

An Evaluation of Utah's 24/7 Sobriety Program

Phase 3 Report September 2021

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Introduction

The Utah Department of Public Safety (DPS) contracted with the Utah Criminal Justice Center (UCJC) to evaluate the 24/7 Sobriety Program.¹ The program was first piloted in Weber County, Utah, as a collaboration between DPS and state and local partners (i.e., Weber County Sheriff's Office, Weber County Justice Courts, Weber County Attorney's Office, the Utah Administrative Office of the Courts, private probation agencies, public defenders, and the Utah Driver's License Division). The 24/7 Sobriety Program, which relies on a deterrence-based strategy, utilizes intensive supervision to monitor participants' alcohol use. The 24/7 Program is unique from other DUI programs because it restricts the ability to drink through regular (twice daily) alcohol testing. Participants are eligible to keep their driver's license if they comply with requirements of the program, which include: paying fines/fees/restitutions; installation of an ignition-interlock device in their vehicle; submit to twice daily testing, and test negative for alcohol consumption. While the current project is a pilot study conducted in one Utah County, results from the study will be used by the State of Utah to guide statewide implementation of the program.

The 24/7 Program was intended to target second-time DUI offenders (who would normally lose their license for a period of two years for a second offense that occurs within 10 years of a previous offense). Program participants who do not pass an alcohol or drug screening at one of their check-in sessions (or miss a check-in session) receive swift, certain, and proportionate sanctions (i.e., brief jail stays). Individuals enrolled in the program are required to pay for each alcohol/drug screening. Additionally, there is a reward component to the program; participants receive their license back immediately following the payment of their fines and installation of an ignition-interlock device in their vehicle. Program personnel at the testing sites also offer verbal praise for receiving a "clean" test (i.e., no presence of alcohol and drugs). Reward- and sanction-based interventions have received increased attention and show promising results in community supervision settings (Viglione & Sloas, 2012; Trotman & Taxman, 2011).

The 24/7 Program is designed to achieve specific deterrence. Specific deterrence occurs when sanctions for criminal behavior discourage the individual who was sanctioned from engaging in future criminal behavior (DeJong, 1997; Andenaes, 1968). In this case, the 24/7 Program would presumably enhance participants' perceptions of the certainty, fairness, and swiftness of the sanctions compared to the typical sanctions received for a DUI violation. The 24/7 Program combines aspects of procedural fairness (certainty, fairness, and swiftness of sanctions) with deterrence theory (intensive supervision). The program also encourages sobriety through the frequent monitoring and testing for alcohol consumption while participants are enrolled for one year. Therefore, it is hypothesized that the 24/7 participants would be less likely to commit subsequent alcohol-related DUI offenses and analogous behaviors compared to the individuals who received "treatment as usual."

¹ Established in the 2017 Utah legislative session under H.B. 250 and expanded statewide during the 2021 session under H.B. 26. The program is codified as Utah Administrative Rule R714-510. For more information on this program see UCJC's previous reports.

Evaluation Plan and Objectives

This report considers whether there are differences in DUI recidivism between individuals randomly assigned to the treatment (i.e., 24/7 program) and control groups. Specifically, we examine recidivism two years post-sentence date. The limited study timeframe, randomization process, and small sample sizes present some issues to executing the evaluation plan as proposed. UCJC conducted a series of analyses to examine the impact of the 24/7 program implementation on aggregate-level DUI recidivism as well as individual-level changes in DUI recidivism between the treatment and control groups. With respect to the individual-level analyses, it is important to note that there are limitations associated with the random assignment process that should be considered when interpreting the findings. Specifically, stakeholders may have used personal discretion to assign participants to a condition rather than utilizing the court's assigned condition in all cases.

Because of limitations with random assignment, we used a regression point displacement design analysis to compare rates of third-time DUI convictions in years prior to 24/7 implementation for the treatment county (Weber County) and all other Utah counties to the rates of third-time DUI convictions in two and a half -years post-24/7 implementation. The regression point displacement design is a quasi-experimental strategy. In this analysis, we examine whether the difference in posttest (i.e., after 24/7 implementation) displacement rates of third-time DUI convictions is statistically significant between Weber County (24/7 implementation site) and all other counties in Utah that had not adopted the 24/7 Program during the pilot phase. UCJC obtained DUI counts as well as the number of licensed drivers by county from the Driver's License Division (DLD). We also use data obtained from the Department of Alcoholic Beverage Control (DABC) to account for differences in the availability of alcohol across counties.

We also conduct a series of survival analyses to examine whether program participation had an effect on DUI recidivism. Specifically, this analysis allows us to estimate hazard ratios to determine time-to-event for the treatment and control groups. In order to conduct these analyses, we used arrest record data obtained from the Bureau of Criminal Identification.

UCJC also analyzed surveys from 24/7 Program participants. The survey was partially adopted from the National Survey of Drinking and Driving Attitudes and Behavior. Additionally, respondents were asked to provide feedback about their experiences in the 24/7 program.

UCJC is evaluating various aspects of the 24/7 Program. The Phase III report addresses the following objectives related to the 24/7 evaluation:

1. Examine survey results of self-reported alcohol use for 24/7 Program participants and assess patterns in their perceptions of the program and its perceived effectiveness at reducing alcohol misuse;
2. Provide a descriptive analysis of the 24/7 group and the control group to examine the effects of the program on recidivism;

3. Conduct regression point displacement analysis to compare alcohol recidivism between the treatment county and all other Utah counties prior to and post-24/7 implementation; and
4. Conduct survival analysis to estimate time to DUI recidivism for the 24/7 and control groups.

Survey Methods & Findings

Methods

In order to identify prospective participants for the survey, the research team had to access the SCRAM system (i.e., software package used to monitor 24/7 participants testing/sanctions) to extract individual contact information. The research team identified 91 individuals entered into the SCRAM system as 24/7 participants as of July 2021. Email addresses were obtained for 43 24/7 participants. Prospective participants were invited to participate in the survey beginning in August 2021. The survey was open for 35 days. The research team sent a total of four weekly reminders to prospective participants who had not already started/completed the survey. An email script was used to invite prospective participants to complete the survey through Qualtrics (i.e., a survey software company). Three emails were bounced back in Qualtrics indicating that the email address provided in SCRAM was no longer active.

A total of 40 prospective participants were invited to complete the survey. Invitees were informed that participation was completely voluntary, the research team would not be collecting identifying information in the survey, and that their responses would be confidential and only reported in the aggregate. Individuals who completed the survey received a \$10 e-gift card for their participation so long as they provided a valid email address. A total of 10 invitees completed the survey for a completion rate of 23.3 percent.

The survey items are designed to capture 24/7 participants' attitudes and behaviors related to alcohol consumption and driving while under the influence of alcohol. The survey also asked participants to describe the perceived strengths and barriers of the 24/7 program. The survey items were largely derived from the National Survey of Drinking and Driving Attitudes and Behaviors: 2008 (Moulton et al., 2010; Drew et al., 2010; see Appendix A for survey instrument). The research team examined all closed-ended (i.e., fixed response) questions using descriptive analyses.

All open-ended (i.e., free response/narrative fields) survey questions were examined using deductive thematic analysis. This allowed the research team to inform the identified themes. The aim was to record and present the most common patterns in participant perceptions based on the survey questions. Thematic analysis involved identifying codes and themes that emerged across all open-ended survey responses.

Results

Respondents were asked to report on their average weekly alcohol consumption in the past 30 days. Six of the 10 respondents selected that they did not drink any alcohol within the last 30 days (60%). Three respondents stated that on average they only drink one day per week and

during that day they would consume between 2 and 3 alcoholic beverages. One respondent indicated that he/she drank 2 times per week on average in the past 30 days and would only consume one drink during each of those instances.

We also asked respondents questions to assess for binge drinking. The CDC defines binge drinking differently for males and females. Specifically, males that consume five or more drinks on an occasion are considered to have engaged in binge drinking. For females, the number of drinks that constitutes binge drinking is four. Of the four males who participated in the survey, two indicated that they had engaged in binge drinking once during the past 30 days (50% of male respondents). One of six female respondents indicated that she had engaged in binge drinking once during the past 30 days (16.7%).

In regard to drinking and driving, none of the 10 respondents indicated that they had driven a motor vehicle within two hours of consuming an alcoholic beverage in the past 30 days nor in the past 12 months. Respondents were also asked how many times in the past 30 days and in the past 12 months they have driven a motor vehicle when they thought they were over the legal limit of a blood alcohol content of 0.05, none of which indicated that they had. Eight of 10 respondents indicated they felt that drinking and driving by people was at least a moderate threat to the personal safety of themselves and their family (see Appendix A for item scale).² Forty percent of respondents indicated that it was an extreme threat to the personal safety of themselves and their families. When asked about their alcohol preference, four respondents indicated that they no longer consume alcohol. The majority of respondents indicated that they prefer beer (50%) and one respondent indicated that they prefer to drink liquor or spirits.

With respect to risky driving behaviors, respondents were asked to indicate how many of their favorite drinks they could consume in a two-hour window before it would be unsafe for them to drive. Six of 10 respondents said that they could consume 2 or less beverages in two hours and be safe to drive. Three respondents said they could drink 3 to 4 drinks in two hours and be safe to drive and one person selected that they could drink five or more drinks in two hours and be safe to drive.

