

UMTRI-2000-5

**EVALUATING EFFECTS OF FEDERAL SECTION 410
INCENTIVE GRANTS IN MICHIGAN ON CRASHES
AND PUBLIC PERCEPTION**

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16. Abstract <p>This report documents an evaluation of the impact of programs sponsored in Saginaw County, Michigan, using Federal incentive grant funds to implement countermeasures for alcohol-impaired driving, funded by Title 23, <i>United States Code</i>, chapter 4, Section 410.</p> <p>The measures of effectiveness used in this study were (1) the number of alcohol-involved crashes resulting in fatal or serious injury, and (2) persons' attitudes, knowledge, and self-reported behaviors related to alcohol-related driving and related issues.</p> <p>Analyses of survey data showed no significant changes from preprogram to postprogram, thus do not support the hypothesis that Section 410 funds changed the knowledge, attitudes, and self-reported behaviors of persons with respect to alcohol-impaired driving and related issues.</p> <p>A decline in KA-HBD crashes occurred in the test county (Saginaw) after the Section 410 program efforts began (as would be predicted if the program was effective); however, a similar decline was also found in areas where no substantial Section 410 investment was made.</p> <p>In sum, we cannot conclude that the Section 410 program investment had an effect on KA-HBD crashes or associated attitudes, knowledge, or behaviors above and beyond that caused by other environmental factors. However, it would appear that these investments, in concert with other changes in the environment, have had a significant, positive effect on reducing crashes associated with alcohol-impaired driving.</p>					
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Background

Alcohol-impaired driving is a factor in about 20,000 reported crashes each year in Michigan. In about one of every eight of these crashes, one or more involved persons is killed or seriously injured (resulting in about 2,500 fatal or serious-injury crashes each year). These crashes result in the death of more than 500 persons annually. These impressive figures have led to a wide variety of legislative, educational, and enforcement-based programs designed to reduce the toll exacted by alcohol-impaired driving. Among these is a series of programs sponsored by the Michigan Department of State Police, Office of Highway Safety Planning (OHSP), funded through monies made available by Title 23, *United States Code*, chapter 4, Section 410.

The program evaluated in this report intends to encourage states to adopt and implement effective programs to reduce traffic-safety problems resulting from individuals driving while under the influence of alcohol. Additional details about the specific language of the law regarding Federal Section 410 program can be found at <http://www4.law.cornell.edu/uscode/unframed/23/410.html>.

Section 410 monies, as these supplemental funds have come to be called, permitted the development of a wide range of activities in Michigan that would not have otherwise been possible to support. These activities included improvement of court data systems, training for law enforcement and probation officers, employer education targeting 21-34 year olds, and heightened support for the development of state and local partnerships for future program placement. Probably the most important component to the Section 410 activities was the support of programs designed to enhance the chances of arresting and successfully prosecuting alcohol-impaired drivers. The predominant method used to enhance these chances was saturation patrols in which significant overtime law-enforcement resources are invested in a concentrated area where alcohol-impaired driving problems are identified to be severe and apprehension likely over a similarly planned and concentrated period of time (often weekend and holiday evenings).

To the credit of OHSP, the need to try to assess the impact of these supplemental funds was identified early and a contractor was identified to plan and conduct such an evaluation. As the contractor, we worked closely with OHSP in the development of an evaluation plan that gave OHSP the best chance to identify effects caused by programs supported by the supplemental Section 410 funds.

Overall, the goal of the supplemental Section 410 investment was to reduce the number of persons killed or seriously injured in alcohol-involved crashes. There were two primary means by which this was going to be achieved. First, the threat of arrest, conviction, and severe sanctioning for alcohol-impaired driving was to be increased among the general public (and potential drinking drivers in particular) through a combination of a heightened law-enforcement presence, and promotion of the existence of the saturation-patrol program through media outlets.

Second, the community environment would be made to be less tolerant of and more knowledgeable about alcohol-impaired driving (and associated behaviors such as minors' access to alcoholic beverages) through the development and expansion of local community prevention groups and their associated program efforts.

Given these program goals, obvious measures of effectiveness are (1) the number of alcohol-involved crashes resulting in fatal or serious injury and (2) persons' attitudes, knowledge, and self-reported behaviors related to alcohol-related driving and related issues. While it is theoretically simple to design a study to evaluate the impact of programs like those described earlier, on these measures of effectiveness, existing conditions significantly complicate an evaluation of Section 410 programs in Michigan.

Most troublesome to the development of an evaluation of any given prevention program for alcohol-impaired driving in Michigan is the number of different prevention programs being conducted simultaneously across the state. Because these efforts are often wide ranging in scope and reach, and are not all under the control of a single entity, it is generally not possible to institute the type of experimental control required to determine solid cause-effect relationships between program activities and observed outcomes. That is, it is difficult to determine if any observed effects are the result of the Section 410 programs or some other program effort.

Methods

General Methods

The research design that was selected for the evaluation could be described as being a pre-post, control group design. As illustrated in the following table, a program could be said to have had an effect on a given measure if both Condition 1 *and* Condition 2 are true.

	Preprogram Period	Postprogram Period
County with program	A	B
County without program	C	D

Condition 1) $(A > B)$ or $(A < B)$
 Condition 2) $C = D$

For this evaluation, the most significant difficulty was finding an area (county) where no significant supplemental program efforts like those conducted with Section 410 funds existed. Furthermore, this county had to be as similar as possible to the county selected to represent Section 410 program efforts. Two counties (that were large enough to have adequate crash experience to make statistical analysis possible) were matched on population and distribution of road types in the county. Counties were selected that were not adjacent to one another (to reduce the possibility of media coverage from one county affecting the other), and had different levels of Section 410 activity (it was not possible to find suitable counties in which one had 410 activity and the other had none).

Based on a lengthy review of population and roadway demographics, and a consideration of program investments in each county in the state, Saginaw County was selected as the test county and Kalamazoo County was selected as the comparison county. Appendix A has a summary of activities conducted using Section 410 funds for each county.

Knowledge, Attitude, and Self-Reported Behavior

Random-digit dialing surveys were conducted in Saginaw and Kalamazoo counties. Approximately 200 persons from each county were surveyed in May 1998. This was repeated in June 1999 with a new random-digit-dialing sample from each of the two counties. Survey data were analyzed using the SAS, Inc. CATMOD procedure that permits the detailed analysis of

survey data such as those gathered in this project. The following comparisons were made for each of the questions in the survey (see Appendix B for a copy of the survey questionnaire).

	Preprogram Period	Postprogram Period
Saginaw County (Section 410 Test County)	A	B
Kalamazoo County (Comparison County)	C	D

- 1) A vs. B
- 2) A for males vs. B for males
- 3) A for females vs. B for females

- 4) C vs. D
- 5) C for males vs. D for males
- 6) C for females vs. D for females

Results

Knowledge, Attitude, and Self-Reported Behavior

The charts on the following pages detail the results from the survey data broken down by county, survey wave, and gender. Statistical analyses conducted using SAS, Inc. CATMOD procedure showed that, for each of the items, there was no statistically significant difference between any of the groups compared pre-post. The following chart details the results of the statistical analyses using the format presented earlier.

	Preprogram Period	Postprogram Period
Saginaw County (Section 410 Test County)	A	B
Kalamazoo County (Comparison County)	C	D

- 1) A vs. B – no statistically significant difference
- 2) A for males vs. B for males – no statistically significant difference
- 3) A for females vs. B for females – no statistically significant difference

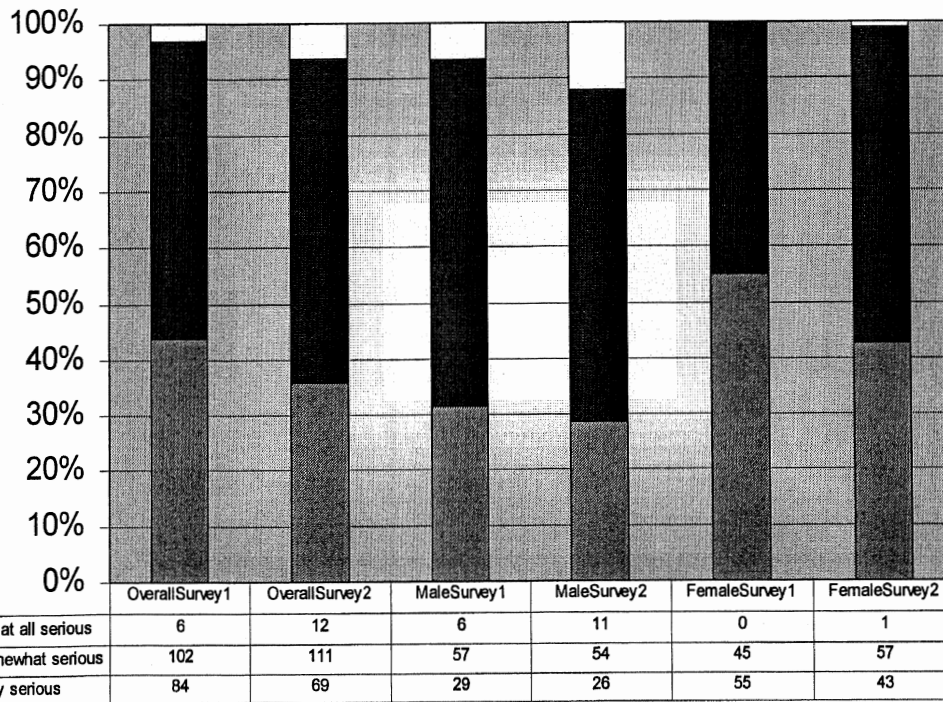
- 4) C vs. D – no statistically significant difference
- 5) C for males vs. D for males – no statistically significant difference
- 6) C for females vs. D for females – no statistically significant difference

In addition, analyses showed no statistically significant differences in item responses between the two counties (Saginaw vs. Kalamazoo). Statistically significant differences in item responses were found between males and females. These differences were generally small and did not vary systematically from survey 1 to survey 2.

Taken in total, analyses of the survey data do not support the hypothesis that Section 410 funds changed the knowledge, attitudes, and self-reported behaviors of persons with respect to alcohol-impaired driving and related issues. While this assessment appears disappointing, a less negative interpretation of these results, examined in a larger context, is provided in the conclusions section.

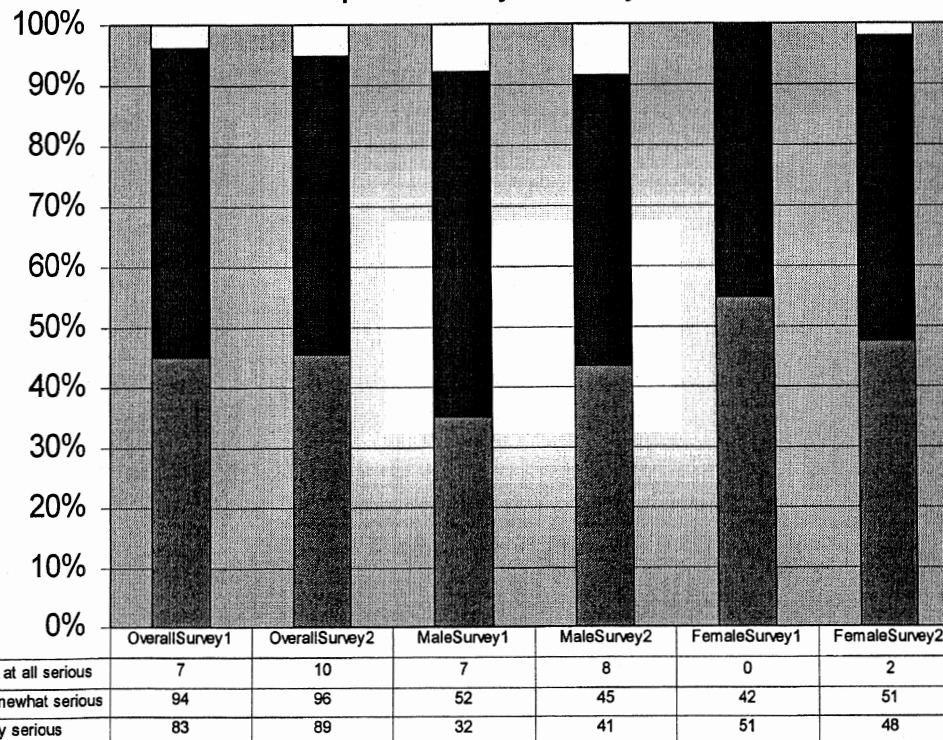
Saginaw County

How serious do you think the drunk driving problem is in your county?

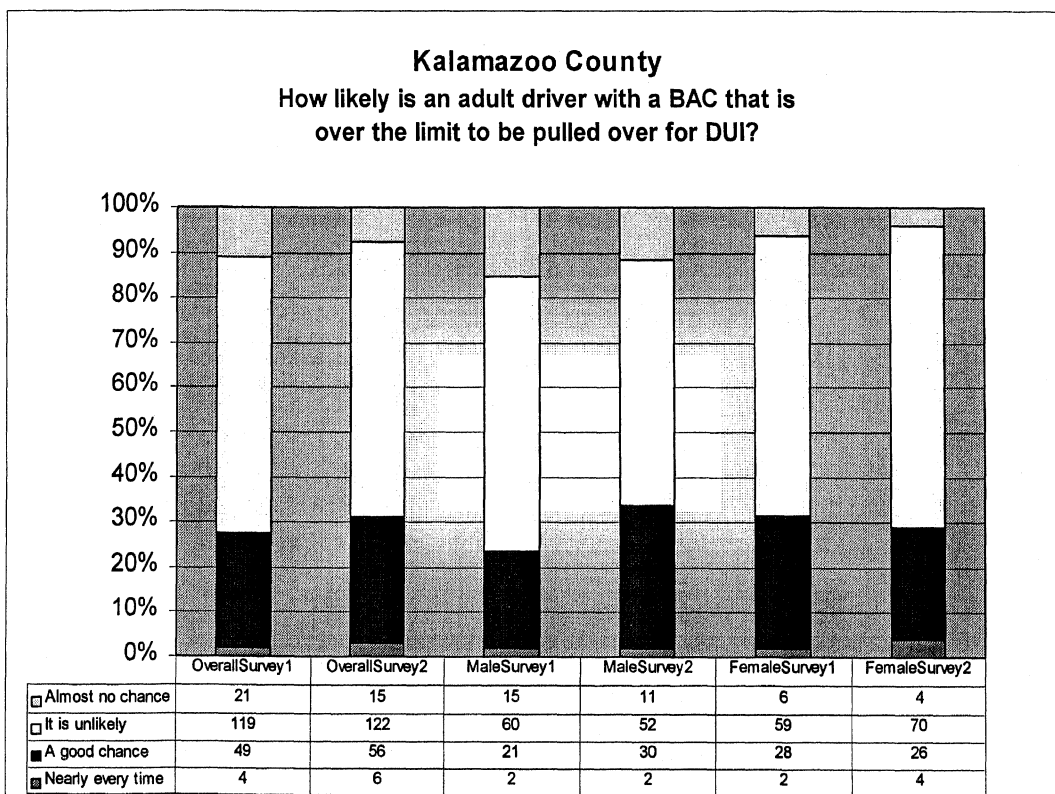
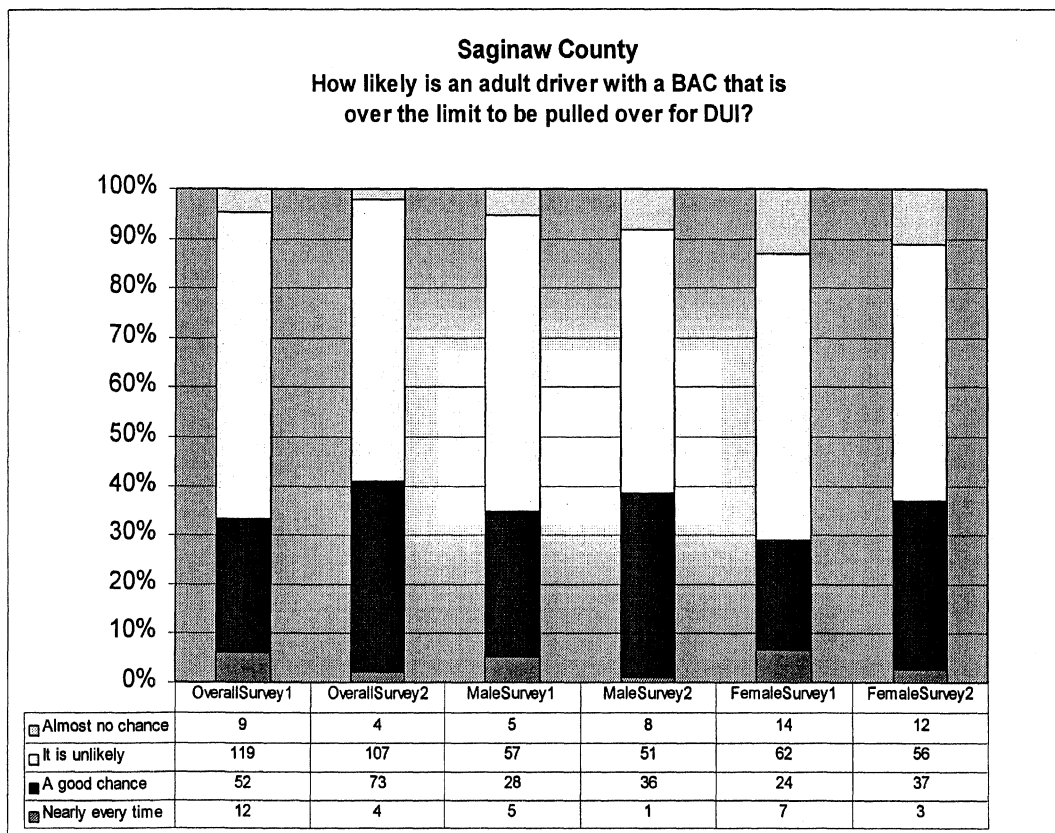


Kalamazoo County

How serious do you think the drunk driving problem is in your county?



