22.3
Total	100	100	100	100
N	52	111	163	82

Table 5: Pre-Citation Drinking Location

The average number of persons with the egos was 10.6 for those with many friends and 5.1 for those with few friends (Table 6). Over 40 percent of those with many friends reported having more than five friends with them, and it is little over 30 percent for those with few friends. This indicates that people with a larger social network are more likely to have a larger number of friends with them while they drink. Over 30 percent of alters reported having one person with them at the drinking location, and the average number was 1.79. These alters were with the egos at the pre-citation drinking location.

	Ego			Alter
Number of People	Many Friends (%)	Few Friends (%)	All (%)	(%)
One	20.5	29.5	26.5	31.3
Two	9.1	12.5	11.4	18.8
Three	15.9	18.2	17.4	25.0
Four	11.4	8.0	9.1	12.5
Five or more	43.1	31.8	35.6	12.5
Total	100	100	100	100
Mean*	10.57	5.05	6.89	1.79
N	44	88	132	19

*t=2.08, p=.04 between two groups of egos.

Table 6: Number of Social Network Members at the Drinking Location

There were non-significant trends suggesting that drinking frequency was inversely related to emotional pain, whereas drinking in a context of social facilitation was positively related to the extent of one's social network (see Figure 1). When drinkers had many people in their social network, they were less likely to drink in a context of emotional pain and more likely to drink in context of social facilitation. People who were drinking with many people from their social network (M = 11.72) were significantly more likely to be drinking for social facilitation than those who were drinking with few friends from their social network (Mean social score = 10.8). The difference between the two groups is marginally significant (z = 1.91, p =.056).

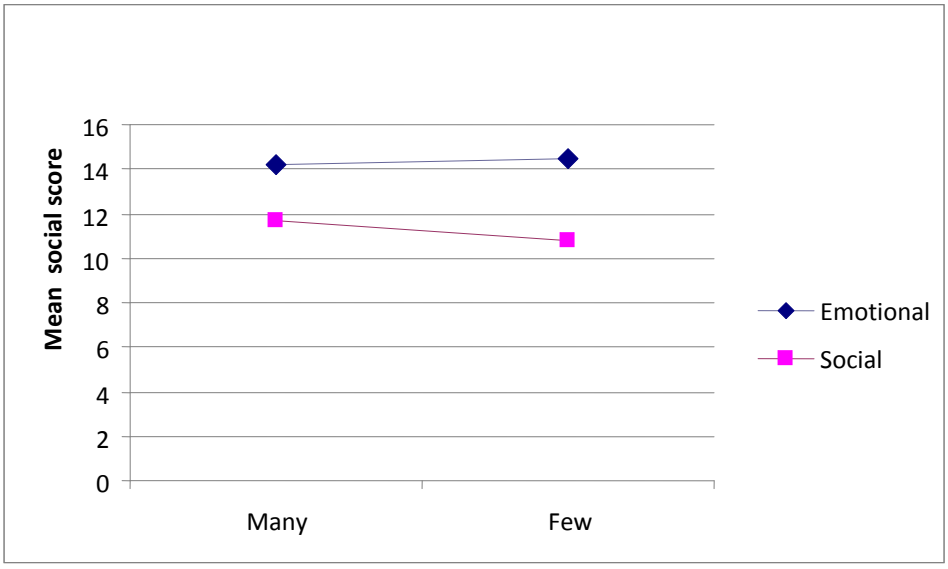


Figure 1: Emotional and Social Scores by Social Network

About one-third of egos with many friends visited the drinking location at least once a week compared to about one-fifth of those with few friends (Table 7). Those with few friends were more likely to be first-time or monthly visitors. The results indicate that egos with many friends visit this location more frequently than egos with few friends. Alters appear to visit this location less frequently than egos do.

Response	Ego			Alter
	Many Friends (%)	Few Friends (%)	All (%)	(%)
2-3 times a week	19.6	13.8	15.6	5.9
About once a week	13.7	8.3	10.0	11.8
Several times a month	11.8	15.6	14.4	17.8
Once a month	27.5	30.3	29.4	35.3
First visit to this location	27.5	32.1	30.6	35.3
Total	100	100	100	100
N	51	109	160	17

Table 7: Frequency of Visits to the Drinking Location

Next, the relationship between frequency of visits to this location and the context of drinking was examined using the composite scales for social facilitation and emotional pain. The emotional pain score is higher among egos with few friends, who come to this location frequently (see Figure 2). The difference in the social context score is marginally significant for the social network ($F=3.2$, $p=.06$) and highly significant for visit frequency to this location ($F=4.8$, $P < .03$). With respect to social facilitation, there is no systemic or meaningful difference by the social network (see Figure 3). The difference appears to be insignificant. Although social drinking is much higher among egos with many friends, the social facilitation does not contribute differentially to the likelihood of visiting this location.

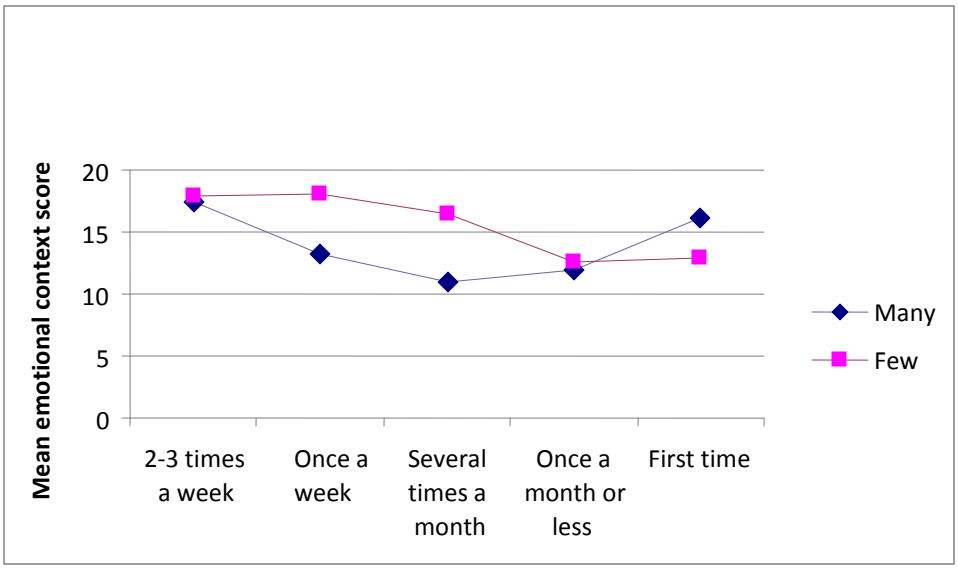


Figure 2: Frequency of Ego's Visits to Drinking Location by Emotional Pain and Social Network

