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Multimethod Measurement of High-Risk Drinking Locations

Extending the Portal Survey Method With Follow-Up Telephone Interviews

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Portal survey techniques involve multimodal assessments (e.g., self-report, biologic, and observational) in high-risk drinking and drug-use settings. Our investigation expanded the portal survey methodology to include follow-up assessments of emerging adult women recruited at the border as they cross to and from Mexico south of San Diego, California. The feasibility of the follow-up procedure was established, and the limitations of the technique clarified. Follow-up participants and nonparticipants did not differ by age or reported victimization. Data indicated that 8% of women experience negative events on their return to the United States after a night of binge drinking. These experiences could only be captured in a follow-up survey, as they happened after participants left the border area.

Keywords: *drug use; prevention; alcohol; young adults*

There is a growing need for advancement in the study of alcohol and other drug (AOD) involvement among young adults. The developmental period, classified as “emerging adulthood” (the transition period between late adolescence and young adulthood), has been identified as a distinct and critical developmental period of life (Arnett 2004). It is marked by increased social demands and transition into the workforce and/or college. This is also the stage where drug and alcohol experimentation increases and potentially progresses to pathological use. Establishing valid and reliable multimethod

approaches to assess AOD use and its associated consequences is essential to the development of effective prevention interventions for this group. The goal of such work is to alter the emerging adult trajectory as this group progresses into adulthood.

Currently, there are two major limitations in existing drug and alcohol research on young and emerging adults. The first limitation is that standard drug and alcohol assessments primarily rely on self-report data. Self-reported AOD use is often uncorroborated by objective measures and, thus, is subject to error (Harrell 1997). Self-reports tend to be reflective, and heavy alcohol consumption or drug use can impair the ability to recall information. Thus, the outcome of interest is a potential source of reporting bias. The shortcomings of reliance on self-report data among emerging adults and the importance of objectively measuring alcohol consumption in field settings has been discussed in several studies of drinking among college students (e.g., Boyd and Faden 2002; Cooper 2002; Dowdall and Wechsler 2002). A possible remedy to reliance on self-report data is using cost-effective biological screening methods with minimal respondent burden. Blood alcohol concentration (BAC) samples and oral fluid measures (e.g., saliva) have been substantiated as a valid, objective biologic measure of AOD use and offer ease of collection, minimal respondent burden, and cost-effective analytic procedures (Kauert, Iwersen-Bergmann, and Toennes 2006; Crouch et al. 2005; Yacoubian and Wish 2001; National Highway Traffic Safety Administration 1992).

The second limitation in the study of emerging adult AOD use is the scarcity of data and programs for young adults who are not in college and who are unemployed. Most of the available data and the intervention programs that target young adults are based in colleges and universities or in the workplace. These groups are perhaps the most in need of intervention programs, and at present, there is little evidence to identify and intervene with these underserved populations.

During the last decade, researchers have begun to examine young adult AOD use in high-risk settings known to be linked to increased AOD involvement among young adults (e.g., Lange, Voas, and Johnson 2002; Voas et al. 2006; Arria et al. 2002). A recent study of AOD use among club attendees showed that 40% of young adult club attendees are neither in college nor unemployed; thus, they would be missed by traditional workplace and college preventive intervention programs (Miller et al. 2005; Furr-Holden et al. 2006).

Recently, we have used a new method—portal surveys—to study AOD self-dosing by individuals in locations prone to AOD use. Anonymous portal surveys provide a method for contacting, interviewing, and collecting

biological samples anonymously from individuals attending events where alcohol and illicit drugs are commonly consumed (Voas et al. 2006). A portal survey is feasible in an environment with a defined and limited point of access to and from the setting (e.g., a bar or a sporting event). The portal survey methodology allows estimation of the extent of AOD use both before entry into the setting and within the setting. The portal survey technique allows us to estimate the risk of use associated with a particular setting and provides a means to identify and assess young adult AOD users.

The portal survey concept evolved from our study of youths and young adults (aged 18 to 25) returning to the United States after a night of drinking in Mexico, where the drinking age is 18 years. We randomly selected individuals aged 18 and older as they crossed the border into the United States and requested their participation in a brief, anonymous (5-min) interview. We also requested a breath sample so we could assess their alcohol-use levels. First used in 1998, we called this the Northbound Survey. Participation rates among this group approached a high of 90%, demonstrating the success of this initial technique (Lange, Lauer, and Voas 1999).