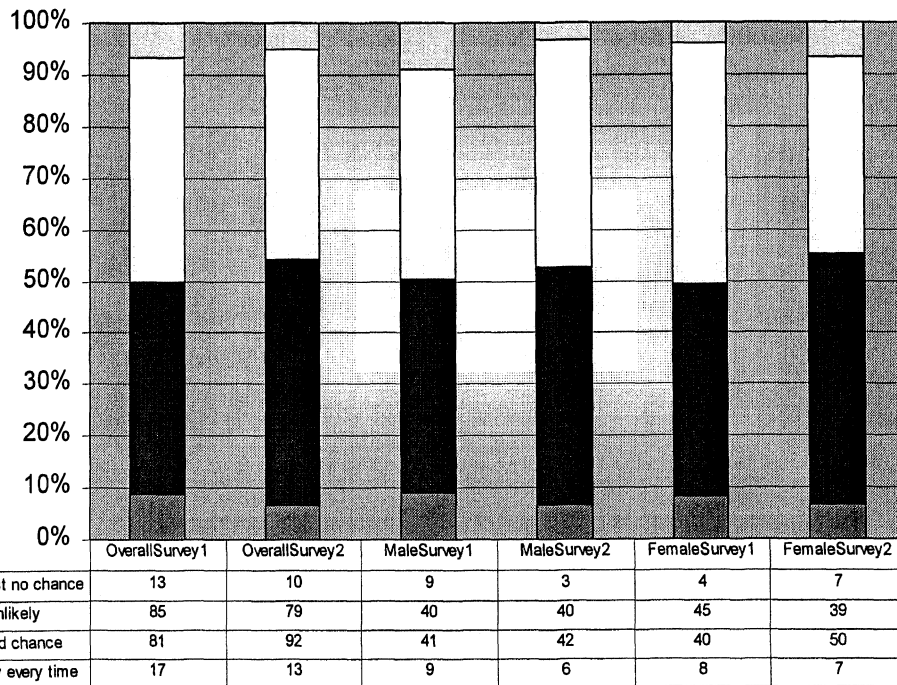
The charts on the previous page show that about 90% of respondents report that they think drunk driving is a very serious or somewhat serious problem in their county. Females reported the problem as being more severe than did males.



The charts on the previous page show that over 60% of respondents reported that they thought that it is unlikely or there is almost no chance that an adult driver with a BAC over the limit for DUI will be pulled over for DUI.

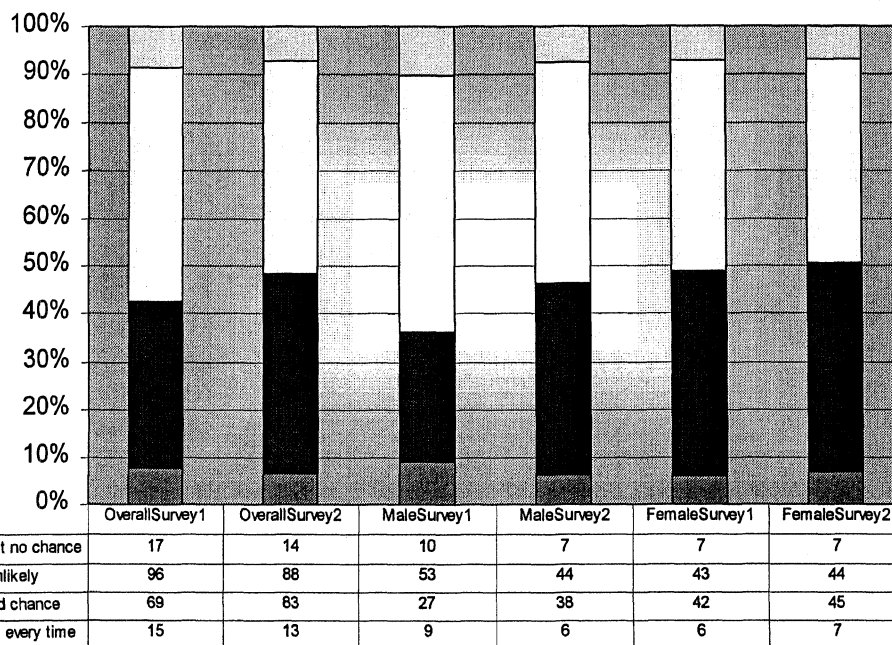
Saginaw County

How likely is a driver under age 21 with a BAC that is over the limit to be pulled over for DUI?



Kalamazoo County

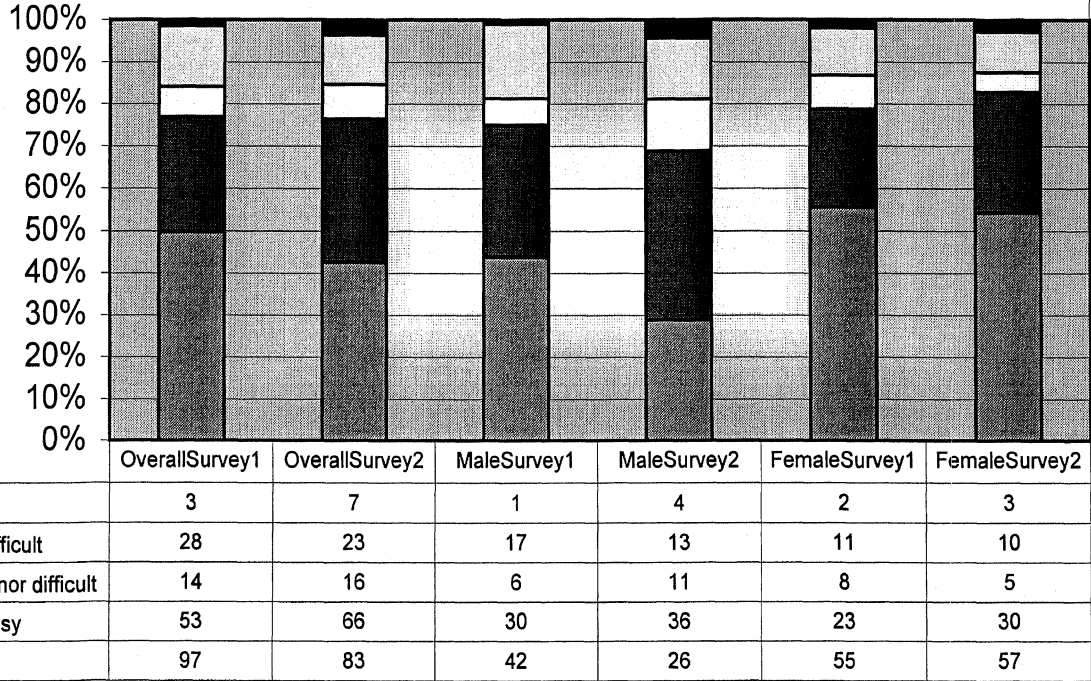
How likely is a driver under age 21 with a BAC that is over the limit to be pulled over for DUI?



The charts on the previous page show that respondents think that a minor with a BAC over the limit has a better chance to be pulled over for DUI than an adult. However, about 50% of respondents to this question still report that such a pull over is unlikely or that there is almost no chance that such a minor would be pulled over.

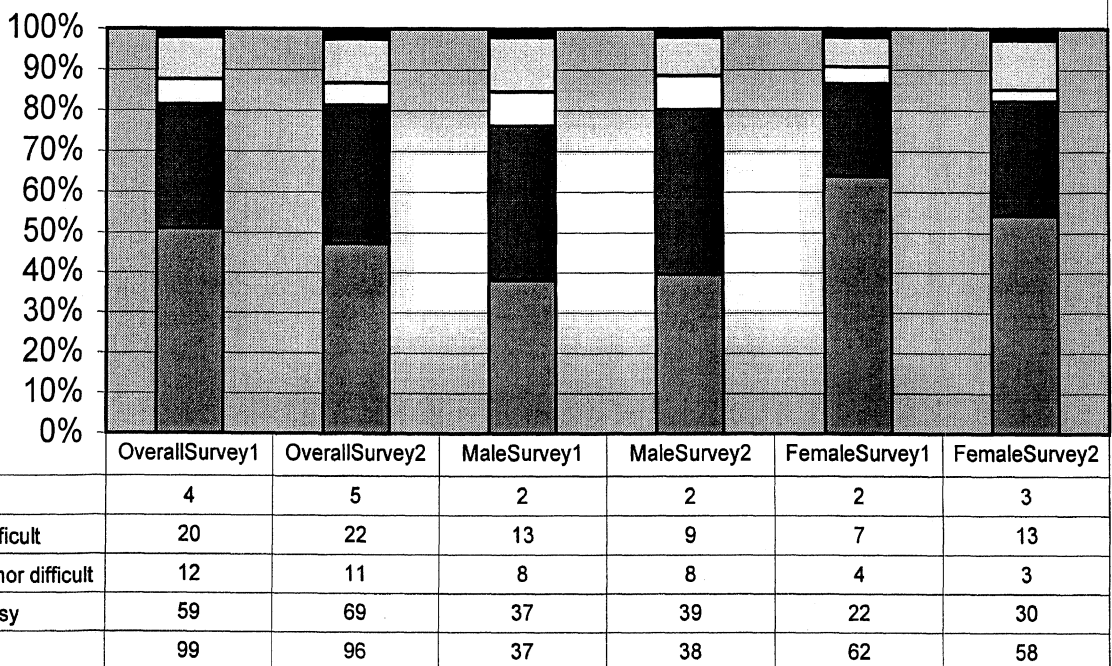
Saginaw County

How easy or difficult is it for persons under age 21 to obtain (without purchasing) alcoholic beverages in your county?



Kalamazoo County

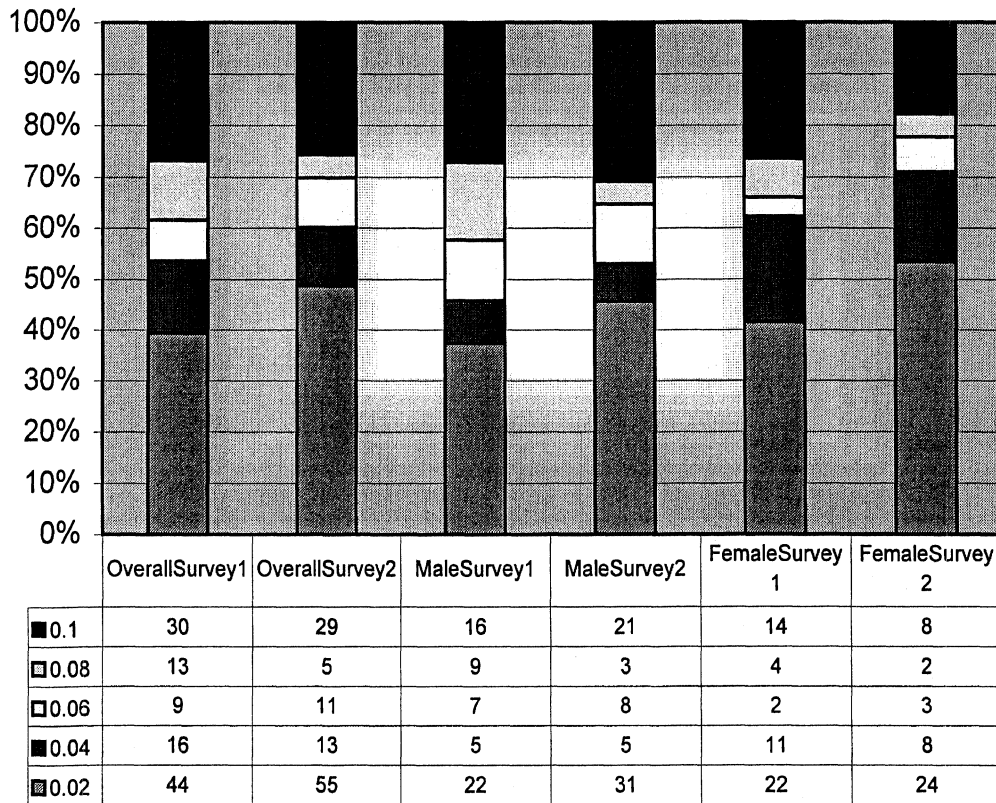
How easy or difficult is it for persons under age 21 to obtain (without purchasing) alcoholic beverages in your county?



The charts on the previous page show that about 70% of respondents believe that it is very or somewhat easy for a minor to obtain alcoholic beverages. Females reported it being slightly easier than did males.

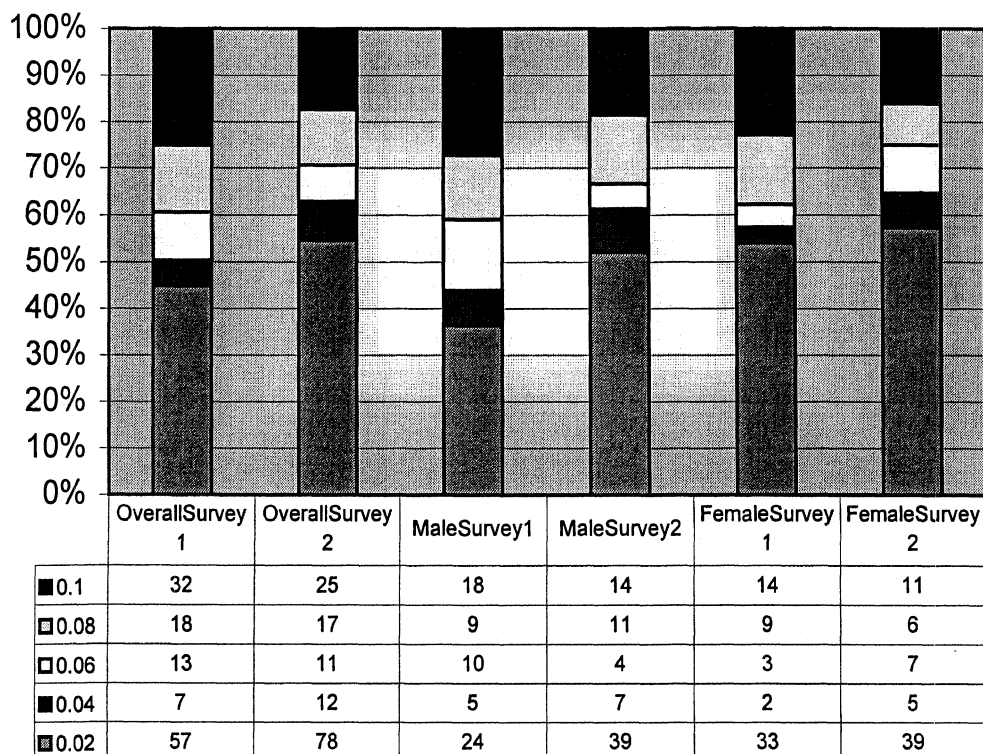
Saginaw County

At what blood alcohol level can a driver under age 21 be convicted of an alcohol-related driving offense?