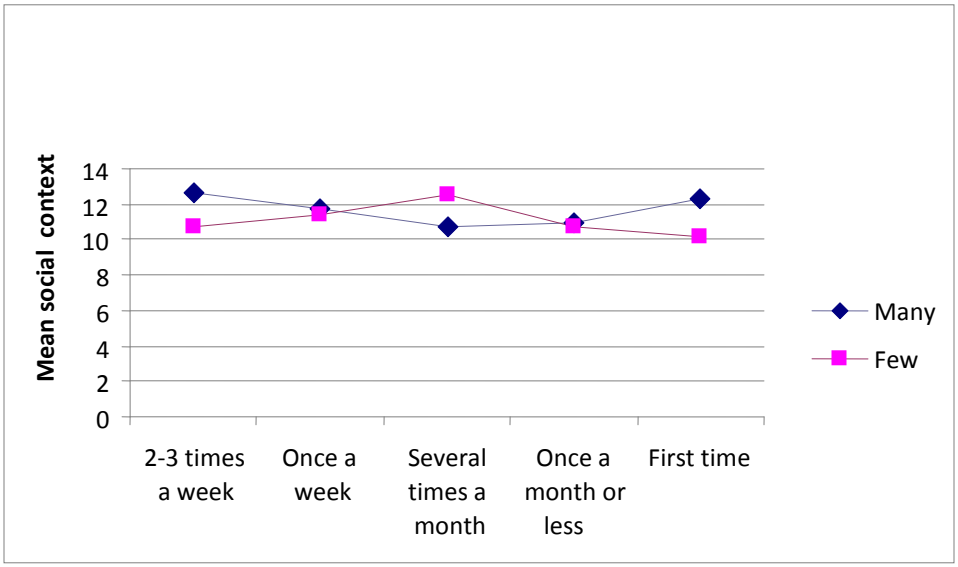


Figure 3: Frequency of Ego's Visits to Drinking Location by Social Facilitation Score and Social Network

The average distance between home and the drinking location was about 14 miles (Table 8). Although the average for egos with many friends was slightly higher than the average for egos with few friends, the difference was insignificant. About 40 percent of egos drove less than 10 miles.

Distance (in miles)	Egos with Many Friends (%)	Few Friends (%)	All (%)
1 – 4	15.4	24.3	21.4
5 – 9	15.4	18.7	17.6
10 - 19	34.6	27.1	29.6
20 – 29	25.0	15.0	18.2
30 +	9.6	15.0	13.2
Total	100	100	100
Mean	13.94	13.79	13.84
N	52	107	159

Table 8: Distance between Home and the Drinking Location

Forty-six percent of both groups selected the drinking location in consensus with their friends (Table 9). However, one-third of egos with few friends self-selected the location compared to 11.5 percent of egos with many friends. About 67 percent of both groups went to the location from home. However, one-fifth of those with few friends went from work compared to one-tenth of those with many friends. The percentage that drove from some other place was much higher among those with many friends. More than 50 percent of both groups drove less than 10 miles. There was little difference between the groups in average miles driven to reach the location. Alters drove a much shorter distance to reach the location (mean = 9.39).

Similarly, there was no notable difference in the hours spent at the location. Fifty-eight percent of those with few friends drove back home alone from the location, compared to 50 percent for those with many friends. The percentage for alters is smaller, 41.7 percent. About 15.4 percent of egos thought they might have a problem driving back home. This percentage was much higher among alters (35.7 %), indicating that alters were more apprehensive about the consequences of drinking and driving.

		Ego			Alter
		Many Friends (%)	Few Friends (%)	All (%)	(%)
A:	Who selected the drinking location?				
	Myself	11.5	33.6	26.5	-
	My friends	36.5	12.7	20.4	23.5
	My friends and I	46.2	46.4	46.3	52.9
	Others	5.8	7.3	6.8	23.5
B:	Starting place				
	Home	67.3	67.6	67.5	75.0
	Work	9.6	19.4	16.3	12.5
	Some other place	23.1	13.0	16.3	12.5
C:	Miles driven				
	1 – 4	22.0	29.2	26.8	34.5
	5 – 9	18.0	18.7	18.5	11.2
	10 – 14	20.0	14.0	15.9	16.7
	15 – 19	8.0	13.1	11.5	11.1
	20 - 29	24.0	14.0	17.2	11.1
	30 +	8.0	11.2	10.2	5.6
	Mean	12.63	12.57	12.59	9.39
D:	Hours Stayed				
	≤ 1	5.9	11.3	10.0	37.5
	2 - 3	49.0	43.6	45.3	37.6
	4 - 5	33.4	30.9	31.6	3.2
	5 and above	11.7	14.2	13.1	-
	Mean (hours)	*3.61*	*3.56*	*3.57*	*4.94*
E:	Percentage who drove back alone	50.0	58.2	55.6	41.7
F:	Percentage who thought they might have a problem driving back	15.4	15.5	15.4	35.7

Table 9: Selection of Drinking Location, Distance Driven, and Hours Stayed

The respondents were asked about their risk assessment of impaired driving. The average scores are almost the same; however, egos with many friends had a slightly higher score (Table 10). This higher score indicates a low assessment of the potential risk. Fifty percent of those with many friends thought that they were somewhat or very unlikely to be stopped by the police. Forty-seven percent of those with few friends perceived a police stop as unlikely. These percentages indicate that egos take more risks and make poor judgments about the risks of impaired driving. This percentage was lower with alters, indicating a significantly higher assessment of the likelihood of a police stop ($z=1.89$, $p < 05$). All survey participants (egos and

alters) were subsequently asked the likelihood of a conviction if they were stopped by the police for impaired driving. Forty percent of egos with many friends and 52.3 percent of those with few friends thought that they would be convicted, but the difference was not statistically significant. The average score was also higher for those with many friends (mean=2.22) as opposed to those with few friends (mean=1.91), again indicating a relatively poor judgment by the egos with many friends. Alters were somewhat more likely to feel that they would be convicted after arrest, but there was no significant difference from the egos.

		Ego			Alter
		Many Friends (%)	Few Friends (%)	All (%)	(%)
A:	Likelihood of being stopped by the police				
	Certain	12.0	10.8	11.2	8.3
	Very Likely	26.0	22.5	23.6	33.3
	Somewhat Likely	12.0	19.8	17.4	29.2
	Somewhat Unlikely	26.0	28.8	28.0	16.7
	Very Unlikely	24.0	18.0	19.9	12.5
	Mean Score	*3.24*	*3.21*	*3.22*	*2.92*
B:	Likelihood of being convicted after arrest				
	Certain (1)	40.0	52.3	48.4	58.3
	Very Likely (2)	22.0	22.5	22.4	20.8
	Somewhat Likely (3)	18.0	12.6	14.3	16.7
	Somewhat Unlikely (4)	16.0	7.2	9.9	-
	Very Unlikely(5)	4.0	5.4	5.0	4.2
	Total	100	100	100	100
	Mean Score	*2.22*	*1.91*	*2.01*	*1.71*
	N	50	111	161	24

(1) = certain, (2) = very likely, (3) = somewhat unlikely, and (4) = very unlikely.

Table 10: Perceived Likelihood of Police Stop and Conviction for Drinking and Driving

Driving Behavior

In order to assess driving behavior, the egos were asked the number of tickets (for moving violations), insurance claims, and police-reported crashes they have received as a licensed driver. They were also asked the number of driving rules they violated in the past 30 days.

The average number of tickets for moving violations was higher among those with few friends (Table 11). Over 50 percent of this group received five or more violations. This difference may be due to age, since the group with few friends was relatively older. Egos received more tickets

than alters (3.49 vs. 2.44). One-fifth of alters have never received a ticket. This variation may be attributable to the difference in miles driven. However, the overall picture does show care by alters in driving.