Respondents were also asked whether they had deliberately avoided driving a motor vehicle because they felt they had too much to drink to drive safely. Five responded with yes and the other five indicated that they did not drink at all. Of the five who avoided driving after consuming too much alcohol, they took a variety of different approaches to be safe. Four had called a cab/Uber/Lyft, one reported they called a friend, and three reported they stayed overnight. Respondents were also asked, in the past 12 months, whether they have ridden in a motor vehicle with a driver who they thought might have consumed too much alcohol to drive safely and three indicated they had (30%).

Of the 10 respondents, 8 indicated they successfully graduated from the 24/7 program (80%). Six of 10 respondents indicated that it was at least moderately difficult to meet the financial requirements of the 24/7 program, of which five said that it was a lot or extremely difficult. Respondents were also asked to estimate how much the 24/7 program cost to be enrolled. Nine

² The scaling of all survey items can be found in Appendix A.

of 10 respondents indicated that it cost them at least \$1,000 to be enrolled in the 24/7 program. Of those, five respondents selected that it cost them between \$1,500 and \$2,500 to be in the program. One respondent indicated that it cost them between \$100 and \$1,000 but that person did not complete the 24/7 program.

Respondents were also asked about their experiences with program staff (i.e., Justice Courts, WCSO program staff, and private probation). The majority of respondents indicated they felt like 24/7 program staff treated them fairly. With respect to WCSO program staff, three respondents indicated that they disagree with the statement that they were treated fairly. Similarly, the majority of respondents indicated that the sanctions in the 24/7 program were fair (60%). One respondent neither agreed nor disagreed with the statement that the sanctions were fair, and three respondents disagreed with the statement.

The survey also asked respondents how the 24/7 program impacted their employment and the difficulties associated with testing. Each of the 10 respondents indicated they were employed prior to enrolling in the 24/7 program. Five respondents suggested the program helped them maintain their employment with three suggesting that they would not have been able to maintain their job without the 24/7 program. Ninety percent of the respondents indicated that getting to the testing center twice daily was at least a little difficult for them. Three respondents found it difficult or extremely difficult to get to the testing center twice daily.

Six of 10 respondents indicated it was not difficult to remain abstinent from alcohol while in the 24/7 program compared to 3 who indicated that it was difficult for them. One of 10 respondents selected they had used an illicit drug such as cocaine, heroin, or marijuana while enrolled in the 24/7 program. Five of the respondents indicated that they received substance abuse treatment during the time they were enrolled in the 24/7 program, of which four successfully completed the treatment. Of those who participated in substance treatment, four indicated they were in treatment between 3 and 6 months. When considering substance abuse treatment and 24/7 completion status, two respondents were enrolled in substance abuse treatment but did not successfully complete the 24/7 program. Also, six respondents indicated they attended support groups while enrolled in the 24/7 program. Of these, four attended AA or NA, one attended a support group offered by USARA, and the other attended the Act support group offered at Ogden Regional.

Respondents were asked two open-ended questions, one of which asked them to describe any barriers/problems they experienced while in the 24/7 program. The most commonly cited barrier involved testing, with six respondents describing issues with the testing process. Respondents often mentioned that the testing window conflicted with their work hours (n=3). One respondent mentioned the wait times for testing were too long. Others had issue getting to the testing site due to extreme weather conditions (e.g., snow; n=2). Two respondents also described the testing windows as being too small, also suggesting the need for more flexibility in testing times. In regard to testing, four respondents also indicated that they had an issue with how they were treated by program staff. Three indicated that they felt disrespected by staff. For example, one respondent indicated program staff were rude and unwilling to make a testing accommodation for them based on a work conflict. Based on the findings from the Phase II report, it does appear

that staff did make some exceptions to testing procedures; however, respondents and program staff mostly indicated that staff adhered to the program rules/policies.

Four respondents felt that the requirements of the program were particularly burdensome. Two of those respondents indicated the program was financially burdensome especially when coupled with the court fines and fees. The other two respondents indicated the program requirements/sanctions were too strict. The inability for program staff to make special testing accommodations led to one respondent being sanctioned multiple times, which ultimately led to them being fired from their employment.

Other barriers that came up in the survey responses included: had trouble working with DLD to get his/her license reinstated (n=1), feeling like there was a lack of guidance and that the program could benefit from a better overview before enrollment (n=1), and issues with the interlock requirement (n=2). With respect to the interlock system, one participant mentioned that they did not have a vehicle and were told by the program staff that they could be sanctioned for non-compliance. The respondent went on to say that they were removed from the program because they did not have a car to install the interlock system in even though they were compliant with the other program requirements (e.g., testing).

Respondents were also asked about the strengths of the 24/7 program. Eight of 10 respondents indicated that the program had strengths and that it helped them in their life. Four individuals stated that the program led to improvements in their life. Specifically, three respondents mentioned that the program changed the relationship they have with alcohol (e.g., taught one respondent how to drink responsibly). Two respondents also felt that the program led to major improvements in their life with one saying that they are doing a lot better now that they have completed the program.

Sobriety was another common theme mentioned by the respondents. Specifically, three individuals felt like the program forced them to remain sober while enrolled and has ultimately contributed to continued sobriety. Two respondents indicated the program was beneficial to them because they were able to keep their license. Of those, one specifically stated they were able to maintain their employment because the program enabled them to keep their license. One respondent mentioned the program taught them accountability which improved their self-discipline and increased their dedication to complete the program. Lastly, one respondent mentioned the program had a positive impact on their time management skills. Specifically, this respondent indicated that they had to adjust their bedtime to ensure they could arrive to the testing center on time, emphasizing how it taught them the importance of punctuality.

It is important to note that surveys involving the inclusion of sensitive questions are more likely to generate dishonest answers from participants (Tourangeau & Yan, 2007). Specifically, participants are more likely to provide dishonest answers due to their unwillingness to give undesirable information. Given the sensitive nature of some of the questions included in the survey, respondents were asked to report their level of honesty in answering the questions.

However, in this case, all ten respondents indicated they were very honest when filling out this survey.³

Quantitative Methods & Findings

This section introduces the methods, analytic approaches, and results for the quantitative data. First, this section provides a descriptive analysis of the 24/7 treatment and control groups. Due to the issues associated with implementing a Randomized-Control Trial (RCT) design, as was originally planned, UCJC supplemented these analyses with a different design to examine outcomes related to the implementation of the 24/7 pilot program in Weber County, UT.⁴ After consulting with the Department of Public Safety, UCJC recommended that a Regression Point Displacement Design (RPDD) would be an appropriate method to examine the effectiveness of the 24/7 program as it relates to DUI recidivism in Weber County relative to all other Utah counties. Second, we provide an overview of the RPDD and discuss the findings. Lastly, we use record data obtained from the courts and the Bureau of Criminal Identification (BCI) to examine time to recidivism for the 24/7 treatment and control groups using survival analysis.

Data

The 24/7 Sobriety project was piloted in Weber County, Utah. Justice Courts are responsible for hearing DUI cases in the state of Utah (unless the case rises to a felony-level charge). 24/7 Sobriety Program stakeholders decided to conduct a randomized-control trial; whereby, eligible DUI cases were randomly assigned to the 24/7 program (i.e., treatment group) or to treatment-as-usual (i.e., comparison group). All second-time DUI offenders are considered eligible for the program as long as they do not have outstanding fines/license holds with the DLD. Individuals were determined to be ineligible for participation in the study by the Department of Public Safety. Specifically, individuals who were first-time DUI offenders and DUI offenders with three or more DUI convictions in the past 10 years were excluded from the evaluation. These criteria align with those described in the South Dakota and Montana 24/7 Sobriety programs (see, e.g., Midgette, 2014; Midgette & Kilmer, 2015).

The randomization process involved assigning the condition (treatment or control) to specific Weber County Justice Courts. All people in the court were automatically within the court's assigned condition. The 24/7 group consists of 26 individuals who were assigned to the 24/7 program during the study timeframe and 77 individuals who received treatment as usual.

For Ogden City Justice Courts, UCJC randomized the treatment/control condition on a weekly basis. Every Friday the randomization assignments for the upcoming week were emailed to two judges at Ogden City Justice Courts. The Justice Courts that these judges presided over were the only Justice Courts that were randomly assigned to condition on a weekly basis. All other Justice

³ The low response rate (i.e., 23.3%) may be partially attributable to concerns about being honest and potential ramifications despite assurances provided to prospective participants.

⁴ These issues were discussed in greater detail in the Phase 1 Report. Specifically, there is a substantial imbalance in the treatment and control group sample sizes, which indicates that stakeholders deviated from the randomization processes.

Courts participating in the pilot program kept the condition that was assigned to them at the start of the study.

Based on the descriptive statistics presented below, it appears the randomization process was not implemented as expected. Specifically, in a random process, one would expect that the 24/7 group would be similar in size to the comparison group. However, there were only 26 eligible, second-time DUI offenders who were sentenced to the 24/7 Program during the study timeframe (24/7 group) compared to 77 second-time DUI offenders who received treatment as usual (control group). This suggests that stakeholders, likely owing to the logistics of specific cases, used personal discretion to assign participants to a condition rather than utilizing the court's assigned condition in all cases.

