FINAL REPORT

DRINKING-DRIVING ATTITUDES, KNOWLEDGE AND BEHAVIOR: AN ANALYSIS OF THE FIRST FOUR TELEPHONE SURVEYS OF THE FAIRFAX ALCOHOL SAFETY ACTION PROJECT

by

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(The opinions, findings, and conclusions expressed in this report are those of the author and not necessarily those of the sponsoring agencies.)

Report Prepared by the Virginia Highway and Transportation Research Council Under the Sponsorship of the Highway Safety Division of Virginia

Prepared for the Department of Transportation, National Highway Traffic Safety Administration, Under Contract No. DOT-HS-067-1-087

Virginia Highway & Transportation Research Council
(A Cooperative Organization Sponsored Jointly by the Virginia Department of Highways & Transportation and the University of Virginia)

Charlottesville, Virginia

May 1977
VHTRC 77-R52

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SUMMARY OF FINDINGS AND CONCLUSIONS

The results of this evaluation are presented below in the order of their inclusion in the report.

Description of the Sample — The four telephone survey samples differed with respect to age and marital status, in that more single, student-age respondents were available to be interviewed during the June surveys than in December. The samples were similar with regard to other demographic characteristics and also with regard to previous experience with alcohol.

Alcohol Related Behavior — While there were no differences between responses on the two 1976 telephone surveys, current self-reported drinking/driving behavior is significantly different from behavior reported on the 1974 household survey. Fewer respondents reported ever having driven after drinking and fewer admitted to ever having driven when they felt that they were too intoxicated to drive. Also, the maximum number of drinks that respondents said they would have and still continue to drive decreased significantly. These improvements in self-reported behavior could be due to actual changes in drinking and driving. However, they could also be due to differences in the probability that a subject would admit to drinking and driving. This probability could be influenced by the change in interviewing techniques (personal interviews vs. telephone interviews) or by changes in subjects' attitudes toward the social acceptability of drinking and driving.

Alcohol Knowledge — There were no significant differences in subjects' level of knowledge on the two 1976 telephone surveys and few differences since the 1974 household surveys. In relation to popular misconceptions regarding alcohol, increases in knowledge experienced during the life of the project have not been lost, and in one case significant improvement has been recently made (in relation to the myth that black coffee is a sobering agent). While fewer subjects on the 1976 surveys were able to define the term Blood Alcohol Concentration, there was no deterioration in the percentage of respondents who knew the presumptive limit. A majority of the respondents continue to underestimate the number of drinks necessary to make them legally drunk, which demonstrates that they do not yet "Know their limit."

Awareness of Alcohol and Alcohol Countermeasures — One of the major functions of the public information countermeasure is to reach the public with messages stressing the seriousness and widespread nature of alcohol abuse and publicizing the existence of alcohol countermeasures, particularly the ASAP. Awareness of drunk driving as a problem has increased

slightly over time, as has the percentage of respondents having seen or heard alcohol related advertising. Awareness of messages similar to the "friends don't let friends drive drunk" campaign has also increased somewhat. On the other hand, specific program awareness is the lowest it has been since the inception of the program, with awareness of nonspecific alcohol related programs being significantly lower than before ASAP operations began.

Attitude Toward Bystander Intervention — One of the major areas of effort in the national alcohol advertising campaign dealt with bystander intervention. Thus, several of the questions asked on the telephone surveys dealt with the probability of someone taking some action to stop a friend or relative from driving when intoxicated. There were relatively few changes in these probabilities over the last two years. The most popular method for intervening in a drunk driving situation was to drive the person home, while the least popular method was to get assistance to restrain the person. There were, however, significant changes over the last two years in the probability of taking action as the host at a party to avoid drunk driving. Respondents were less likely to ask guests if they were driving home, to not serve drinks to an intoxicated guest, and to determine before a party which guests would be driving home. Finally, in relation to specific countermeasure activities, about 90% of the respondents still support greater police enforcement of drunk driving laws and public information campaigns. Less popular, but still supported by 76% of the respondents, were more severe penalties for drunken drivers, an effort not supported by the ASAP.

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INTRODUCTION

In recent years, the magnitude of the relationship between problem and non-problem drinking and traffic fatalities has become apparent through accident statistics. In 1971, 54,700 Americans died in automobile accidents; approximately half, or 27,350, of these deaths were alcohol-related.(a) Although traffic accident death rates have declined across time, and although the numbers of accidents and fatalities have been reduced due to the energy crisis, the involvement of alcohol in traffic crashes has proved particularly resistant to reduction.(b,c) In light of these facts, the National Highway Traffic Safety Administration (NHTSA) and the Highway Safety Division of Virginia have made the reduction of drunk driving through alcohol countermeasures a top priority objective.

The Fairfax, Virginia, Alcohol Safety Action Project was initiated in January of 1972 as one of 35 three-year, federally funded projects designed to implement and evaluate the use of comprehensive community alcohol countermeasures. The Fairfax ASAP area includes Fairfax County, Fairfax City, Vienna, Falls Church, and Herndon, an area of more than 400 square miles (1.035 kilometers) and 588,000 residents. The Fairfax project implemented four basic countermeasures: (1) increased police enforcement during nighttime hours, (2) special judicial

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a. North Conway Institute, Report to the Religious Communities on the Alcohol Safety Action Projects, "New Hope, New Possibilities," Boston Globe, Boston, Mass., 1972.

b. Toffany, Vincent L., "Factors Contributing to the Reduction in Motor Vehicle Fatalities in 1974," Journal of Safety Research, Vol. 7, No. 3, September 1975.

c. Lynn, C. W., and F. N. Lisle, "The Effects of the Energy Crisis on Traffic Crashes in Virginia," Virginia Highway & Transportation Research Council, Charlottesville, Virginia (unpublished).

procedures including improved diagnostic and court procedures, (3) rehabilitation and treatment programs for those convicted of drunk driving, and (4) a campaign of public information and education (PI&E).

In order to evaluate the effectiveness of the public information and education countermeasure (PI&E), four household surveys were conducted during the first three years of the project. The results of these surveys were reported on an annual and, later, a biannual basis.[d,e,f] During the continuation period, the personal interviewing technique used in the household surveys was abandoned in favor of telephone interviews. These were conducted at six-month intervals, with a total of four being conducted in June and December of 1975 and 1976. The overall objectives of these telephone surveys were —

1. to yield information on a national level concerning the work of the PI&E countermeasure;

2. to allow for national comparisons of ASAP and non-ASAP areas; and

3. to yield specific information to the local ASAP's concerning their own public information countermeasures.

PURPOSE

The purpose of this report is to satisfy the third objective of the telephone survey — that of providing information to the management of the local program concerning the

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d. Rodman, R. M., "Drinking-Driving Attitudes: A Survey of Fairfax County, 1971," Virginia Highway & Transportation Research Council, Charlottesville, Virginia, March 1973.

e. Jordan, R. F., "Drinking-Driving Attitudes: A Comparison of the First of Two Household Surveys of the Fairfax Alcohol Safety Action Project," Virginia Highway and Transportation Research Council, Charlottesville, Virginia, November 1974.

f. Beare, Arthur N., "Drinking-Driving Knowledge, Attitudes and Behavior: An Analysis of the 1973 and 1974 Household Surveys of the Fairfax Alcohol Safety Action Project," Virginia Highway & Transportation Research Council, Charlottesville, Virginia, October 1975.

effectiveness of the PI&E countermeasure. The report (1) summarizes the data collected in the surveys, (2) reports what changes, if any, have occurred in the areas of public knowledge and attitudes toward drinking and driving while under the influence of alcohol, and (3) suggests policy related to the PI&E campaign.

METHOD

Subjects — The population from which the sample was drawn consisted of all persons over the age of 16 years residing in the ASAP area whose households were listed in the then current Northern Virginia telephone book. Of these persons, a sample of approximately 500 were interviewed. Approximately half of the sample were male, and the other half female. The sample was selected so that at least 5% of the subjects were between the ages of 16 and 21.

Instrumentation — Core questions for the survey were a modified version of those listed in the interview schedule provided by the NHTSA. During 1975, all core questions were used plus seven program specific items. In 1976, some core questions were retained and were supplemented by additional knowledge and behavioral items (see Appendix A for both questionnaires).

Sampling — The sample was chosen from the Northern Virginia telephone book. Pages were selected on a systematic basis, while columns and names were selected randomly. Only residential phones were included. When a randomly selected subject did not reside in the ASAP area, another was randomly selected until an appropriate subject was located. Since it was anticipated that a number of the persons selected to participate would decline to respond, would not be home, or would have moved since publication of the telephone book, a sample of respondents numbering significantly more than 500 was chosen. A master list of 1,400 to 1,500 names and telephone numbers was initially selected. Each interviewer then received his assigned names randomly ordered so as to avoid a sequential bias.

Interview Procedure — Using the modified NHTSA questionnaire, telephone interviews were conducted between the hours of 5 p.m. and 9 p.m. Monday through Thursday, and 12 p.m. to 5 p.m. Friday through Sunday. The first survey was conducted between Friday, June 6 and Sunday, June 15, 1975. The second was conducted between Friday, December 5 and Sunday, December 14, 1976. The third was conducted between June 4 and 13, 1976 and the fourth between December 3 and 12, 1976.

Since the sample had to be stratified by sex and age, interviewers received feedback on a daily basis concerning the fulfillment of these quotas. In this way, attempts to fill quotas were dispersed across the entire period, rather than occurring during the final stages of the project. Data were coded directly onto forms compatible with available optical scanning equipment to allow machine punching (see Appendix B). The forms were checked daily for accuracy.

Statistical Analyses — The survey data consists of counts of the numbers of individuals choosing each response category. Year-to-year variation was analyzed by means of chi-square statistics, generally applied to the whole data table generated by the possible responses to each question. Where possible, an attempt was made to relate findings from the telephone surveys back to results of the household surveys. These comparisons were rarely possible during the 1975 surveys, since the questionnaires used on the household and telephone surveys were radically different. These differences were minimized during the 1976 surveys.

It was considered desirable to have some simple description of a whole area of interest such as alcohol related knowledge or drinking attitude. To this end, a series of numerical scales were developed by combining the responses to all questions bearing on a particular area. These scales have the advantage of being amenable to analysis by means of more powerful parametric statistics. The construction of the scales is described in Appendix C.