Kalamazoo County

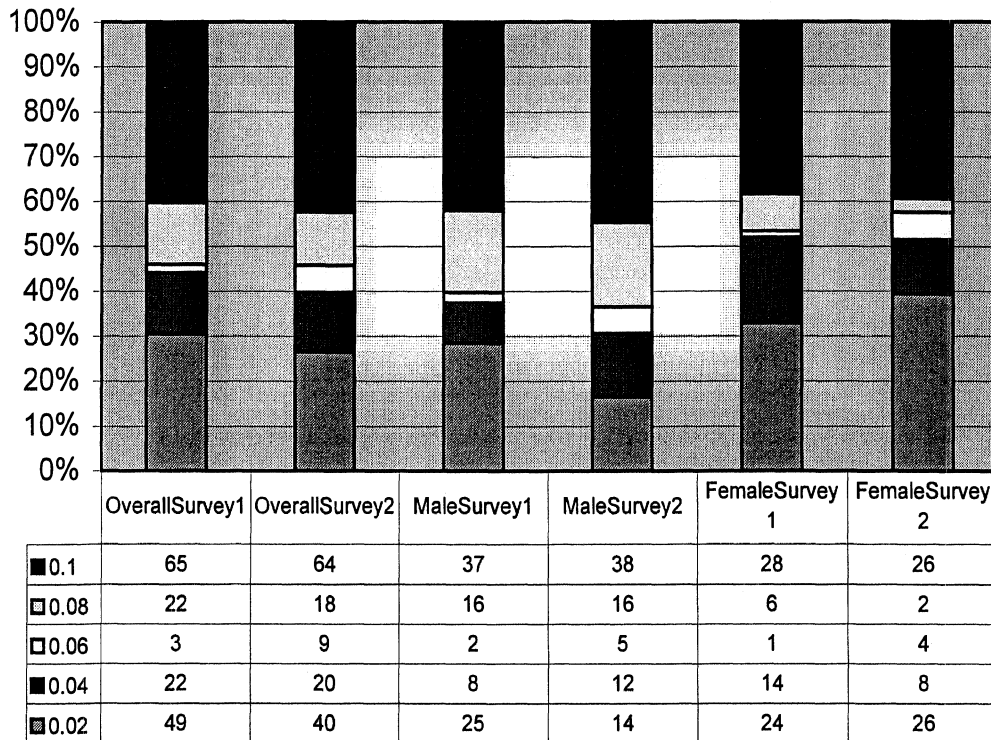
At what blood alcohol level can a driver under age 21 be convicted of an alcohol-related driving offense?



The charts on the previous page show that less than half of respondents know the BAC at which minors can be convicted of an alcohol-related driving offense. The remainder selected a BAC higher than the allowable level.

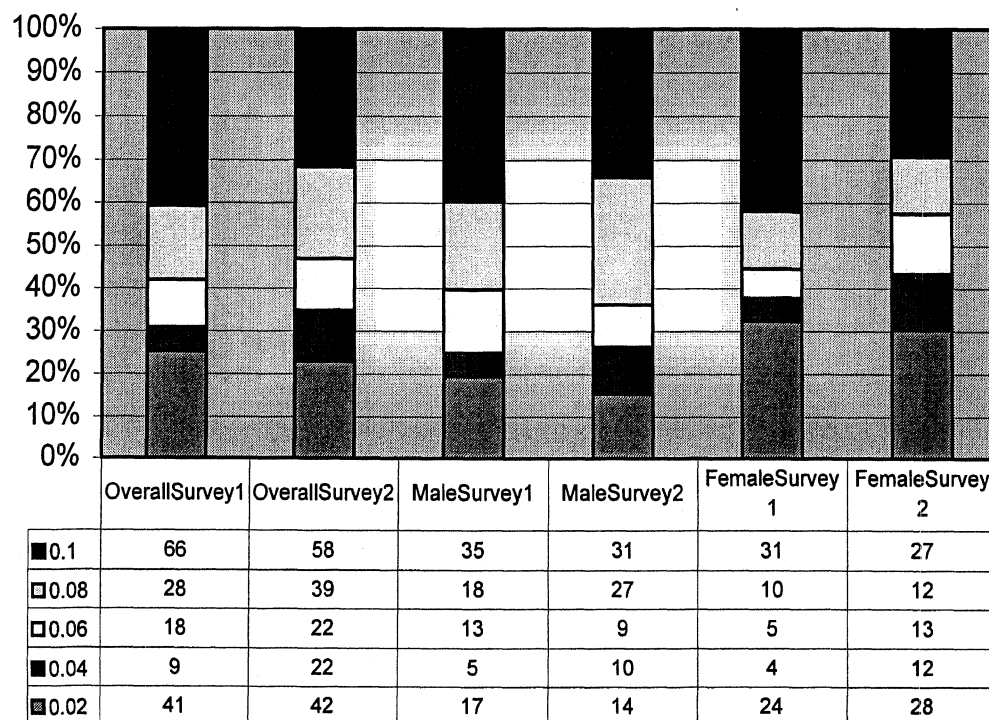
Saginaw County

At what blood alcohol level can an adult driver be convicted of driving while impaired?



Kalamazoo County

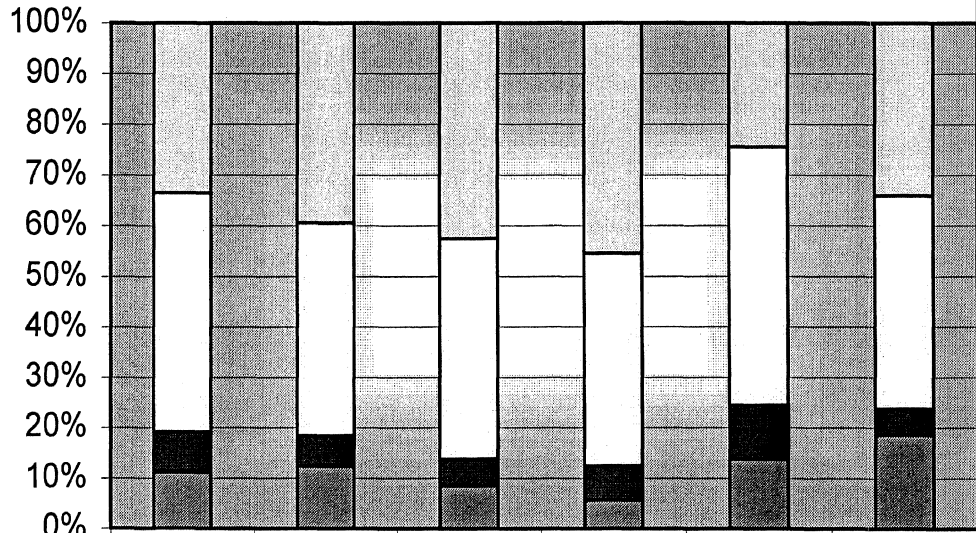
At what blood alcohol level can an adult driver be convicted of driving while impaired?



The charts on the previous page show that less than 20% of respondents correctly identified the BAC level at which adults can be convicted of driving while impaired. The remainder were about equally split between a higher and a lower BAC level for conviction.

Saginaw County

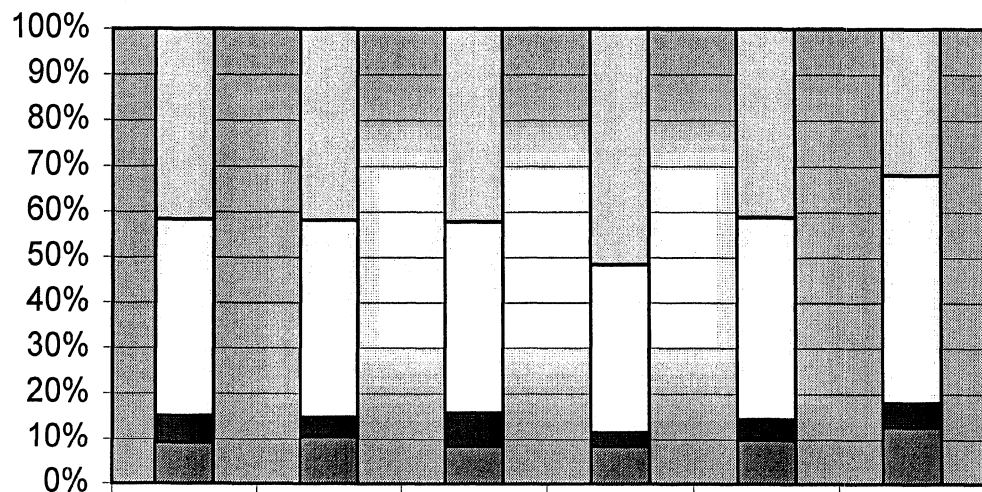
Which of the following drinks has more alcohol?



	Overall Survey 1	Overall Survey 2	Male Survey 1	Male Survey 2	Female Survey 1	Female Survey 2
☐ All are the same	63	73	40	40	23	33
☐ One mixed drink	89	78	41	37	48	41
■ A 5 oz. glass of wine	15	11	5	6	10	5
■ A 12 oz. can of beer	21	23	8	5	13	18

Kalamazoo County

Which of the following drinks has more alcohol?

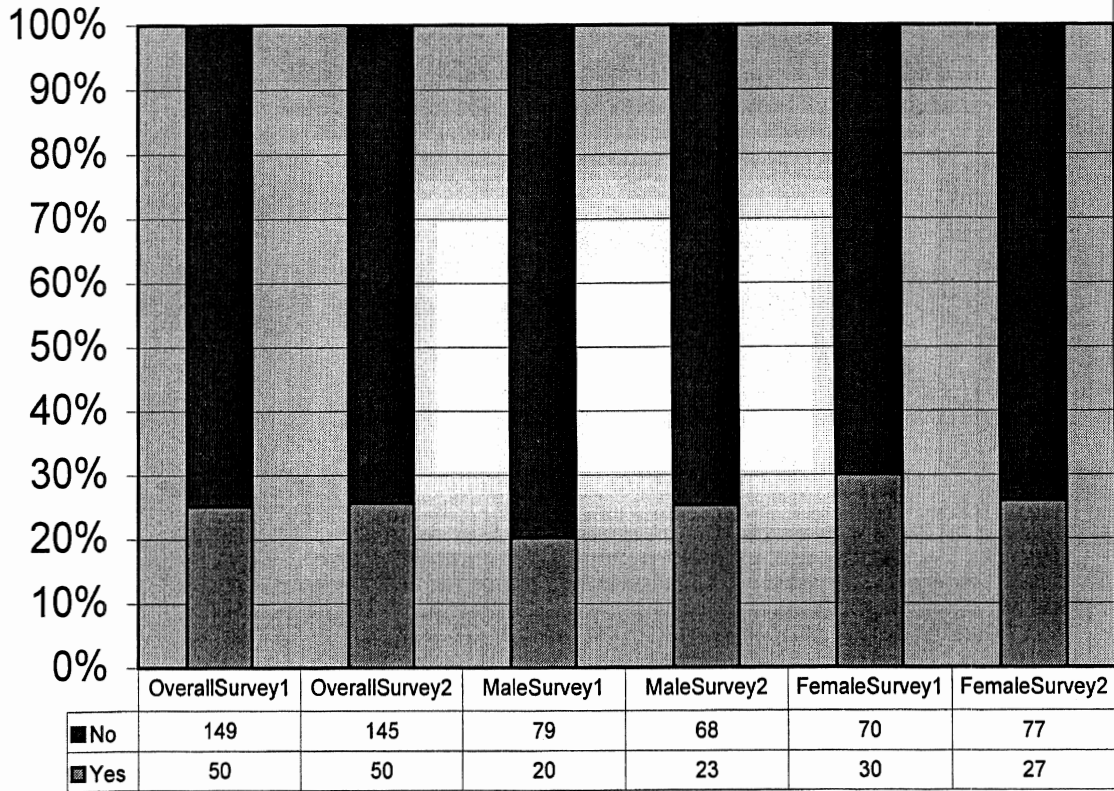


	Overall Survey 1	Overall Survey 2	Male Survey 1	Male Survey 2	Female Survey 1	Female Survey 2
☐ All are the same	77	79	40	49	37	30
☐ One mixed drink	80	82	40	35	40	47
■ A 5 oz. glass of wine	11	8	7	3	4	5
■ A 12 oz. can of beer	17	20	8	8	9	12

The charts on the previous page show that about 40% of respondents correctly identified the alcohol content of the beverages as being the same. More males identified the correct answer than did females.

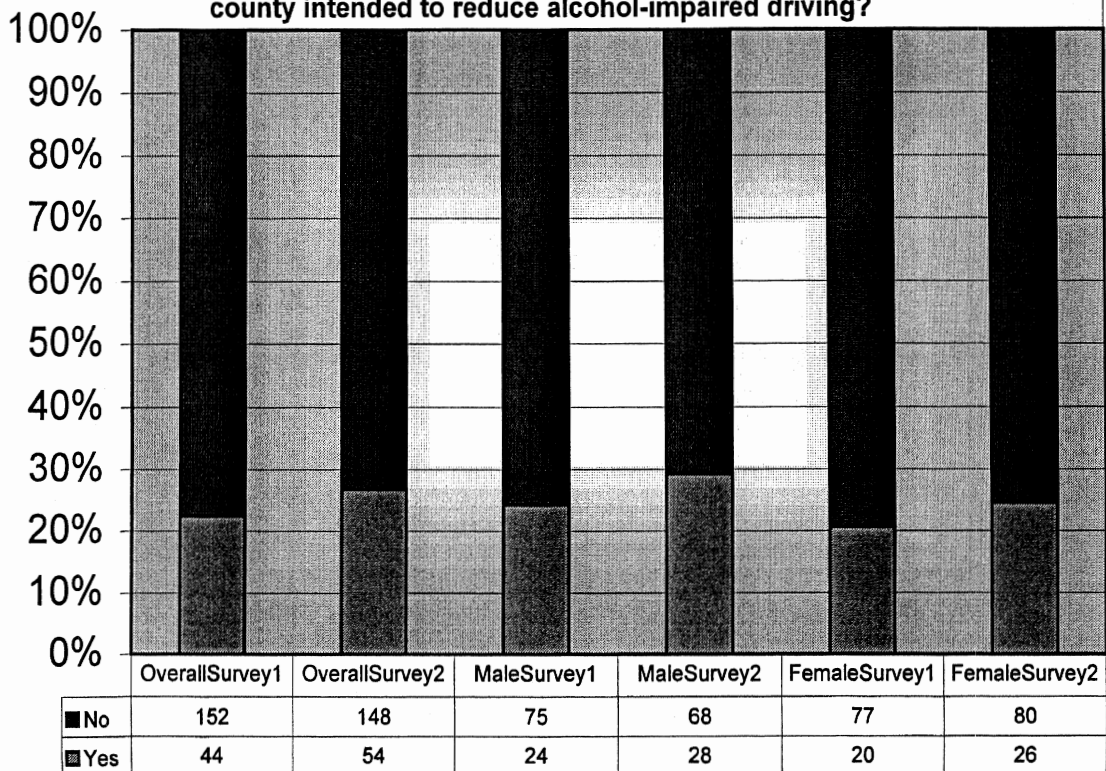
Saginaw County

Do you know of any special traffic safety programs underway in your county intended to reduce alcohol-impaired driving?



Kalamazoo County

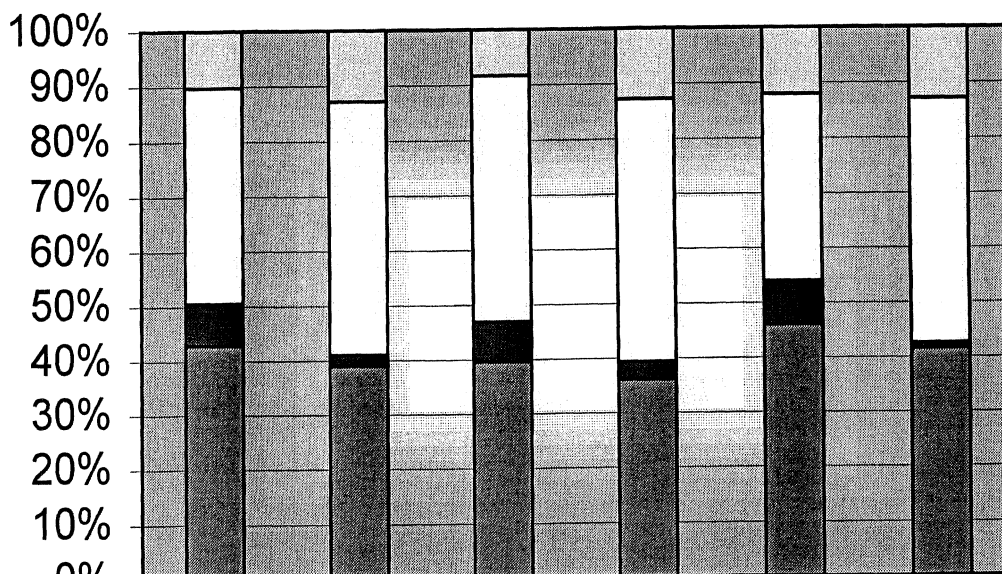
Do you know of any special traffic safety programs underway in your county intended to reduce alcohol-impaired driving?



The charts on the previous page show that only about 20% of respondents knew of a special alcohol-impaired driving program in their county.