Number of Violations	Ego			Alter
	Many Friends (%)	Few Friends (%)	All (%)	(%)
None	14.0	3.6	6.8	20.0
One	12.0	7.2	8.7	17.5
Two	8.0	12.6	11.2	17.5
Three	22.0	17.1	18.6	11.3
Four	16.0	9.0	11.2	11.3
Five or more	28.0	50.5	43.5	22.5
Total	100	100	100	100
Mean	2.98	3.72	3.49	2.44
N	50	111	161	80

Table 11: Number of Moving Violations

The average total number of insurance claims (1.93 vs. 1.80) was slightly higher for egos with few friends but not statistically significant (Table 12). The at-fault claims showed an opposite pattern (0.89 vs. 0.97). The difference was too small to be statistically significant using t-test for means, but it showed that egos with many friends had more claims than egos with few friends. Alters had significantly fewer total insurance claims and fewer at-fault claims than egos ($z=2.51$, $p<.01$ for total and $z=3.11$, $p<.001$).

Number of Claims	Ego						Alter	
	Many Friends		Few Friends		All			
	Total (%)	At-fault (%)	Total (%)	At-fault (%)	Total (%)	At-fault (%)	Total (%)	At-fault (%)
None	17.6	39.5	23.4	41.2	21.6	40.7	29.1	61.5
One	29.4	36.8	28.8	37.6	29.0	37.4	26.6	29.2
Two	23.5	15.8	11.7	15.3	15.4	15.4	25.3	7.7
Three	19.6	5.3	14.4	3.5	16.0	4.1	11.4	1.5
Four	3.9	0.0	5.4	1.2	4.9	0.8	5.1	-
Five or more	5.9	2.6	16.2	1.2	13.0	1.6	2.5	-
Total	100	100	100	100	100	100	100	100
Mean	*1.80*	*.97*	*1.93*	*.89*	*1.93*	*.92*	*1.44*	*0.49*
N	51	38	111	85	162	123	79	65

Table 12: Number of Insurance Claims

A similar pattern was observed with police-reported crashes (Table 13). Egos with many friends had a higher average total of police-reported crashes (M = 1.25) than those with few friends (M = 1.14). As with the number of crashes, egos with few friends had a higher average, but non-significant number of at-fault, police-reported crashes (0.83 vs. 0.68). Alters had fewer total police-reported crashes and fewer own–fault crashes than egos. The differences are statistically significant (z=1.56, p=.056 for total and z=4.13, p<.001 for at-fault).

Number of Crashes	Ego						Alter	
	Many Friends		Few Friends		All			
	Total (%)	At-fault (%)	Total (%)	At-fault (%)	Total (%)	At-fault (%)	Total (%)	At-fault (%)
None	35.3	50.0	36.9	35.4	36.4	39.7	46.3	69.2
One	29.4	35.3	36.9	52.4	34.6	47.4	27.5	26.2
Two	15.7	11.8	12.6	8.5	13.6	9.5	17.5	4.6
Three	15.7	2.9	6.3	1.2	9.3	1.7	6.3	-
Four	2.0	0.0	2.7	2.4	2.5	1.7	1.3	-
Five or more	2.0	0.0	4.5	0.0	3.7		1.3	-
Total	100	100	100	100	100	100	100	100
Mean	*1.25*	*0.68*	*1.14*	*0.83*	*1.18*	*.78*	*0.93*	*0.35*
N	51	34	111	82	162	116	79	65

Table 13: Number of Police-Reported Crashes

In addition to the aforementioned indicators, the egos and alters were asked 11 questions about their driving behaviors in the last 30 days (Table 14).

Cell phone use: Eighty-seven percent of egos reported using a cell phone while driving. The percentages were somewhat higher among egos with few friends (88.3 percent) and alters (91.3 percent). When cell phone use of the two groups of egos was compared, the percentage of egos with few friends is relatively higher than that of those with many friends.

Drove while drowsy: Over one-third of egos and alters have driven while drowsy.

Driving over the speed limit: About three-quarters of egos have driven more than 10 miles over the speed limit. The percentage who reported driving 10 miles per hour over the speed limit was significantly higher among egos with many friends than those with few friends ($z = 2.81$, $p<.01$). It was much higher among alters (85.2 %). About one-third of the egos and alters reported driving 20 miles over the speed limit.

Aggressive driving: About half of the egos encountered an aggressive driver during the past 30 days, and the percentage was even higher among alters (61.1 percent). When the two groups of egos were compared, the percentage was slightly higher for those with many friends. In response to the question whether having driven aggressively, the two groups of egos differ significantly, 47.4 of egos with many friends and 25.9 percent for egos with few friends ($z=5.09$, $p<.001$). The odds ratios indicate that egos with many friends were two-and-a-half times more likely to drive aggressively, and the difference was statistically significant. Compared to alters, egos had a significantly lower incidence of aggressive driving, 49.0 percent vs. 32.5 percent ($z=1.99$, $p<.05$). The risk ratio indicates that the incidence was about 34 percent lower.

Drinking and Driving: Over 25 percent of both types of egos drove after having a few drinks. This percentage was significantly lower for alters (43.6 %; $z=1.91$, $p<.05$). Less than one-tenth of egos reported driving after having too much to drink. The rate of impaired driving was comparatively higher among alters (16.7 percent).

Running a stop sign or a traffic light: A quarter of egos ran stop signs or red lights. It was even relatively higher among alters. Egos with many friends were 1.39 times more likely to commit this violation ($z=1.44$, $p<.08$).

Got a ticket or citation: Seventeen percent of egos and 29.4 percent of alters received a ticket or citation ($z=1.45$, $p<.07$). The difference between the two groups of egos was more pronounced: egos with many friends were 1.89 times more likely to receive a citation than egos with few friends ($z=2.48$, $p<.001$).

Had a close call or near miss from a crash: Twenty-eight percent of egos and 46.7 percent of alters experienced a narrow escape or near miss from a crash ($z=1.85$, $p<.01$). The egos with many friends were 2.9 times more likely to have experienced a narrow escape or near miss than the egos with few friends ($z=4.92$, $p<.001$).

Risky Driving Behavior	Ego				Alter	Risk Ratios
	Many Friends (%)	Few Friends (%)	All (%)	Odds Ratios (ref.= few)	%	(ref.= alter)
Used a cell phone while driving	85.4	88.3	87.4	0.77	91.3	0.96
Drove while drowsy	35.6	38.4	37.5	0.89	44.3	0.85
Drove more than 10 miles over the speed limit	78.3 **	67.7	71.0	1.72	85.2**	0.83
Drove more than 20 miles over the speed limit	36.6	33.7	34.6	1.33	32.1	1.08
Had an encounter with an aggressive driver	55.0	52.9	53.5	1.09	61.1	0.88
Drove aggressively	47.4 ***	25.9	32.5	2.58	49.0*	0.66
Drove after having a few drinks	25.7	26.8	26.4	0.95	43.6*	0.61
Drove after having too much drink	9.4	8.8	9.0	1.07	16.7	0.53
Ran a stop sign or traffic light	29.0 [a]	22.7	24.7	1.39	27.3	0.90
Got a ticket or citation	23.3 **	13.8	16.8	1.89	29.4[b]	0.57
Had a close call or near miss *	43.3 ***	20.9	27.8	2.90	46.7*	0.60
Mean number of violations	*3.63*	*3.22*	*3.34*		*3.36*	

*p< .05, **p <.01, ***p<.001.[a]p=.075, [b]p=.074.