RESULTS

The analysis of the survey data is presented in five sections: (1) The description of the sample, (2) an examination of alcohol awareness, (3) an analysis of drinking-driving knowledge, and (4) an analysis of drinking-driving behavior, and (5) attitudes concerning alcohol related social behavior.

Description of the Sample

Several variables could be used to develop the four demographic or historical descriptions of the respondents of both surveys. The variables used were age, sex, marital status, driver licensing, and alcohol experience.

Very few items on any of the telephone surveys dealt with demographic characteristics of the subjects. The samples were stratified by sex and partially by age, in that at least

5% of the people surveyed were to be between 16 and 21 years of age. Thus, there is a built-in similarity in the distributions of sexes and ages of the four samples (see TABLE 1). There were significant differences between the samples in reference to age ($X^2 = 34.60$, DF = 12, $p < .05$).* Again, as with the 1975 surveys, the percentage of respondents under 21 was higher in June than in December, since more students were away at school during the December surveys. However, there were also fluctuations in other age categories, including the 22-24 and 25-34 year old groups and the group aged 50 or over (see TABLE 2).

The four telephone survey samples did not differ significantly as to marital status, although the ratio of married to single respondents did differ in June of 1976 as compared to other survey sample (see TABLE 3). This difference is probably related to age, since the 16-21 age group accounts for the bulk of the single respondents. The telephone survey samples did differ from the 1973 and 1974 household survey samples in relation to marital status, since the recent surveys reached a larger proportion of single respondents. Again, this difference could be the result of sampling younger subjects due to different interviewing techniques, or it could be a reflection of changes in national norms. Neither the 1975 nor the 1976 telephone survey samples differed in relation to the subjects' driving status (see TABLE 4).

TABLE 1

Sex of Respondents (Responses in percentages)

Sex	June 1975	December 1975	June 1976	December 1976
Male	49.8	51.0	50.0	50.0
Female	50.2	49.0	50.0	50.0

*Throughout the text, the following notation is followed. The symbol X^2 is used to denote the value of the chi-square statistic, the letters DF to denote the degrees of freedom, and the letter p to denote the alpha level.

TABLE 2

Age of Respondents (Responses in percentages)

Age	June 1975	December 1975	June 1976	December 1976
16-21	14.4	11.8	17.2	10.0
22-24	4.6	7.0	8.4	4.6
25-34	24.6	24.4	23.2	32.0
35-49	32.0	32.6	27.8	33.6
50 or Over	24.4	23.2	23.2	19.8

TABLE 3

Marital Status of Respondents (Responses in percentages)

Status	June 1975	December 1975	June 1976	December 1976
Married	73.6	73.2	67.0	74.6
Single	17.2	18.4	24.6	16.2
Divorced	2.6	3.2	3.2	3.8
Separated	2.2	1.4	0.6	2.8
Widowed	4.2	3.2	4.0	2.2
Other	—	0.6	0.6	0.2
No answer	0.2	—	—	0.2

TABLE 4

Licensing Among Respondents (Responses in percentages)

Licensed	June 1975	December 1975	June 1976	December 1976
Yes	94.4	93.6	95.1	97.0
No	5.4	6.4	4.9	3.0

There were few differences with regard to the respondents' prior experience with alcohol. Four questions were addressed to the respondents concerning situations in which alcoholic beverages were served. While the four samples were similar as to whether they had been in a situation where alcoholic beverages were served (see TABLE 5), they differed on how often they'd been in this type of situation in the past three months (see TABLE 6). Most of the change occurred between June and December of 1976, with more subjects being in the situation daily and fewer in the situation less than once a month ($X^2 = 28.8$, DF = 15, $p < .05$). Respondents were then asked several questions which, due to changes in the questionnaire,

applied only to the two most recent surveys. There were no significant differences in respondent's answers when asked if they had been in a situation where someone had been drinking too heavily and was about to drive a car (see TABLE 7). Nor were there any differences in the frequency with which they had been in this type of situation (see TABLE 8). While 35% to 40% of all respondents questioned replied that they personally knew someone who had been arrested for drunk driving, there were no significant differences in respondents' answers between surveys (see TABLE 9). Finally, the results of these experience related questions were summed as an alcohol experience scale (for information on construction of all scales, see Appendix C). As shown in TABLE 10, there was no significant difference between respondent's experience scores on the June and December 1976 surveys. As would be expected, male respondents had significantly more experience with alcohol than their female counterparts, and younger respondents (aged 16 to 24) more experience than older respondents. It is also interesting to note that among 16 to 21 years olds more than any other group, there was a tendency to either have no self-reported alcohol experience, or to have a great deal (see Appendix D).

In summary, there were demographic differences between the four samples in relation to age and marital status, with both differences reflecting the increase in single, student-age respondents during the June surveys. On the other hand, there were few differences in the subjects' previous experience with alcohol.

TABLE 5

"In the past three months, have you been in a situation where alcoholic beverages were served?" (Responses in percentages)

Response	June 1975	December 1975	June 1976	December 1976
Yes	79.6	80.0	82.4	78.8
No	20.0	20.0	17.6	21.2
No answer	0.4	—	—	—

TABLE 6

"How often have you been in this situation in the past three months?" (Responses in percentages)

Response	June 1975	December 1975	June 1976	December 1976
Daily	7.3	6.8	6.3	9.6
2-6 times a week	13.5	12.3	16.1	14.4
Once a week	24.0	21.3	21.0	23.0
Once every 2 or 3 weeks	15.8	20.0	21.9	23.8
Once a month	17.5	15.2	12.3	14.7
Less than once a month	21.8	24.5	22.4	14.4
No answer	0.3	—	—	—

TABLE 7

"In the past 3 months, were you in a situation where someone had been drinking too heavily and was about to drive a car?" (Responses in percentages)

Response	June 1976	December 1976
Yes	22.9	17.8
No	77.1	82.2

TABLE 8

"How often would you say this happened in the last three months?" (Responses in percentages)

Response	June 1976	December 1976
One	43.7	40.3
Two	9.8	25.8
Three	28.2	16.1
Four	1.4	4.8
Five	7.0	3.3
Over Five	9.8	9.7

TABLE 9

"Do you know anyone who has been arrested for drunk driving?" (Responses in percentages)

Response	June 1976	December 1976
Yes	35.6	39.1
No	64.4	60.9

TABLE 10

Alcohol Experience Score (Responses in percentages)

Score	June 1976		December 1976	
	No.	Percent	No.	Percent
1-2	85	17.0	103	20.6
3-4	89	17.8	50	10.0
5-6	38	7.6	47	9.4
7-8	137	27.4	143	28.6
9-10	89	17.8	108	21.6
11-15	49	9.8	41	8.2
15-20	10	2.0	5	1.0
Over 20	3	0.5	3	0.6
Average Score	6.71		6.56	

Alcohol Related Behavior

In addition to questions concerning their previous experience with alcohol related situations, respondents were also asked questions concerning their personal habits regarding alcohol, and alcohol and driving. These questions were not asked during the 1975 telephone surveys; however, many of these questions were also asked during the household surveys and during various roadside surveys, which enabled baseline comparisons.

Respondents were first asked if they drank alcoholic beverages (see TABLE 11). This question was asked to screen out those subjects who did not drink and to whom the remaining questions would not pertain.* They were then asked how often, if

*The percentage of respondents answering affirmatively on the telephone surveys is higher than that for the household surveys, since telephone survey respondents with no alcohol experience have already been screened out.

ever, they drove after having something to drink (see TABLE 12). While the percentage of respondents answering often or occasionally was relatively constant for all surveys, the percentage answering hardly ever or never changed significantly (X^2 = 49.7, DF = 9, $p < .01$). In 1971, 38% of the household survey respondents claimed to hardly ever drive after drinking; this rose to 43% by 1974. The percentage dropped to 28% by June of 1976 and remained constant in December. Conversely, the percentage of respondents claiming that they never drive after drinking rose from 28% to 40.8% between the household and telephone surveys. While this shift could indicate a self-reported decrease in drinking and driving, it would also be attributable to the different interviewing procedures used in the household and telephone surveys.

Those subjects who said that they drove after having something to drink were then asked how many drinks they would have and still continue to drive (see TABLE 13). While there were no significant differences on this item between the two telephone surveys, the responses were significantly different from those in the household surveys (X^2 = 133.6, DF = 9, $p < .01$). The telephone survey respondents were more likely to report a smaller number of drinks as their maximum than were household survey respondents. As seen in TABLE 14, when asked if they had even been out on the road when they thought they really shouldn't have, the household survey respondents were more likely than were the telephone survey respondents to say that they had (X^2 = 10.2, DF = 3, $p < .05$).

Finally, a scale was constructed from these behavior related items in an attempt to summarize changes over time (see TABLE 15). As expected, there was no significant difference between respondents' answers on the June and December surveys. In that the behavior scale represents a pseudo — continuum between abstinence and extreme drinking and driving behavior, it is possible to examine its relation to other variables. Of course, male respondents exhibited significantly more self-reported alcohol related behavior than females, and young people more than older respondents (see Appendix D). Again, as with experience, the respondents aged 16 to 21 were more likely to report either no alcohol related behavior or a great deal. As would be expected, the respondents' behavior scores were positively correlated with their experience scores, i.e. the more alcohol experience a subject reported, the more likely he was to report that he engaged in drinking and driving behavior (see Appendix E).

In summary, in relation to the household survey findings, fewer telephone survey respondents reported ever having driven after having something to drink. The maximum number of drinks respondents would have and still continue to drive decreased

significantly, along with the percentage of respondents reporting that they had at some time driven when they felt that they shouldn't have. While these improvements in self-reported behavior were significantly different from that reported on the 1974 household survey, there were no significant differences in behavior on the June and December 1976 telephone surveys.