Saginaw County

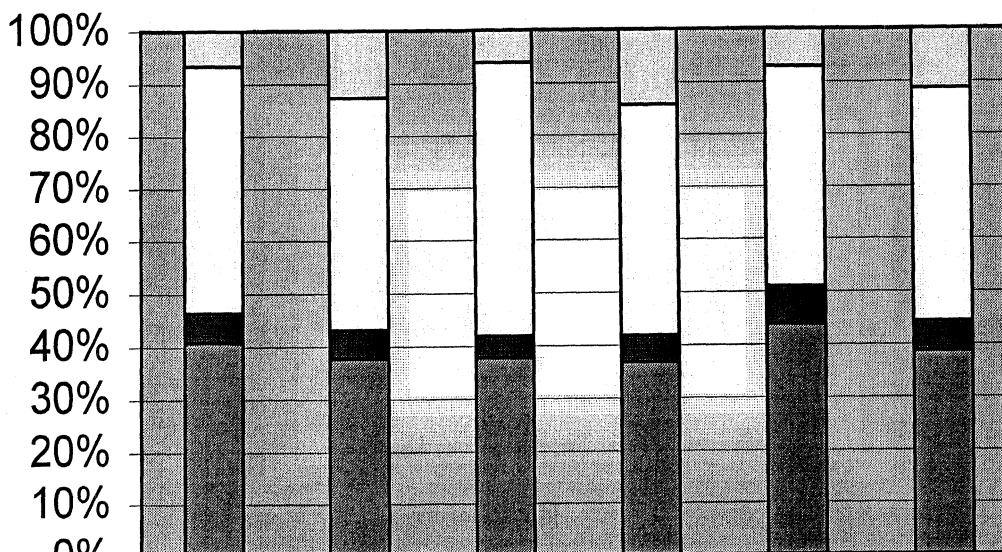
Have you heard of community youth coalitions to fight drunk driving?



	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	20	25	8	12	12	13
□ Have never heard of it	77	90	43	45	34	45
■ Have heard of it NOT IN own county	15	4	7	3	8	1
■ Have heard of it IN own county	84	76	38	34	46	42

Kalamazoo County

Have you heard of community youth coalitions to fight drunk driving?

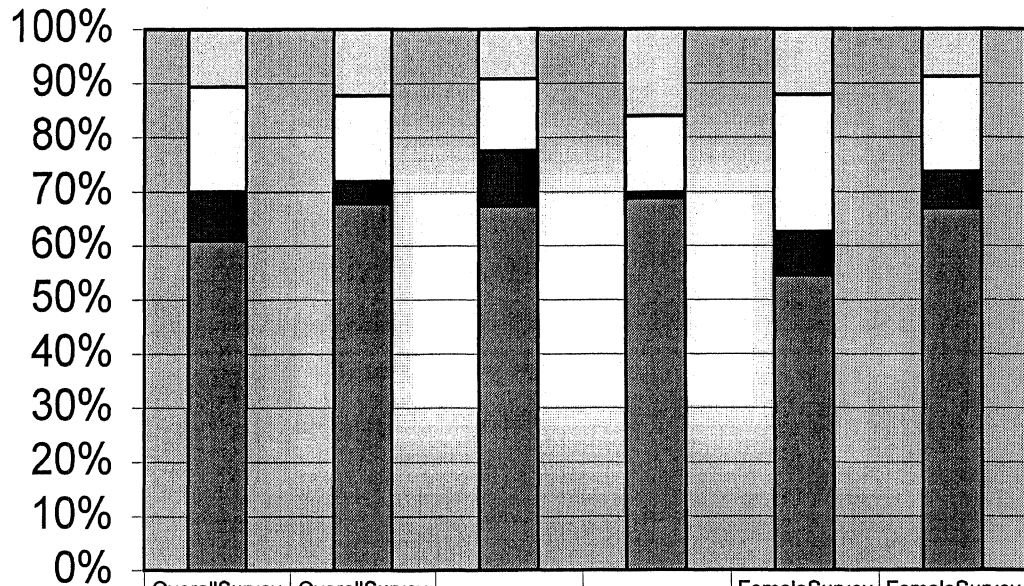


	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	13	26	6	14	7	12
□ Have never heard of it	92	90	51	43	41	47
■ Have heard of it NOT IN own county	11	11	4	5	7	6
■ Have heard of it IN own county	80	77	37	36	43	41

The charts on the previous page show that about 40% of respondents had heard of community youth coalitions to fight drunk driving in their own county and an additional 40% had never heard of such coalitions.

Saginaw County

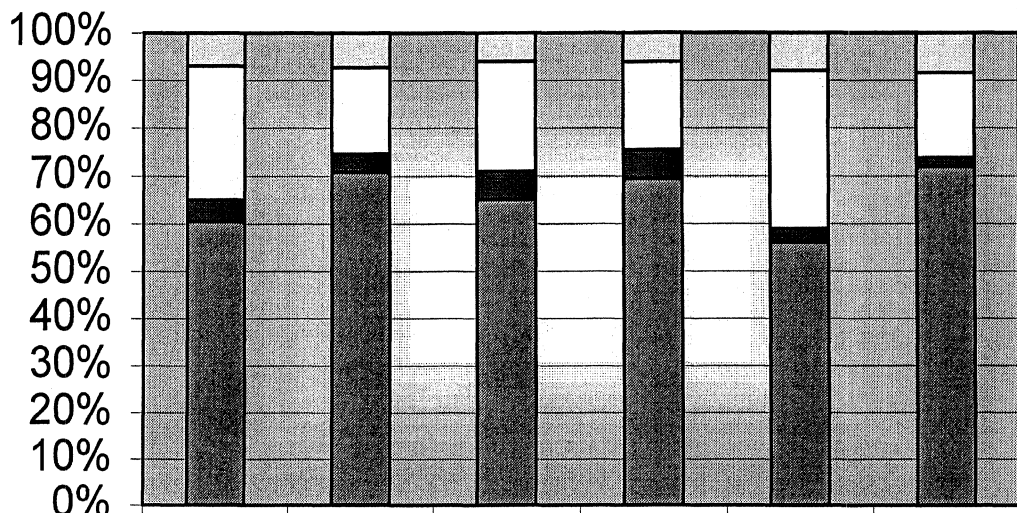
Have you heard of undercover operations to arrest store clerks who sell liquor to minors?



	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	21	24	9	15	12	9
□ Have never heard of it	38	31	13	13	25	18
■ Have heard of it NOT IN own county	18	8	10	1	8	7
■ Have heard of it IN own county	120	133	66	64	54	69

Kalamazoo County

Have you heard of undercover operations to arrest store clerks who sell liquor to minors?

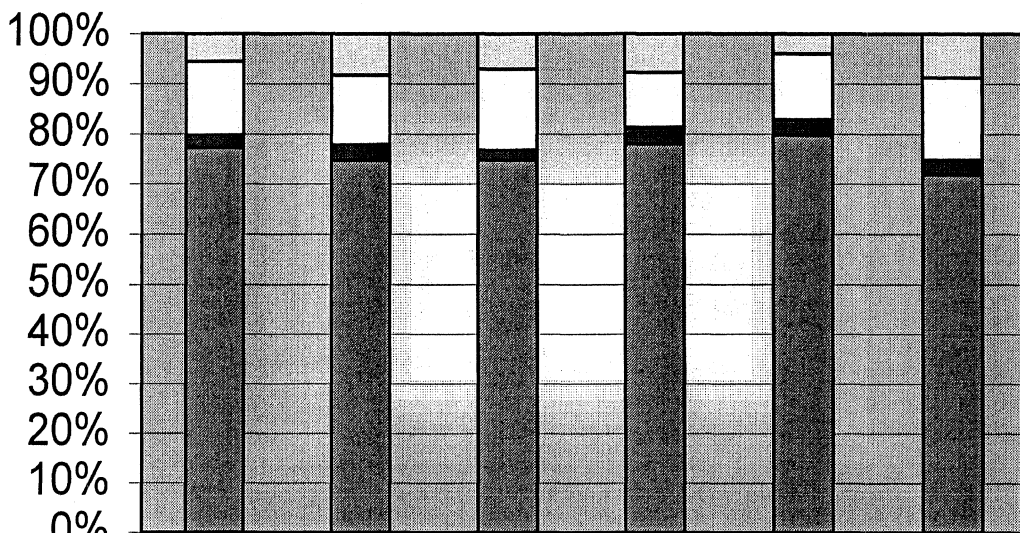


	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	14	15	6	6	8	9
□ Have never heard of it	56	37	23	18	33	19
■ Have heard of it NOT IN own county	9	8	6	6	3	2
■ Have heard of it IN own county	121	145	65	68	56	77

The charts on the previous page show that about 60% of respondents had heard of undercover operations to arrest store clerks that sell liquor to minors.

Saginaw County

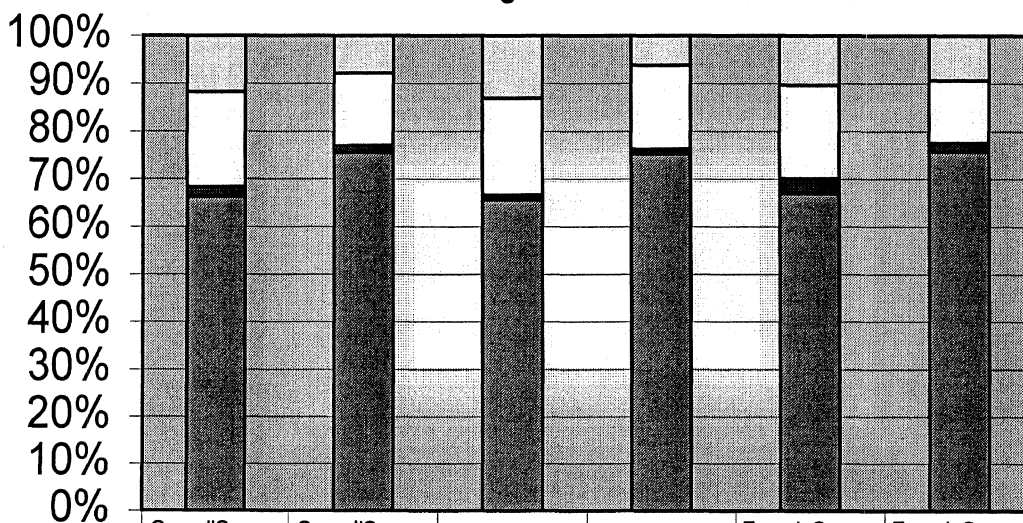
Have you heard of school programs to teach teens about the effects of alcohol and drugs?



	Overall Survey 1	Overall Survey 2	Male Survey 1	Male Survey 2	Female Survey 1	Female Survey 2
■ Heard of it, but don't know where	11	16	7	7	4	9
□ Have never heard of it	29	27	16	10	13	17
■ Have heard of it NOT IN own county	5	6	2	3	3	3
■ Have heard of it IN own county	153	145	74	71	79	74

Kalamazoo County

Have you heard of school programs to teach teens about the effects of alcohol and drugs?

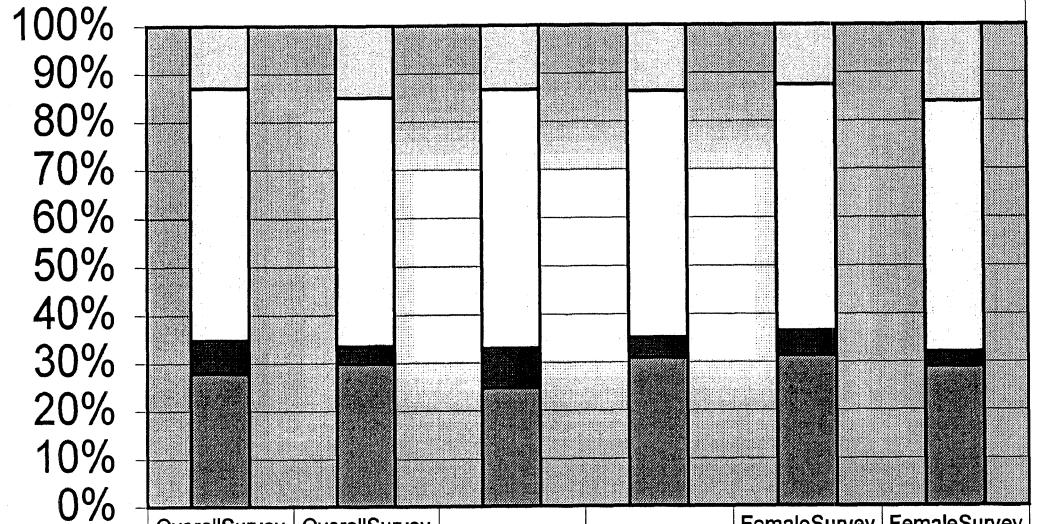


	Overall Survey 1	Overall Survey 2	Male Survey 1	Male Survey 2	Female Survey 1	Female Survey 2
■ Heard of it, but don't know where	23	16	13	6	10	10
□ Have never heard of it	39	31	20	17	19	14
■ Have heard of it NOT IN own county	4	3	1	1	3	2
■ Have heard of it IN own county	130	154	65	73	65	81

The charts on the previous page show that over 70% of respondents had heard of school programs to teach teens about the effects of alcohol and drugs.

Saginaw County

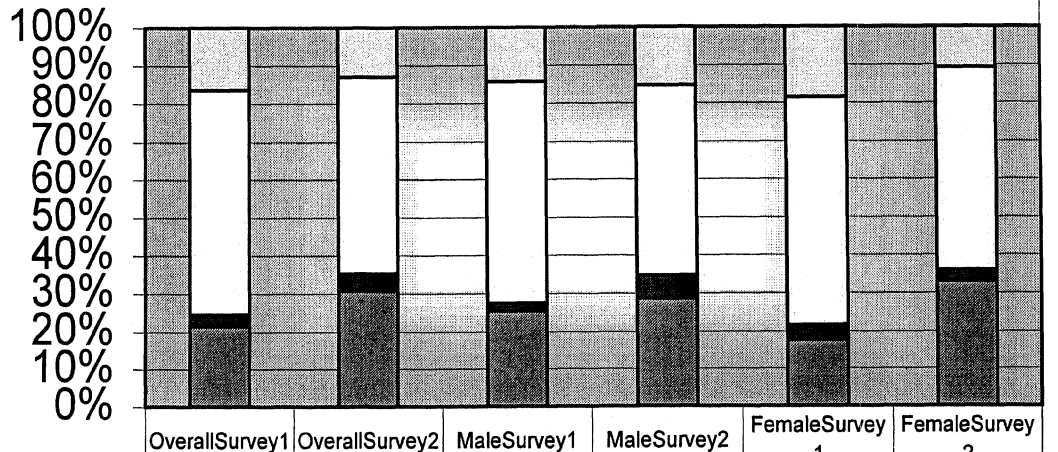
Have you heard of workshops for students and parents to understand consequences of alcohol-impaired driving?



	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	25	29	13	13	12	16
□ Have never heard of it	101	100	52	48	49	52
■ Have heard of it NOT IN own county	13	7	8	4	5	3
■ Have heard of it IN own county	54	58	24	29	30	29

Kalamazoo County

Have you heard of workshops for students and parents to understand consequences of alcohol-impaired driving?

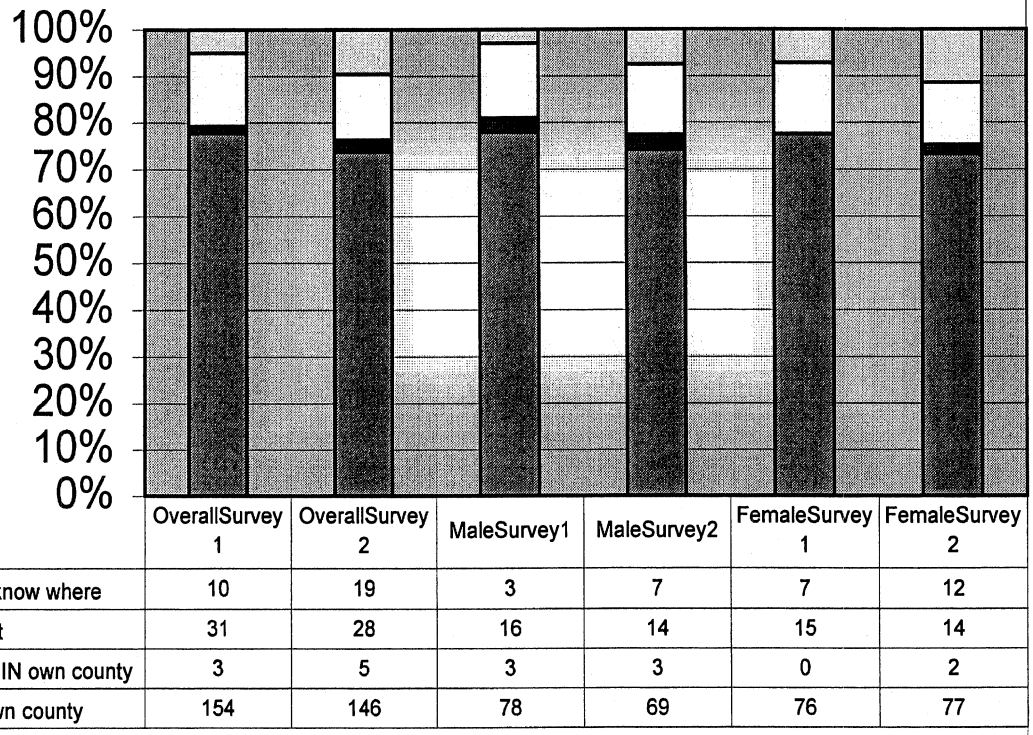


	OverallSurvey1	OverallSurvey2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	32	26	14	15	18	11
□ Have never heard of it	115	104	57	49	58	55
■ Have heard of it NOT IN own county	6	9	2	6	4	3
■ Have heard of it IN own county	42	62	25	28	17	34

The charts on the previous page show that about 50% of respondents had never heard of workshops for students and parents to understand the consequences of alcohol-impaired driving. About 25% had heard of such workshops in their own county.