In order to identify whether individuals were assigned to the treatment or comparison group, UCJC was given permission to access the SCRAM software by the Weber County Sheriff's Office (i.e., software package used to monitor 24/7 participants testing/sanctions). Research staff at UCJC began extracting individual record data from the SCRAM system in September 2019. Other data elements collected from the SCRAM system included: name, case number, violation(s) description, sanction(s) description, 24/7 status, and sentence date. After the June 2019 24/7 Steering Committee meeting, it was determined that the randomization process was set to end on July 1, 2019 and that the program would be available to all individuals charged with a DUI who met the eligibility criteria. For the purposes of the evaluation, individuals were selected to the 24/7 group if they were sentenced to the 24/7 program for a second-DUI offense between November 1, 2018 and June 30, 2019 (n=26).

UCJC collaborated with Administrative Office of the Courts (AOC) to develop a query protocol to be used to identify all eligible study participants. The search query used by AOC looked for individuals who were convicted for a DUI-related charge between January 1, 2011 and October 31, 2018 from any Utah jurisdiction and whether those persons were convicted of a subsequent DUI-related offense between November 1, 2018 and June 30, 2019 in Weber County, Utah.⁵ AOC provided the data to UCJC in April 2020. The following data elements were included in the data: name, birth date, case number, driver's license number, driver's license state, SID, court location, county, filing date, case type, offense code and description, blood alcohol description, judgement date, and sentence date. AOC indicated it does not have the Impaired Driving Assessment results in their data system. These data were merged with the data obtained from the SCRAM system. After merging the two data files, 5 cases were dropped from the 24/7 group because they were not included in the AOC data file. This resulted in a total of 21 cases in the 24/7 group for the analysis.⁶ AOC also provided UCJC with the State Identification (SID) numbers for individuals included in the study. SID numbers were necessary in order to ensure accuracy when matching these data with arrest record data from BCI.

⁵ AOC's current data system only includes record data for cases beginning in January 1, 2011. Based on the inclusion criteria set by DPS, record data should include all cases that date back to November 1, 2008.

⁶ One of the criteria used to determine eligibility for the 24/7 program is that the individual received their second DUI offense within 10 years of their first. Given that AOC's current data system only includes record data for cases beginning on January 1, 2011, it is possible that the five missing cases received their first-DUI between November 1, 2008 and January 1, 2011. If this is the case, because of the historic data limitation, these individuals would not be flagged as second-time DUI offenders in the AOC data.

AOC agreed to provide UCJC with a second run of the initial query protocol in November 2020 to identify study participants who recidivated for a DUI offense up to one-year post sentence date. The AOC research team reran the query protocol with an updated timeframe to account for potential recidivism (i.e., November 1, 2018 through June 30, 2020). Due to the COVID-19 pandemic, it is possible that a number of court hearings between March 2020 and June 2020 were delayed and may not be represented in the data. In order to address the potential lag between arrest for DUI recidivism and sentence date, UCJC also requested recidivism data from the Utah Bureau of Criminal Identification (BCI).

UCJC sent the list of study participants identified using the AOC query protocol to BCI to obtain recidivism data. BCI provided UCJC with a complete run of the study participants' criminal history. UCJC created several measures to capture study participants criminal history profile prior to their sentence date for the second DUI offense. Any offenses that occurred after the participants' sentence date were used to create measures of recidivism for a variety of offenses (including DUI).

These data are examined in the sections below. Given the nature of this project (i.e., pilot study with a small sample), it is important to consider effect sizes and alternate p-values when interpreting the findings. The idea of considering effects greater than .05 as preliminary evidence is not novel, and fits with the perspective of R.A. Fisher, whose work is synonymous with significance testing. From Fisher's perspective, there is nothing special about the value $p < 0.05$. Instead, the p-value should be considered as statistical evidence for or against a hypothesis. He felt p-values should be interpreted as a range of evidence, where $p = .01$ would be considered strong evidence, and $p = .20$ would be considered weak evidence (see Fisher, 1922). Also, where small sample sizes are present, a focus on effect sizes instead of p-values is warranted. The use of relative effects sizes (e.g., Cohen's d) for measures of risk has been proposed by Olivier and colleagues (2017). The levels of OR of 1.22, 1.86, and 3.00 correspond to small, medium, and large effect sizes for measures of odds ratios (rare events) and hazard ratios (covered in survival models below).

UCJC also collaborated with the DLD to develop a data query protocol in November 2020 to obtain county-level counts of DUI recidivism and number of licensed drivers. A second data request was made to DLD in July 2021. The data was extracted in six-month intervals from January 1, 2017 through June 30, 2021. These data are used to conduct the Regression Point Displacement Design analysis to examine whether there was a county-level treatment effect associated with the implementation of the 24/7 Program in Weber County.

UCJC was also in contact with the Utah Department of Alcoholic Beverage Control (DABC) to obtain a list of licensed bars and state-controlled wine or liquor stores. After speaking with several contacts at DABC, UCJC was informed that DABC does not maintain historical records of all licensed bars and wine and liquor stores. Rather, the list is only current on the date requested. UCJC received a list of all licensed establishments that can sell/serve alcohol as of January 25, 2021. UCJC cleaned the data and created a total count variable by county, which includes only licensed bars and state-controlled wine or liquor stores, to account for between county differences in access to alcohol in the RPDD analysis (described in detail below). UCJC elected to retain the count of bars and state-controlled wine or liquor stores from the Phase II report in this report for the purposes of consistency.

Descriptive Analysis

The descriptive analysis below provides an overview of the key recidivism measures for the 24/7 and comparison groups. When appropriate, bivariate analysis are conducted to examine whether there were pre-existing differences between the 24/7 group and comparison group. The data used below were obtained from SCRAM, BCI, and AOC.

Recidivism Findings

As discussed in the Phase II report, there were several differences in key baseline characteristics and recidivism outcomes between the 24/7 group and control group. The differences in key baseline characteristics described in the Phase II report suggest that the control group had more extensive criminal histories than the 24/7 group. Based on the random assignment we would expect that these groups would look more similar to one another in prior offending behavior. The recidivism findings presented below have been updated from the Phase II report to include additional follow-up time (see Table 1 below). A similar pattern emerged when examining recidivism by study group when compared to the findings in the Phase II report. Across the majority of offense types, a greater percentage of the control group had a post-DUI sentence rearrest when compared to individuals in the 24/7 group.

Table 1: Recidivism Post DUI Sentence by Study Group

Offense Type	Count	Control Group	24/7 Group
		N (%)	N (%)
Any Arrest	0	45 (58.4%)	17 (81.0%)
	1-2	26 (33.8%)	3 (14.3%)
	≥3	6 (7.8%)	1 (4.8%)
Person	0	70 (90.9%)	19 (90.5%)
	1-2	7 (9.1%)	2 (9.5%)
Property	0	67 (87.0%)	19 (90.5%)
	1-2	9 (11.7%)	2 (9.6%)
	3	1 (1.3%)	0 (0%)
Drug	0	66 (85.7%)	20 (95.2%)
	1-2	10 (13.0%)	1 (4.8%)
	3	1(1.3%)	0 (0%)
Public Order	0	68 (88.3%)	20 (95.2%)
	1-2	7 (9.1%)	1 (4.8%)
	≥3	2 (2.6%)	0 (0%)
Weapon	0	75 (97.4%)	21 (100%)
	1	2 (2.6%)	0 (0%)
Traffic	0	73 (94.8%)	21 (100%)
	1-2	4 (5.2%)	0 (0%)
DUI	0	61 (79.2%)	20 (95.2%)
	1	14 (18.2%)	1 (4.8%)
	2	2 (2.6%)	0 (0%)
Obstruction	0	63 (81.8%)	20 (95.2%)
	1-2	13 (16.9%)	1 (4.8%)
	3	1 (1.3%)	0 (0%)

A total of 36 individuals were arrested for a subsequent offense following the sentencing of their second DUI offense (36.7% of the sample). Of those, 32 individuals recidivated from the control group (41.6%) compared to 4 in the 24/7 group (19%). Of those arrested for any offense, the average number of days to recidivism in the control group was 194 days compared to 335 days in the 24/7 group.

A similar percentage of individuals in both the control group and 24/7 group were arrested for a person-related offense following the arrest of their second DUI offense (9.1% and 9.5%, respectively). A slightly greater proportion of the 24/7 group was arrested for a property-related offense (13%) compared to the 24/7 group (9.6%). Individuals in the control group were more likely to recidivate for a drug-related offense (14.3%) when compared to the 24/7 group (4.8%). Similarly, individuals in the control group were slightly more likely to be rearrested for public order, weapon, traffic, and obstruction-related offenses.

When considering arrests for a subsequent DUI offense, 20.8% of individuals in the control group recidivated; whereas, 4.8% of the cases in the 24/7 group recidivated. Of those who had a new arrest for a DUI offense in the control group, the average number of days to their arrest was 279 days. One individual in the 24/7 group was arrested for a new DUI offense, which occurred five days following their arrest for a second DUI offense. Of the 32 individuals who recidivated in the control group, 16 were arrested for a new DUI offense (50%) compared to 1 out of 4 in the 24/7 group (25%).

We conducted a binary logistic regression analysis to examine whether there were significant differences in the odds of DUI recidivism between the 24/7 and control groups. The findings reveal that the control group was more likely to be rearrested for a DUI offense compared to the 24/7 group. Specifically, the odds of rearrest for a new DUI offense is approximately 5.25 times higher for individuals in the control group compared to individuals in the 24/7 group (Odds Ratio [OR]=5.25). This suggests that an OR of 5.25 is a very large effect size. However, when evaluating the p-value at the traditional level of (.05), there was not a significant difference in the odds of DUI recidivism between the 24/7 and control groups ($p=0.12$), likely owing at least partially to the small sample size and that only one individual in the 24/7 group had a subsequent DUI. We also examined whether there was a significant difference in the odds of rearrest for any new offenses between the 24/7 group and control group. The findings reveal that the odds of rearrest for any offense was 3.02 times higher for the control group compared to the 24/7 group; although, this difference was not statistically significant at traditional levels (OR=3.02; $p=0.07$). However, an OR of 3.02 indicates a large effect size.

