

# Intoxication while Driving: Two Years of Daily Self-Rating, Relative to Reported Alcohol Consumption

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## Abstract

**Objective:** This study examines the longitudinal relationships between quantity of alcohol consumed and self-rated intoxication level while driving, reported daily over a two-year period, by means of an automated touch-tone interactive voice response (IVR) system.

**Method:** For 736 consecutive days, subjects (n = 33 male social drinkers) reported beer, liquor, and wine consumption during the previous 24-hour period. They also provided daily ratings on 11-point scales for a number of variables, including: (1) “highest level of intoxication yesterday,” and (2) “highest level of intoxication while driving yesterday.”

**Results:** Two subjects with highly predictable weekly drinking patterns throughout the 2-year study period were selected for detailed analysis on the above variables. Blood alcohol concentration (BAC) values were estimated, and official driver records were examined. Both subjects drink at bars frequently, regularly, and heavily, and also drive away from bars at subjective levels of intoxication that suggest an impairing or an even illegal BAC.

**Conclusion:** The present study demonstrates that the IVR method allows the assessment of longitudinal predictability of drinking and drink-driving behavior for up to two years, with inherent statistical stability.

## Introduction

Driving after consuming alcoholic beverages is, by definition, the behavior of an individual motorist on a particular occasion. Although any such driving behavior – even after moderate drinking – is undesirable and risky, it becomes extremely dangerous and illegal if the driver is “intoxicated.” The key question at this point is the extent to which the driver perceives that he is in fact intoxicated. The most important subsequent question is whether he still attempts to drive, despite his perceived level of intoxication.

In any case, it is the individual who drinks the alcoholic beverages and the same individual who then drives after drinking these alcoholic beverages. However, almost all studies concerning driving under the influence of alcohol are based on combined information obtained by aggregating data across many drivers. Although this procedure is used for understandable reasons and because of unavoidable constraints in many cases, we are nevertheless deprived of invaluable, fine-grain information that could provide unique insights and much more accurate understanding of the problem. Methodologically and pragmatically, the issue focuses on the tradeoff between cross-sectional data collection and longitudinal data collection with frequent

sampling (best done on a daily basis). In addressing this issue at the level of a research project, the all-important question of data availability becomes critical: Can the investigator actually obtain longitudinal data, especially on a daily basis?

In the present longitudinal study involving daily reporting over a two-year period, respondents have been found to be so different that aggregate level analyses, while representing the entire sample, cloud the processes that lead to drinking and driving. Because of this clouding, the individuals end up inappropriately described, and we therefore resort to individual-level analyses.

The three major sources of data regarding driving after drinking and the role of alcohol in traffic safety are: (1) the extent of alcohol involvement in highway crashes, (2) the extent of alcohol presence at roadside surveys (random testing), and (3) responses to relevant questions in retrospective surveys of drinking drivers.<sup>1</sup> It is noteworthy that all three approaches typically gather cross-sectional rather than longitudinal data. Extremely important insights into such problems as the role of alcohol in crashes have been obtained with the first two approaches; however, they are too sporadic and too coarse for a detailed study of drinking drivers over time. Drink / driving behavior tends to persist consistently over time,<sup>2</sup> and, therefore, longitudinal studies of **daily** drinking and of drink /driving would provide new insights into the problem, possible relationships with associated factors, and leads for developing new prevention measures.

Now, a highly specialized modification of survey methodology is available to collect detailed longitudinal data on a daily basis: **the interactive voice response (IVR) system**. This new technology for obtaining daily self-reports of drinking and drink / driving has recently been developed, implemented, and validated. It uses the touch-tone telephone to enter data into an automated interactive voice response system.<sup>1</sup>

Leading to the present project were three telephone-reporting studies of alcohol consumption, conducted at the Vermont Alcohol Research Center (VARC): (1) a 21-day non-IVR pilot study using an answering machine<sup>3</sup>; (2) a 112-day IVR study<sup>4,5,6</sup>; and (3) a 28-day IVR **validity** study.<sup>1,7</sup> The results of these studies indicated that the IVR method as used at VARC is feasible and practical, yields valid data, and produces exceptionally high compliance rates. The results from these three pilot studies also provided the basis for an ongoing long-term (5-year), much more detailed (730 reporting days per subject) research project, of which the present paper reports one first, small portion.