Complementing the Northbound Survey was our "Southbound Survey," which was designed to obtain information on individuals' drinking intentions. We recruited young crossers at the border who were traveling southbound to Mexico and asked them to complete a survey and to take a breath test. Those who agreed were asked to revisit the research team when they returned to the United States (northbound). We then tagged each participant with a hospital-style band containing a unique identifier that was used to match north and southbound data collected from the individual. A return rate of 80.8% (Lange, Johnson, and Reed 2006) was achieved through the use of incentives (money order), proving it possible to entice southbound participants to return for interviews as they left Mexico after a night of drinking. No personal identifiers were collected. Thus, a two-stage process evolved (named the portal survey) that allowed us to interview participants and collect biological samples, both on entry to and exit from a location where alcohol is consumed by drinkers younger than the U.S. legal drinking age (Lange, Voas, and Johnson 2002).

The portal survey data collection method was subsequently extended to the study of electronic music dance events (EMDEs, the successors to RAVES) located in the Washington, DC, and San Diego, CA, areas (Miller et al. 2005; Furr-Holden et al. 2006). These surveys were conducted outside the entrance to the EMDEs, typically a club or a rented venue. Attendees who agreed to participate in a 15-min interview before entering the selected nightclub were asked to return to the survey team as they departed the location at the end of the evening. In addition to the interview, participants took an alcohol

breath test and provided oral fluid samples on entry to and exit from the EMDE. The participation rate in these portal surveys ranged from 82 to 90%, depending on location (Voas et al. 2006).

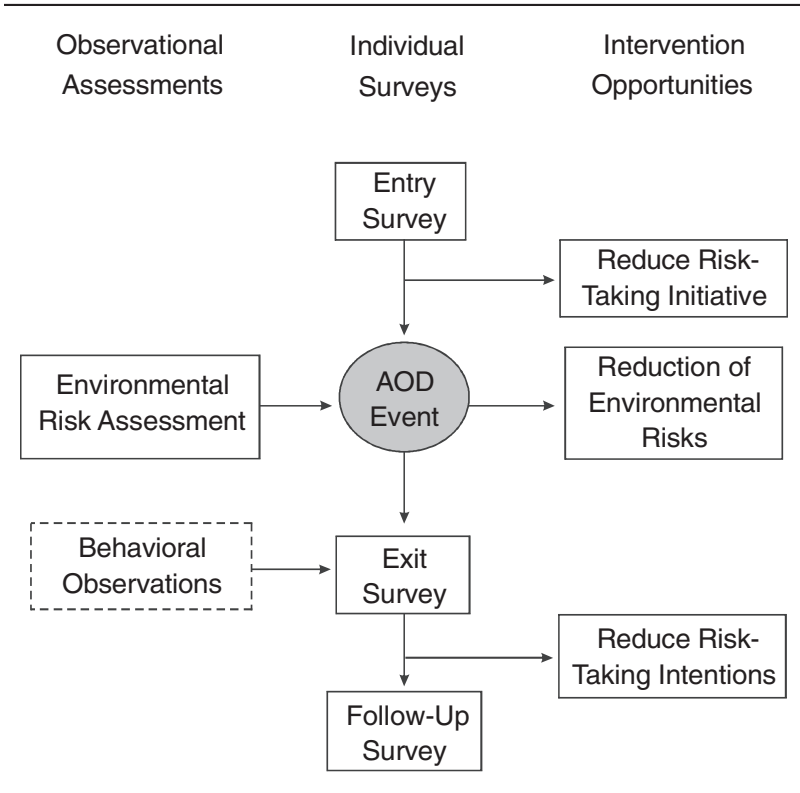
A limitation of both the border surveys and the EMDE surveys was lack of follow-up contact with the participants after the exit interviews. This limited our ability to sample problem behavior and victimization either on the way home or later in the evening as a result of AOD consumption at the event. We overcame this limitation in our ongoing "border girls" study by extending the portal system to include follow-up contact. On completion of the exit survey, participants are asked to call the research team within one week. They are offered a gift card as an incentive for returning the call. Our system maintains the participant's anonymity. Details are described in the Method section.