Regression Point Displacement Design (RPDD)

The RPDD analysis discussed below compares pre- and post-randomization outcomes (i.e., DUI recidivism) between Weber County, or the 24/7 program pilot site, and all other Utah counties. UCJC conducted the RPDD analysis because the RCT design was not implemented with fidelity. The RPDD allows researchers to examine a program designed to change a specific outcome. This section describes the RPDD methodology, the data sources that were used to conduct the analyses, and the findings. Implications of the findings will be presented in the discussion section of the report.

Method

The RPDD is a quasi-experimental analytic approach that has important implications for policy and practice – this is especially true for community-based research (Trochim & Donnelly, 2007; Trochim, 2020; see also, Shadish, Cook, & Campbell, 2002). One of the challenges in conducting community-based program evaluations is that it is difficult to assess for a causal relationship. This is particularly important in determining whether the program/intervention produced a desired effect as opposed to other potential factors. In many instances community-level interventions are implemented in a single community either because it is being pilot tested, or the costs associated with the intervention preclude it from being implemented in more than one community. When tasked with evaluating the effectiveness of the community-based intervention, agencies often compare pre- and post-outcomes in the community to see whether there was a change. If possible, agencies may choose to compare the pre- and post-results from the treatment community to a similar community. However, this restricts the evaluation to a single unit of measurement for both the treatment and control group.

To address the issue of comparing outcomes based on a single unit in the treatment and control group, evaluators can use an RPDD to compare outcomes for the single treatment unit to a larger set of comparison units (see Figure 1 for RPDD notation [Trochim & Donnelly, 2007; Trochim, 2020]). In the context of community-based research this translates to comparing pre- and post-results for the treatment community to a set of other communities. This method addresses the potential concern of relying on a single non-equivalent community by using results from a set of heterogeneous non-equivalent communities. When conducting an RPDD analysis, results from the comparison communities are modeled and then compared with the results from the treatment community – greatly enhancing a researcher’s ability to make causal inferences about the intervention’s effectiveness.

Figure 1: Regression Point Displacement Design Notation

<i>Treatment Unit</i>	N=1	O _(pre)	X	O _(post)
<i>Comparison Units</i>	N*	O _(pre)		O _(post)

Notes: O = results; X = intervention; * = number of comparison units

When introducing a methodology, it is always beneficial to consider its application using a real-world example. Sundt and colleagues (2016) were interested in examining whether prison populations can be reduced without endangering public safety. In 2011, the Governor of California signed into law Assembly Bill (AB) 109 with the goal to significantly reduce the state’s prison population. By 2014, it appeared that the state prison populations had dropped from nearly 200% capacity to 139%. One of the major concerns of the legislation was whether the drastic drop in prison population would lead to an uptick in crime rates across the state. Furthermore, the researchers examined whether A.B. 109 had an impact on crime rates and how that compared to changes in crime rates in the remaining 49 states. Overall, the findings suggest that drastically reducing the state prison population in California did not increase the risk of public safety.

Another advantage to the RPDD is that it is easy to create meaningful visuals that are simple to interpret. Figure 2 below is an example of a bivariate (i.e., two variable) pre-post distribution

using a scatterplot. The X-axis represents the pre-results and the Y-axis represents the post-results. Similar to the notation above, the white Os represent the comparison units and red O denotes the treatment unit. The dark blue line in the figure signifies the regression line for the population. The red line from the regression line to the X (i.e., treatment unit) represents the displacement of the treatment unit from the population regression line. From this image, one can see that the treatment group deviates quite drastically from the regression line. Based on the approximate pre-result for the treatment group (i.e., a rate of 38), if there were no events creating change, we would expect the post-result value to be about 52 (the point where the red and blue line intersect). However, the figure indicates that the post-result value for the treatment group is closer to 28, indicating a sizeable decrease given this fictional example. In order to formally test the relationship, analysis of covariance (ANCOVA) is used to estimate the size and statistical significance of the treatment effect.

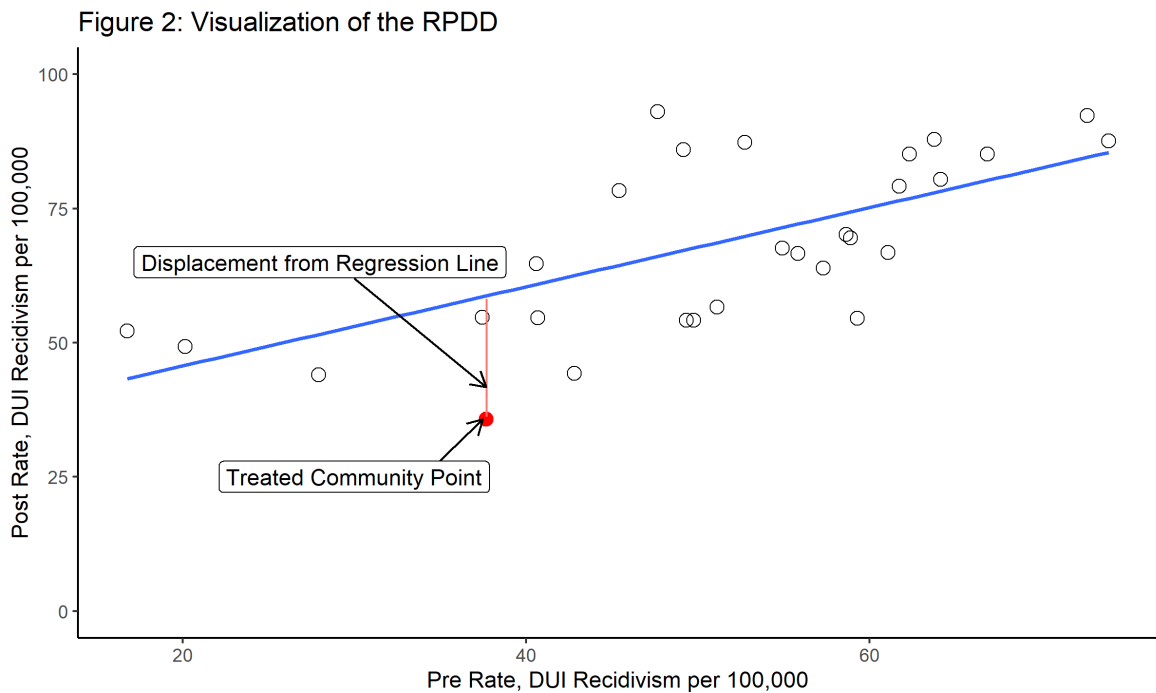


Image adapted from Trochim & Donnelly (2007) to reflect the DUI modeling process

In the current study we are interested in examining whether there is a significant difference in DUI recidivism for Weber County, UT (i.e., the treatment unit) when compared all other Utah Counties after the 24/7 program was fully implemented in 2018. In order to answer this research question, we use an RPDD. There are a couple of important considerations to address prior to using this methodology. First, there is a question as to whether the treatment group belongs to the population and whether the control group can yield an unbiased estimate of the true population regression line (Trochim & Campbell, 2012). Indeed, we would expect that these conditions are met given the inclusion of all Utah counties in the study. Another potential confounder is based on the method used to assign the treatment (i.e., 24/7 program) to a particular unit (i.e., Weber County [Linden, Trochim, & Adams, 2006]). In the context of this study, there could be an interaction between the 24/7 program and recidivism. However, the decision to select Weber County as the pilot location was not the result of perceived or real changes in DUI recidivism in Weber County. Lastly, there is the threat of historical effects. That is, we do not know if there are

factors specific to Weber County that affect DUI recidivism and occurred at the time of implementing the 24/7 program. This potential confounder cannot be ruled out with this research design nor in this study.

Data & Measures

For the purposes of this analysis, we utilize two of the data sources described above (i.e., DLD and DABC data). The main data source used for the RPDD analysis is the data obtained from DLD. DLD provided the research team with raw counts of third-time DUI offenses by county in six-month increments beginning in January 1, 2017 to June 30, 2021. They also provided the research team with the number of licensed drivers by county across each of the aforementioned years. Using this data, we generated an average rate of DUI recidivism cases by number of licensed drivers for all Utah Counties in the years preceding the implementation of the 24/7 program (i.e., 2017 and 2018) and an average rate of DUI recidivism cases in six-month increments subsequent to the implementation of the 24/7 program (i.e., January 1, 2019 through June 2021).⁷ The rates were standardized by 100,000 (i.e., the rate of DUI recidivism per 100,000 licensed drivers).

DABC provided the research team with raw counts of alcohol licensees by county. We created a variable to capture the number of licensed bars and state-maintained liquor stores by county. These data were merged with the DLD data by county. We obtained DLD and DABC data for all 29 Utah Counties. We examined the functional form of the relationship between the pre-24/7 DUI recidivism rates and post-24/7 DUI recidivism rates to ensure that the model appropriately fit the data. We determined that the relationship between the pre- and post-rates was linear. In the first model, we estimate the effect of the 24/7 program on the post-24/7 DUI-recidivism rate while accounting for the pre-24/7 DUI recidivism rate. In the final model, we estimate the treatment effect of the 24/7 program on third time DUI offenses while accounting for the pre-24/7 DUI recidivism rate and the number of licensed bars and state-controlled liquor stores. The findings are discussed below.