Table 14: Risky Driving Behavior in the Past 30 Days

The results indicate that egos with many friends generally have riskier driving behavior than egos with few friends. The driving behavior of alters is even riskier than egos. It implies that first-time DUI offenders with larger social networks are more likely to commit violations and to have riskier driving behavior than those with smaller social networks. When egos and alters were compared, there were systematically lower levels of risky driving behavior among egos for most measures.

Eighty-three percent of egos always wear a seatbelt (Table 15). The percentage was considerably higher among the egos with few friends. Three-quarters of egos with many friends wear a seatbelt. There was no data for alters' seatbelt use.

Response	Many Friends (%)	Few Friends (%)	All (%)
Always	76.0	86.4	83.1
Nearly Always	14.0	6.4	8.8
Sometimes	2.0	6.4	5.0
Seldom	2.0	0.0	0.6
Never	6.0	0.9	2.5
Total	100	100	100
Mean Score	1.48	1.23	1.31
N	50	110	160

Note: 1=always, 2=nearly always, 3=sometimes, 4=seldom, and 5=never.

Table 15: Frequency of Seat Belt Use

Forty-three percent of egos identified the alter as a friend, 14 percent as a spouse, 16 percent as a boyfriend or girlfriend, and 14 percent as a relative (Figure 4).

Egos and alters did not differ in terms of having many or few close friends (Table 16)

A majority of egos and alters live within 10 miles of each other (Table 17). About 80 percent see each other a few times a week (Table 18). One-third of egos communicate with alters frequently and two-fifths occasionally.

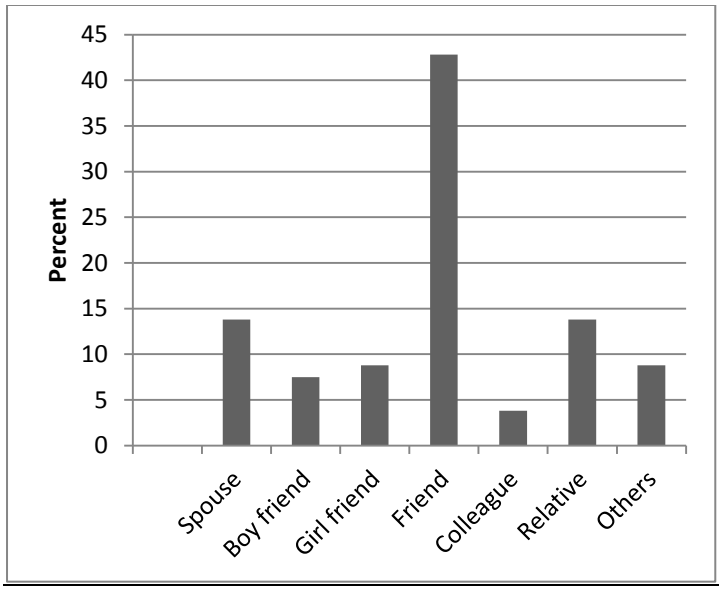


Figure 4: Nature of Ego/Alter Relationship

	Ego (%)	Alter (%)
Have many	31.9	27.2
Have few	58.9	69.1
One close	8.0	3.7
Do not have any	1.2	0.0
N	163	82

Table 16: Many or Few People in Social Network

Distance	Ego (%)	Alter (%)
At my home	20.5	24.7
Less than 5 miles	32.3	28.4
About 5-10 miles	11.8	16.0
More than 10 miles	35.4	30.9
N	163	82

Table 17: Distance between Ego/Alter Residences

	Ego (%)	Alter (%)
Every day	47.2	54.3
Few times a week	36.6	27.2
About once a week	11.8	13.6
Few times a month	3.1	3.7
Once or less a month	1.2	1.2
N	163	82

Table 18: Frequency of Ego and Alter Interaction

Egos and alters have extremely close and important relationships (Tables 19 and 20). As expected, they influenced each other's drinking in various ways. A large majority of alters claimed that egos did not influence the amount of alcohol they consume. However, a majority of egos said that alters did influence the amount of alcohol they consume. An overwhelming majority of egos and alters believed that the other influenced them to drink less (Table 21). About 65 percent of alters reported that they encouraged the ego to drink less, and 44 percent of egos encouraged alters to drink less. This finding was consistent with previous research on a social network's behavioral influence on the individual members. A large majority of alters reported that they suggested to the ego that he or she had too much to drink. Almost 85 percent of egos did not think they would have a problem driving after drinking (Table 9).

The social network members have received many traffic citations, perhaps influencing each other negatively in that regard. Two-thirds of egos had someone who received a citation in their social network, and this was true for 42 percent of alters (Table 22). A significant percentage of egos (37.6 percent) reported that some members of their social network received five or more citations. Egos had more people in their social network who received DUI citations than alters. However, the difference in averages was not statistically significant.

	Ego (%)	Alter (%)
Closeness feeling:		
Extremely	74.4	49.4
Very close	23.1	42.0
Somewhat close	2.6	8.6
Importance of relationship:		
Extremely	71.8	56.8
Very close	28.2	32.1
Somewhat close	0.0	11.1
Call for advice and information	97.4	91.4
N	39	82

Table 19: Closeness of Ego/Alter Relationship

	Ego (%)	Alter (%)
No, never	36.8	61.7
Sometimes	52.6	30.9
Often	7.9	2.5
Most of the time	2.6	3.7
I do not drink	0.0	1.2
N	39	82

Table 20: Ego/Alter Influence on Drinking Behavior

	Ego	Alter
Encouraged alter/ego to drink more (%)	16.2 (37)	11.0(73)
Encouraged alter/ego to drink less (%)	43.6(39)	34.2(73)
Suggested alter/ego had too much drink to drive safely (%)	51.3(39)	64.6(79)
Encouraged ego to drink less (%)		67.1(73)
Offered ego ride home (%)	66.7(39)	42.9 (21)
Attempted to influence ego's drinking on the day of getting the citation (%)	30.8(39)	37.5(16)
Advised ego not drive (%)		35.0(20)

Note: The number in parentheses is the number of cases (i.e., the denominator of the percentage).

Table 21: Ego/Alter Interpersonal Influence on Drinking

	Ego (%)	Alter (%)
Percent reported to have someone receive citation in social network	64.1 (39)	42.3 (78)
Number of citations received:		
1	25.0	30.3
2	29.2	30.3
3-4	8.3	21.2
5-6	16.7	9.1
10+	20.9	9.0
Mean	4.46	3.39
N	24	32

Table 22: Number of Citations Received by Egos/Alters

CONCLUSIONS

The research literature indicates that social networks affect various human behaviors, including alcohol consumption. According to studies, these behaviors reverberate through three degrees of separation. Consumption changes in an individual's social network affected an individual's consumption. Friends and family were associated with a change in drinking behavior, but neighbors and co-workers were not. Many close relationships with family and friends within more subgroups are associated with a greater amount of interaction. The literature revealed strong links between social networks and travel behavior. SNA is thus a valid approach for analyzing the social networks and travel behaviors of alcohol-impaired drivers.

MVA invited 6,212 DWI offenders to participate in this study. Each offender received a letter explaining the study, a consent form, and a return envelope. Over two hundred drivers agreed to participate, but only 163 egos and 88 alters actually participated in the telephone surveys. The age and race of the sample was similar to the population of DUI offenders, but women were overrepresented in the sample (29 percent of the population but 43 percent of the sample).