TABLE 11

"Do you ever drink beer, wine or liquor?" (Responses in percentages)

	Household Surveys		Telephone Surveys	
Response	1971	1974	June 1976	December 1976
Yes	84.0	73.0	94.2	95.4
No	16.0	26.0	5.8	4.6

TABLE 12

"How often do you drive after having something to drink?" (Responses in percentages)

	Household Surveys		Telephone Surveys	
Response	1971	1974	June 1976	December 1976
Often	6	5	3.4	6.6
Occasionally	22	20	20.2	20.8
Hardly ever	38	43	28.0	28.8
Never	26	28	40.8	43.8
No answer	6	4	7.6	—

TABLE 13

"How many drinks is the most you will have in a two-hour period and continue to drive?" (Responses in percentages)

	Household Surveys		Telephone Surveys	
Response	1971	1974	June 1976	December 1976
One	15	2	22.9	27.5
Two	23	26	43.8	44.2
Three	24	22	19.8	19.6
Four	13	19	7.5	5.0
Five	12	8	1.2	2.2
Six or more	13	20	4.7	1.1

TABLE 14

"When you've driven after drinking, have you ever thought you really shouldn't be on the road?" (Responses in percentages)

	Household Surveys		Telephone Surveys	
Response	1971	1974	June 1976	December 1976
Yes	48	57	39.2	42.5
No	52	43	60.8	57.5

TABLE 15

Alcohol Behavior Score

Response	June 1976		December 1976	
	No.	Percent	No.	Percent
0	203	40.6	176	35.2
1	36	7.2	43	8.6
4	9	1.8	3	0.6
5	33	6.6	48	9.6
6	64	12.8	56	11.2
7	67	13.4	69	13.8
8	34	6.8	51	10.2
9	28	5.6	35	7.0
10	10	2.0	10	2.0
11 or More	16	3.2	9	1.8
Average Score	3.82		4.07	

Alcohol Knowledge

In response to problems encountered in assessing knowledge on the 1975 telephone surveys, several less ambiguous knowledge items were added to the questionnaire. An attempt was made to use as many items as possible from the previous household and roadside surveys for comparative purposes. Thus, during the 1976 telephone surveys, eight knowledge questions were asked regarding misconceptions surrounding the use of alcohol, the meaning of the term BAC, the presumptive limit in Virginia, and how alcohol affects the individual.

During previous household surveys, a number of true-false questions representing various alcohol myths and misconceptions were asked. Some of these were also included in the two most

recent surveys, and these appear in Table 16 along with household and telephone survey responses. In 1971 during the baseline survey, 94% of the respondents knew that a person drinking on an empty stomach will get drunk faster on the same number of drinks as a person who has just eaten something. By 1974, this percentage had decreased significantly to 89%. The results of the 1976 telephone surveys indicate that no significant deterioration has occurred since the last household survey. The same situation exists in relation to whether or not it is advisable to mix drinks. In 1971, 45% of the respondents knew that whether or not a person mixes drinks has nothing to do with how drunk he'll become. This percentage had increased significantly to 52% by 1974. From 1974 to the present, the proportion of respondents answering correctly has increased slightly, but this change is not significant. In 1971, 44% of the respondents knew that a small person will get drunk faster than a large person on the same number of drinks. This had increased significantly to 56% by 1974 and has increased only slightly since. The only true/false item showing marked improvement during the period in which the telephone surveys were conducted involved the role of coffee in aiding the intoxicated driver. In 1971, only 40% of the respondents to the household survey knew that black coffee will not help "sober you up." This had increased significantly to 46% in 1974 and to 61% in June of 1976. Although the percentage answering correctly had decreased significantly to 54% in December of 1976, it was still significantly higher than the proportion answering correctly on either household survey. Finally, there has been no significant change in respondents' awareness that alcohol will affect a person faster in conjunction with other drugs. The vast majority (92 to 93%) knew this in 1971, 1974, and 1976. In general, most significant changes in knowledge of these alcohol myths occurred between the first and fourth household surveys.

Respondents were also asked several questions specific to Virginia's drunk driving laws. When asked what the term "blood alcohol concentration (BAC)" meant, a majority of subjects in all surveys were able to answer correctly (see TABLE 17). However, there has been a significant decrease in the proportion answering correctly since 1974, most of this decrease having occurred between the last household survey and the June 1976 telephone survey ($X^2 = 8.72$, DF = 1, $p < .01$). Respondents were then asked to identify the presumptive limit in Virginia (see TABLE 18). While there was significant fluctuation in the various answers given across time, there was no significant difference in the proportion answering correctly versus incorrectly ($X^2 = 1.02$, DF = 2, N.S.). In the last item, subjects were asked how many drinks they felt it would take to make them legally drunk (see TABLE 19). The distribution of answers to this question changed significantly between the household and

telephone surveys. The mean number of drinks changed from 3.21 in 1974 to 3.44 in June of 1976 and 3.35 in December. While this mean estimation is indicative of changes over time, it leaves an additional and unaccounted for source of variance in the responses. Since the question is phrased personally (How many drinks do you think you would have to have . . ."), the correct answer would be different for each person depending on his or her weight. In order to remove this variance, each respondent's weight was checked, the individual's correct answer was calculated and then compared to their answer. These results are shown in TABLE 20. The majority of respondents still underestimate the number of drinks necessary to put them over the legal limit, while a smaller percentage overestimate and an even smaller percentage answer correctly. Since one of the original objectives of the public information campaign was to teach area residents to "Know their limit," it is clear that this goal has not yet been accomplished.

To determine the relationship between knowledge of alcohol and several variables, a knowledge scale was constructed from these eight knowledge related questions (see Appendix C). Items were first ordered so that the correct answer received the maximum score and no answer received a score of zero. Score values for each item were then summed. The range for the knowledge scale was from zero to eleven, the modal score being 8. The mean score of 7.71 for the June 1976 survey decreased to 7.58 for the December survey (see TABLE 21). This decrease in overall knowledge was not significant. Male respondents scored significantly higher on knowledge than females and, as was the case in previous surveys, younger respondents who had been exposed to driver education scored higher than did older respondents (see Appendix D). It was also noted that the more alcohol experience the respondents had, the more likely they were to score high on the knowledge scale. Similarly, the more drinking behavior reported by the respondent, the more likely he was to know about alcohol. These relationships were significant.

In summary, there has been a slight but nonsignificant decrease in alcohol knowledge, not so much during 1976 but rather since the last household survey in 1974. Subjects were significantly less likely to know what blood alcohol concentration is and they were significantly less likely to know how many drinks they could ingest before becoming legally intoxicated.

TABLE 16

Percentage of Correct Responses to True/False Questions by Survey (Responses in percentages)

Question	Household Surveys		Telephone Surveys	
	1971	1974	June 1976	December 1976
A person drinking on an empty stomach will get drunk faster on the same number of drinks than a person who has just eaten something	94	89	89	88
If a person sticks to the same kind of drink, he is less likely to get drunk than if he mixes different kinds of drinks	45	52	54	53
A small person will get drunk faster than a large person on the same number of drinks	44	56	60	67
Strong black coffee is helpful in sobering a person up before he drives	40	46	61	54
Alcohol will affect a person faster if he's under medication like a tranquilizer or antidepressant	92	93	93	93

TABLE 17

"Do you recall what the term Blood Alcohol Concentration (BAC) means?" (Responses in percentages)

	Household Surveys		Telephone Surveys	
Response	1971	1974	June 1976	December 1976
Correct	86	88	79.6	82.2
Incorrect	12	12	20.2	16.6
No Answer	2	0	0.2	1.2

TABLE 18

"Which of these do you understand is the legal definition of being drunk in Virginia?" (Responses in percentages)

	Household Survey*	Telephone Surveys	
Response	1974	June 1976	December 1976
Any Trace	1	3.2	2.6
.05	16	19.0	15.6
.08	13	10.8	10.4
.10	23	20.6	23.0
.12	6	2.2	5.2
.15	5	2.8	7.0
.20	2	5.0	2.8
Don't Know	35	36.4	33.4
No Answer	1	—	—

*The corrective presumptive limit changed in 1972 from .15% to .10%. Thus, 1971 survey results are not shown.

TABLE 19

"How many drinks do you think you would have to have in a two-hour period to reach the level where you would be considered legally drunk?" (Responses in percentages)

	Household Survey	Telephone Survey	
Response	1974	June 1976	December 1976
One or less	7	5.8	7.4
Two	15	16.6	18.4
Three	34	25.6	25.4
Four	14	10.0	10.6
Five	5	8.4	6.6
Six	2	5.4	5.0
Seven or Eight	2	1.8	2.4
Nine or More	1	1.0	0.8
Don't Know	20.0	15.4	13.4
Average Number	3.21	3.44	3.35

TABLE 20

Number of Drinks Necessary for a BAC ≥ .10% Adjusted for Respondent's Weight (Responses in percentages)

Response	June 1976	December 1976
Correct	12.3	11.5
Too Low	61.6	65.8
Too High	26.1	22.7

TABLE 21

Alcohol Knowledge Score (Number and % Response)

Score	June 1976		December 1976	
	No.	Percent	No.	Percent
3	1	0.2	3	0.6
4	7	1.4	7	1.4
5	29	5.8	32	6.4
6	71	14.2	71	14.2
7	108	21.6	113	22.6
8	124	24.8	135	27.0
9	105	21.0	98	19.6
10	46	9.2	34	6.8
11	9	1.8	7	1.4
Average Score	7.71		7.58	

Awareness of Alcohol and Alcohol Countermeasures

One of the major objectives of the PI&E countermeasure is to increase public awareness of the drinking/driving problem and of programs designed to reduce incidences of drunk driving. One of the methods used to disseminate this information is through advertising, either on a national or local level. The public's awareness of the problem and of advertising messages in the media was extensively probed in the telephone survey questionnaire.

Respondents were first asked how important a problem drunk driving was (see TABLE 22). Over 90% of the subjects responding to the first of the four surveys felt that drunk driving posed an extremely or very serious problem. The percentage of respondents expressing equal concern fluctuated between 82% and 88% during the remainder of the surveys, never again reaching 90%. These differences were significant ($X^2 = 22.1$, DF = 6, $p < .01$). When asked if they had discussed drunk driving with anyone during the previous month, a majority of respondents on both surveys replied that they had not (see TABLE 23). The percentage that had discussed this topic decreased from 37.9% in June of 1975 to 34.4% by June of 1976, but recovered to 38.1% by December of 1976. These differences were not significant.

In relation to media advertising, a majority of the respondents on all four surveys had seen or heard at least one drunk driving ad (see TABLE 24). There were no significant differences in the proportion being aware of the advertising across time. There were some differences, however, in which messages were retained by the respondents (see TABLE 25). In June of 1975 and 1976, the most often remembered message was that drunken drivers often cause fatal crashes, while in December of both years, the most often remembered message fell in the "other" category. It is most interesting that by December of 1976, more respondents than ever before were remembering the two categories of messages which most closely corresponded to the "friends don't let friends drive drunk" campaign. The differences in the distribution of remembered messages were significant ($X^2 = 50.7$, DF = 12, $p < .01$).