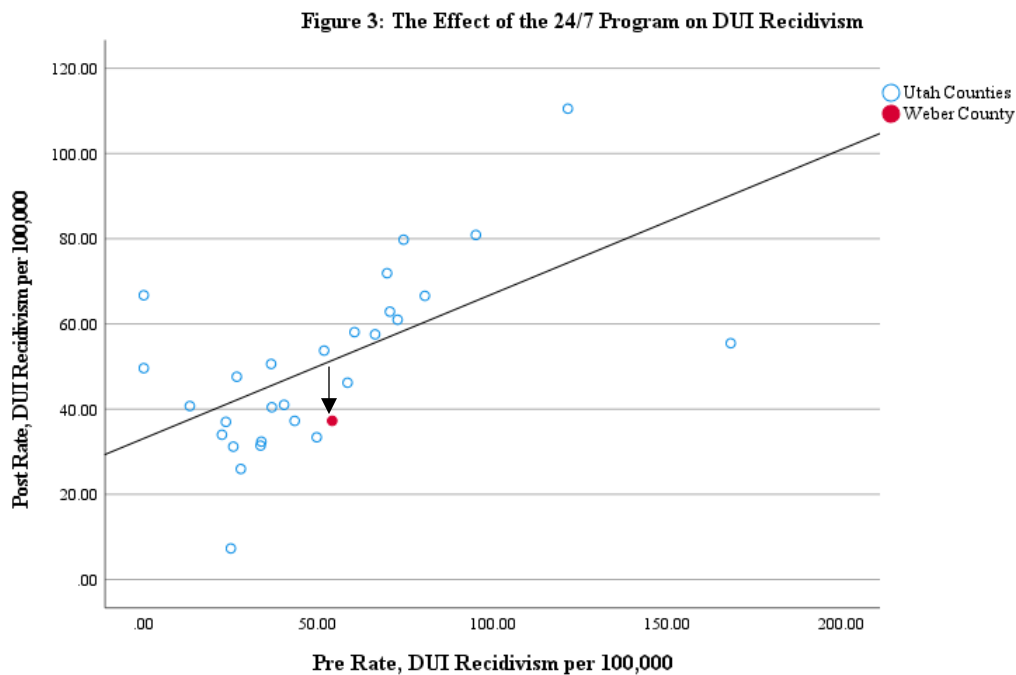
Findings

Across the study timeframe (i.e., January 2017- June 2021), the minimum number of DUIs reported by county was 0 and the maximum number of DUIs was 371. In each year, the overwhelming majority of counties (i.e., > 50%) reported 10 or less DUIs. In regard to licensed drivers by county, the minimum number of licensed drivers was 794 and the maximum number was 846,936. It is important to note that approximately 45% of counties had less than 10,000 licensed drivers in a given year. Rates are sensitive when cases have a small denominator – or in this case the number of licensed drivers. Small changes to the numerator for counties with a small population of licensed drivers can drastically impact the rates of DUIs by number of licensed drivers. For example, we consider how small changes in the number of DUIs can impact the yearly rate of DUIs per 100,000 licensed drivers in Kane County. In 2017, 1 DUI was reported and there were 5,569 licensed drivers. This equates to a rate of 17.96 DUIs per 100,000 licensed drivers. In 2018, 2 DUIs were reported among a population of 5,677 licensed drivers.

⁷ Although the 24/7 program started enrolling participants in July 2018, data were obtained for DUI recidivism in 6 month intervals between 2017 and 2020. The decision was made to start the post-24/7 implementation period on January 1, 2019 because very few participants were enrolled in the program between July 1, 2018 and December 31, 2018 and the program was not fully implemented until November 1, 2018.

This results in a rate of 35.23 DUIs per 100,000 licensed drivers or approximately 1.96 times the rate in 2017.

When conducting an RPDD it is important to consider how well the model fits the data. We assessed for a linear relationship. An important component of the RPDD is the visual inspection of a scatterplot that displays the pre-24/7 rate by the post-24/7 rate by county (see Figure 3 below). If the model fits the data well, we would expect that the cases (represented by the Os) would be tightly clustered around the regression line. We see that there are several counties that are not close to the regression line (i.e., outliers). We examined the data to identify influential cases. Beaver County was identified as an influential case and we reestimated the models in a sensitivity analysis after filtering out Beaver County. The findings indicate that the DUI recidivism rate in Weber County was not significantly different from the remaining Utah Counties ($b = -15.58$; $t = -1.03$; $R^2 = 0.50$).

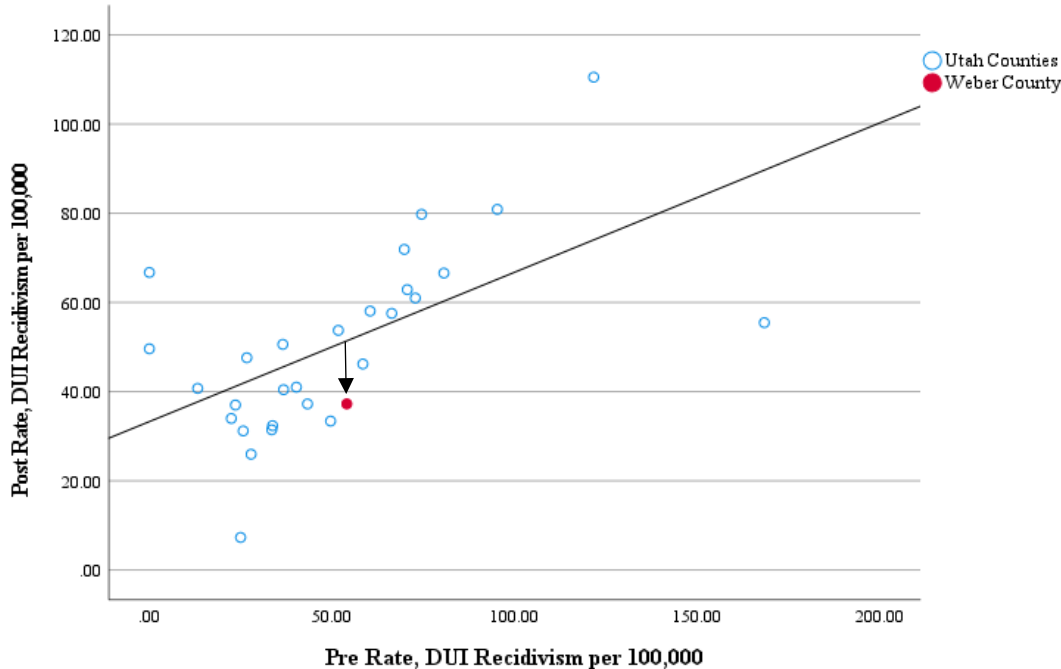


As one can see in Figure 3, most cases are clustered near the regression line. Weber County is represented by the red O in the figure. We can see that there is a negative displacement from the regression line (i.e., Weber County falls below it). Based on this visualization, it appears that the post-24/7 DUI recidivism rate is lower in Weber County based on the pre-24/7 rate. However, findings from the analysis reveal that the point displacement for Weber County is 14.17 less than the expected rate but not statistically significant (i.e., $b = -14.17$; $t = -0.82$, $p = 0.42$). This suggests that the 24/7 program did not have a significant effect on the post-24/7 DUI recidivism rate in Weber County. The pre-24/7 rate was the strongest predictor of the post-24/7 rate. As the pre-24/7 rate increases the post-24/7 rate increases ($b = 0.34$, $t = 3.77$; $p < 0.001$).

In the full model, we include a covariate that captures the total number of licensed bars and state liquor stores by county (see Figure 4 below). The inclusion of this variable had a minimal impact on the regression line, which can be assessed by examining the adjusted R^2 value. The R^2 value provides a measure of how much of the proportion of explained variance in post-rate DUI

recidivism is accounted for by the predictors included in the analysis. The adjusted R^2 value takes into account the number of predictors in the model. The inclusion of the total number of licensed bars and state-controlled liquor stores minimally decreased the adjusted R^2 value to 30% from 31%. When a reduction in adjusted R^2 occurs after adding additional predictors, it is an indicator that those predictors are not useful in the model. Similar to the previous analysis, the point displacement for Weber County is not statistically significant ($b = -12.91$; $t = -0.74$, $p = 0.47$). The pre-24/7 rate was the strongest predictor of the post-24/7 rate in the full model ($b = 0.34$; $t = 3.68$; $p < 0.001$).

Figure 4: The Effect of the 24/7 Program on DUI Recidivism - Full Model



Survival Analysis

The survival analysis described below allows us to examine the time to an event occurrence (i.e., DUI recidivism) for the 24/7 treatment and control groups. Unlike the previous section, we utilize individual-level data obtained from BCI to determine whether there are significant differences in the time to DUI recidivism. It is important to consider limitations when interpreting the findings. Specifically, stakeholders may have used personal discretion to assign participants to a condition rather than utilizing the court's assigned condition in all cases. This likely contributed to the small number of participants that were sentenced to the 24/7 program in comparison to the control condition during the study timeframe; it also likely explains the pre-existing differences in prior offending, as such pre-randomization differences would not be expected in a random process. Thus, though analyzed as an RCT in this section, that method is not entirely appropriate, and can be misleading, given the deviation from the random assignment procedure. This section describes the methodology, the data, and the results from the analyses. Implications will be discussed in the subsequent section of the report.