One-third of the egos had many friends in their social network. Egos with many friends were relatively younger than those with few friends. Most of the egos with many friends were white and unmarried. They were equally likely to be male or female. Egos with many friends were more likely to drink for social facilitation (i.e., at a party, to be sociable, to have a good time, and at a public function). Egos with few friends were more likely to drink to relieve emotional pain.

On the day of their DUI citation, 44 percent of egos were drinking at a bar (and the percentage was higher for egos with many friends). Twenty-five percent of egos were drinking at a friend's house, and this percentage was also higher for egos with many friends.

Egos with many friends were accompanied by more social network members at the drinking location. Egos with many friends also visited the drinking location more often than egos with few friends did. Two-thirds of all egos drove to this location from home, and a larger percentage of egos with few friends traveled to the drinking location from work. On average egos drove about 14 miles.

About half of the egos selected the drinking location in consensus with the alter. Notably, one-third of egos with few friends self-selected the location. Over half of the egos drove back home alone. About 15 percent of egos thought they might have trouble driving back home. This perception of risk was much higher among alters (35%).

The researchers compared the driving behavior of egos (both groups) and alters. Egos had more moving violations than alters did, and egos with few friends had more violations than egos with many friends did. However, egos with many friends had slightly more at-fault insurance claims than egos with few friends and the alters. Egos with few friends had more police-reported crashes than egos with many friends, but alters had fewer police-reported crashes than both groups.

In the past 30 days, egos with many friends committed a higher number of moving violations than egos with few friends did. However, egos had slightly fewer violations than alters had. Except for cell phone use and driving while drowsy, egos with many friends had higher incidences of risky driving than egos with few friends. Egos had lower incidences of violations than alters except for driving 20 miles over the speed limit.

Most alters are related to egos as friends, 16 percent are the ego's boyfriend or girlfriend, 14 percent are a spouse and the rest are a relative or other. There is clear evidence that the ego and alter influence each other to drink less. A significant percentage of alters drove the ego home. Both egos and alters have people in their social network who have received a citation.

In sum, egos and alters have many similarities in their driving and drinking behavior. They influence each other mostly in positive ways. The size of the social network influences the context of drinking and the number of traffic violations. Citations appear to be deterrents.

Limitations

The study dealt with a very complex and resistant segment of population. The vast majority of the target population refused to participate in the study despite the promise of a financial incentive. The investigators did not have the choice of introducing an unbiased probability sampling or selection procedure. Primary respondents (the egos) were reluctant to provide the names of the people who were drinking with them. Instead, many egos named a different member of their social network. As a result, the researchers were not able to do a true assessment of how interpersonal communication influenced egos' personal decision-making.

Therefore, the results of this study must be considered preliminary but indicative. This investigation should be replicated with larger samples and different data collection modalities (including qualitative and quantitative methods).The low response rate implies that letters from MVA may not be the most efficient recruitment tool for DUI offenders. Other studies have interviewed offenders at the time of arrest (Fell et al. 2010) or as part of a court-mandated screening and referral program (Lampham & Skipper, 2010). While each aforementioned approach is likely to ensure a reasonably large sample, both have weakness. Not all first-time DUI offenders are screened at the time of arrest. People who have just been arrested may not produce the most forthcoming and honest information about their drinking patterns. Interviewing offenders at the time of arrest also requires training and the cooperation of law enforcement, which may be difficult to obtain in many jurisdictions. Thus, different modalities of intercepting and interviewing DUI offenders should be developed so that one can obtain a reasonably representative, large, and unbiased sample of first-time offenders.

Policy Implications

This study unveiled some critical issues that policy makers should consider. DUI offenders are social beings and each is an actor in his or her social network. Therefore, an understanding of the context of drinking and the role of the social network will allow for the development of a behavior modification program that targets the offender and his or her social network. This

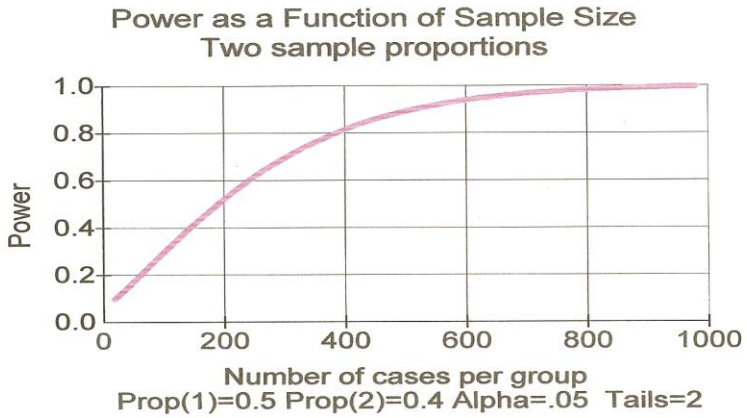
requires a clear understanding of the economic and social costs of the existing program. A new program should reduce such costs.

There are implications for prevention and treatment. The data seem to indicate that alters can and try to influence the egos' drinking and driving behaviors. As such, directed messages and public awareness campaigns that target young drinkers should feature alters intervening to prevent risky decisions. Unlike the old "Friends Don't Let Friends Drive Drunk" campaign that merely stated what alters should do, new campaigns should demonstrate how to prevent a friend's impaired driving.

Once an ego has been caught for DUI, alters could be mobilized to help prevent recidivism. In addition, interventions delivered to DUI crash survivors at the time of their admission to a hospital have been shown to be effective. However, most of these interventions only address the quantity and frequency of the ego's drinking—not the social context of drinking. Thus, future research should address the extent to which social context and network factors can be incorporated within the usual intervention protocols at hospital emergency rooms.

APPENDIX A

SAMPLE SIZE POWER CURVE


Power as a Function of Sample Size
Two sample proportions
Power
1.0
0.8
0.6
0.4
0.2
0.0
0
200
400
600
800
1000
Number of cases per group
Prop(1)=0.5 Prop(2)=0.4 Alpha=.05 Tails=2

APPENDIX B

EGO AND ALTER QUESTIONNAIRES

Questionnaire on Ego
Social Network Analysis on Drunk Driving in Maryland
Morgan State University

Start time (in military time, hh:mm): ____ /____/____ ID Number: _____

End time (hh:mm): ____ /____/_____

Date: mm/dd/yyyy: _____/_____/_____

Greetings!

We have received your signed consent to be interviewed for a research study. You will receive $25.00 upon completion of the interview. Morgan State University is conducting a study on drivers. This will take 10-15 minutes of your time. All your responses will remain strictly confidential. Is it ok to start the interview now?

[If yes, continue with survey.]

[If no, ask] "When would be a good time to call you back?" (Write down the time and date).
Date___/___/_____ Time: _____

Social Network Assessment

Every person has someone very close to them with whom they feel comfortable sharing or discussing various personal things like financial problems, emotional problems, problems at work place and other personal issues.

1. How would you describe your social network? [This would include friends, colleagues, business partners, life partners (i.e., spouse, mate, someone you live with), or any other people who are significant to you and feel comfortable sharing personal problems.]