There were also significant differences in the medium named as the source of the drunk driving advertising (see TABLE 26). Television was by far the most often named source of information during all four surveys, while the relative ranking and percentage of respondents naming other sources changed across time, with most of the change occurring between June and December of 1976 ($X^2 = 16.7$, DF = 5, $p < .05$).

TABLE 22

"How important a problem do you feel drunk driving is?" (Responses in percentages)

Response	June 1975	December 1975	June 1976	December 1976
Extremely	49.0	47.8	46.4	52.8
Very	41.4	34.2	40.6	35.4
Somewhat	9.2	16.4	11.6	11.4
Not At All	0.4	1.5	1.2	0.4

TABLE 23

"In the past month, have you discussed with anyone the topic of drunk driving?" (Responses in percentages)

Response	June 1975	December 1975	June 1976	December 1976
Yes	37.9	34.8	34.4	38.1
No	62.1	65.2	65.6	61.9

TABLE 24

"Do you recall having seen or heard any drinking and driving advertising in the past few months?" (Responses in percentages)

Response	June 1975	December 1975	June 1976	December 1976
Yes	72.8	69.9	73.9	73.3
No	27.2	30.1	26.1	26.7

TABLE 25

"What was the message about?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Know your limit	16.8	16.4	22.3	12.9
Drunk Drivers Cause Fatal Crashes	37.2	30.0	34.8	20.0
Party Givers Shouldn't Let Drunk Friends Drive	6.1	4.4	5.2	11.4
If you Like Someone, You Won't Let Them Drive When Drunk	7.7	8.2	9.4	14.5
Police Officers are Patrolling For Drunk Drivers	10.7	2.7	—	0.8
Other	21.4	38.3	28.3	40.4

TABLE 26

Source of Drinking Driving Advertising (Responses in percentages)

Source	June 1975	Dec. 1975	June 1976	Dec. 1976
Radio	10.5	10.9	9.94	12.9
Magazine	7.0	7.6	7.0	4.7
Newspaper	5.7	7.6	5.4	10.9
TV	59.6	47.9	53.7	57.0
Radio and TV	9.2	15.6	14.1	5.5
Other	7.9	10.4	9.9	9.0

In an attempt to assess specific program awareness, subjects were asked if they had heard of a program designed to reduce drunken driving (see TABLE 27). This is one of the few questions on the telephone survey questionnaire which was also asked during the household surveys. During the year before the ASAP began in Fairfax, 47% of the respondents had heard of some sort of alcohol countermeasures campaign. By 1974, this proportion had risen to 53%. However, in June of 1975 only 48% had heard of a program, and in December a similar proportion answered "Yes." This percentage decreased to 40% by June of 1976 and 39% in December. Thus, last year significantly fewer respondents had heard of a program designed to reduce alcohol related traffic deaths than

before the project started ($X^2 = 5.9$, DF = 1, $p < .05$). When questioned concerning sponsorship of the program, the largest group of respondents in each survey had not heard of the program or could not recall the name of the program of which they were aware (see TABLE 28). In all but the baseline household survey, the next largest group of respondents named the ASAP, while between 10% and 16% named some other program. However, the percentage of respondents naming the ASAP has decreased across time from 16% in 1974 to 13.2% in December of 1975 and, finally, to 7.6% by December 1976. This decrease in awareness of the ASAP program would indicate that the PI&E countermeasure has become less successful in publicizing the existence of the Fairfax ASAP.

During the last two surveys, respondents were asked where they had heard of the program designed to handle problems with drinking and driving (see TABLE 29). Newspapers and television were often named sources of information during both surveys. However, while the most popular source of information in June fell into the "other" category, most December respondents had heard of the alcohol program through another person ($X^2 = 17.4$, DF = 6, $p < .01$). This word of mouth information must be passed by ordinary citizens, since the respondents' acquaintance with arrested intoxicated drivers did not increase between June and December. Perhaps as the public information efforts were being gradually reduced in other media, person-to-person contact assumed a relatively more important, or at least more frequent, role in dissemination of alcohol information.

For use in further comparisons, an alcohol awareness scale similar to the alcohol experience scale was constructed (see Appendix C). The frequency of scores for each survey appears in TABLE 30. The average awareness score for respondents of the June 1976 survey was 4.29 while the average score in December was 4.54. This increase in the overall awareness score was not significant. As with the scales previously discussed, male respondents were more aware of alcohol countermeasures and of alcohol as a problem, as were the younger subjects (see Appendix D). Awareness was found to be significantly related to the experience, behavior, and knowledge scores in that the more experience the respondent had had with alcohol, the more he knew about it and the more aware he was of the problems surrounding its use, and their solutions (see Appendix E).

In summary, it appears that overall alcohol awareness increased somewhat between June and December of 1976; however, this recovery from 1975 was not significant. Awareness of alcohol abuse as a problem also seems to have increased, but again not significantly. On the other hand, specific program awareness is the lowest it has been since the inception of the program, with the awareness of nonspecific alcohol related programs being significantly lower than before ASAP operations began.

TABLE 27

"Have you heard of a program that is trying to reduce alcohol related traffic deaths?" (Responses in percentages)

	Household Surveys		Telephone Surveys			
Response	1971	1974	June 75	Dec. 75	June 76	Dec. 76
Yes	47	53	48	48.6	40.2	39.4
No	52	47	52	51.4	59.6	59.8

TABLE 28

"Do you recall what agency or organization is sponsoring the program?" (Responses in percentages)

	Household Surveys		Telephone Surveys			
Response	1971	1974	June 75	Dec. 75	June 76	Dec. 76
ASAP	3	16	16.4	13.2	10.0	7.6
Other	15	16	11.0	11.6	12.6	10.4
Can't Recall	22	20	20.0	23.6	17.4	21.4
Not Heard of Program	53	48	52.6	51.6	60.0	60.6
No Answer	7	—	—	—	—	—

TABLE 29

Source of Information on Alcohol Program (Responses in percentages)

Response	June 1976	December 1976
Other Person	10.4	23.4
Radio	3.9	4.5
TV	21.3	21.9
Magazine	2.4	2.0
Newspaper	21.8	22.9
Billboard	2.0	2.0
Pamphlet	4.5	2.5
Other	33.7	20.9

TABLE 30

Alcohol Awareness Score

Score	June 1976		December 1976	
	No.	Percent	No.	Percent
0	1	0.2	4	0.8
1	105	21.0	97	19.4
2	36	7.2	34	6.8
3	56	11.2	63	12.6
4	38	7.6	25	5.0
5	96	19.2	73	14.6
6	81	16.4	83	16.6
7	27	5.4	59	11.8
8	36	7.2	30	6.0
9	23	4.6	24	4.8
10 or More	0	—	8	—
Average Score	4.29		4.54	

Attitude Toward Bystander Intervention

The ultimate aim of any public information campaign is to make some sort of impact upon attitudes which could subsequently affect behavior. Most of the items on the telephone survey which deal with attitudes are phrased in terms of objective behaviors and require the respondent to assess the likelihood of his performing each. Thus, if questions are answered candidly, it should be possible to assess the overall impact of the public information countermeasure in terms of reactions to drunk driving. Several other items are countermeasure specific, asking if the respondent would support a given type of effort while two questions are purely attitudinal. The non-behavioral questions will be dealt with first.

The first question asked the respondents to identify to which lengths they thought someone should go to stop a friend from driving while drunk. As shown in TABLE 31, between 90.1% and 91.7% of the subjects responding to the 1975 surveys agreed strongly that it is a person's responsibility to stop a friend or relative from driving while drunk, with between 1.3% and 1.9% of the respondents disagreeing. During the 1976 surveys, between 81.2% and 86.2% strongly agreed with this statement, with between 2.4% and 2.8% disagreeing. These changes were significant overtime ($X^2 = 20.7$, DF = 6, $p < .01$), with much of the change occurring between June and December of 1976.

Also, as seen in TABLE 32, significantly fewer respondents strongly agreed that a person should take physical action to prevent a friend/relative from driving while drunk (X^2 = 36.2, DF = 9, $p < .01$). In June of 1975, 62.3% of the respondents strongly agreed with this statement with 11.9% disagreeing. The percentage in strong agreement had decreased to 45.3% by December of 1976, with 14.9% disagreeing. Thus, attitudes concerning how far a person's responsibility extends in relation to a friend's drinking and driving have been decreasing over time. However, a majority of respondents in all four surveys at least somewhat agreed that a person should attempt to stop a friend from driving when drunk, even if he had to use physical force to do so.

Respondents were then asked to rate their probability of using five specific measures for stopping a person from driving after heavy drinking. As seen in TABLES 33 through 36, while there were random fluctuations in answers, there were no significant differences in the probability of respondents driving the drunken person home, letting him spend the night instead of driving, calling a taxi for the person, or taking the person's keys away. There was a significant difference in the probability of getting assistance to restrain the drunken person (see TABLE 37). In 1975, between 17.3% and 18.1% of the respondents were extremely likely to restrain the person, while about 21% of the 1976 respondents were extremely likely to do this. Similar increases were noted in the percentage of respondents who were very likely to do so and decreases were noted in subjects only somewhat or not at all likely to take this type of action (X^2 = 20.5, DF = 9 $p < .05$). The most popular method for averting a drunk driving incident in all surveys was to drive the person home. While there was some variation in the next several rankings, overall, offering to let the person stay overnight was the second most popular alternative, followed by calling a taxi, taking the person's keys away, and physically restraining the person.