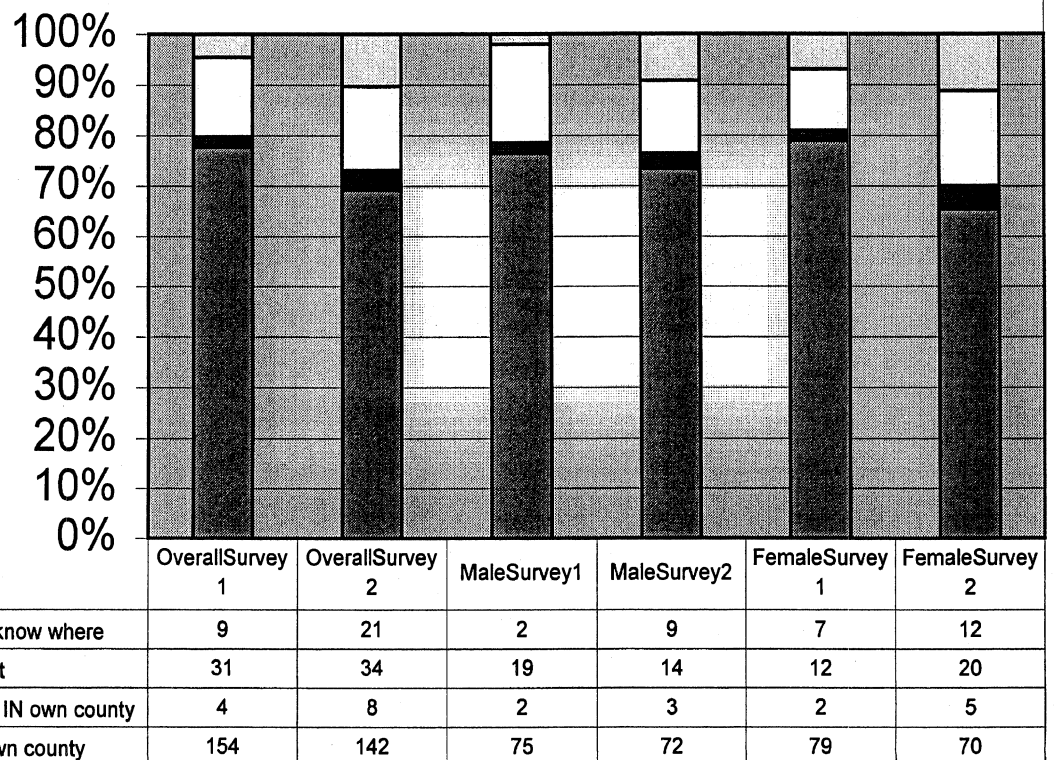
Saginaw County

Have you heard of TV ads designed to inform about the dangers of alcohol-impaired driving?



Kalamazoo County

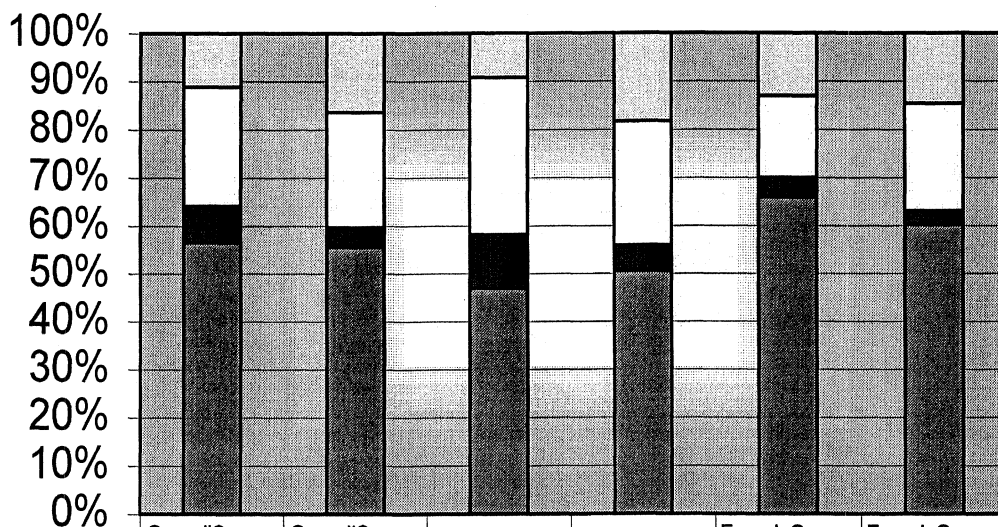
Have you heard of TV ads designed to inform about the dangers of alcohol-impaired driving?



The charts on the previous page show that over 70% of respondents had heard of TV ads designed to inform people about the dangers of alcohol-impaired driving.

Saginaw County

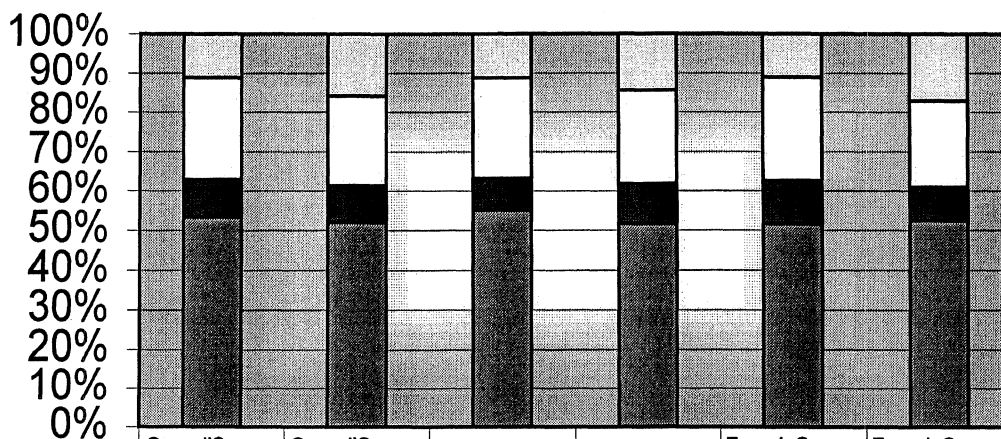
Have you heard of TV, video, or personal presentation featuring victims of drunk driving incidents?



	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
□ Heard of it, but don't know where	22	32	9	17	13	15
□ Have never heard of it	49	47	32	24	17	23
■ Have heard of it NOT IN own county	15	8	11	5	4	3
■ Have heard of it IN own county	112	109	46	47	66	62

Kalamazoo County

Have you heard of TV, video, or personal presentation featuring victims of drunk driving incidents?

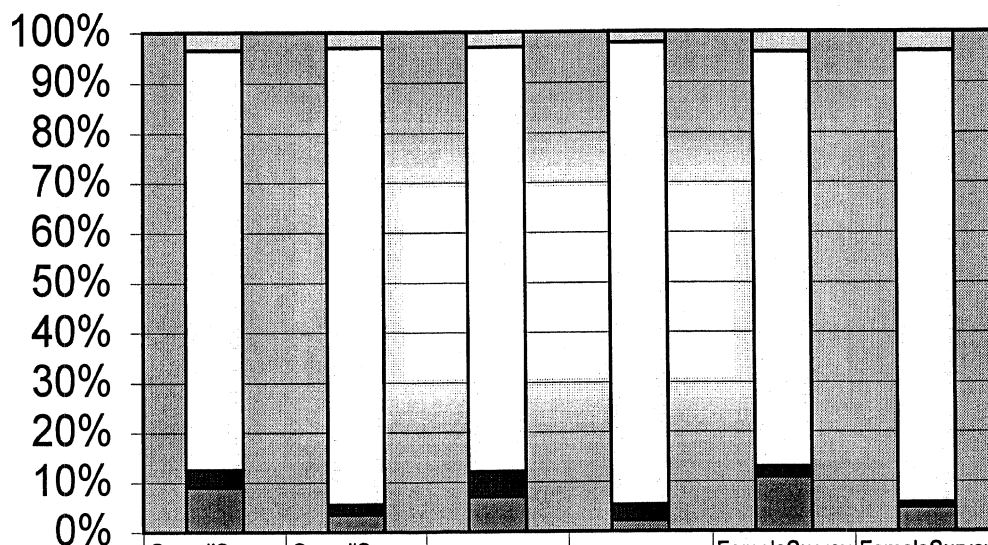


	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
□ Heard of it, but don't know where	22	32	11	14	11	18
□ Have never heard of it	51	46	25	23	26	23
■ Have heard of it NOT IN own county	19	19	8	10	11	9
■ Have heard of it IN own county	105	105	54	50	51	55

The charts on the previous page show that between 50% and 60% of respondents have heard of TV, video, or personal presentations featuring victims of drunk driving incidents in their own counties.

Saginaw County

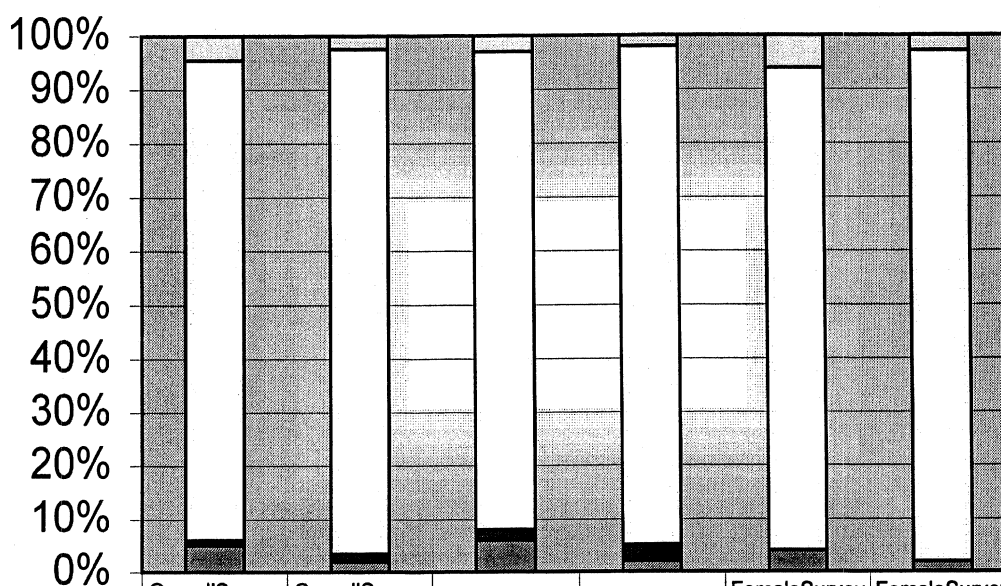
Have you heard of a statewide coalition of youth programs called MCRUD?



	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	7	6	3	2	4	4
□ Have never heard of it	167	180	84	86	83	94
■ Have heard of it NOT IN own county	7	4	5	3	2	1
■ Have heard of it IN own county	18	7	7	2	11	5

Kalamazoo County

Have you heard of a statewide coalition of youth programs called MCRUD?

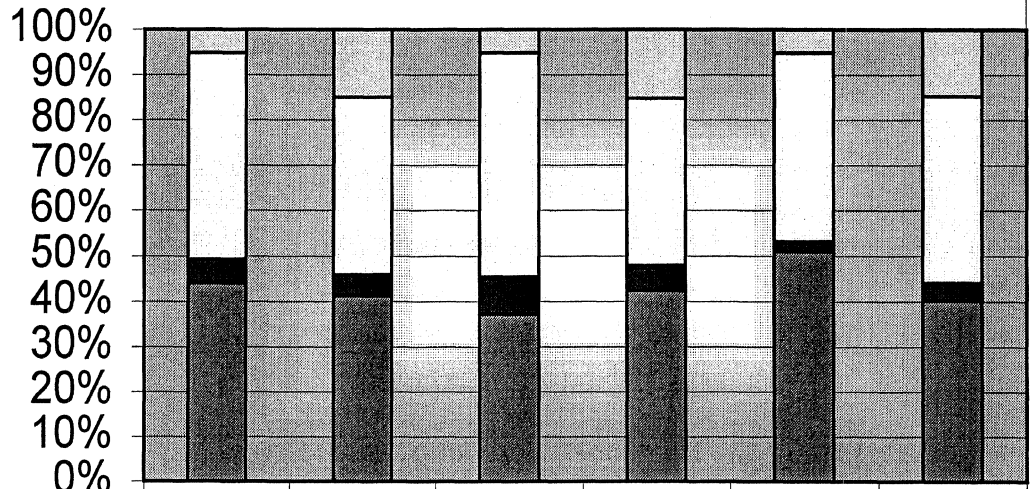


	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	9	5	3	2	6	3
□ Have never heard of it	178	191	89	91	89	100
■ Have heard of it NOT IN own county	2	3	2	3	0	0
■ Have heard of it IN own county	10	4	6	2	4	2

The charts on the previous page show that more than 80% of respondents had never heard of MCRUD.

Saginaw County

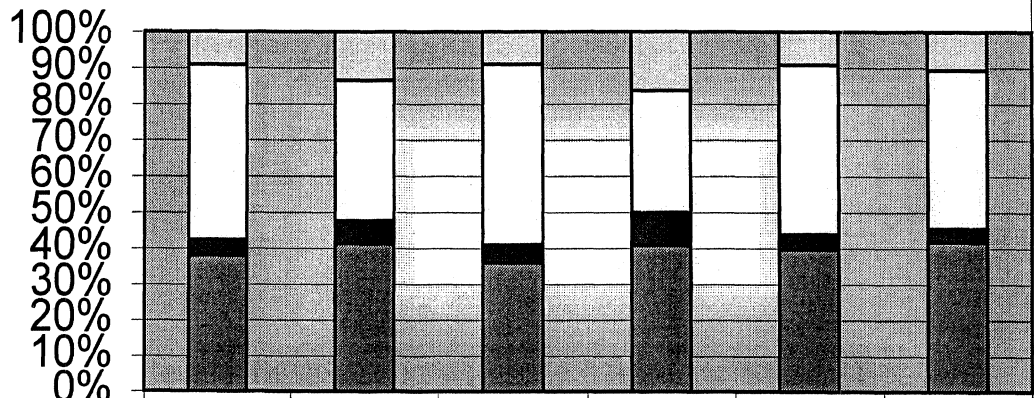
Have you heard of programs to increase awareness of the laws related to drinking and driving?



	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	10	29	5	14	5	15
□ Have never heard of it	88	76	48	34	40	42
■ Have heard of it NOT IN own county	10	9	8	5	2	4
■ Have heard of it IN own county	85	80	36	39	49	41

Kalamazoo County

Have you heard of programs to increase awareness of the laws related to drinking and driving?

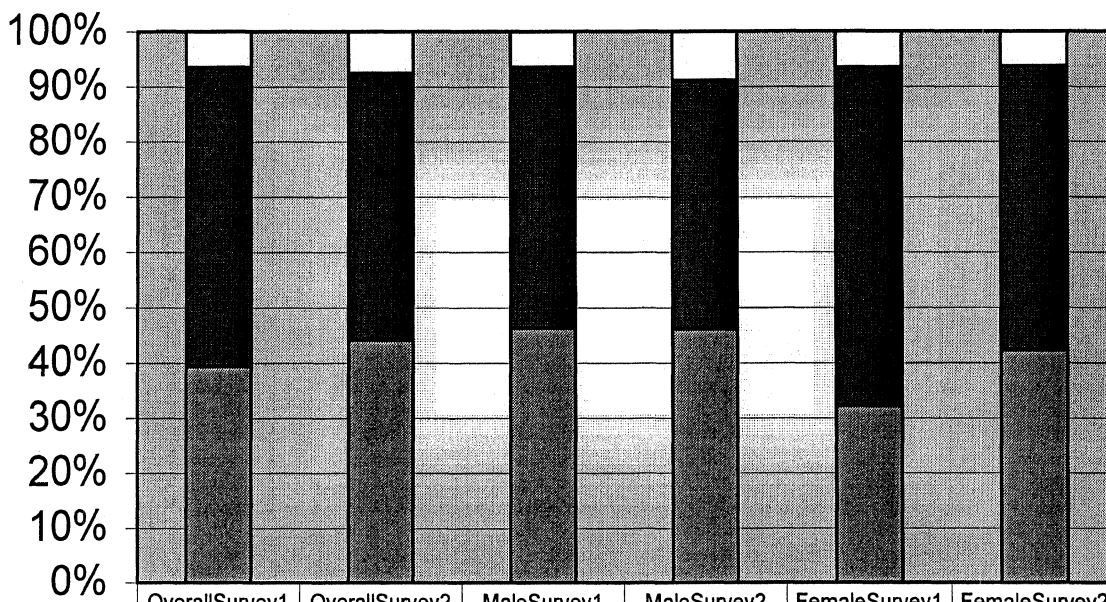


	OverallSurvey 1	OverallSurvey 2	MaleSurvey1	MaleSurvey2	FemaleSurvey 1	FemaleSurvey 2
■ Heard of it, but don't know where	18	27	9	16	9	11
□ Have never heard of it	96	78	50	33	46	45
■ Have heard of it NOT IN own county	9	13	5	9	4	4
■ Have heard of it IN own county	75	83	36	40	39	43

The charts on the previous page show that about 40% of respondents heard of programs to increase awareness of the laws related to drinking and driving.