The present paper concentrates on two individual drivers (from a total initial sample of 33) and a selection of their individual IVR data over the 2-year period of daily reporting. Due to space restrictions, the principal results presented here are limited to the relations among the quantity of alcoholic beverages consumed and (1) the resulting self-rated intoxication level, and (2) the self-rated level of intoxication **while driving**; and (3) on a given day, these variables and other self-ratings (e.g., mood, stress) and factors such as day of week and drinking locations. In addition, factors concerning the predictability of alcohol consumption quantity, intoxication level, and intoxication level while driving were also examined from day to day and from week to week.

Thus, this paper addresses both substantive and methodological aspects of the drinking-and-driving problem at a very fine-grain level of both data and analysis.

## **Methods**

**Subjects.** A total of 33 subjects completed two years of daily IVR reporting. Twenty of these subjects had been recruited at bars, as drinking drivers, and the others had been recruited through a newspaper advertisement. All of them had previously served as subjects in an experimental study of alcohol tolerance. All 33 subjects were male, non-clinical, social drinkers who drove after drinking, ranged in age from 21 to 61, and served as paid volunteers.

The two subjects chosen for the present paper had these additional characteristics: They met one or two diagnostic criteria for current alcohol abuse, were relatively heavy drinkers, quite frequently drove after drinking, missed very few reporting days during the 2-year project period, and showed a predictable weekly drinking pattern.

**Procedure.** Relatively comprehensive descriptions of the IVR procedure and the daily script are presented in other publications,<sup>4,5,6,7,8</sup> so the following brief description will serve as a summary.<sup>1</sup>

Subjects attended a 2-hour orientation session for a review of the detailed IVR instruction manual and all data collection procedures, a detailed description and demonstration of the IVR system, and an explanation of the payment system whereby they could earn \$500 for providing **complete** on-time data (i.e., daily IVR self-reports, with a record of at least 95% on-time calls) throughout the 736-day study. To call the IVR system, subjects used a dedicated toll-free number connected to a computer-automated, subject- / menu-driven system that collected daily reports on the questions in the IVR script. Subjects responded to the questions (e.g., “How many beers did you drink yesterday?”) by pushing the appropriate numbers on their touch-tone telephone keypad. Subject-entered data were collected automatically and associated with an individual account for storage, analysis, and evaluation. A research assistant reviewed incoming data daily and reminded subjects to call in if they had not done so for 2 days.

## **Results**

A number of different analyses were conducted within each individual subject’s 736-day 2-year data set: (1) a series plot of all beer + wine + liquor consumed each day; (2) autocorrelation plots, by day of week; (3) regression analyses to predict degree of intoxication while driving, using beer, liquor, wine, stress, mood, health, and day rating; and (4) discriminant function analysis (How well do subjects discriminate between highest daily level of intoxication vs. highest level of intoxication while driving?). Due to space limitations, only a small selection of results from these analyses is presented below. Also, due to the exploratory nature of this first paper based upon individual subjects, most of the results lend themselves to being presented in the form of descriptive statistics.

The emphasis here is on driving after drinking, and thus focuses on three major variables, each by day of week: (1) alcohol quantity consumed (“TOTAL NO. OF DRINKS”), (2) highest subjective level of intoxication (“INTOX”), and (3) highest subjective level of intoxication while driving (“DRIVE INTOX”). INTOX and DRIVE INTOX were each rated on an 11-point scale, from 0 (“perfectly sober”) to 10 (“as drunk as you’ve ever been”). In addition, subjects could

indicate that they did not drive after drinking. Based on the linear nature of rating scale usage and the distribution of INTOX and DRIVE INTOX rating scale values, we assumed a subject was perceiving at least some articulable intoxication at a rating of 3, and we therefore used 3 as the threshold for analysis of intoxication. Autocorrelation plots of TOTAL NO. OF DRINKS showed that these two subjects had a highly predictable weekly drinking pattern throughout the 2-year study period. Blood alcohol concentration (BAC) values were estimated for each subject on several occasions, based on: (1) number of drinks consumed, (2) reported length of drinking session, and (3) body weight. Official driver records for each of these two selected individuals were examined, primarily for notations of alcohol-related offenses.

**Subject A09.** At intake, he was 23 years old, single, a recent college graduate, 155 pounds (70.5 kg), 5 feet 9 inches (175 cm), a non-smoker, and met 5 lifetime and 2 current diagnostic criteria for alcohol abuse / dependence. He had only one speeding conviction (1992) on his Vermont driver record (as of December 1999), but he might also have had driver licenses from other states. He missed only 3 out of 736 days of IVR reporting, even though he “moved around quite a bit” during this 2-year period.