Method

Survival analysis is also known as time-to-event analysis (see Allison, 2014). Originating in the biomedical sciences field, survival analysis was often used to observe time to death of patients or laboratory animals. Social sciences have also found value in conducting survival analysis to examine a variety of topics including marriage, employment changes, and substance use relapse. Survival analyses produce hazard ratios as a metric of an effect. Hazard rates, also referred to as failure rates, can be conceived as the relative risk of failing (recidivism) at any one instant during the study time period.

There are certain features of some datasets that create challenges for analyzing those using traditional statistical models like linear regression (e.g., censoring [Allison, 2014]). A censored observation can be defined as an observation with incomplete information. In the case of this study, cases were censored that had not been arrested for a subsequent DUI. Specifically, we right censored observations because the individuals did not have an event during the time that the subject was part of the study. Given the nature of the data and the research questions, the study does not span enough time to observe DUI recidivism for all subjects in our sample (though clearly not all would be expected to recidivate no matter how long they were followed).

It may be helpful to consider an example of survival analysis in the criminal justice literature. Wallace and colleagues (2015) studied the relationship between a legitimacy-based approach to crime prevention and risk of subsequent incarceration. Specifically, the authors were interested in whether individuals will be more likely to comply with the law if the laws and its agents were seen as fair and just. The sample contained all individuals who were released from prison between 2001 and 2006 in Cook County, Illinois. They estimate time to reincarceration using a series of Cox proportional hazard models. The findings indicate that participation in the Project Safe Neighborhoods offender notification forums (i.e., a legitimacy-based program) was associated with significantly longer intervals that prior offenders remained out of prison.

Data & Measures

We used data obtained from BCI, SCRAM, and AOC to examine the time to DUI recidivism for the 24/7 group and control group. We created several summary measures of prior criminal history in the two years prior to individuals' sentence date for their second DUI offense. Additionally, we created a time to event variable to capture the number of days between the sentence date for individuals' second DUI and a subsequent DUI arrest. For those who did not have a subsequent DUI, the variable captured the number of days between their second DUI sentence date and the study timeframe. We also created a flag variable to indicate whether an individual was arrested for a DUI offense after their second DUI offense. This variable was used as a censoring variable in the survival analysis for cases that the time to event (i.e., DUI recidivism) was not observed during the study timeframe.

Findings

Prior to conducting the survival analysis, we explored the data using univariate analysis. We examine the Kaplan-Meier curves for the categorical predictor (i.e., treatment condition). The log-rank test for equality of survivor functions revealed a p-value of 0.10, which indicates that the two groups are equivalent to one another. For age, we estimated a Cox proportional hazard model because it allows for covariates while a traditional Kaplan-Meier does not. We also

consider the Chi-squared test and the p-value for age, which is 0.54, indicating that age is not significantly related to time to rearrest for a DUI offense. We also estimated a Cox proportional hazard model for the predictor that captures number of prior arrests. The analysis revealed a p-value of 0.46, which indicates that number of prior arrests is not significantly related to time to rearrest for a DUI offense. However, number of prior arrests was significantly related to the treatment condition ($t=2.96$; $p<0.01$); whereby the average number of prior arrests for individuals in the control group is 1.9 compared to 1.3 in the 24/7 group. Therefore, we included number of prior arrests as a predictor in the final model. We then estimated a Cox proportional hazard model for the count of prior drug and alcohol arrests. We also examine whether the mean difference in number of prior arrests for drug and alcohol offenses was related to the treatment condition. The findings indicate that the mean difference is not statistically significant between the control group and the 24/7 group (mean difference = 0.14). We do not include count of prior drug and alcohol arrests in the final model because it is not significantly related to the treatment condition or time to DUI recidivism.

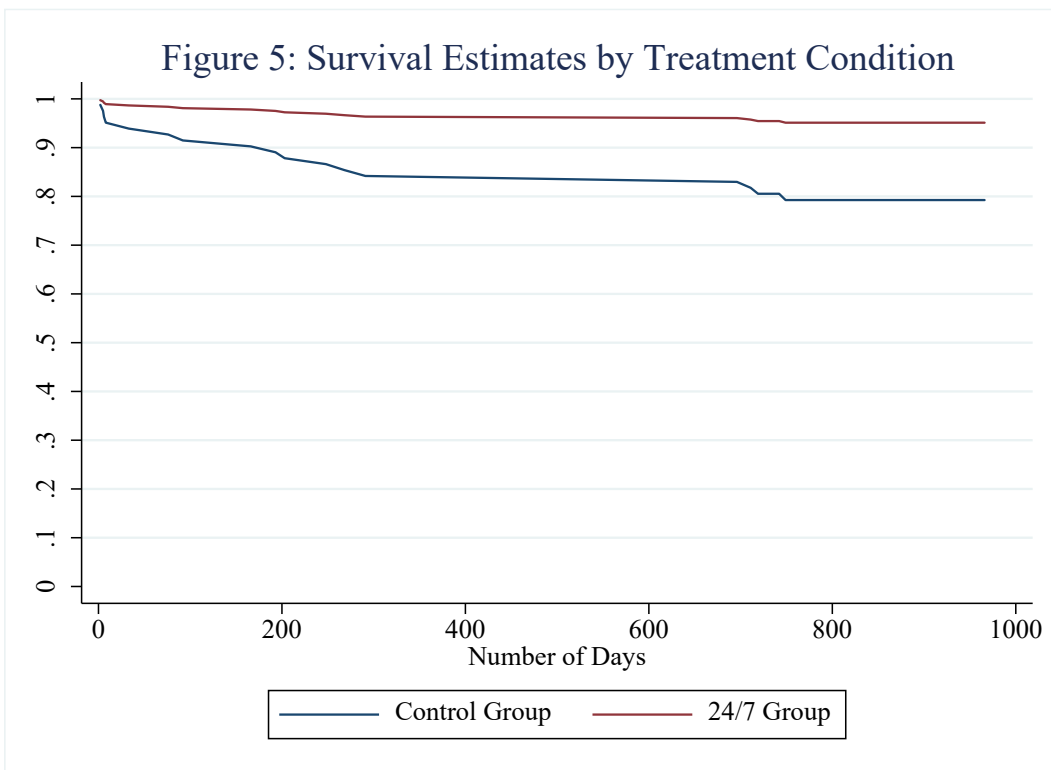


Figure 5 above displays the findings from the Cox proportional hazard model. In the figure, the blue line represents the survival curve for the control group and the red line represents the survival curve for the 24/7 group. The x-axis displays the number of days to rearrest for a third DUI offense. The y-axis displays the survival estimates. Note that only one person in the 24/7 group was arrested for a subsequent DUI (hence the flattening of the curve in Figure 5). We can see that the 24/7 group was rearrested for a DUI offense slightly more quickly than the control

group but that their curve flattens out very quickly; whereas, the control group's curve continues to have more recidivism events over time.

The findings from the Cox proportional hazard model indicate that there was not a statistically significant difference between the survival curve for the 24/7 group and the survival curve for the control group (Hazard Ratio=4.64; $p=0.14$).⁸ The hazard ratio is an estimate of the ratio of the failure rate in the control group versus treatment group at any moment in time. The findings suggest that risk of DUI recidivism is 4.64 times higher in the control group compared to the 24/7 group (HR=4.64); however, the finding was not statistically significant ($p=0.14$). It is also a real possibility that the 24/7 program did not reach statistical significance due to the small sample size or the fact that only one 24/7 participant was rearrested for a DUI. When considering effect size, however, the HR 4.64 indicates a large program effect.

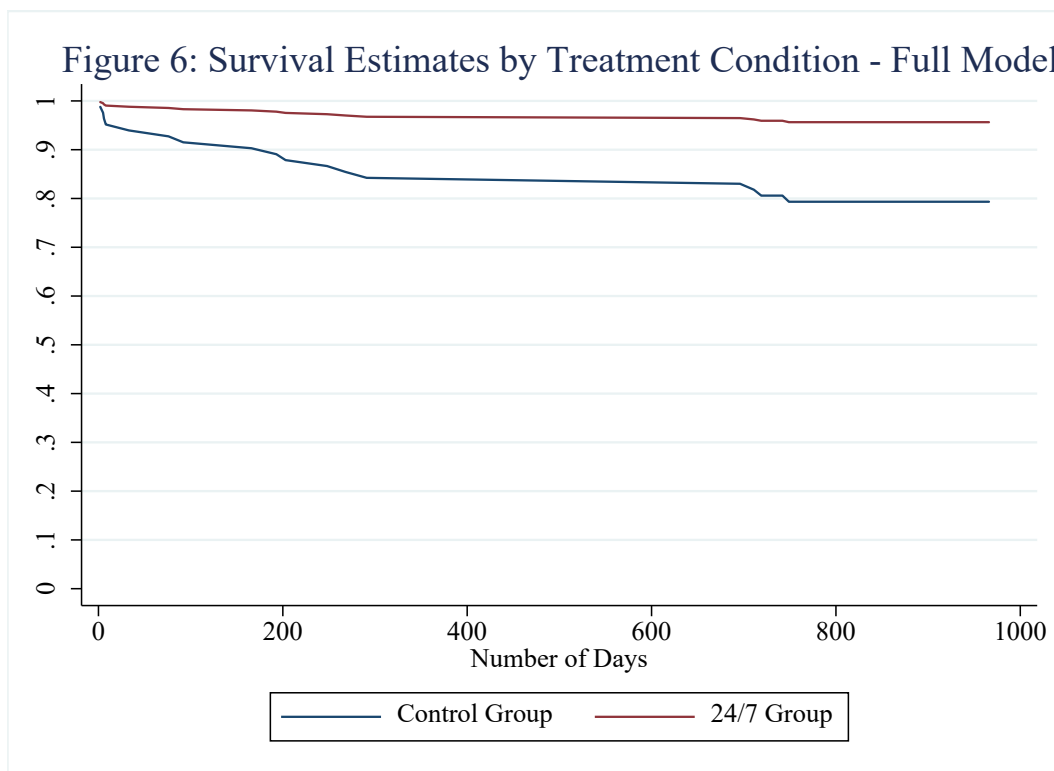


Figure 6 above displays the findings from the Cox proportional hazard model with number of prior arrests included as a covariate. The findings indicate that there was not a statistically significant difference between the survival curve for the 24/7 group and the survival curve for the control group when accounting for number of prior arrests (Hazard Ratio=5.19; $p=0.11$). The findings suggest that the risk of DUI recidivism is 5.19 times higher for the control group than