Saginaw County

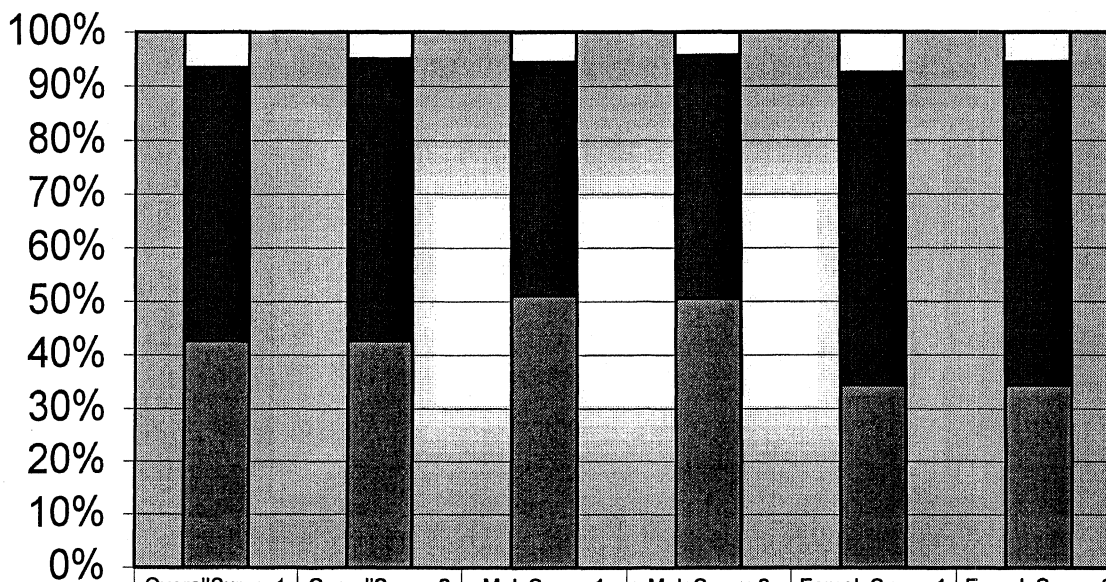
How actively do police enforce alcohol-impaired driving laws in your county?



	OverallSurvey1	OverallSurvey2	MaleSurvey1	MaleSurvey2	FemaleSurvey1	FemaleSurvey2
Not actively	12	14	6	8	6	6
Somewhat actively	102	91	45	41	57	50
Very actively	74	83	44	42	30	41

Kalamazoo County

How actively do police enforce alcohol-impaired driving laws in your county?

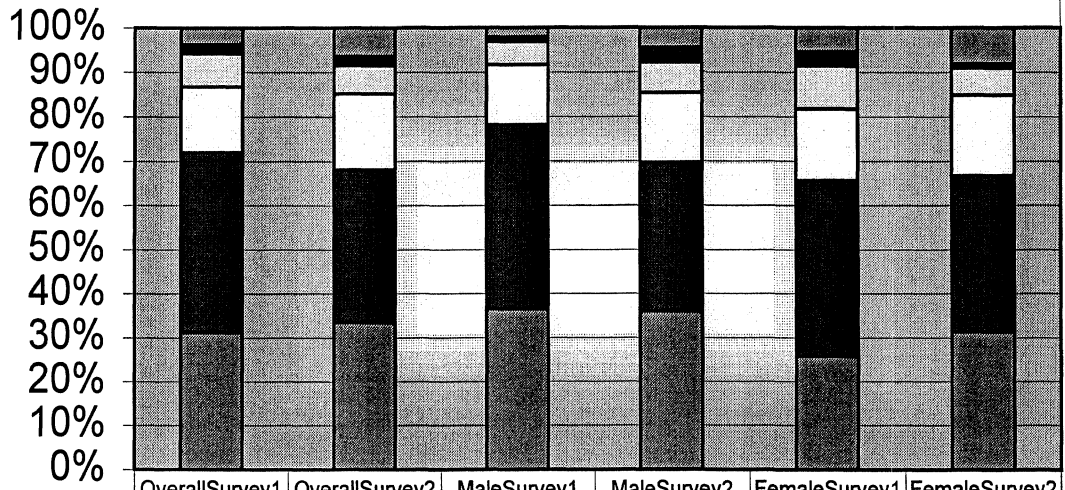


	OverallSurvey1	OverallSurvey2	MaleSurvey1	MaleSurvey2	FemaleSurvey1	FemaleSurvey2
Not actively	12	9	5	4	7	5
Somewhat actively	93	96	39	42	54	54
Very actively	78	78	46	47	32	31

The charts on the previous page show that about 40% of respondents report that police enforce alcohol-impaired driving laws in their county very actively. Another 40% report the laws are being enforced somewhat actively. Males tended to report a higher degree of enforcement than females.

Saginaw County

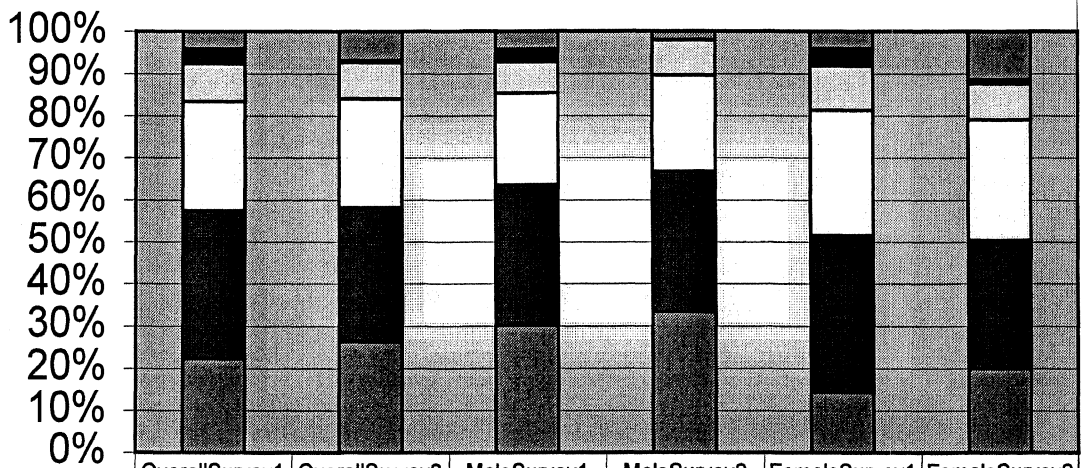
How often do you see a vehicle pulled over by the police on freeways in your county?



	OverallSurvey1	OverallSurvey2	MaleSurvey1	MaleSurvey2	FemaleSurvey1	FemaleSurvey2
■ Almost never	7	12	2	4	5	8
■ About once a year	4	4	1	3	3	1
■ 2-3 times a year	14	12	5	6	9	6
■ About once a month	28	32	13	14	15	18
■ About once a week	77	65	40	30	37	35
■ More than once a week	59	63	35	32	24	31

Kalamazoo County

How often do you see a vehicle pulled over by the police on freeways in your county?

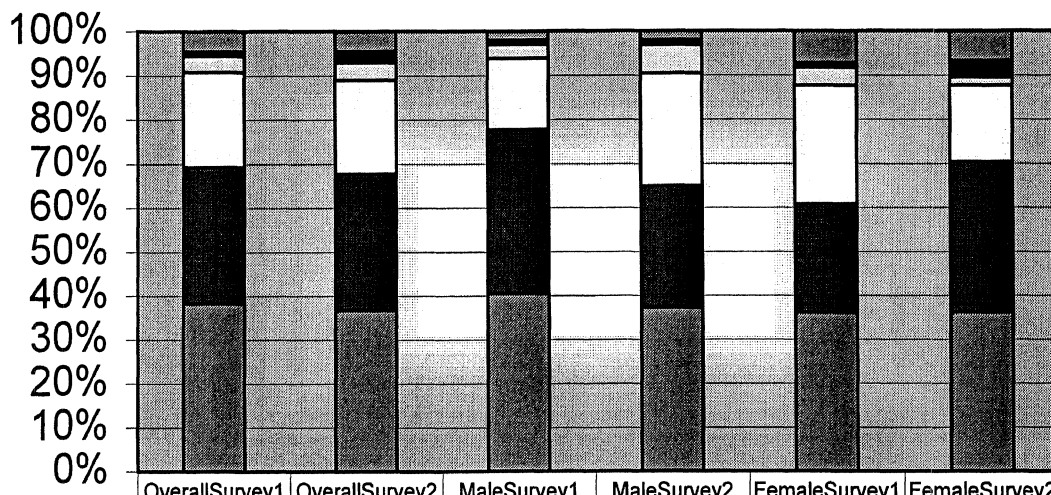


	OverallSurvey1	OverallSurvey2	MaleSurvey1	MaleSurvey2	FemaleSurvey1	FemaleSurvey2
■ Almost never	8	14	4	2	4	12
■ About once a year	7	1	3	0	4	1
■ 2-3 times a year	17	17	7	8	10	9
■ About once a month	50	52	21	22	29	30
■ About once a week	68	64	32	32	36	32
■ More than once a week	43	53	29	32	14	21

The charts on the previous page show that about 60% of respondents report seeing a vehicle pulled over by police on freeways in their county once or more times each week.

Saginaw County

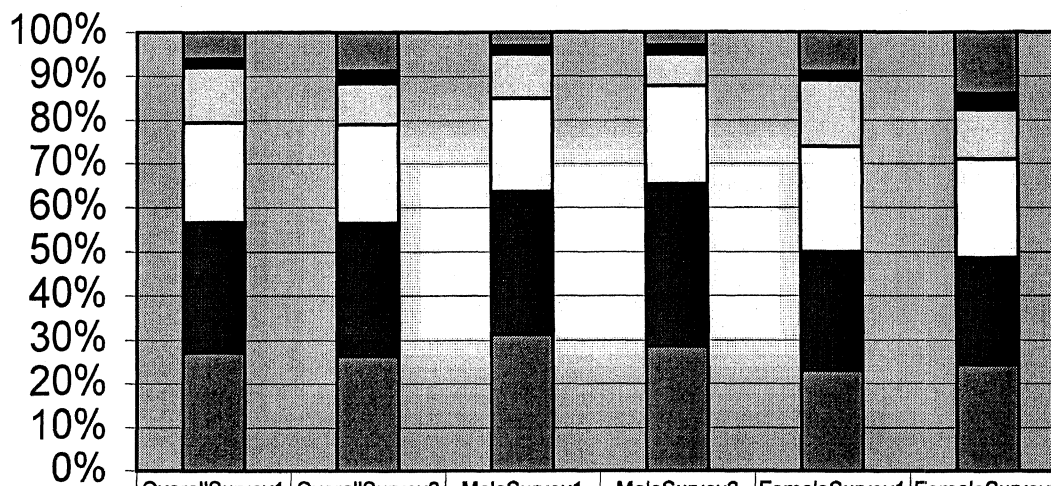
How often do you see a vehicle pulled over by the police on nonfreeway roads in your county?



	OverallSurvey1	OverallSurvey2	MaleSurvey1	MaleSurvey2	FemaleSurvey1	FemaleSurvey2
Almost never	9	9	2	2	7	7
About once a year	2	5	1	1	1	4
2-3 times a year	7	8	3	6	4	2
About once a month	42	42	16	24	26	18
About once a week	61	62	37	26	24	36
More than once a year	75	73	40	35	35	38

Kalamazoo County

How often do you see a vehicle pulled over by the police on nonfreeway roads in your county?

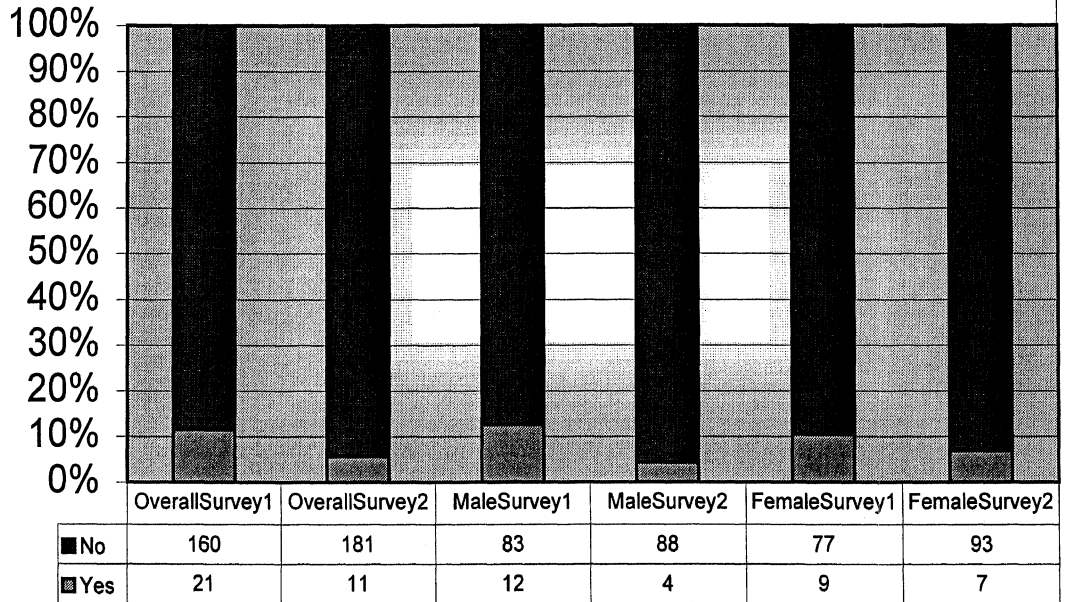


	OverallSurvey1	OverallSurvey2	MaleSurvey1	MaleSurvey2	FemaleSurvey1	FemaleSurvey2
Almost never	12	18	3	3	9	15
About once a year	4	6	2	2	2	4
2-3 times a year	25	19	10	7	15	12
About once a month	45	46	21	22	24	24
About once a week	59	62	32	36	27	26
More than once a year	54	54	31	28	23	26

The charts on the previous page show that about 70% of respondents report seeing a vehicle pulled over by police on nonfreeway roads in their county once or more times each week. This is slightly more often than was reported for freeways.

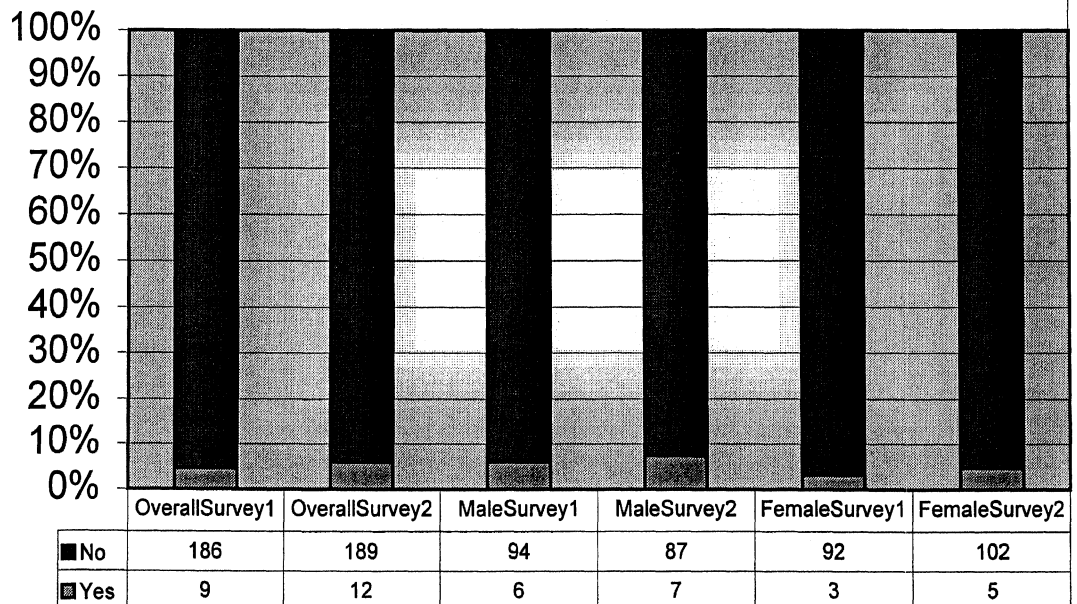
Saginaw County

Have you changed your DRINKING behaviors in the last 6 months because you were concerned about being arrested for drinking and driving?