[ ] I have many [more than a few] close friends, associates or other people

[ ] I have a few close friends, associates or people

[ ] I have one close friend, associate or person

[ ] I really do not have any one that is important to me and with whom I feel comfortable sharing personal problems or concerns. (SKIP TO Q. 21)

2. Think of the most important person in your social network [i.e., the one person with whom you feel the strongest connection]. How far away from you does this person live?
[ ] This person lives in my home.
[ ] This person lives less than 5 miles away from me.

[ ] This person lives about 5-10 miles away from me.
[ ] This person live more than 10 miles away from me.

3. How often do you speak to [talk with by phone, email, in person etc.] or hang out with this person in your social network?
[ ] every day
[ ] a few times a week
[ ] about once a week
[ ] a few times a month
[ ] once a month or less often

4. At the time of your last citation for impaired driving, had you been drinking with this person?
[ ] yes [ ] no (SKIP TO Q 21)

5. How often have you seen this person in the last 30 days?
times _____

6. How close do you feel to this person?
[ ] extremely close
[ ] very close
[ ] somewhat close
[ ] not particularly close

7. How important is your relationship with this person?
[ ] extremely [ ] very [ ] somewhat [ ] not important

8. Do you call this person for advice and information on very important matters?
[ ] yes [ ] no

9. Do you think this person ever influences how much you drink?
[ ] no, never [ ] sometimes [ ] often [ ] most of the time

10. Has this person ever encouraged you to drink more than you wanted to?
[ ] Yes [ ] No

11. If so, how _____

12. Has this person ever encouraged you to drink less than you wanted to?
[ ] Yes [ ] No

13. If so, how _____

14. Has this person ever suggested that you have had too much to drink and cannot drive safely?
[ ] Yes [ ] No

15. Has this person ever offered you a ride home when you've had too much to drink?

[ ] Yes [ ] No

16. Did this person attempt to influence how much you had to drink or whether you should be driving on the day you received your citation?
[ ] Yes [ ] No

17. If so, how _____

18. Has anyone else in your social network received an administrative citation for impaired driving?
[ ] Yes [ ] No

19. If so, how many? _____

20. If yes, how often do you communicate with them?
[ ] never [ ] seldom [ ] occasionally [ ] frequently

Drinking Location

21. When you received your administrative citation for impaired driving on _____ (date of the citation), where were you drinking?
[ ] at a friend's house
[ ] at a bar
[ ] at a restaurant
[ ] at a party
[ ] at a club
[ ] at an athletic or sporting event
[ ] other (please specify) _____

22. Were you drinking at this location by yourself?
[ ] Yes [ ] No

23. How many people from your social network were with you at this location on the date of your citation?
[ ] 0 persons from my social network
[ ] one or more persons from my social network
If more than one, how many persons? _____person(s)

24. How far is this location from your home?
_____miles

25. How often do you drink at this location?
[ ] about once a week
[ ] 2 -3 times a week
[ ] several times a month
[ ] once a month or less

[ ] this was the first time I drank at this particular location

26. Did you drive to this location from work or from home?
[ ] from home
[ ] from work
[ ] from some other place

27. Approximately how many miles did you drive to reach this location?
_____ miles

28. Who planned or arranged for you to be at that drinking location?
[ ] myself
[ ] my friends
[ ] my friends and I
[ ] others (please explain) _____

29. How long did you stay with the person(s) you drank with in that location?
_____ hours

30. When you were driving back from this location, were you alone in the car or was someone else with you?
[ ] I was alone [ ] someone else was with me

31. Did you ever think that you might have a problem driving back after drinking at this location?
[ ] yes [ ] no

Social Context of Drinking

These questions refer to what you usually do in regard to consuming alcohol [beer, wine, wine coolers, and liquor].

How often do you drink alcohol:

32. at a party with friends
[ ] never [ ] seldom [ ] occasionally [ ] frequently

33. alone
[ ] never [ ] seldom [ ] occasionally [ ] frequently

34. to relieve fatigue or tension
[ ] never [ ] seldom [ ] occasionally [ ] frequently

35. to be sociable
[ ] never [ ] seldom [ ] occasionally [ ] frequently

36. for a sense of well being
[ ] never [ ] seldom [ ] occasionally [ ] frequently

37. to get drunk
[ ] never [ ] seldom [ ] occasionally [ ] frequently

38. to get rid of depression
[ ] never [ ] seldom [ ] occasionally [ ] frequently

39. to relieve stress
[ ] never [ ] seldom [ ] occasionally [ ] frequently

40. to have a good time
[ ] never [ ] seldom [ ] occasionally [ ] frequently

41. at home with your family
[ ] never [ ] seldom [ ] occasionally [ ] frequently

42. to "blow off steam"
[ ] never [ ] seldom [ ] occasionally [ ] frequently

43. before or after work at a bar or restaurant?
[ ] never [ ] seldom [ ] occasionally [ ] frequently

44. to feel better about yourself
[ ] never [ ] seldom [ ] occasionally [ ] frequently

45. while at a public function (i.e., football or baseball game)
[ ] never [ ] seldom [ ] occasionally [ ] frequently

Driving Behavior

46. In the past month, have you ever: [**Please read all options & check all that apply**]
[ ] used a cell phone while driving
[ ] driven while drowsy
[ ] drove more than 10 miles over the speed limit
[ ] drove more than 20 miles over the speed limit
[ ]. had an encounter with an aggressive driver
[ ] driven aggressively
[ ] driven after having a few drinks
[ ] driven when you knew you have had too much to drink
[ ] ran a stop sign or traffic light
[ ] got a ticket or citation
[ ]. had a close call or near miss
[ ] don't have the license
[ ] don't have a car

47. How many traffic tickets for a moving violation [e.g. speeding, running stop signs or red Lights] have you received since you first started to drive?

0
1
2
3
4
5 or more

48. How many insurance claims have you made since you've had your driver's license?

Total	At-fault
0	0
1	1
2	2
3	3
4	4
5 or more	5 or more

49. How many police-reported crashes have you been involved in since you got your driving license?

Total	At-fault
0	0
1	1
2	2
3	3
4	4
5 or more	5 or more

50. How often do you usually drive?

[ ] every day
[ ] several days a week
[ ] once a week or less
[ ] only certain times year
[ ] never

51. How many miles do you drive each day?

_____ # of miles

52. How many miles do you drive each week?

_____ # of miles

53. What type of road do you spend the majority of your time driving on each day?

[ ] primary routes (e.g., major highway, interstate, etc.)
[ ] secondary routes (e.g. local roads, neighborhood roads etc.)
[ ] rural roads

54. Is most of the driving you do each week for:
[ ] work (commuting to and from your job or driving as part of your job)
[ ] running errands
[ ] going to social events (i.e. parties, restaurants, bars, etc.)
[ ] other (please specify) _____

55. How often do you use seat belts when you drive?
[ ] always
[ ] nearly always
[ ] sometimes
[ ] seldom
[ ] never

56. If you drove after having too much to drink (say, "imagine that you did" if the respondent balks), how likely are you to be stopped by a police officer?
[ ] almost certain
[ ] very likely
[ ] somewhat likely
[ ] somewhat unlikely
[ ] very unlikely

57. If you were stopped and arrested for DUI, how likely do you think it would be that you would be convicted?
[ ] almost certain
[ ] very likely
[ ] somewhat likely
[ ] somewhat unlikely
[ ] very unlikely

OK, we are almost done. Just a few more questions about yourself.