⁸ Note the p-value differs from the log-rank test findings reported above because they are different models. The Kaplan-Meier estimates a survival curve and the log rank test provides a statistical comparison of two groups. The Cox proportional hazard method allows for both continuous and binary predictors. The Kaplan-Meier method is a non-parametric procedure; whereas, the Cox proportional hazard method is a semi-parametric procedure.

the 24/7 group (HR=5.19); however, the finding was not statistically significant ($p=0.11$). However, when considering the effect size of 24/7 participation, a HR of 5.20 indicates a large program effect, even when controlling for number of prior arrests.

Discussion

Summary of Survey Data Findings

The survey findings revealed that the majority (60%) of respondents had not consumed any alcohol in the past 30 days. Male survey respondents were more likely to report they had engaged in binge drinking in the past 30 days compared to females. Although some respondents indicated they had recently consumed alcohol, none of them reported that they had consumed alcohol before driving a motor vehicle. In fact, those who did consume alcohol indicated that they took a variety of steps to avoid drinking and driving (e.g., get an Uber/Lyft, stay overnight, or call a friend for a ride).

In regard to respondents' experiences in the 24/7 program, the majority felt it was at least moderately difficult to meet the financial requirements of the 24/7 program. Five of the 10 respondents estimated that it cost them between \$1,500 and \$2,500 to participate in the program. The overwhelming majority (90%) of respondents indicated they had at least some difficulty getting to the testing center two times per day. The majority of respondents indicated it was not difficult for them to abstain from alcohol during their time in the program.

When asked to assess their interactions with program staff, the majority of respondents indicated they were treated fairly. However, there were several respondents who disagreed with the statement that they were treated fairly by the WCSO – likely the result of frequent contacts with WCSO program personnel who are in charge of daily testing. The majority of respondents held favorable views of the 24/7 program. These factors also highlight participants' perceived fairness and legitimacy of the 24/7 program and its staff, which has implications for achieving law-abiding behavior and cooperation through procedural justice (see Bottoms & Tankebe, 2012). However, some respondents commented that they had negative experiences with program staff.

In general, the majority of respondents felt that the 24/7 program helped them refrain from the use of alcohol during the program. More importantly, a majority of respondents reported that they continued to abstain from the use of alcohol after 24/7 program participation. Respondents indicated that the structure of the program led them to get sober, which seemed to carry over in their lives after their time in program.

Participants described improvements in employment and family relationships, both of which are criminogenic needs, as a result of program participation. While some participants described reductions in substance use and criminal thinking, others did not. It may be useful to incorporate or amplify treatment interventions to target those criminogenic needs (see Bonta & Andrews, 2017). Additionally, some respondents indicated that the 24/7 program interfered with prosocial aspects of their lives (e.g., family, work, well-being). These are important considerations as both

prosocial supports and prosocial activities have been shown to be associated with reductions in recidivism (see e.g., Cochran, 2014; MacKenzie & Brame, 2001)

One critique of the 24/7 program was its cost in terms of finances and time. Respondents offered a range of suggestions to mitigate these problems, including expanding the availability of testing times and sites and compliance-based reductions in testing requirements. This latter suggestion, in particular, may increase program efficacy due to research demonstrating reductions in recidivism for programs that employ a graduated rewards and sanctions structure. With respect to time, it is also important to ensure that 24/7 program participation does not result in the loss or interfere with other court-ordered substance abuse treatment. This is particularly relevant because several respondents indicated they regularly participated in both substance abuse treatment and support groups.

Finally, many participants indicated their experiences with program staff were favorable. There were, however, some concerns with the orientation process and communication. Ongoing training may improve this and thereby, increase participants' perception that the program is fair and they are treated respectfully. Enhanced training for staff, as well as participants, has the potential to enhance perceptions of legitimacy by reducing perceptions (or actuality) of disparate treatment.

One limitation of the survey findings is the small sample size. Of the 21 24/7 participants in the final sample, only 10 provided responses to the surveys. It is possible that these 10 individuals were not a random sample of 24/7 participants, and that their experiences related to the program differ from those who elected not to respond.

Summary of Quantitative Findings

The analytic sample consisted of 21 individuals in the 24/7 group and 77 in the control group. The sample imbalance demonstrates the challenges of implementing a randomized-controlled trial in criminal justice settings. As previously discussed in the prior reports, it is likely that the randomization process deviated from the methodology at some point during the study timeframe. Although we cannot speak to the actual cause of this discrepancy in sample size, it is possible that eligible, second-time DUI offenders declined to participate in the program during the sentencing hearing, program partners deviated from the randomization process, or second-time DUI offenders who would otherwise be eligible for the program could not participate due to holds on their license or they had outstanding fees due to DLD. Given these issues, we analyzed county-level data using a RPDD in addition to the individual-level data using descriptive and time-to-event analyses.

The findings from the RPDD analysis suggest that post-24/7 DUI recidivism in Weber County was lower than predicted by the fitted regression line; however, the displacement was not statistically significant. 24/7 program implementation in Weber County did not produce a significant change relative to rates in other counties, where, in some cases, rates dropped as well. One of the potential limitations to this analysis is that DUI recidivism is a relatively rare event – especially for a third DUI offense. Furthermore, a number of counties in Utah have a relatively small number of licensed drivers. Taken together, these issues can greatly impact the DUI rates

and subsequent analysis. When considering the theoretical underpinnings of the 24/7 program, it is expected that participation in the 24/7 program would result in a specific deterrent effect. That is, only individuals who participate in the program would be expected to be less likely to recidivate for a DUI. Given the small sample size of 24/7 participants, it would be difficult to detect a county-wide reduction in DUI recidivism since the inception of the 24/7 program because the program was not implemented for all second time DUI cases in the county. This increases the difficulty in identifying a treatment effect using aggregate data.

The individual-level, descriptive analyses of recidivism did not reveal a statistically significant differences between the 24/7 group and control group. The control group had a higher prevalence of being rearrested after their second DUI charge. The survival analysis revealed that both groups had similar hazard estimates for DUI recidivism initially after their sentence date. However, after a few days the hazard curves were differentiated with the 24/7 group having higher survival rates. The hazard curves continued to differentiate from one another until about 300 days after their sentence date before plateauing and again differentiating from one another around 700 days. While these findings indicate that there are differences in hazard rates between the two groups, 24/7 participation was not significantly related to differences in the hazard rates.

With respect to pilot studies with small samples, it is worth considering effect sizes and alternate p-values. Although the findings were not significant at $p\text{-value} < 0.05$, the relationships between program participation and the time-to-DUI recidivism as well as the binary recidivism outcomes produced large effect sizes. However, there is some uncertainty surrounding the point estimates, which are likely the result of the small sample size (especially the 24/7 group) and the fact that only one 24/7 participant was arrested for a subsequent DUI offense. The findings from the analysis of the binary recidivism outcomes revealed that the odds of rearrest for any new offense and a subsequent DUI were greater for the control group compared to the 24/7 group. The survival analyses revealed that the control group had a much higher risk of DUI recidivism compared to the 24/7 group; however, these differences were not statistically significant. Again, p-values should be considered as statistical evidence for or against a hypothesis and can be interpreted as a range. It is also important to consider the effect sizes of the measures of risk for DUI recidivism and 24/7 program participation. In both models, large effects were detected between 24/7 participation and DUI recidivism. Taken together, the odds ratios, hazard rates, and p-values from this study provide preliminary support for the efficacy of the 24/7 program; however, the findings should be interpreted with caution owing to the small sample size, the short follow up time to detect recidivism, the pre-existing differences in criminal histories between the 24/7 and control groups, and the failure to adhere to the randomized control trial design.