TABLE 31

"It's a person's responsibility as a good citizen to stop a friend or relative from driving while drunk." (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Strongly Agree	91.7	90.1	81.2	86.2
Somewhat Agree	6.4	8.6	16.3	10.9
Somewhat Disagree	1.3	0.3	1.2	2.6
Strongly Disagree	0.6	1.0	1.2	0.2
Mean	3.89	3.87	3.77	3.83

TABLE 32

"When friends are involved, a person should be willing to take even physical action to stop them from driving while drunk." (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Strongly Agree	62.3	51.3	46.0	45.3
Somewhat Agree	25.8	37.4	39.8	39.8
Somewhat Disagree	5.8	7.9	10.2	12.0
Strongly Disagree	6.1	3.3	4.0	2.9
Mean	3.44	3.37	3.28	3.27

TABLE 33

"How likely are you to suggest to the person that you drive him home?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	74.1	68.7	68.9	73.0
Very	18.4	25.0	24.0	19.4
Somewhat	5.8	3.7	6.2	5.2
Not At All	1.6	2.7	0.9	2.3
Mean	3.68	3.60	3.61	3.63

TABLE 34

"How likely are you to suggest to the person that he stay overnight at your home?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	56.8	52.5	54.6	59.6
Very	24.5	31.4	28.8	28.4
Somewhat	13.5	12.1	12.9	9.2
Not At All	5.2	4.0	3.7	2.8
Mean	3.33	3.32	3.34	3.45

TABLE 35

"How likely are you to call a taxi for the person who drank too much?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	30.4	28.3	28.3	30.3
Very	22.7	21.3	22.5	21.6
Somewhat	25.6	23.0	24.3	19.6
Not At All	21.4	27.3	24.9	28.5
Mean	2.62	2.51	2.54	2.54

TABLE 36

"How likely are you to take the person's keys away?" (Responses by percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	21.4	24.7	18.4	23.1
Very	18.5	16.7	25.5	19.6
Somewhat	31.8	26.3	31.0	26.9
Not At All	28.2	21.3	25.1	30.3
Mean	2.33	2.34	2.37	2.35

TABLE 37

"How likely are you to get assistance to restrain the person?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	17.3	18.1	21.2	21.6
Very	18.3	15.4	25.5	22.2
Somewhat	35.0	32.8	26.5	25.9
Not At All	29.4	33.8	26.8	30.3
Mean	2.24	2.18	2.41	2.35

While there were few significant changes in the probability of using various methods to avert a drunk driving situation, there were many significant shifts in the probability of exhibiting various alcohol related party behaviors. Respondents were asked to assess the probability of exhibiting these behaviors as the host of a party. Significantly more respondents

were extremely likely to serve food with the drinks in 1976 than in 1975 (see TABLE 38). In 1975, between 54.8% and 69.1% were extremely likely to serve food while between 5.8% and 9.4% were not at all likely. By December of 1976, 75.9% were extremely likely to do so, while 1.7% were not at all likely.* More of the 1976 respondents were also significantly more likely to plan a party where drinking was cut off at a certain time and replaced with nonalcoholic beverages and food (see TABLE 39). In 1975, between 13% and 18% of the respondents were extremely likely, with between 37% and 51% being not at all likely. During the 1976 surveys, 24% were extremely likely to cut off drinking, while between 33% and 44% were not at all likely. This difference is also significant (X^2 - 41.6, DF = 9, $p < .05$). There was a significantly lower probability that the respondent/host would ask his guests who is driving home, the percentage of respondents being extremely likely to do this decreasing from 18.6% in June of 1975 to 7.8% by December 1976 (see TABLE 40). Over the same period of time, the percentage of respondents who were not at all likely to exhibit this behavior increased from 31.8% to 68.9%. These differences are also significant (X^2 = 169.8, DF = 9, $p < .01$). Respondents were then asked to assess the likelihood of offering drinks to a guest who is becoming intoxicated (see TABLE 41). While the percentage of persons who were extremely likely to do this did not decrease significantly, the percentage who were very likely to do so did decrease from 37.9% in June of 1975 to 26.7% in December of 1976.

TABLE 38

"How likely are you to serve food with the drinks?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	69.1	54.8	71.2	45.9
Very	19.0	26.8	18.4	17.8
Somewhat	6.1	9.0	9.8	4.6
Not At All	5.8	9.4	0.6	1.7
Mean	3.51	3.27	3.60	3.68

*There was a slight change in this statement between the 1975 and 1976 surveys. In 1975, the statement read, "How likely are you to serve food with the drinks to reduce the effects of alcohol." In 1976, the reference to the effects of alcohol was removed.

TABLE 39

"How likely are you to plan a party where drinking is cut off at a certain time and replaced with nonalcoholic beverages and food?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	18.0	13.1	24.6	24.2
Very	19.9	18.1	19.7	18.1
Somewhat	24.8	17.4	22.8	13.8
Not At All	37.3	51.3	32.9	43.8
Mean	2.19	1.93	2.36	2.23

TABLE 40

"How likely are you to ask who is driving home?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	18.6	16.1	5.5	7.8
Very	25.4	26.2	9.2	8.6
Somewhat	23.2	23.2	18.4	14.7
Not At All	32.8	34.6	66.9	68.9
Mean	2.30	2.24	1.53	1.55

TABLE 41

"How likely are you to not offer drinks to a guest who is becoming intoxicated?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	35.3	31.5	27.9	34.9
Very	37.9	34.2	34.7	26.7
Somewhat	17.8	25.2	23.6	22.7
Not At All	9.1	9.1	13.8	15.7
Mean	2.99	2.88	2.77	2.81

This change is significant ($X^2 = 23.5$, DF = 9, $p < .01$). Finally, respondents were asked to rate how likely they would be to agree ahead of time who would limit their drinking and drive home (see TABLE 42). While the percentage of respondents extremely likely to do this did not change, the percentage who

were very likely to do so decreased from 34.0% in June of 1975 to 21.8% by December of 1976. During the same time interval, the percentage not at all likely increased from 12.1% to 25.9%. As with the other party-related questions, this difference across time was significant ($X^2 = 39.4$, DF = 9, $p < .01$). Thus, while there were few differences over time in the probability of using various methods of averting a drunk driving incident, there was considerable shift in the probability of exhibiting various social behaviors as the host of a party. It would appear that there has been deterioration in the popularity of several of these party related behaviors, such as asking who is driving home, not offering drinks to an intoxicated guest, and agreeing who will drive before a party begins.

Respondents were then asked to determine if they would support various types of alcohol countermeasures. Over 90% of all respondents stated that they would support greater police enforcement efforts and public information campaigns (see TABLES 43 and 44). Less popular but still supported by the majority were more severe penalties for drunken drivers (see TABLE 45). There were no significant differences in the level of support of any of these countermeasures over time.

Finally, in order to summarize trends in attitudes toward alcohol, a simple attitude scale was constructed (see Appendix C). Due to changes in the questionnaire, the scale as presented here applies to 1976 only. There were no significant differences in the respondents' alcohol attitude scores between June and December of 1976 (see TABLE 46). Again, males were more positive in their attitudes toward bystander intervention and toward specific alcohol countermeasures than were females (see Appendix D).

In terms of age, attitudes become somewhat more positive until the last and oldest age groups. Those persons over 50 feel significantly less positive concerning bystander intervention than do any other group of respondents. As would be expected, attitude toward bystander intervention and alcohol countermeasures is positively related to all of the other scales, especially awareness. These significant relationships appear to indicate that by increasing knowledge and awareness levels, it may be possible to improve attitudes toward averting drunk driving situations, and possibly increase the probability that someone will take positive action in these types of situations.

TABLE 42

"How likely are you to agree ahead of time that when two of you go to a party, one of you will limit their drinking and drive home?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Extremely	45.8	44.1	42.9	43.7
Very	34.0	22.1	27.3	21.8
Somewhat	8.2	9.0	13.5	8.6
Not At All	12.1	24.7	16.3	25.9
Mean	3.13	2.86	2.97	2.83

TABLE 43

"Would you support greater police enforcement of the drunk driving laws?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Yes	93.2	90.6	90.0	92.8
No	6.4	9.4	10.0	7.2
No Answer	0.4	—	—	—

TABLE 44

"Would you support public information campaigns about drunk driving?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Yes	91.6	89.4	91.8	90.2
No	8.2	10.6	8.0	9.6
No Answer	0.2	—	—	0.2

TABLE 45

"Would you support more severe penalties for drunken drivers?" (Responses in percentages)

Response	June 1975	Dec. 1975	June 1976	Dec. 1976
Yes	76.2	68.2	71.4	76.8
No	18.8	31.6	28.4	22.8
No Answer	5.0	0.2	—	0.4

TABLE 46

Alcohol Attitude Scale (Number and % Response)

	June 1976		December 1976	
	No.	Percent	No.	Percent
0-10	174	34.8	151	30.2
11-20	4	0.8	1	0.2
21-25	19	3.8	20	4.0
26-30	47	9.4	71	14.2
31-35	107	21.4	106	21.2
36-40	103	20.6	94	18.8
41-45	42	8.4	54	10.8
Over 45	4	0.8	3	0.6
Average Score	22.48		24.03	

CONCLUSIONS

While there have been some selected areas of improvement, the results of these surveys are basically negative. Levels of alcohol knowledge have basically stabilized, and in the case of misconceptions surrounding the use of alcohol some improvement has been made. However, fewer respondents than previously know what the term blood alcohol concentration means, less than 25% know the presumptive limit, and the vast majority continue to under- or overestimate the number of drinks necessary to make them legally drunk and, thus, do not know their limit. Although, awareness of alcohol advertising has increased and more respondents than previously remember ad messages relating to the "friends don't let friends drive drunk," little significant improvement in the respondents' likelihood of stopping a friend or relative from driving while drunk has come about. In terms of party-giving behaviors, some deterioration in the likelihood of using tactics to avoid a drunk driving situation has been experienced. Awareness of alcohol countermeasures is at an all time low and awareness of ASAP is at its lowest since 1971, so that it may be possible that the community at large and individuals with drinking and driving problems may be unaware of resources which could offer help. On the lighter side, self-reported drinking and driving was significantly lower in 1976 than in 1974. However, it is unknown whether this is a product of a real change in drinking and driving behavior or a change in reporting.

The most optimistic finding of this report appears to be the relationship between knowledge, awareness, attitude and

self-reported behavior. It may be that by increasing knowledge or awareness, that both attitudes toward bystander intervention and actual drinking/driving behaviors may be impacted.

APPENDIX A

ASAP TELEPHONE SURVEY

CORE QUESTIONS

INTRODUCTION

READ: Good (Morning/afternoon/evening). My name is _____.
We are conducting a survey for Fairfax County.

INTERVIEWER: USE YOUR QUOTA SHEET TO DETERMINE IF YOU NEED A MALE OR FEMALE RESPONDENT.

READ: May I speak with a person (MALE, FEMALE AS NEEDED TO FILL QUOTA) present now in your household who is 16 years of age or older?

READ: I would like to ask you a few questions. Your responses will be very valuable and will remain strictly confidential. They will be used for statistical purposes only.

Record: Site ID

RECORD: SELECTED RESPONDENT IS:

Male	1
Female	2

READ: There are many problems and social issues facing our country at this time. I'd like to know how important you feel some of them are.