58. Are you currently employed?
[ ] Full-time employed
[ ] Part-time employed
[ ] Unemployed – Looking for a job
[ ] Unemployed -Not looking for a job
[ ] Retired
[ ] Others (Specify) _____

59. What is the highest grade or level of school you have completed?
[ ] Did not complete high school
[ ] High school diploma/ GED
[ ] Some college, no degree
[ ] Associate's degree
[ ] Bachelor's degree and above

60. Are you male or female **[Read aloud only if you aren't sure]**?
[ ] Male

[ ] Female

61. What is your age?
[ ] 18-20
[ ] 21-29
[ ] 30-45
[ ] 46-64
[ ] 65 or older

62. What is your ethnic or racial identification?
[ ] White (Caucasian)
[ ] African American
[ ] Asian and Pacific Islanders
[ ] Native American
[ ] Latin American
[ ] Other

63. Would you consider yourself as non-Hispanic or Hispanic?
[ ] Non-Hispanic
[ ] Hispanic

64. How many people live in your residence?
[ ] I live alone.
[ ] _____ (Provide # of occupants)

65. What is your marital status?
[ ] married
[ ] divorced
[ ] separated
[ ] widowed
[ ] never married

66. We are interested in learning how a member of your social network views road safety. Would you be willing to provide us with the contact information for the person with whom you were drinking on the day you received your citation, and a person you drink with on a regular basis? This person will also receive $15.00 for completing an interview with us.
[ ] yes [ ] no (GO TO *)

67. The person with whom you **were drinking on the day** you received your citation:

Name _____

Telephone # ( ) _____

If it is not readily available, could I call you back for it?
[ ] Yes , when would be a good time to call? _____ [ ] No

68. Would you please inform the person that we will be calling from Morgan State University for an interview?

[ ] Yes [ ] No

69. The person with whom you **drink with on a regular** basis:

Name_____

Telephone # ( ) _____

If it is not readily available, could I call you back for it?

[ ] Yes , when would be a good time to call? _____ [ ] No

70. Is this the same person who is most important in your social network that you mentioned earlier?

[ ] Yes [ ] No

71. Would you please inform the person that we will be calling from Morgan State University for an interview?

[ ] Yes [ ] No

* We've finished the interview. Thank you very much for taking the time to participate in this project. Your incentive check of $25.00 will be sent to you in few days.

Note 1: The principal investigator of this study is Dr. Ashraf Ahmed of the Institute for Urban Research at Morgan State University. He can be reached at (443) 885-4398 and by e-mail at ashraf.ahmed@morgan.edu. The co-investigators are Dr. Z Andrew Farkas of Morgan State University (443-885-3761; andrew.farkas@morgan.edu), and Dr. Kenneth H. Beck of the University of Maryland (301-405-2527; kbeck1@umd.edu).

Note 2: If you have any questions about your rights as a participant or wish to report a research-related problem, please contact the Office of Sponsored Research at Morgan State University or the University of Maryland Institutional Review Board. Dr. Edet Isuk, director of the Office of Sponsored Research at Morgan State University, can be reached at edet.isuk@morgan.edu or 443-885-4340. To contact the University of Maryland Institutional Review Board Office, e-mail irb@deans.umd.edu or call 301-405-0678.

Note 3: Interviewers should not read "Don't Know" or "Not Sure" options.

Questionnaire on Alter
Social Network Analysis on Drunk Driving in Maryland
Morgan State University

Start time in military time (hh:mm):____/___/ **ID Number: _____**

End time in military time (hh:mm):____/___/

Date: mm/dd/yyyy: ____/____/_____

Greetings!
I'm ___ _____, calling from Morgan State University. We are conducting a study on social interactions of drivers who have received an administrative citation for drunk driving. Your friend Mr./Ms. _____ gave your name. You will receive a check of $15.00 to compensate your time. This interview will take 10-15 minutes of your time. Your participation is completely voluntary. You can stop the interview any time and are free not to respond any questions if you desire so.

All of your answers will be strictly confidential. No one will be able to identify you from your answers. We will not be using your name or any other personal identifying information. Is it ok to start the interview now?

[If yes, continue with survey.]

[If no, ask] "When would be a good time to call you back?" [Write down the time and date].
Date: ___/___/_____ Time: ____/____

Social Network Assessment

Every person has someone very close to them with whom they feel comfortable sharing or discussing various personal issues, including financial, emotional, and work-related problems.

1. How would you describe your social network? [This would include friends, colleagues, business partners, life partners (i.e., spouse, mate, someone you live with) or any other people who are significant to you.]

[ ] I have many (more than a few) close friends, associates or other person
[ ] I have a few close friends, associates or person
[ ] I have one close friend, associate or person
[ ] I really do not have any one that is important to me and with whom I feel comfortable sharing personal problems or concerns. **[SKIP TO Q 4]**

2. Think of the most important person in your social network [(i.e., the one person you feel closest to)]. How far away from you does this person live?

[ ] This person lives in my home.

[ ] This person lives less than 5 miles away from me.
[ ] This person lives about 5-10 miles away from me.
[ ] This person lives more than 10 miles away from me.

3. How often do you speak to (talk with by phone, email, in person etc.) or hang out with this person?
[ ] every day
[ ] a few times a week
[ ] about once a week
[ ] a few times a month
[ ] once a month or less often

4. How often do you speak to or hang out with Mr./Ms. _____?
[ ] every day
[ ] a few times a week
[ ] about once a week
[ ] a few times a month
[ ] once a month or less often

5. How often have you seen Mr./Ms. _____ in the last 30 days?
times _____

6. How close do you feel to Mr./Ms. _____?
[ ] extremely close
[ ] very close
[ ] somewhat close
[ ] not particularly close

7. How important is Mr./Ms. _____'s relationship to you?
[ ] extremely [ ] very [ ] somewhat [ ] not important

8. Do you call Mr./Ms. _____for advice and information in very important matters?
[ ] yes [ ] no

9. Do you think Mr./Ms. _____ ever influences how much you drink?
[ ] no, never [ ] sometimes [ ] often [ ] most of the time
[ ] I don't drink **[SKIP TO 14]**

10. Has Mr./Ms. _____ever encouraged you to drink more than you wanted to?
[ ] yes [ ] no

11. If so, how _____

12. Has Mr./Ms. _____ ever encouraged you to drink less than you wanted to?
[ ] yes [ ] no

13. If so, how _____

14. Have you ever encouraged Mr./Ms._____ to drink less?
[ ] yes [ ] no

15. If so, how _____

16. Have you ever suggested to Mr./Ms._____ that they have had too much to drink to drive safely?
[ ] yes [ ] no

17. Were you drinking with Mr./Ms. _____ on the day he/she received an administrative citation for impaired driving?
[ ] yes [ ] no [**SKIP TO Q 22**]

18. If yes, did you attempt to influence him/her on drinking less?
[ ] yes [ ] no

19. If so, how _____
[ ] yes [ ] no

20. Did you advise him/her that he/she should not be driving?
[ ] yes [ ] no

21. Did you offer him/her a ride home when you felt that he/she had too much to drink?
[ ] yes [ ] no

22. Have any other members of your social network received an administrative citation for drunk driving?
[ ] yes [ ] no

23. If so, how many? _____

24. If yes, how often do you communicate with them?
[ ] never [ ] seldom [ ] occasionally [ ] frequently

Drinking Location

[IF WAS NOT WITH THE EGO, SKIP TO Q 37]
25. When Mr./Ms. _____ received an administrative citation for impaired driving on _____ (date of the citation), where were you drinking?