Kalamazoo County

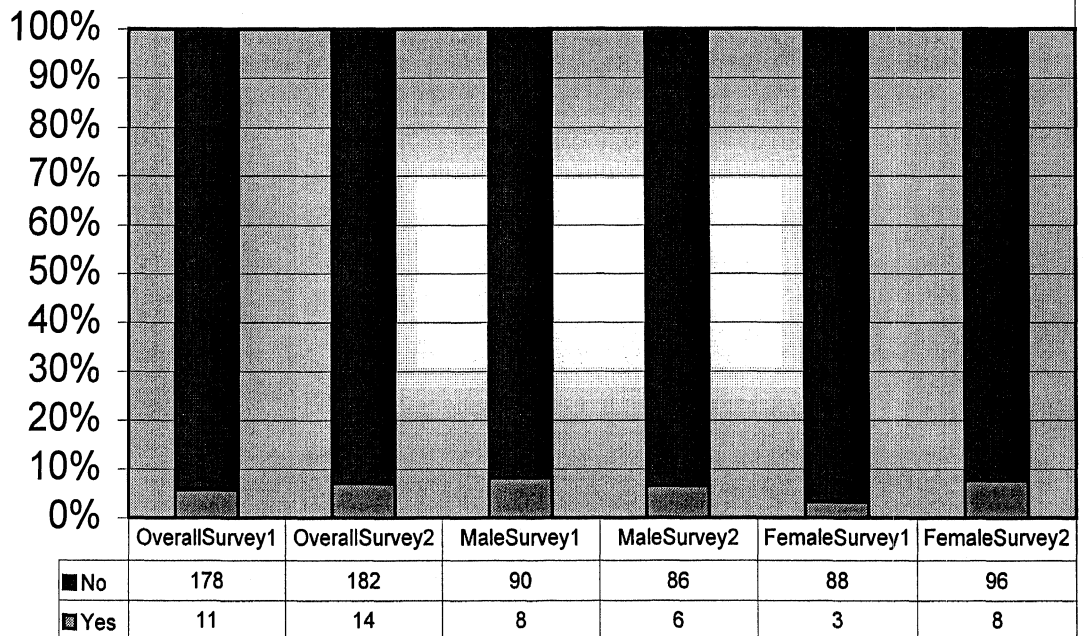
Have you changed your DRINKING behaviors in the last 6 months because you were concerned about being arrested for drinking and driving?



The charts on the previous page show that only about 10% of respondents report changing their drinking behaviors in the last 6 months because they were concerned about being arrested for drinking and driving.

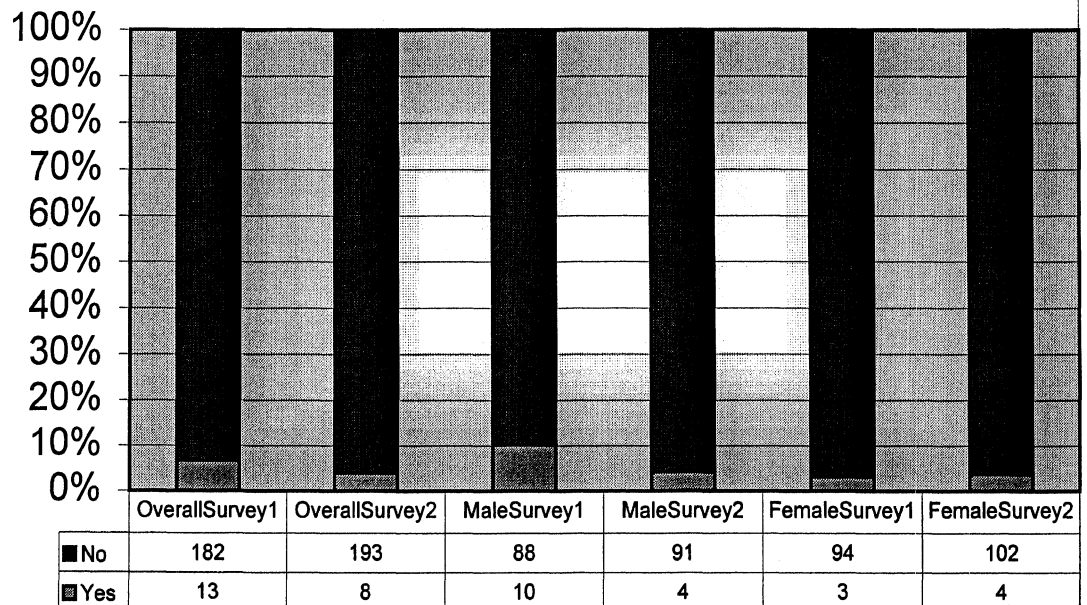
Saginaw County

Have you changed your DRIVING behaviors in the last 6 months because you were concerned about being arrested for drinking and driving?



Kalamazoo County

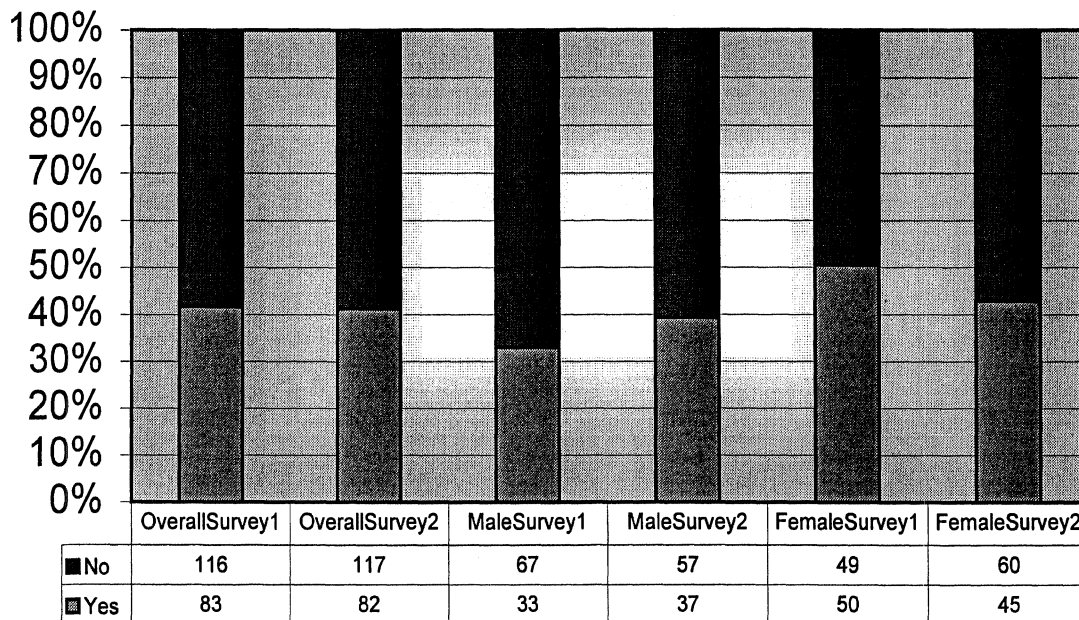
Have you changed your DRIVING behaviors in the last 6 months because you were concerned about being arrested for drinking and driving?



The charts on the previous page show that less than 10% of respondents report changing their driving behaviors in the last 6 months because they were concerned about being arrested for drinking and driving.

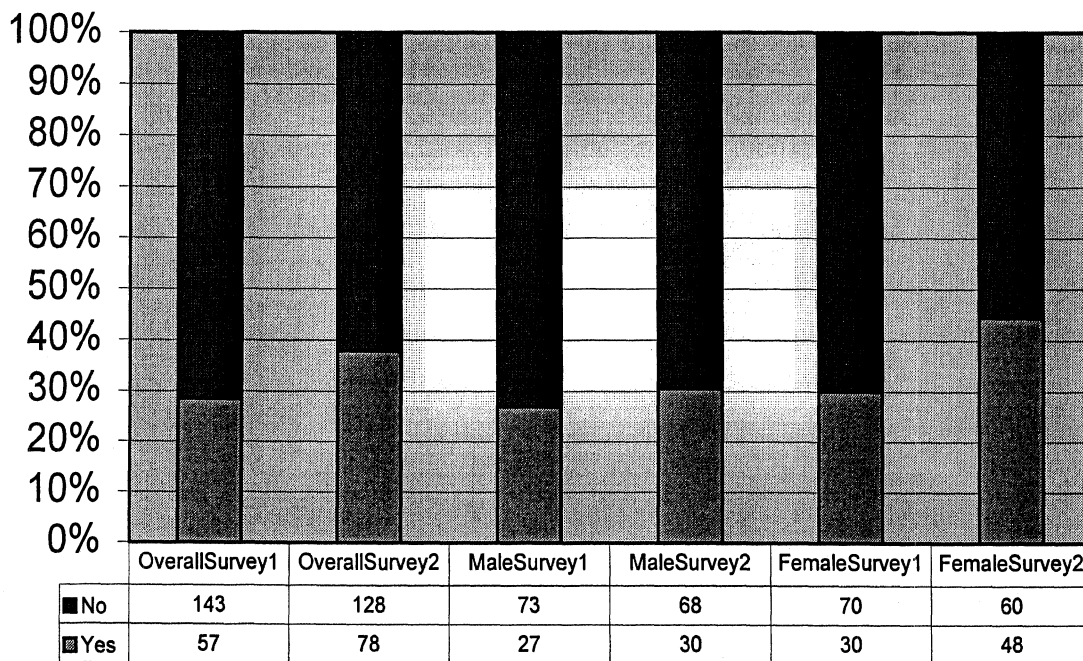
Saginaw County

Have you changed your DRIVING behaviors in the last 6 months because you were concerned about OTHER PEOPLE DRINKING AND DRIVING?



Kalamazoo County

Have you changed your DRIVING behaviors in the last 6 months because you were concerned about OTHER PEOPLE DRINKING AND DRIVING?



The charts on the previous page show that about 40% of respondents report changing their driving behaviors in the last 6 months because they were concerned about other people drinking and driving. Females report changing their behavior more than males.

Methods

Alcohol-Impaired-Driving Crashes

For these analyses, the number of crashes resulting in death or serious injury (K or A, as recorded by the police officer completing the report) in which the police officer recorded that one or more drivers involved in the crash had been drinking prior to the crash (KA-HBD crashes) were collected from the state police crash data set for each month in the period January 1994 through December 1998. The two counties described in the previous section were used for these analyses (Saginaw and Kalamazoo). However, for these analyses an additional comparison group was used. In addition to data from Kalamazoo, statewide data were also modeled as a comparison to Saginaw.

The same basic experimental design described earlier was applied to the crash data; however, there was an important difference in the statistical analyses applied to the crash data. In order to properly assess the number of crashes in the preprogram period to the number in the post program period, an analyst has to be able to model statistically the cyclical variation that exists in crash data from month-to-month and year-to-year. This is accomplished using a set of analytic tools that taken together are described as time-series analysis.

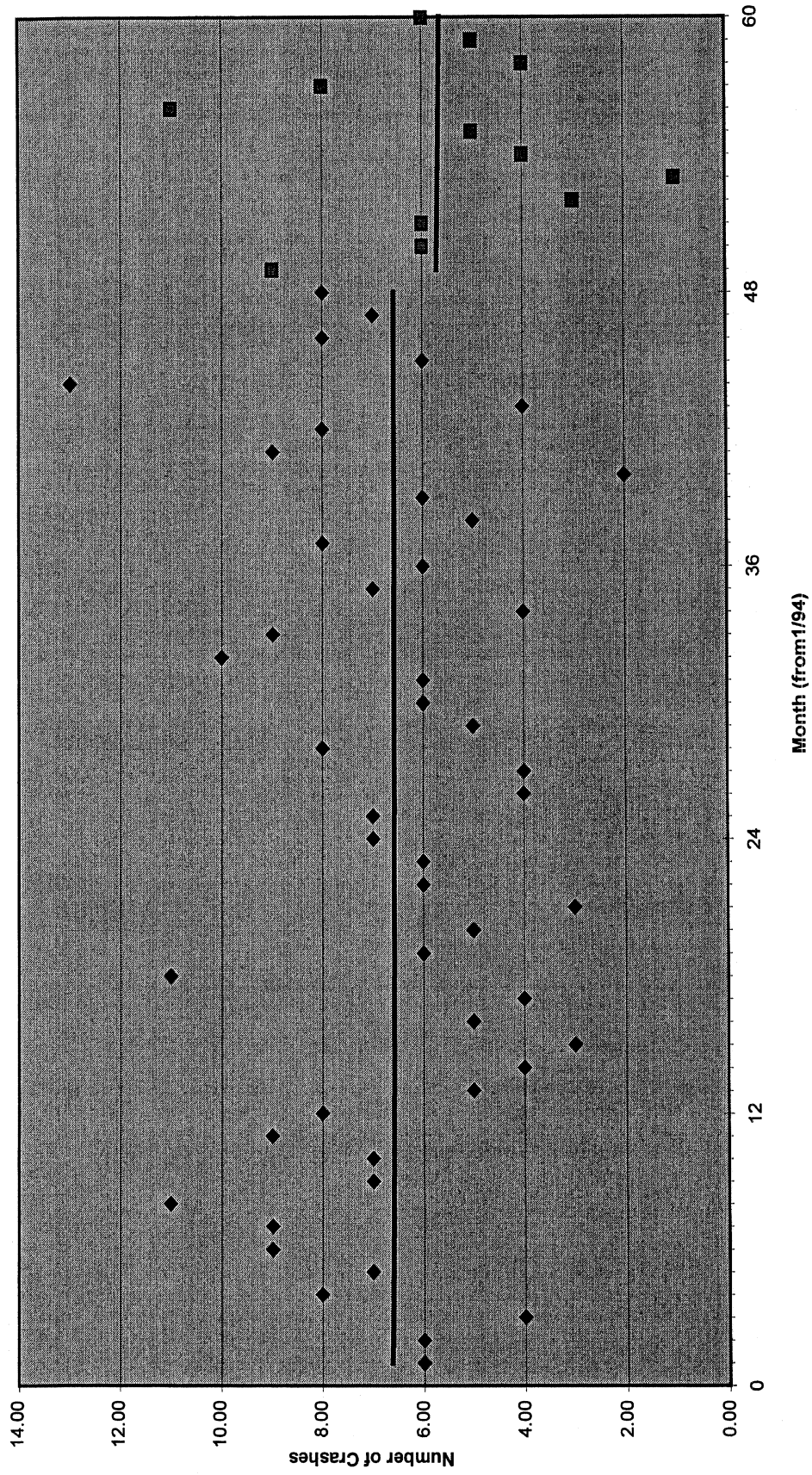
Time-series analysis allows a researcher to determine if a set of data from a given period of time differs from what the statistical model predicted would be the case given prior patterns in the data. For the present analyses, time-series models were developed independently for KA-HBD crashes in Saginaw County, Kalamazoo County, and the state as a whole.