Regarding **alcohol consumption**, Subject A09 reported drinking on 69% (n = 506) of the 733 reporting days. He drank more frequently on Thursdays, Fridays, and Saturdays (**Table 1a**, first data column: “n” = number of drinking days). Saturdays were his peak drinking day, and he averaged 9.1 drinks on the 99 drinking Saturdays (95% of the 104 reporting Saturdays). His most frequently consumed alcoholic beverage was beer (mean number of beers on the 506 drinking days: 5.25), followed by liquor (mean number of drinks: 0.55) and wine (mean number of glasses: 0.51). On his heaviest drinking day, Saturdays (n = 99), he averaged 7.9 beers, 0.8 liquor, and 0.4 wine, with the maximum number of each being 15, 6, and 4, respectively. Saturdays were also the day he was most likely to report an INTOX of 3 or more (91%, **Column 2**). Regarding the 11-point rating scales for INTOX and DRIVE INTOX, he showed a relatively well differentiated use of all but the highest two points (namely, levels 9 and 10) and a fairly linear relationship between INTOX and TOTAL NO. OF DRINKS. Based upon the slope of the regression analysis (0.55), one INTOX scale unit corresponded to approximately two drinks.

Regarding **drink / driving**, he drove after having at least some drinks on every single Saturday (**Column 3**) – not unusual for him, since he drove after drinking on nearly every drinking day, regardless of the day of the week. Further, DRIVE INTOX was reported to be 3 or more on over 50% of Saturdays that he drank (**Column 4**), as well as on Thursdays and Fridays. If all reporting days are considered (drinking as well as non-drinking), Subject A09 was 5 times more likely to drive with a subjective intoxication rating of 3 or more (on a scale of 10) on these three days than on Sundays through Wednesdays (relative risk: 5.36; 95% confidence interval: 3.83-7.52).

Regarding **drinking location**, of the days when Subject A09 drove after drinking, he drank at a bar on average 45% of the occasions (n = 225, **Column 5**), with the highest frequencies falling on Fridays and Saturdays. More specifically, when drink / driving occasions are examined by day of week, he drank at bars much more frequently on Thursdays (57%, i.e., 47 drink / drive Thursdays at bars, divided by 82 drinking Thursdays), Fridays (75%), and Saturdays (73%), but drank elsewhere much more frequently on the remaining days of the week, namely, Sundays

(80%), Mondays (87%), Tuesdays (71%), and Wednesdays (85%). On these bar days, he averaged 8.9 drinks (mean of **Column 6**).

**Table 1. Drinking quantity and intoxication ratings by day of week and drinking locations.** Percent of drinking days per day of week when: (1) the highest intoxication rating (Intox) was 3 or more, (2) the subject drove after drinking, and (3) the highest intoxication rating while driving (Drive intox) was 3 or more. Frequency and means for drink/drive days when the subject drank at a bar vs. days when he drank elsewhere

**Table 1a. Subject A09**

| Day of week | Percent of drinking days |                |                      |                      | Means of all drink/drive days |                     |       |             |           |                     |       |             |
|-------------|--------------------------|----------------|----------------------|----------------------|-------------------------------|---------------------|-------|-------------|-----------|---------------------|-------|-------------|
|             | n                        | Intox $\geq 3$ | Drove after drinking | Drive intox $\geq 3$ | Bar                           |                     |       |             | Elsewhere |                     |       |             |
|             |                          |                |                      |                      | n                             | Total no. of drinks | Intox | Drive intox | n         | Total no. of drinks | Intox | Drive intox |
| Mon         | 56                       | 23             | 96                   | 11                   | 7                             | 8,0                 | 4,6   | 3,4         | 47        | 3,1                 | 1,4   | 0,3         |
| Tue         | 59                       | 30             | 97                   | 20                   | 11                            | 7,6                 | 4,2   | 3,4         | 46        | 3,4                 | 1,5   | 0,5         |
| Wed         | 67                       | 42             | 100                  | 13                   | 10                            | 8,2                 | 5,2   | 2,4         | 57        | 3,8                 | 2,1   | 0,5         |
| Thu         | 82                       | 62             | 100                  | 50                   | 47                            | 8,3                 | 4,8   | 3,7         | 35        | 4,1                 | 1,9   | 0,7         |
| Fri         | 92                       | 85             | 99                   | 55                   | 68                            | 8,9                 | 5,2   | 3,4         | 23        | 5,2                 | 2,7   | 1,0         |
| Sat         | 99                       | 91             | 100                  | 52                   | 72                            | 9,5                 | 5,4   | 3,2         | 27        | 8,4                 | 3,9   | 1,5         |
| Sun         | 51                       | 43             | 100                  | 18                   | 10                            | 8,7                 | 5,0   | 2,8         | 41        | 4,3                 | 1,7   | 0,5         |
| Mean Total  | 506                      | 59             | 99                   | 35                   | 225                           | 8,9                 | 5,1   | 3,3         | 276       | 4,3                 | 2,0   | 0,6         |