1. How important a problem do you think crime in the street is?

Extremely important	1
Very important	2
Somewhat important	3
Not at all	4

2. How important a problem do you think drug abuse is?

Extremely important 1
Very important 2
Somewhat important 3
Not at all 4

3. How important a problem do you think drunk driving is?

Extremely important 1
Very important 2
Somewhat important 3
Not at all 4

READ: I would like to talk to you about occasions where alcoholic beverages are served.

4. In the past three months, have you been in a situation where alcoholic beverages were served?

Yes ..... 1 CONTINUE
No ..... 2 SKIP TO QUESTION 37

5. Which one phrase best describes how often you have been in this type of situation in the past three months period? Would you say it was _____?

(READ LIST UNTIL YOU GET AN ANSWER)

Daily 1
2-6 times a week 2
Once a week 3
Once every 2 or 3 weeks 4
Once a month 5
Less than once a month ..... 6 SKIP TO QUESTION 37

READ: I'm going to read you a series of statements describing some aspect surrounding the use of alcoholic beverages. Do you strongly agree, somewhat agree, somewhat disagree, strongly disagree with each statement? READ STATEMENT FOLLOWED BY: DO YOU STRONGLY AGREE, SOMEWHAT AGREE, SOMEWHAT DISAGREE, OR STRONGLY DISAGREE.

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
6. It's a person's responsibility to stop a friend or relative from driving when drunk	1	2	3	4

READ ALL QUESTIONS

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
7. When friends are involved, a person should be willing to take even physical action to prevent them from driving while drunk.....	1	2	3	4

8. In the past month, have you discussed with anyone the topic of drunk driving?

Yes 1
No 2

9. In the past three months, were you in a situation where someone had been drinking too heavily and was about to drive a car?

Yes 1
No ..... 2 SKIP TO QUESTION 14

10. How many times would you say this happened in the past three months?

Number

Past three months ..... _____

11. In the most recent situation, did you take any kind of action to stop the drunk person from driving?

Yes ..... 1 ASK NEXT QUESTION
No ..... 2 SKIP TO QUESTION 14

12 & 13. Please tell me what actions you took?

DO NOT READ LIST — CHECK OFF ANSWERS

Drove the person home 1
Offered to drive him/her home 2
Offered to let him/her stay over 3
Called a taxi 4
Took his/her keys away 5
Physically restrained him/her 6
Got someone else to drive them 7
Gave him/her coffee 8
Gave him/her cold shower 9
Gave him food 10
Called the police 11
Other 12

14. Do you know anyone who has been arrested for drunk driving?

Yes 1
No 2

15. Drinking is an accepted part of business and social activity for many people. Do you ever drink beer, wine or liquor such as whiskey, gin and vodka?

Yes 1
No ..... 2 SKIP TO 21

16. Do you drive?

Yes 1
No ..... 2 SKIP TO 21

17. It is both legally and socially acceptable to drive after consuming moderate amounts of alcohol. Have you ever driven after having something to drink?

Yes 1
No ..... 2 SKIP TO 21

18. How often do you drive after having something to drink? Would you say it was _____

Often 1
Occationally 2
Hardly ever 3

(If the answer to question 17 is no, code this question as 4)

19. How many drinks is the most you will have in a two hour period and continue to drive

One drink. 1
Two drinks 2
Three drinks 3
Four drinks 4
Five drinks 5
Six drinks 6
Seven drinks 7
Eight drinks 8
Nine drinks 9
Ten or more 10

20. When you've driven after drinking, have you ever thought you really shouldn't be on the road?

Yes 1
No 2

READ: I'd like you to imagine a situation in which a close friend or relative is very drunk and is about to drive a car.

FOR EACH PHRSE READ:
HOW LIKELY ARE YOU TO _____(QUESTION)_____?

		Extremely	Very	Somewhat	Not At All
21.	Suggest to the person that you drive him home?	1	2	3	4
22.	Suggest that the person stay overnight at your home?	1	2	3	4
23.	Call a taxi for the person who drank too much	1	2	3	4
24.	Take the person's keys away	1	2	3	4
25.	Get assistance to restrain the person	1	2	3	4

READ: Now using the same phrases, I would like you to think of yourself as giving a party. How likely are you to _____

		Extremely	Very	Somewhat	Not At All
26.	Plan to serve food with the drinks	1	2	3	4
27.	Plan a party where drinking is stopped at a certain time and replaced with non-alcoholic beverages and food	1	2	3	4
28.	Ask who is driving home before serving drinks	1	2	3	4
29.	Not offer drinks to a guest who is becoming intoxicated.	1	2	3	4
30.	Agree ahead of time that when two of you go to a party one of you will limit their drinking, and drive home?	1	2	3	4

31. Do you recall having seen or heard any drinking and driving advertising in the past few months?

Yes 1
No ..... 2 SKIP TO QUESTION 37

32 & 33. Where did you see or hear it?

READ LIST — MAY HAVE MORE THAN ONE ANSWER

Radio 1
Magazine 2
Newspaper 3
TV 4
Radio and TV 5
Other _____ 6
(Specify)

READ: What was the message about?

34, 35 & 36. DON'T READ LIST — CHECK OFF RESPONSES GIVEN

People should know how much they can drink 1
Many fatal crashes are caused by drunk drivers 2
People who give parties should see that their friends don't drive home drunk 3
If you are really a person's friend you'll stop him from driving drunk, no matter how reluctant you are 4
More police are patrolling the street at night to watch for and arrest drunk drivers 5
Other 6

READ: I am going to read you several statements about drinking and becoming intoxicated. Please tell me if you think each is true or false?

		True	False	Don't Kn
37.	A person drinking on an empty stomach will get drunk faster on the same number of drinks than a person who has just eaten something.	1	2	3
38.	If a person sticks to the same kind of drink, he is less likely to get drunk than if he mixes different kinds of drinks, like beer and whiskey or gin and scotch.	1	2	3
39.	A small person will get drunk faster than a large person on the same number of drinks.	1	2	3

		True	False	Don't Know
40.	Strong black coffee is helpful in sobering a person up before he drives	1	2	3
41.	Alcohol will affect a person faster if he's under medication like a tranquilizer or antidepressant.	1	2	3

42. Do you recall what the term Blood Alcohol Concentration Means?

Respondent technically correct	1
Respondent substantially correct	2
Respondent incorrect	3

43. Blood Alcohol Concentration is based on a chemical test, such as a breath test, and is used to determine if a person is legally drunk or intoxicated. Which of these do you understand is the legal definition of being drunk in Virginia? Would you say it was.

Any Trace	1
.05%	2
.08%	3
.10%	4
.12%	5
.15%	6
.20%	7
Don't know	8

44. How many drinks do you think you would have to have in a two hour period to reach the level where you would be considered legally drunk?

One or less	1
Two	2
Three	3
Four	4
Five	5
Six	6
Seven	7
Eight	8
Nine	9
Ten or more	10
Don't know	11

READ: Just a few more questions for classification purposes.

45. In which of the following groups does your age fall?

READ LIST UNTIL YOU GET AN ANSWER

16 through 21	1
22 through 24	2
25 through 34	3
35 through 49	4
50 and over	5

46. Are you:

Married	1
Single	2
Divorced	3
Separated	4
Widowed	5
Other	6

47. In which city or town do you live?

ASAP area	1
Other Virginia	2
Other State	3

48. How long have you lived at this location?

Less than one month	1
1-6 months	2
7-11 months	3
1-2 years	4
3-4 years	5
Over 4 years	6

49. In which of these groups does your weight fall?

Less than 100 lbs.....	1
100-119 lb.....	2
120-139 lb.	3
140-159 lb.....	4
160-179 lb.....	5
180-199 lb.....	6
200-219 lb.....	7
220-239 lb.....	8
240 or more	9

50. If you drive after drinking too much, what do you think your chances of being stopped by the police are?

High	1
50-50	2
Low	3

Would you support the following actions?

51.	Greater police enforcement of drunk driving law	Yes	1
		No	2
52.	Public Information Campaign about drunk driving	Yes	1
		No	2
53.	More severe penalties for drunk drivers such as a fine, jail or permanent loss of license	Yes	1
		No	2

54. Have you heard of a program that is trying to reduce alcohol related traffic deaths?

Yes
No SKIP TO END

55. Where did you read or hear about it?

1. ANOTHER PERSON
2. RADIO
3. TV
4. MAGAZINE
5. NEWSPAPER
6. BILLBOARD, ROAD SIGNS
7. PAMPHLET, LEAFLET
8. OTHER

56. Do you recall what agency or organization is sponsoring the program ?

(a) ASAP
(b) Other
(c) Can't recall

This survey is sponsored by the Alcohol Safety Action Project

Thank you for your cooperation

Phone # _____

Interviewer _____

Date _____

APPENDIX B

Telephone Survey - December, 1976

SIDE ONE

NAME

GENERAL PURPOSE - NCS - ANSWER SHEET

FOR PROCESSING BY NATIONAL COMPUTER SYSTEMS 4401 West 76th St., Minneapolis, Minn.

EXAMPLE

WRONG 1 A ✓ D E

WRONG 2 A ✗ D E

WRONG 3 A D ● E

RIGHT 4 A D E ●

IMPORTANT DIRECTIONS FOR MARKING ANSWERS

Use black lead pencil only (#2½ or softer).
Make heavy black marks that fill the circle completely.
Erase clearly any answer you wish to change.
Make no stray marks on this answer sheet.