[ ] at a friend's house
[ ] at a bar
[ ] at a restaurant
[ ] at a party

[ ] at a club
[ ] at an athletic or sporting event
[ ] other (please specify) _____
[ ] was not with the driver at the location

26. Other than Mr./Ms. _____, how many people from your social network were with you at this location?
[ ] 0 persons in my social network
[ ] one or more persons in my social network
If more than one, how many persons? _____person(s)

27. How far is this location from your home?
_____miles

28. How often do you drink at this location?
[ ] once a week
[ ] 2 -3 times a week
[ ] several times a month
[ ] once a month or less
[ ] this was the only time I was at this particular drinking location

29. Did you drive to this location from work or from home?
[ ] from home
[ ] from work
[ ] from some other place

30. Approximately how many miles did you drive to reach this location?
_____ miles

31. Who planned or arranged for you to be at that drinking location?
[ ] myself
[ ] my friends
[ ] my friends and I
[ ] others (please explain) _____

32. How long did you stay with the person(s) you drank with in that location?
_____ hours

33. When you were driving back from this location, were you alone in the car or was someone with you?
[ ] I was alone [ ] someone else was with me

34. Did you ever think that you might have a problem driving after drinking at this location?
[ ] yes [ ] no

35. If you drove after having too much to drink (say "imagine that you did" if the respondent balks), how likely are you to be stopped by a police officer?

[ ] almost certain
[ ] very likely
[ ] somewhat likely
[ ] somewhat unlikely
[ ] very unlikely

36. If you were stopped and arrested for a DUI, how likely do you think it would be that you would be convicted?

[ ] almost certain
[ ] very likely
[ ] somewhat likely
[ ] somewhat unlikely
[ ] very unlikely

Driving Behavior

37. In the past month, have you ever: [**Please read all options & check all that apply**]

[ ] used a cell phone while driving
[ ]. driven while drowsy
[ ] drove more than 10 miles over the speed limit
[ ] drove more than 20 miles over the speed limit
[ ] had an encounter with an aggressive driver
[ ]. driven aggressively
[ ]. driven after having a few drinks
[ ] driven when you knew you have had too much to drink
[ ]. ran a stop sign or traffic light
[ ] received a ticket or citation
[ ]. had a close call or near miss
[ ] don't have the license
[ ] don't have a car

38. How many traffic tickets for a moving violation (e.g. speeding, running stop signs or red lights) have you received since you first started to drive?

0
1
2
3
4
5 or more

39. How many insurance claims have you made since you've had your driver's license?

Total	Your fault
0	0
1	1
2	2
3	3

4	4
5 or more	5 or more

40. How many police-reported crashes have you been involved in since you've had your driver's license?

Total	Your fault
0	0
1	1
2	2
3	3
4	4
5 or more	5 or more

OK, we are almost done. Just a few more questions about yourself.

41. Are you currently employed?
[ ] Full-time employed
[ ] Part-time employed
[ ] Unemployed- looking for a job
[ ] Unemployed- Not looking for a job
[ ] Retired
[ ] Others (specify)_____

42. What is the highest grade or level of school you have completed?
[ ] Did not complete high school
[ ] High school diploma/ GED
[ ] Some college, no degree
[ ] Associate's degree
[ ] Bachelor's degree and above

43. Are you male or female **[Read aloud only if you aren't sure]**?
[ ] Male
[ ] Female

44. What is your age?
[ ] 18-20
[ ] 21-29
[ ] 30-45
[ ] 46-64
[ ] 65 or older

45. What is your ethnic or racial identification?
[ ] White (Caucasian)
[ ] African American
[ ] Asian
[ ] Native American
[ ] Hispanic or Latino

[ ] Other

46. Would you consider yourself as non-Hispanic or Hispanic?
[ ] Non-Hispanic
[ ] Hispanic

47. How many people live in your residence?
[ ] I live alone.
[ ] _____ (Provide # of occupants)

48. What is your relationship with Mr./Ms. _____
[ ] Spouse
[ ] Boyfriend
[ ] Girlfriend
[ ] Friend
[ ] Colleague
[ ] Neighbor
[ ] Relative
[ ] Other (specify) _____

49. What is your marital status?
[ ] married
[ ] divorced
[ ] separated
[ ] widowed
[ ] never married

We've finished the interview. Thank you very much for taking the time to participate in this project. Your check of $15.00 will be sent to you in few days. May I verify your address again to send the check. [**GO TO COVER PAGE TO RECORD**]

Note 1: The principal investigator for this study is Dr. Ashraf Ahmed of the Institute for Urban Research at Morgan State University. He can be reached at (443) 885-4398, and by e-mail at ashraf.ahmed@morgan.edu. The co-investigators are Dr. Z Andrew Farkas of Morgan State University (443-885-3761; andrew.farkas@morgan.edu), and Dr. Kenneth H. Beck of the University of Maryland (301-405-2527; kbeck1@umd.edu).

Note 2: If you have any questions about your rights as a participant or wish to report a research-related problem, please contact the Office of Sponsored Research at Morgan State University or the University of Maryland Institutional Review Board. Dr. Edet Isuk, director of the Office of Sponsored Research at Morgan State University, can be reached at edet.isuk@morgan.edu or 443-885-4340. To contact the University of Maryland Institutional Review Board Office, e-mail irb@deans.umd.edu or call 301-405-0678.

Note 3: Interviewers should not read "Don't Know" or "Not Sure" options.

APPENDIX C

MOTOR VEHICLE ADMINISTRATION LETTER OF INTRODUCTION

Motor Vehicle Administration

Maryland Motor
Vehicle Administration
6601 Ritchie Highway, N.E
Glen Burnie, Maryland 21062

1-800-950-1MVA (1682)
CUSTOMER SERVICE CENTER

1-800-492-4575
TTY

www.marylandmva.com
WEB SITE

Date

DSR

«Name»
«Street»
«City», «State» «ZIP»

(Driver License Number)

Dear «Name»,

The Maryland Motor Vehicle Administration (MVA) is committed to improving driver safety. As a part of that effort, we regularly support research with that goal. The Morgan State University and the University of Maryland College Park are studying the social causes underlying impaired driving. Alcohol-impaired drivers will be interviewed to learn the characteristics of the people who influence their drinking and their views on impaired driving. You recently received an Administrative Order of Suspension for alcohol-impaired driving. Based on receiving this Order, we are seeking your participation in this research study.

Participation in this study is voluntary. Your decision to participate will have no effect on administrative or criminal sanctions that may follow your traffic stop. In fact, MVA will never see your responses to the researchers and MVA will never know if you participate in this research. If you choose to take part in this study, any information you provide will remain confidential, and your name and personally identifying information will not appear in any documents. When results of this research are published, **none of the participants** will be identified in any manner.

Study participants will be compensated for their time with $25.00 after the completion of the interview. Compensation for your participation is being paid by the research institutions NOT by the MVA.

To participate in this study, please sign the enclosed Consent Form, making sure to include your address and phone number, and mail it to Morgan State University in (best method to be determined.)

Again, your participation in this study is completely voluntary. We appreciate your consideration of this request to help improve driver safety.

Sincerely,

Jack Joyce
Chief of Driver Safety Research
Motor Vehicle Administration

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