Note: The first four data columns are based on A09's total drinking days (n=506) which represent 69% of his reporting days. The remaining columns are based on drink/drive days only (n=501). A09 drove after drinking on 99% of drinking days

**Table 1b. Subject A25**

| Day of week | Percent of drinking days |                |                      |                      | Means of all drink/drive days |                     |       |             |           |                     |       |             |
|-------------|--------------------------|----------------|----------------------|----------------------|-------------------------------|---------------------|-------|-------------|-----------|---------------------|-------|-------------|
|             | n                        | Intox $\geq 3$ | Drove after drinking | Drive intox $\geq 3$ | Bar                           |                     |       |             | Elsewhere |                     |       |             |
|             |                          |                |                      |                      | n                             | Total no. of drinks | Intox | Drive intox | n         | Total no. of drinks | Intox | Drive intox |
| Mon         | 28                       | 68             | 100                  | 25                   | 13                            | 6,0                 | 2,8   | 2,8         | 15        | 4,4                 | 1,3   | 0,2         |
| Tue         | 36                       | 42             | 97                   | 17                   | 17                            | 6,7                 | 3,0   | 1,7         | 18        | 5,4                 | 2,7   | 0,6         |
| Wed         | 82                       | 85             | 95                   | 46                   | 66                            | 9,3                 | 6,1   | 3,1         | 12        | 5,2                 | 2,5   | 0,2         |
| Thu         | 34                       | 44             | 94                   | 24                   | 12                            | 7,9                 | 4,1   | 2,6         | 20        | 5,2                 | 2,6   | 1,2         |
| Fri         | 85                       | 94             | 94                   | 35                   | 61                            | 11,2                | 7,1   | 3,0         | 19        | 7,2                 | 4,7   | 0,1         |
| Sat         | 62                       | 63             | 97                   | 24                   | 19                            | 11,0                | 6,0   | 2,4         | 41        | 7,1                 | 4,0   | 1,1         |
| Sun         | 38                       | 45             | 97                   | 5                    | 6                             | 8,8                 | 4,5   | 1,5         | 31        | 5,1                 | 2,3   | 0,4         |
| Mean Total  | 365                      | 67             | 96                   | 29                   | 194                           | 9,5                 | 5,8   | 2,8         | 156       | 5,9                 | 3,0   | 0,6         |

Note: The first four data columns are based on A25's total drinking days (n=365) which represent 50% of his reporting days. The remaining columns are based on drink/drive days only (n=351). A25 drove after drinking on 96% of drinking days

On average, he drank less than half that amount (4.3 drinks, mean of **Column 10**) when his drinking occurred at other locations – i.e., at home, at friends' homes, in the car, and / or at a restaurant. But Saturdays were an exception; he drank roughly similar amounts whether he went to the bar (9.5 drinks), or drank elsewhere (8.4 drinks). His INTOX and DRIVE INTOX ratings followed the same pattern: The levels were much higher on bar days than when his drinking occurred elsewhere, with the highest averages falling on Saturdays. More specifically, his average DRIVE INTOX rating for bar days was 3.3, versus 0.6 for the days he drank elsewhere. However, it should be noted that the frequency bases of these two rating scales are quite different: 89% of the time, A09 drank elsewhere than at a bar. Further, he drank in the car on 44% of all drink / drive days (218 days). (However, it must be noted that another person might have been driving while he drank in the car, even though he reported having driven on a day in which he drank.)