One of the potential limitations to the quantitative analysis is that the groups were small and that DUI reoffending was a rare event. Small sample sizes decrease statistical power, making it difficult to detect an effect. Only one individual from the 24/7 group was arrested for a subsequent DUI compared to 16 individuals in the control group. Therefore, the change in the survival curve for the 24/7 group was based on one individual's experience. It is also worth noting that many DUI offenders drive under the influence a number of times before their actions are detected by law enforcement (Centers for Disease Control, 2015). This, again, has implications for using official record data to examine recidivism. Also, the findings from this analysis will also remain a bit ambiguous given the non-equivalent groups. Lastly, the data do not contain all important variables that could be related to recidivism and time to recidivism

(e.g., sociodemographic characteristics, risk/needs assessment results, blood alcohol content). It may be helpful to continue to evaluate DUI recidivism for individuals in these groups to increase the time they are in the community as well as evaluating these outcomes for program participants as the program is rolled out statewide.

Conclusion

Although several studies have shown that the 24/7 program is associated with reductions in DUIs, their findings should be interpreted with caution due to methodological issues (see, e.g., Kilmer et al., 2013). The program is grounded in deterrence theory, with the main goal being to promote sobriety for program participants. Therefore, it would be expected that the program has a specific deterrent effect only on those who participate in the program. Any reductions in DUI recidivism would need to be examined at the individual level. This project attempted to address this major gap in the research by implementing an RCT. However, there were fidelity concerns with the randomization process that created significant imbalance in the treatment (i.e., 24/7 participants) and control groups. This creates a number of issues that prohibited the research team from examining outcomes as an RCT.

In conciliation, the research team devised several different research methodologies and analyses to answer important questions regarding the efficacy of the 24/7 program from official record data as well as from interviews and surveys with 24/7 program stakeholders and participants. In general, the findings revealed that 24/7 program stakeholders and participants view the program as an important vehicle for promoting positive behavior change (e.g., accountability, incentives, reduced alcohol consumption, and fairness of sanctions). As with any program, stakeholders and participants identified a variety of barriers including but not limited to: testing windows, lack of testing locations, burden of financial requirements, communication issues between stakeholders, and license reinstatement). The quantitative analyses did indicate the 24/7 and control groups appeared to be different in terms of key baseline characteristics (e.g., offense history) as well as recidivism. However, differences in DUI recidivism was not statistically significant. The RPDD analysis indicated that treatment site (i.e., Weber County) did not have a significantly different post-implementation DUI recidivism rate when compared to all other Utah Counties. This was the case at one-year post-implementation as well as two years post implementation. Lastly, the survival analyses revealed that curves predicting time-to-event were more favorable for the 24/7 group than the control group.

In conclusion, the 24/7 program has been identified as a promising practice by Crimesolutions.gov but there is a need for more evaluations of its efficacy. Although participants and stakeholders in this study generally held positive perceptions of the program, the quantitative analyses revealed that there is a non-trivial possibility the program does not have a specific deterrent effect as it relates to DUI recidivism. It is important to continue to monitor changes in DUI recidivism as the 24/7 program is implemented statewide. Beyond recidivism, the 24/7 program has the potential to positively impact participants in other life domains. Specifically, the findings from this study have revealed that participants indicated that the program helped them maintain their employment by allowing them to continue to drive. Other findings have indicated participants believe the program has reduced/ceased their alcohol consumption as well as improve their personal and professional relationships and situations. In several instances,

participants also indicated the program positively changed their perception of the criminal justice system. While the findings from this study have not indicated the program has led to significant reductions in recidivism, they have demonstrated the program can have a positive impact on other life outcomes, at least subjectively. Future evaluations would greatly benefit from examining whether this program has the ability to significantly improve other outcomes for individuals that are eligible and financially able to participate.

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Appendix A

U of U Study: 24/7 Sobriety Program Evaluation

Start of Block: Survey Questions

Q1 During the **past 30 days**, how many days per week did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage, or liquor?

- 0 days - Did not drink at all
 - 1 day in the week
 - 2 days in the week
 - 3 days in the week
 - 4 days in the week
 - 5 or more days
-

Q2 During the **past 30 days**, on the days when you drank, about how many drinks did you consume on average?

- 1 drink
- 2-3 drinks
- 4-6 drinks
- more than 6 drinks

Q3 Please indicate your gender:

- Male
 - Female
 - Prefer NOT to answer
-

Q4 If you are a male, how many times during the **past 30 days** did you have 5 or more drinks on an occasion?

- Did not drink
 - Once
 - Twice
 - Three or more
-

Q5 If you are a female, how many times in the **past 30 days** have you had 4 or more drinks on an occasion?

- Did not drink
 - Once
 - Twice
 - Three or more
-

Q6 During the **past 30 days**, what is the largest number of drinks you had on any occasion?

- No drinks
- less than 5 drinks
- 5 -7 drinks
- 8 or more drinks

Page Break

Q7 In the **past 12 months**, have you ever driven a motor vehicle within two hours after drinking any alcoholic beverages?

Yes

No

Q8 In the **past 30 days**, have you ever driven a motor vehicle within two hours after drinking any alcoholic beverage?

Yes

No

Q9 In the **past 12 months**, about how many times did you drive when you thought you were over the legal limit for alcohol and driving (BAC is 0.05 in Utah)?

Never

Once

Twice

Three or more times

Q10 In the **past 30 days**, about how many times did you drive when you thought you were over the legal limit for alcohol and driving (BAC is 0.05 in Utah)?

- Never
 - Once
 - Twice
 - Three or more times
-

Page Break

Q11 In your opinion, how much is drinking and driving by people a threat to the personal safety of you and your family?

- Not at all a threat
 - A little
 - A moderate amount
 - A lot
 - An extreme threat
-

Q12 When you do consume alcoholic beverages, what type of alcoholic beverage do you prefer most?

- Beer
 - Wine
 - Malt beverage
 - Liquor/Spirits
 - No preference
 - I **NO** longer consume alcohol
-

Q13 In your opinion, how many of your favorite alcoholic beverages could you drink in two hours before it would be unsafe for you to drive?

- 1 drink
 - 2 drinks
 - 3-4 drinks
 - 5 or more drinks
-

Page Break

Q14 In the **past 12 months**, have you ever deliberately avoided driving a motor vehicle because you felt you probably had too much to drink to drive safely?

Yes

No

Q15 If you felt you had too many drinks and were not safe to drive, what actions did you take to avoid driving after drinking?

- Did not drink
 - Called a cab/Uber or Lyft
 - Called a friend
 - Stayed overnight
 - Walked home
 - Slept in the car
 - Rode a bike or a scooter home
 - Other
-

Q16 In the **past 12 months**, have you ever ridden in a motor vehicle with a driver you thought might have consumed too much alcohol to drive safely?

Yes

No

Q17 What is your current status in the 24-7 Sobriety Program

- Graduated from the 24-7 Sobriety Program.
 - Did not complete the 24-7 Sobriety Program
-

Q18 How difficult was it to meet the financial requirements of the 24-7 Sobriety Program?

- Not at all difficult
 - A little
 - A moderate amount
 - A lot
 - Extremely difficult
-

Q19 Estimate in dollars how much it cost you to be in the 24-7 Sobriety Program.

- \$100-\$1000
 - \$1000-\$1500
 - \$1500-\$2000
 - \$2000-\$2500
 - More than \$2500
-

Q20 How long, after enrollment into the program, did it take to get your license reinstated?

- 0-30 days
- 31-60 days
- 61-90 days
- Over 90 days

Page Break

Q21 I was treated fairly by the following 24/7 Sobriety Program staff:

	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
The Justice Courts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Weber County Sheriff's Jail Staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Private Probation Staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22 Indicate your agreement with the following statements regarding the 24/7 Program:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Sanctions in the 24/7 Sobriety program are fair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was difficult NOT to drink while in the 24/7 Sobriety program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q23 I used illicit drugs such as cocaine, heroin, or marijuana while I was in the 24-7 Sobriety Program.

- Yes
 - No
-

Q24 How difficult was it to get to the testing center twice a day?

- Not difficult at all
 - A little
 - Moderately difficult
 - Difficult
 - Extremely difficult
-

Q25 Were you employed prior to the 24-7 Sobriety program?

- Yes
 - No
-

Q26 To what degree did the 24-7 Sobriety Program help you maintain employment?

- I was not employed while in the 24/7 Program.
 - It did not help me maintain employment at all.
 - It helped me a little.
 - It helped me considerably.
 - I would not have been able to maintain my job without the 24-7 Program. It was extremely helpful.
-

Page Break

Q27 Did you receive substance abuse treatment while in the 24-7 Sobriety Program?

- Yes
 - No
-

Q28 How often did you attend substance abuse treatment per week?

- less than once a week
 - Once a week
 - Twice a week
 - Three or four times per week
-

Q29 About how many months were you in substance abuse treatment?

- 1 month
 - 2 months
 - 3 months
 - 3-6 months
 - 6-12 months
-

Q30 What was your completion status in substance abuse treatment while in the 24/7 Program?

- Successfully completed treatment
 - Currently in treatment
 - Terminated treatment before completion
-

Page Break

Q31 Did you attend any support groups (other than the AA) while on the 24/7 program?

Yes

No

Q32 If YES, what support groups were they?

	Support Groups
Support Group 1	
Support Group 2	
Support Group 3	

Q33 How often did you attend the support groups?

Less than once a month

Once or twice a week

Once a month

Q34 Briefly describe any barriers or problems you encountered while in the 24-7 Sobriety Program?

Q35 What do you consider to be the strengths of the 24-7 Sobriety Program? How has the program helped you in your life?

Q36 How honest were you in filling out this survey?

- I was not honest at all
 - I was honest once in a while
 - I was honest some of the time
 - I was honest most of the time
 - I was very honest
-