← REFER TO THESE EXAMPLES BEFORE STARTING PRACTICE EXERCISES →

PRACTICE

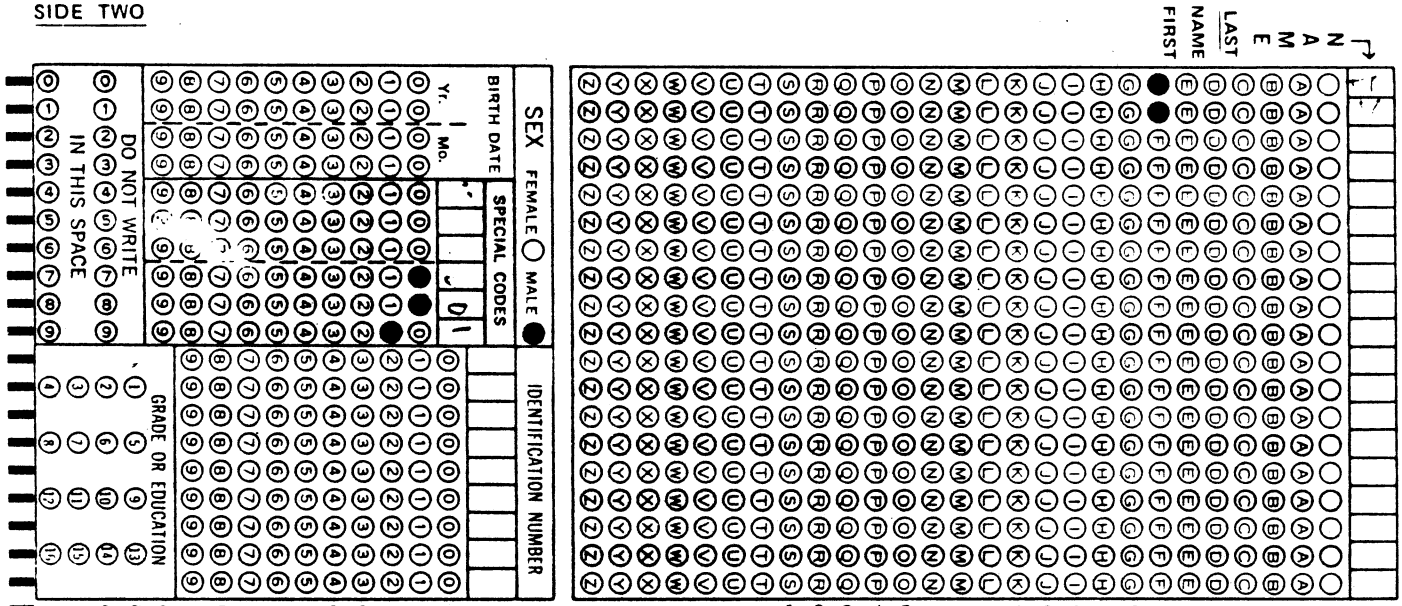
1 A D E
2 A D E
3 A D E
4 A D E

1 A ● D E	21 ● D E	31 ● D E	41 ● D E	51 ● D E
2 ● D E	22 ● D E	32 A D E ●	42 A ● E	52 ● D E
3 ● D E	23 A D E ●	33 A D E	43 A D E ●	53 ● D E
4 ● D E	24 ● D E	34 A D E	44 A ● E ●	54 ● D E
5 A D E ●	25 ● D E	35 A D E	45 A D E ●	55 A D ● E ●
6 ● D E	26 ● D E	36 A D E	46 ● D E	56 A D ● E
7 ● D E	27 A D E ●	37 ● D E	47 ● D E	57 A D E
8 ● D E	28 A D E ●	38 A ● E	48 ● D E ●	58 A D E
9 ● D E	29 A ● E	39 ● D E	49 ● D E ●	59 A D E
10 ● D E	30 ● D E	40 A ● E	50 A D ● E	60 A D E
11 12 13				

61 A D E	71 A D E	81 A D E	91 A D E	101 A D E	111 A D E
62 A D E	72 A D E	82 A D E	92 A D E	102 A D E	112 A D E
63 A D E	73 A D E	83 A D E	93 A D E	103 A D E	113 A D E
64 A D E	74 A D E	84 A D E	94 A D E	104 A D E	114 A D E
65 A D E	75 A D E	85 A D E	95 A D E	105 A D E	115 A D E
66 A D E	76 A D E	86 A D E	96 A D E	106 A D E	116 A D E
67 A D E	77 A D E	87 A D E	97 A D E	107 A D E	117 A D E
68 A D E	78 A D E	88 A D E	98 A D E	108 A D E	118 A D E
69 A D E	79 A D E	89 A D E	99 A D E	109 A D E	119 A D E
70 A D E	80 A D E	90 A D E	100 A D E	110 A D E	120 A D E

NCS Trans-Optic T1185-10 9

SIDE TWO



121 A B C D E	131 A B C D E	141 A B C D E	151 A B C D E	161 A B C D E	171 A B C D E
122 A B C D E	132 A B C D E	142 A B C D E	152 A B C D E	162 A B C D E	172 A B C D E
123 A B C D E	133 A B C D E	143 A B C D E	153 A B C D E	163 A B C D E	173 A B C D E
124 A B C D E	134 A B C D E	144 A B C D E	154 A B C D E	164 A B C D E	174 A B C D E
125 A B C D E	135 A B C D E	145 A B C D E	155 A B C D E	165 A B C D E	175 A B C D E
126 A B C D E	136 A B C D E	146 A B C D E	156 A B C D E	166 A B C D E	176 A B C D E
127 A B C D E	137 A B C D E	147 A B C D E	157 A B C D E	167 A B C D E	177 A B C D E
128 A B C D E	138 A B C D E	148 A B C D E	158 A B C D E	168 A B C D E	178 A B C D E
129 A B C D E	139 A B C D E	149 A B C D E	159 A B C D E	169 A B C D E	179 A B C D E
130 A B C D E	140 A B C D E	150 A B C D E	160 A B C D E	170 A B C D E	180 A B C D E

181 A B C D E	191 A B C D E	201 A B C D E	211 A B C D E	221 A B C D E	231 A B C D E
182 A B C D E	192 A B C D E	202 A B C D E	212 A B C D E	222 A B C D E	232 A B C D E
183 A B C D E	193 A B C D E	203 A B C D E	213 A B C D E	223 A B C D E	233 A B C D E
184 A B C D E	194 A B C D E	204 A B C D E	214 A B C D E	224 A B C D E	234 A B C D E
185 A B C D E	195 A B C D E	205 A B C D E	215 A B C D E	225 A B C D E	235 A B C D E
186 A B C D E	196 A B C D E	206 A B C D E	216 A B C D E	226 A B C D E	236 A B C D E
187 A B C D E	197 A B C D E	207 A B C D E	217 A B C D E	227 A B C D E	237 A B C D E
188 A B C D E	198 A B C D E	208 A B C D E	218 A B C D E	228 A B C D E	238 A B C D E
189 A B C D E	199 A B C D E	209 A B C D E	219 A B C D E	229 A B C D E	239 A B C D E
190 A B C D E	200 A B C D E	210 A B C D E	220 A B C D E	230 A B C D E	240 A B C D E

APPENDIX C

CONSTRUCTION OF NUMERICAL SCALES

All scales constructed for this survey are of a simple Likert type and were not refined using statistical scaling techniques. They were used for relative comparisons only.

A. Alcohol Experience Scale — The experience scale measures the extent to which the respondent has been involved in alcohol-related incidents. It is based upon how often the respondent had been in a situation where alcoholic beverages were served (Questions 4 and 5), how often he had been in a situation where someone had been drinking too heavily and was about to drive (Questions 10 and 13), and whether he knew someone who had been arrested for drunk driving. The items are coded as follows:

Questions 4 and 13	2-yes, 1-no
Question 5	6-daily, 5-2 to 6 times a week, 4-once a week, 3-once every 2 or 3 weeks, 2-once a month, 1-less than once a month
Question 10	Numerical answer
Question 14	2-yes, 1-no

B. Alcohol Awareness Scale — This scale measures three aspects of alcohol awareness. These are: (1) whether the respondent has discussed the topic of drunk driving in the past month (question 8), (2) whether the respondent had seen or heard any drunk driving advertising (question 40), and whether he could recall the messages the ads conveyed (questions 34 and 35) and (3) whether the respondent had heard of the ASAP program (questions 54 and 56). The respondent is awarded 'points' as follows:

Questions 8, 40 and 54	2-yes, 1-no
Questions 34, 35	1-remembered message, 0-couldn't recall
Question 56	2-ASAP, 1-other, 0-couldn't recall

C. Alcohol Attitude Scale (Bystander intervention) — This simple attitude scale measures such aspects of bystander attitude as (1) whether the respondent feels it's his responsibility to stop a person from drunk driving (question 6), even if it requires physical action to do so (question 7), (2) how likely he is to use certain techniques to stop someone from drinking and driving (questions 21-25), and (3) how likely he is to exhibit certain behaviors as a host in order to stop a guest from driving drunk (questions 26-30). The items are coded as follows:

Questions 6, 7	4-strongly agree, 3-somewhat agree, 2-somewhat disagree, 1-strongly disagree
Questions 21-30	4-extremely likely, 3-very likely, 2-somewhat likely, 1-not at all likely

D. Alcohol Behavior Scale — This scale provides an indication of how liberal the respondent's personal behavior is in relation to alcohol. It measures such behavioral aspects as (1) How often the respondent drives after having something to drink (questions 17 and 18), (3) how many drinks he would have and still continue to drive (question 19) and (4) whether the respondent has even been on the road when he felt he really shouldn't have been driving (question 20). The items are scored as follows:

Questions 15, 17 and 20	:	2-yes, 1-no
Question 18	:	3-often, 2-occasionally, 1-hardly ever
Question 19	:	numerical answer

E. Alcohol Knowledge Scale — This scale is designed to reflect the respondent's knowledge in relation to alcohol. The items deal with (1) whether the respondents believes certain "myths" surrounding the use of alcohol, (questions 37 to 41), (2) whether the respondents knows the correct definition of blood alcohol concentration (question 42), (3) whether he knows the presumptive limit in Virginia (question 43), and (4) whether he knows how many drinks he must drink to reach the presumptive limit (question 44). The items are coded as follows:

Questions 37-41, and 43	:	2-correct, 1-incorrect
Question 42	:	3-technically correct, 2-substantially correct, 1-incorrect
Question 44	:	2-correct, 1-incorrect (based upon the individual's weight)

APPENDIX D

SCALE SCORES BY AGE AND SEX

TABLE D-1

EXPERIENCE SCORE BY SEX

Experience Score	Male		Female	
	Number	Percent	Number	Percent
1-2	76	15.2	112	22.4
3-4	53	10.6	85	17.0
5-6	44	8.8	41	8.2
7	64	12.8	69	13.8
8	77	15.4	70	14.0
9	70	14.0	40	8.0
10	49	9.8	38	7.6
11 or More	67	13.4	44	8.8

$X^2 = 29.8$, DF = 7, $p < .001$

TABLE D-2

EXPERIENCE SCORE BY AGE

Age	1-2	3-5	6	7	8	9	10	11 or More
16 to 21	30	11	8	15	12	13	11	35
11 to 24	5	6	5	9	11	5	5	19
25 to 34	37	41	21	25	57	28	26	31
35 to 49	43	56	21	53	49	41	29	15
Over 50	73	36	18	21	18	23	16	10