The **BAC values** estimated for Subject A09 for a sample of Mondays, Fridays, and Saturdays, namely, 0.09, 0.15, and 0.15 g/dl (or 90, 150, 150 mg/dl) were relatively representative for all his Mondays, Fridays, and Saturdays. For those Saturdays (95%) on which he reported drinking, Subject A09 had a mean of 9.1 drinks and a mean INTOX rating of 5.0. Using the regression coefficient of 0.55 with this 9.1-drink mean yields an INTOX rating of 5.0, which is identical to his mean reported INTOX rating. Therefore, it is very tempting to extrapolate from the Saturday BAC of 0.15 g /dl and conclude that a BAC of this magnitude (resulting from his 9 drinks in 8 hours) corresponds to an INTOX rating of 5.0. In this regard, it should be noted that his use of the INTOX scale was quite linear and included frequent use of scale values 6 and 7, but relatively few of 8, 9, and 10. Most important, his mean DRIVE INTOX rating of 3.3 on bar days would correspond to a BAC of approximately 0.10 g/dl (100 mg/dl) on those many drinking days (225 or 45%) when he drank at bars and drove afterward.

**Subject A25.** At intake, he was 33 years old, married, employed, 240 pounds (109 kg), 5 feet 6 inches (168 cm), had a high school equivalency degree (GED), had 1 lifetime and 1 current symptom of alcohol abuse / dependence, and smoked 20 to 30 cigarettes a day. His official driver record is very poor (as of December 1999, but starting in 1977): 1 drunken driving conviction, 3 convictions of driving while license suspended, and many penalty points for many types of violations. He missed 10 days out of a total of 735 days.

Regarding **alcohol consumption**, Subject A25 drank on 50% (n = 365) of the 725 reporting days. Wednesdays (n = 82 of 104 possible Wednesdays) and Fridays (n = 85) had the highest frequencies of drinking. His most frequently consumed alcoholic beverage was beer (mean number of beers on the 365 drinking days: 6.9), followed by liquor (mean number of drinks: 1.0); he reported drinking no wine. On his heaviest drinking day, Fridays, he averaged 8.5 beers and 1.7 liquor drinks, with a maximum of 16 and 5 drinks, respectively. Wednesdays and Saturdays were second heaviest and were quite similar: Wednesday: 7.4 beer and 1.3 liquor, maximum 14 and 6 drinks, respectively; Saturday: 7.4 beer and 0.9 liquor, maximum 15 and 5 drinks, respectively. Wednesdays and Fridays were also the days with the highest percentages for INTOX (85% and 94%) ratings of 3 or more (**Table 1b, Columns 1-4**). The number of drinking Saturdays was also high (n = 62), but the INTOX percentages on Saturdays were considerably lower (63%).

Regarding **drink / driving**, Subject A25 was very likely to drive after drinking (mean = 96% of drinking days, **Column 3**). Wednesdays and Fridays were the days with the highest percentage of DRIVE INTOX (46% and 35%) ratings of 3 or more (**Column 4**). Further, on 24% of all drinking Saturdays, A25 reported a DRIVE INTOX rating of 3 or more (**Column 4**), which was comparable to those of Mondays and Thursdays. The relative risk of driving with a DRIVE INTOX rating of 3 or more on Wednesdays, Fridays, and Saturdays, versus all other days, was nearly 5 (4.93; 95% confidence interval: 3.28-7.63).

Regarding **drinking location**, of the 351 drink / drive days, Subject A25 went to a bar 194 times (55%, **Column 5**), with Wednesdays and Fridays being the days with the highest frequencies. As with Subject A09, the means for the bar days were higher than the means for the days when he drank elsewhere. On three days (Wednesdays, Fridays, and Saturdays) when he drank at a bar, he averaged 9 to 11 drinks, and the average INTOX ratings were 6 or higher. The mean DRIVE INTOX for bar days was 2.8 (**Column 8**), which is more than 4 times the mean for the days on which he drank elsewhere (0.6, **Column 12**). On 30% of bar days (59 of 194), he drank only at a bar, with average INTOX of 3.7; and average DRIVE INTOX of 2.4. He drank in the car on 27% of all drink / drive days (95 of 351). (However, it must be noted that another person might have been driving while he drank in the car, even though he reported having driven on a day in which he drank.)

The **BAC values** estimated for Subject A25 for a sample of Fridays, Saturdays, and Sundays, namely, 0.09 g/dl (90 mg/dl) for each of these days, were relatively representative for all his Fridays, Saturdays, and Sundays. For those Fridays (31%) on which he reported drinking at bars, Subject A25 had a mean of 11.2 drinks, a mean INTOX rating of 7.1, and a mean DRIVE INTOX of 3.0 (**Columns 6 and 7**). His other data and calculations were essentially similar to those of Subject A09, except that he would drive with a BAC of approximately 0.09 g/dl (90 mg/dl) on bar-drinking days.