Results

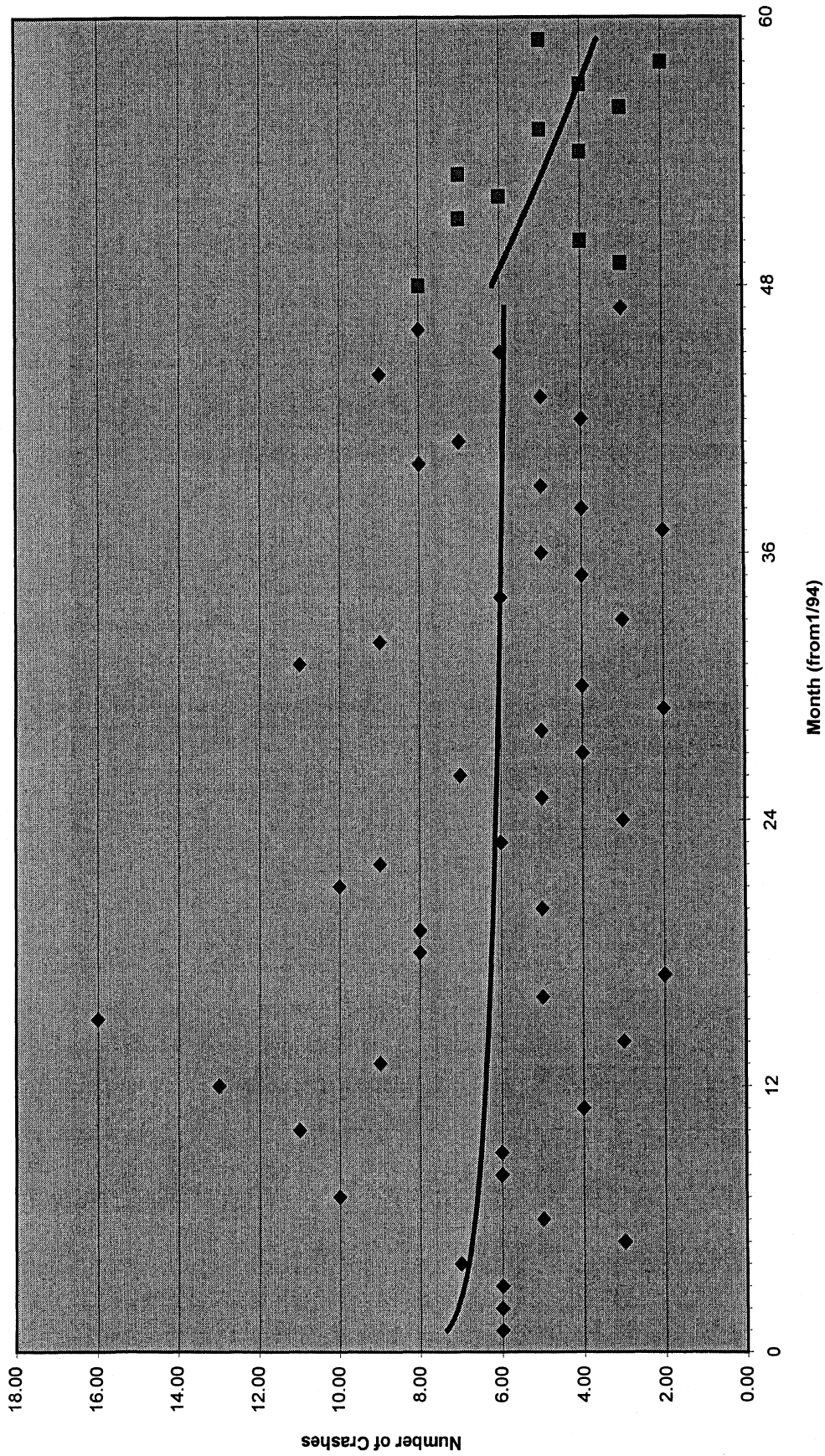
Alcohol-Impaired Driving Crashes

Time-series statistical models for monthly KA-HBD crashes in Saginaw County, Kalamazoo County, and statewide are detailed in Appendix C. The results of the analyses show that the number of monthly KA-HBD crashes that occurred during the postprogram period (1/98 to 12/98) were lower than would have been predicted given patterns from the preprogram period (1/94 to 12/97) for each region examined. In other words, while it was found that a decline in KA-HBD crashes occurred in the test county (Saginaw) after the Section 410 program efforts began (as would be predicted if the program was effective), a similar decline was also found in areas where no substantial Section 410 investment was made. This means we are unable to claim that the Section 410 programs in Saginaw caused the observed change, because the change was also observed in areas without the investment. Graphic representations of the statistical results are shown in the following charts. Taken in total, these results strongly suggest that KA-HBD crashes are declining in Michigan for reasons other than the Section 410 investment.

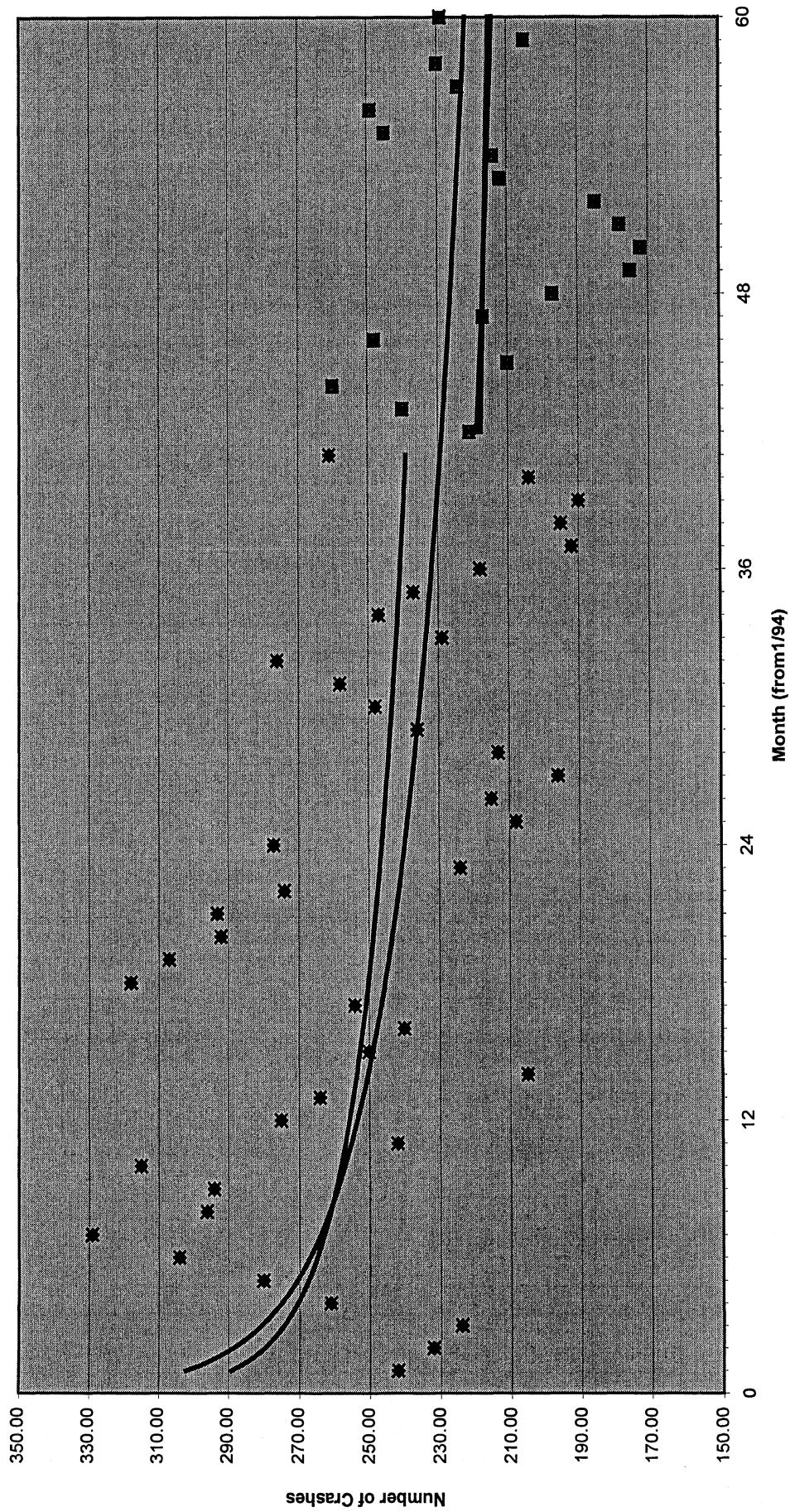
Number of KA-HBD Crashes in Saginaw County 1/94-12/98



Number of KA-HBD Crashes in Kalamazoo County 1/94-12/98



Number of KA-HBD Crashes Statewide 1/94-12/98



Conclusions

As was stated earlier, the Section 410 efforts were being conducted in concert with a wide range of other program efforts around the state focused on reducing the toll exacted by alcohol-impaired driving. This fact makes determining specific effects caused by the Section 410 investment nearly impossible. Indeed, when one examines the time-series results for the statewide KA-HBD crash picture, we see that the statistically significant decline in KA-HBD crashes began in June of 1997, well before the Section 410 investment began in full force.

If, in fact, alcohol-impaired driving crashes began to decline in mid-1997, this would help to explain the lack of differences pre-post and between communities in the survey results of attitude, knowledge, and behavior. That is, one would not expect to see big changes in attitudes between 1998 and 1999 if these attitudes were already changing in 1997 (as represented by changes in crash frequencies). But what does this mean about the efficacy of the Section 410 investment?

While the survey data did not demonstrate a significant change associated with the Section 410 program efforts, significant changes in crash frequencies were observed. Were these observed changes due to the Section 410 programs? The fact that declines in KA-HBD crashes were observed not only in the county in which Section 410 investments were made (Saginaw), but also in the comparison county (Kalamazoo) suggests that something other than the Section 410 program efforts contributed to the observed change. However, we cannot discount the possibility that the Section 410 program investments helped contribute to the environment that created the change.

In sum, we cannot conclude that the Section 410 program investment had an effect on KA-HBD crashes or associated attitudes, knowledge, or behaviors above and beyond that caused by other environmental factors. However, it would appear that these investments, in concert with other changes in the environment, have had a significant, positive effect on reducing crashes associated with alcohol-impaired driving.

Appendix A

Activities funded by Section 410

Saginaw County – 410 Activity Log

1998

	D e c	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	YTD
Car Patrol Hours		138.1	13.3	69.5	61	31.5	96	87	9	30	535.4
Officer Patrol Hours		110.8	9.3	46.75	23	28.5	55.5	82.5	9	28	393.35
Complaint Hours		116.8	9.05	53.75	50	28.5	61	82.5	9	28	438.6
Administrative Hours		3	0	2	0	1	0	0	0	2	8
Total Number of Traffic Stops		227	19	85	111	52	106	129	9	32	770
Total Enforcement Contacts		284	37	136	196	48	170	200	22	69	1162
Total Media Releases	3	7	0	15	5	9	2	0	9	1	48
Community Education Programs	1	2	0	6	7	7	3	3	4	3	35

Saginaw County Media Activity – 1998

Month	TV	Radio	Newspaper	School Presentations				Other events or comments
				Primary	Middle	HS	College	
Dec.	2	1	2			1		Press conference
Jan.		1	1					Participated in middle school project
Feb.	2	7	3			1		An awareness event at bowling center
March	3			1	1	1	1	
April	1	3	3		1	7		Press release to media Radio and newspaper attended school presentations
May	3	3	1			6		Exhibit and presentation at mall
June		2				2	1	
July						2		Presentation at Midland Dow Chemical
Aug.	2	4						Presentation at community policing event Presentation at Family Fun Awareness Day Presentation at community picnic Presentation at Lakeland Pipe Co.

Kalamazoo County – 410 Activity Log

1998

	Oct.- Feb.	March-May	June- August	September	YTD
Car Patrol Hours		53		18	71
Officer Patrol Hours		43.8		14.3	58.1
Complaint Hours		9.2		3.7	12.9
Administrative Hours		0		0	0
Total Number of Traffic Stops		73		18	91
Total Enforcement Contacts		86		27	113
Total Media Releases		Annual report states that each enforcement activity was preceded by press releases		Annual report states that each enforcement activity was preceded by press releases	3
Community Education Programs		0		0	0

Appendix B

Survey Instrument

Telephone Survey Questionnaire

The title of this research project is:

Knowledge and Attitudes Toward Alcohol-Impaired Driving Enforcement

This version of the telephone survey instrument was prepared on:

1998/04/21

1. How serious do you think the drunk-driving problem is in your county - would you say that it is

very serious,
somewhat serious,
or not at all serious.

2. If an adult driver, over 21, in your county has been drinking and their blood alcohol level is over the legal limit for driving, how likely do you think that person is to be pulled over by the police. Would you say that

the driver will be pulled over nearly every time,
there is a good chance,
it is unlikely, but it happens sometimes,
there is almost no chance.

3. If a driver under age 21 in your county has been drinking and their blood alcohol level is over the legal limit for driving, how likely do you think that person is to be pulled over by the police? Would you say that

the driver will be pulled over nearly every time,
there is a good chance,
it is unlikely, but it happens sometimes,
there is almost no chance.

4. How easy or difficult do you think it is for persons under 21 years of age to purchase alcoholic beverages in your county? Would you say that it is

very easy,
somewhat easy,
neither easy nor difficult,
somewhat difficult,
very difficult.

5. How easy or difficult do you think it is for persons under 21 years of age to obtain (without purchasing) alcoholic beverages in your county? Would you say that it is

very easy,
somewhat easy,
neither easy nor difficult,
somewhat difficult,
very difficult.

6. We are also interested in your awareness of legal limits for drinking alcohol and driving. In the State of Michigan, at what blood alcohol level can you be convicted of driving while impaired by alcohol?

.02 .04 .06 .08 .10

7. How about persons under age 21? At what blood alcohol level can a person under age 21 be convicted of an alcohol-related driving offense?

.02 .04 .06 .08 .10

8. Consider the following three drinks: a 12 oz. can of beer, a 5 oz. glass of wine, one mixed drink with 1 oz. of liquor. Which has more alcohol?

a 12 oz. can of beer,
a 5 oz. glass of wine,
one mixed drink with 1 oz. of liquor,
all are the same.

9. Do you know of any special traffic safety programs underway in your county intended to reduce alcohol-impaired driving?

yes, no, don't know

10. If yes, can you identify the program or its name. (Open-ended)

11. I will read a list of special programs aimed at reducing drunk driving. For each item that I read tell me whether

01 -- you have heard of this program in your county,

02 -- you have heard of such programs, but not in your county,

03 -- you have never heard of such a program.

(Randomize list)

- Community-wide alcohol-free festivals for families and teens such as first night new year celebrations
- community youth coalitions to fight drunk driving
- undercover operations to arrest store clerks who sell liquor to minors
- school programs to teach teens about effects of alcohol and drugs
- workshops for students and parents to understand the consequences of alcohol-impaired driving
- TV ads designed to inform about dangers of alcohol-impaired driving
- TV, video or personal presentations featuring victims of drunk driving incidents sharing their life experiences
- a statewide coalition of youth programs called McCrud
- programs to increase awareness of the laws related to drinking and driving.

12. In general, how often do you see a vehicle whose driver appears to be impaired by alcohol?

more than once a week, about once a week, about once a month,
2-3 times a year, about once a year, almost never

13. How actively do police enforce alcohol-impaired driving laws in your county.
very actively, somewhat actively, not actively enforced

14. How often do you see a vehicle pulled over by the police on freeways in your county?

more than once a week, about once a week, about once a month,
2-3 times a year, about once a year, almost never

15. How often do you see a vehicle pulled over by the police on non freeway roads in your county?

more than once a week, about once a week, about once a month,
2-3 times a year, about once a year, almost never

We would like you to think about your drinking and your driving habits over the last six months.

16. First, about your drinking in the last six months. Have you changed your drinking behaviors in the last six months because you were concerned about being arrested for drinking and driving?

yes, (if yes, then how?)
no

17. Now, about your driving. Have you changed your driving behaviors in the last six months because you were concerned about being arrested for drinking and driving?

yes, (if yes, then how?)
no

18. Thinking about the last six months, have you changed your driving behaviors because you were concerned about other people drinking and driving?

yes (if yes, then how?)
no

Appendix C

Time-Series Statistical Model Results

Parameter Estimates

COUNT: Frequency Count

Log Ramp: JAN1998 + ARIMA(0,1,1)s NOINT

Model Parameter	Estimate	Std. Error	T	Prob> T
Seasonal Moving Average, Lag 12	0.650	0.258	2.520	0.0154
Ramp: JAN1998	-0.0017	0.00085	-1.967	0.0553
Model Variance (sigma squared)	0.281	.	.	.

Fit Range: JAN1994 to NOV1998

Kalamazoo County Time-Series Results

Parameter Estimates

COUNT: Frequency Count

Log Step: JAN1998 + ARIMA(0,1,1)s NOINT

Model Parameter	Estimate	Std. Error	T	Prob> T
Seasonal Moving Average, Lag 12	0.60659	0.2672	2.2704	0.0279
Step: JAN1998	-0.22626	0.1280	-1.7682	0.0837
Model Variance (sigma squared)	0.21722	.	.	.

Fit Range: JAN1994 to DEC1998

Saginaw County Time-Series Results

Parameter Estimates

COUNT: Frequency Count
Log Ramp:JAN1998 + ARIMA(2,1,0)(2,1,0)s NOINT

Model Parameter	Estimate	Std. Error	T	Prob> T
Autoregressive, Lag 1	-0.97550	0.1001	-9.7405	0.0001
Autoregressive, Lag 2	-0.69968	0.0984	-7.1105	0.0001
Seasonal Autoregressive, Lag 12	-0.66697	0.1529	-4.3635	0.0001
Seasonal Autoregressive, Lag 24	-0.52955	0.1578	-3.3551	0.0017
Ramp:JAN1998	0.0004743	0.000277	2.0933	0.0424
Model Variance (sigma squared)	0.00422			

Fit Range: JAN1994 to DEC1998

Statewide Time-Series Results – Intervention on January 1998

Parameter Estimates

COUNT: Frequency Count

Log Step: JUN1997 + ARIMA(2,1,0)(2,1,0)s NOINT

Model Parameter	Estimate	Std. Error	T	Prob> T
Autoregressive, Lag 1	-0.99307	0.1061	-9.3571	0.0001
Autoregressive, Lag 2	-0.69568	0.0992	-7.0144	0.0001
Seasonal Autoregressive, Lag 12	-0.61768	0.1646	-3.7524	0.0005
Seasonal Autoregressive, Lag 24	-0.49896	0.1609	-3.1015	0.0034
Step: JUN1997	-0.09759	0.0340	-2.8695	0.0064
Model Variance (sigma squared)	0.00404	.	.	.

Fit Range: JAN1994 to DEC1998

Statewide Time-Series Results -- Intervention June 1997