$X^2 = 139.4$, DF = 28, $p < .001$

TABLE D-3

BEHAVIOR SCORE BY SEX

Behavior Score	Male		Female	
	Number	Percent	Number	Percent
0	149	29.8	229	45.9
1	19	3.8	60	12.0
2-5	28	5.6	65	13.0
6	61	12.2	59	11.8
7	93	18.6	43	8.6
8	62	12.4	23	4.6
9	51	10.2	12	2.4
10 or More	37	7.4	8	1.6

$X^2 = 132.1$, DF = 7, $p < .001$

TABLE D-4

BEHAVIOR SCORE BY AGE

Age	0	1-2	2-5	6	7	8	9	10 or More
16 to 21	53	18	8	7	15	14	12	9
22 to 24	13	7	5	12	12	4	6	6
25 to 34	81	20	27	35	45	28	22	18
35 to 49	110	27	37	43	45	26	20	9
Over 50	121	11	22	23	19	13	3	3

$X^2 = 92.4$, DF = 24, $p < .001$

TABLE D-5

KNOWLEDGE SCORE BY SEX

Knowledge Score	Male		Female	
	Number	Percent	Number	Percent
3-4	4	0.8	12	2.4
5	16	3.2	45	9.0
6	60	12.0	81	16.2
7	97	19.4	118	23.6
8	126	25.2	124	24.8
9	127	25.4	88	17.6
10	58	11.6	23	4.6
11 or More	12	2.4	8	1.6

$X^2 = 45.9$, DF = 6, $p < .001$

TABLE D-6

KNOWLEDGE SCORE BY AGE

Age	Knowledge Score 3-5	6	7	8	9 or More
16 to 21	2	15	30	24	55
22 to 24	3	7	8	21	26
25 to 34	18	36	51	82	89
35 to 49	24	43	63	72	105
Over 50	30	40	63	41	41

$X^2 = 51.9$, DF = 12, $p < .001$

TABLE D-7

AWARENESS SCORE BY SEX

Awareness Score	Male		Female	
	Number	Percent	Number	Percent
0-1	80	16.0	126	25.3
2	31	6.2	39	7.8
3	57	11.4	62	12.4
4	35	7.0	28	5.6
5	88	17.6	81	16.2
6	82	16.4	83	16.6
7	52	10.4	34	6.8
8	41	8.2	25	5.0
9 or More	34	6.8	21	4.2

$X^2 = 23.2$, DF = 8, $p < .001$

TABLE D-8

AWARENESS SCORE BY AGE

Age	Awareness Score								
	0-1	2	3	4	5	6	7	8	9 or More
16 to 21	23	6	10	11	26	25	11	10	14
22 to 24	7	2	7	3	7	16	9	8	6
25 to 34	50	15	26	10	58	51	25	26	15
35 to 49	55	24	52	20	53	50	22	17	14
Over 50	71	23	24	19	25	23	17	5	6

$X^2 = 79.8$, DF = 24, $p < .001$

TABLE D-9

ALCOHOL ATTITUDE SCALE BY SEX

Attitude Score	Male		Female	
	Number	Percent	Number	Percent
0-25	162	32.4	206	41.3
26-30	78	15.6	40	8.0
31-32	43	8.6	31	6.2
33-34	72	24.4	29	5.8
35-36	50	10.0	39	7.8
37-38	44	8.8	46	9.2
39-40	22	4.4	34	6.8
41 or More	29	5.8	74	14.8

$X^2 = 61.4$, DF = 7, $p < .001$

TABLE D-10

ALCOHOL ATTITUDE SCORE BY AGE

Age	Attitude Score						
	0-30	31-32	33-34	35-36	37-38	39-40	41 or More
16 to 21	63	13	17	11	12	8	12
22 to 24	25	5	8	9	8	5	6
25 to 34	127	22	28	24	26	17	32
35 to 49	133	26	32	26	30	17	43
Over 50	138	8	16	19	15	9	10

$X^2 = 39.3$, DF = 24, $p < .05$

APPENDIX E

RELATIONSHIP BETWEEN SCALES

TABLE E-1

BEHAVIOR SCORE BY EXPERIENCE SCORE

	Experience						
Behavior	0-5	6	7	8	9	10	11 or More
0							
1	327	7	13	13	7	7	5
2-5	3	14	17	12	9	10	14
6	2	10	28	21	10	12	10
7	2	10	25	36	27	16	20
8	0	10	17	23	8	14	13
9	0	2	5	11	13	11	21
10 or More	0	4	4	3	6	6	22

$X^2 = 682.7$, DF = 30, $p < .001$
$r = .61$, $p < .001$

TABLE E-2

KNOWLEDGE SCORE BY EXPERIENCE SCORE

	Experience							
Knowledge	1-2	3-4	5-6	7	8	9	10	11 or More
3-4	12	1	0	1	2	0	0	0
5	36	6	6	2	3	3	3	2
6	35	31	13	18	12	12	12	8
7	51	35	21	28	26	21	12	21
8	30	35	17	42	46	31	14	26
9	17	26	15	30	42	31	23	31
10 or More	7	5	13	12	16	12	13	23

$X^2 = 141.2$, DF = 28, $p < .001$
$r = .29$, $p < .001$

TABLE E-3

KNOWLEDGE SCORE BY BEHAVIOR SCORE

	Behavior						
Knowledge	0	1-2	3-5	6	7	8	9 or More
3-4	14	0	0	1	1	0	0
5	47	6	0	5	0	0	3
6	70	13	13	15	12	9	9
7	96	18	19	27	23	19	13
8	79	19	34	41	33	19	29
9	54	16	18	23	33	27	44
10 or More	19	11	5	8	34	11	13

$X^2 = 150.4$, DF = 24, $p < .001$
$r = .31$, $p < .001$

TABLE E-4

AWARENESS SCORE BY EXPERIENCE SCORE

	Experience							
Awareness	1-2	3-5	6	7	8	9	10	11 or More
0-1	128	79	-	-	-	-	-	-
2	35	35	-	-	-	-	-	-
3	16	15	15	21	21	16	10	5
4	9	12	4	7	11	4	7	9
5	-	5	20	41	34	28	21	19
6	-	3	16	32	40	29	23	22
7	-	0	6	17	21	00	9	22
8	-	1	3	10	14	14	9	15
9 or More	-	1	9	4	6	8	8	19

$X^2 = 334.2$, DF = 24, $p < .001$
$r = .59$, $p < .001$

TABLE E-5

BEHAVIOR SCORE BY AWARENESS SCORE

	Awareness						
Behavior	0-3	4	5	6	7	8	9 or More
0	317	21	10	12	12	5	2
1	15	4	17	17	10	4	12
2-5	8	10	31	26	8	8	2
6	17	10	36	32	9	8	8
7	17	7	36	27	19	21	9
8	11	4	17	27	12	4	10
9	8	3	12	14	10	10	6
10 or More	3	4	10	10	6	6	6

X^2 = = 547.3, DF = 25, $p < .01$
$r = .61$, $p < .001$

TABLE E-6

KNOWLEDGE SCORE BY AWARENESS SCORE

	Awareness								
Knowledge	0-1	2	3	4	5	6	7	8	9 or More
3-4	10	1	1	2	0	2	0	0	0
5	30	9	12	1	5	2	1	1	0
6	45	16	12	7	26	17	11	4	2
7	58	20	26	12	30	28	14	16	11
8	36	14	35	20	48	52	17	16	11
9	23	9	27	13	45	42	25	15	13
10 or More	5	1	6	8	15	22	18	14	10

X^2 = 143.8, DF = 24, $p < .001$
$r = .37$, $p < .001$

TABLE E-7

EXPERIENCE SCORE BY ALCOHOL ATTITUDE

Alcohol Attitude	Experience						
	0-2	3-6	7	8	9	10	11 or More
0	187	137	0	0	0	0	0
1-30	1	18	25	34	33	16	36
31-32	-	7	11	16	11	14	15
33-34	-	15	20	23	19	12	12
35-36	-	10	20	16	13	16	14
37-38	-	10	19	25	15	9	12
39-40	-	9	13	13	5	9	7
41 or More	-	18	25	20	14	11	15

$X^2 = 364.5$, DF = 30, $p < .001$
$r = .62$, $p < .001$

TABLE E-8

BEHAVIOR SCORE BY ALCOHOL ATTITUDE

Behavior	Alcohol Attitude							
	0-25	26-30	31-32	33-34	35-36	37-38	39-40	41 or More
0	328	8	5	7	8	6	9	8
1	3	15	4	9	11	9	6	22
2-5	3	13	15	7	13	14	10	18
6	7	20	10	17	14	20	14	18
7	6	20	9	27	26	23	8	17
8	5	17	5	15	9	10	4	10
9	10	11	10	13	5	4	3	9
10 or More	8	14	6	6	5	4	2	1

$X^2 = 344.0$, DF = 25, $p < .001$
$r = .67$, $p < .001$

TABLE E-9

KNOWLEDGE SCORE BY ALCOHOL ATTITUDE SCORE

	Alcohol Attitude								
Knowledge	0	1-15	26-30	31-32	33-34	35-36	37-38	39-40	40 or More
3-4	13	0	0	0	1	0	2	0	0
5	42	3	5	0	1	3	2	1	5
6	66	2	10	11	9	11	6	8	22
7	85	5	15	17	22	20	13	13	33
8	64	11	42	22	29	15	25	16	36
9	42	14	33	18	22	29	27	15	21
10 or More	12	10	13	7	17	11	15	3	16

$X^2 = 138.5$, DF = 32, $p < .001$
$r = .30$, $p < .001$

TABLE E-10

AWARENESS SCORE BY ALCOHOL ATTITUDE

	Alcohol Attitude						
Awareness	0-30	31-32	33-34	35-36	37-38	39-40	41 or More
0-1	207	0	0	0	0	0	0
2	70	0	0	0	0	0	0
3	57	10	10	15	5	5	17
4	27	4	7	6	11	2	6
5	45	23	26	17	23	15	20
6	36	15	27	23	21	14	29
7	18	11	14	9	14	11	9
8	14	6	8	11	8	4	16
9 or More	12	5	9	8	8	6	6

$X^2 = 389.8$, DF = 36, $p < .001$
$r = .77$, $p < .001$