## **Discussion**

As traffic safety researchers and policy makers, we have never before had such expansive, detailed information about the frequency and level of intoxication among some drinking drivers. The profiles of these two drinking drivers that emerged from analysis of two years of their daily reports are startling, however much we think we already know about drinking drivers. The most alarming features of the profiles are that these two individuals: (1) drink at bars frequently and regularly, (2) drink much more heavily at bars than elsewhere, and (3) drive away from bars at subjective levels of intoxication that suggest an impairing or even illegal BAC.

Thus, bar drinking becomes once again a major focus of concern regarding drinking and driving. An earlier study, also conducted in Vermont, further implicates bars as “drunken driver factories.”<sup>9</sup> It found that on the basis of the many roadside surveys conducted Thursday, Friday, and Saturday nights from 10:30 p.m. to 3:00 a.m., “46% of legally impaired drivers [0.10 g/dl or higher] reported that they had consumed alcohol at a bar, 10% consumed at the home of a friend, and 5% had consumed the alcohol at home. Conversely, 21% of those who reported drinking at a bar were legally impaired at the time of the roadside survey.”<sup>9</sup>

A recent bar observation study in Vermont found that the more a patron had actually had to drink, the more he underestimated how much he had had to drink.<sup>10</sup> Thus, the usual type of drinking questionnaire, asking retrospectively about bar drinking, would probably greatly underestimate the amount that the heavier-drinking respondents actually consumed. It was also found that the longer a patron was in the bar drinking, the higher the BAC upon exiting the bar.<sup>10</sup> Thus, it is clear that those individuals who regularly patronize bars for extensive drinking periods tend to drive at illegal BACs upon leaving. This fact should inform future prevention / intervention measures regarding drunken driving.

One persistent question in this problem area of drinking and driving is the ratio of arrested drunken drivers (“The Caught”) to drunken drivers using the roads, but who are not caught (“The Quick”): “How many drunken driving trips are there for every drunken driving arrest?” Estimates based on epidemiologic data in the United States have ranged from 1 in 400 to 1 in 2,000. Of relevance in the present study, we can say that one subject (A09) drank regularly at bars on 225 days during the 2-year study period, drove home at a substantial subjective intoxication rating, which probably corresponded to an average BAC of approximately 0.10 g/dl (100 mg/dl), and was never arrested for DUI (driving under the influence of alcohol) during the project, nor before or since he completed his 2-year participation. Thus, he probably drove at least 112 times per year while legally intoxicated (0.10 g/dl or 100 mg/dl). His official Vermont driver record shows no DUI conviction since it was issued at age 16, up until December 1999; and he is now 27 years old. If we assume that the 2 years in which he participated in the study (when he was 23-25 years old) are representative of his drinking-and-driving patterns since he was 21 (the minimum legal drinking age), then he would have made some 672 trips (6 years x 112 trips per year) with a BAC of 0.10 g/dl (100 mg/dl). If so, the within-individual ratio for this particular subject is zero arrests for 672 trips. We can only wonder whether he will ever be arrested for DUI, and if so, when.

We do not currently have the data to estimate the extent to which this one man is or is not representative of drunken drivers as a group. But we do at least have an enormous amount of detailed drink-driving data over a long sample period of two years – and it does paint at least one alarming portrait of “The Quick,”<sup>9</sup> namely, those who drive in excess of the legal alcohol limit, but are not caught by the police.

Finally, we believe that with this study, we have demonstrated the feasibility and usefulness of the IVR method for obtaining valid<sup>7</sup> drinking and drink-driving data daily over a long time period. This approach thereby provided longitudinal sampling on a frequent, within-individual basis – with its inherent statistical stability. Thus, it leads to the possibility of assessing significant predictability of drinking and drink-driving behavior for up to two years. However, one aspect of the present study itself is highly predictable: this first report of the drinking and drink-driving behavior of two individuals over a 2-year period will definitely be repeated many times in the future. Our target sample for the study is 200 subjects (100 men and 100 women), of which 131 either have completed the study or are still currently enrolled.

One lingering question remains: Did Subject A09 perceive the next day (while reporting) that he was intoxicated the previous night (at a mean rating of 3.3 on a 10-point scale), but did not perceive the previous night that he might have been too intoxicated to drive at the time. If so, it is

perhaps because he had been that way many, many times in the past and had nevertheless driven home successfully. Clearly more research is warranted on this crucial question. From the present study, it is concluded that the IVR method using daily self-reports, enables assessing longitudinal predictability of drinking and drink-driving behavior for up to two years, with inherent statistical stability.

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