This developmental process resulted in the creation and extension of the portal survey methodology. The extended methodology permits investigators to measure background AOD use and intentions to use, collect objective biological measures of use before and after individuals self-dose, and collect self-reports on the consequences of AOD use. Beyond this, the portal survey system lends itself to the implementation of brief interventions to moderate AOD use. Lange, Johnson, and Reed (2006) tested a variety of brief interventions, reminding young adults of the responsibility undertaken by designated drivers. These interventions were delivered to young adults as they entered Mexico to drink. The results indicated that brief interventions can increase designated-driver sobriety.

Figure 1, a model of a comprehensive portal survey system, outlines the types of information that can be collected: observational assessments and individual surveys. The model also offers intervention opportunities. The central feature of the survey process is contact with individuals as they enter and leave the location of interest, followed by a telephone interview within one week after the exit interview. Together, these three opportunities to gather self-report information provide a platform on which other survey data can be collected and interventions mounted. We typically send observers into an EMDE to document the extent to which heavy drinking and drug use is evident in the venue. Such observations can provide a risk-assessment method for comparing venues and the consequences of attendance during and after leaving the location (Voas et al. 2006). The exit interview also provides an opportunity for behavioral observations, in addition to obtaining responses to interview questions. We have regularly undertaken a confidential rating of the sobriety of attendees exiting from Mexico or EMDE events.

Intervention opportunities are provided at three points in the portal survey procedure. As noted, the efficacy of a brief intervention on entry into

Figure 1
Extended Portal Survey Program



Mexico related to impaired driving has been tested by Lange et al. (2006) and was evaluated with breath tests collected as the participants reentered the United States later that same evening. Additional interventions are currently being tested under an National Institute on Alcohol Abuse and Alcoholism (NIAAA) grant. It is also possible to evaluate program or environmental modifications within a venue by testing for evidence of reductions in AOD use in the exit survey. Finally, the follow-up telephone interview, which is the principal subject of this report, can be used to evaluate brief interventions administered when participants exit from the event.

The methods applied in the entry portion of the portal survey are described in Lange, Lauer, and Voas (1999), and the entry combined with the exit survey

is described in Voas et al. (2006). This report describes the methods used in the third element of the portal system—inviting participants to make a follow-up call to the researchers.

Method/Design

Overview

“Border Girls,” a National Institute for Alcohol Abuse and Alcoholism (NIAAA)–funded study currently underway at the U.S.–Mexico border, illustrates the use of the portal survey methodology. This study, building on the initial survey work along the U.S.–Mexico border (Lange, Lauer, and Voas 1999; Lange, Voas, and Johnson 2002; Lange, Johnson, and Reed 2006, Lange et al. 2006), examines the relationship between young women’s drinking and drug use and their experiences of victimization. Data collected for this study use the portal survey method to provide an overall understanding of the extent of cross-border drinking/drugging and victimization experiences of young women. The follow-up telephone interviews gather additional background data as well as information about the women’s experiences that occurred after they left Mexico (while en route home) and capture many of the concerns or regrets they may have had the following day.

Population

On average, more than 6,000 young Americans cross the U.S. border at San Diego into Tijuana, Mexico, per weekend night (Lange and Voas 2000). Less than a mile from the border gates, a strip of bars along “Revolution Avenue” caters to young American drinkers. Here, alcohol is cheap and plentiful; the legal drinking age is 18—three years younger than the American minimum legal drinking age—and perceived to be loosely enforced. The atmosphere in Tijuana is festive, and disruptive behavior is often overlooked. Early cross-border work reveals that many youth who cross the border to drink are treating the Tijuana bars as “time-out” locations (Listiak 1974; MacAndrew and Edgerton 1969), in which normal social limits on drinking and behavior could be relaxed.

Inherent to this environment is violence—and of special concern in this study is the violence directed at young women. Many women who cross the border are between 18 and 25 years old (Lange and Voas 2000), but some are even younger. Interactions with these young women suggest that they are seeking a “good time” and an opportunity to “break loose” from traditional

constraints (Lange, Voas, and Johnson 2002). However, young women appear unaware of the possible dangers in this drinking environment. Many discover those risks only when they become victims of harassment, aggression, and violence. They are the primary focus in the current study.

Thus, the population of interest in this research is defined formally as women aged 16 to 23 who cross the border into Mexico at San Ysidro, California, to visit the bars and clubs in neighboring Tijuana. Our study involves randomly sampled natural peer groups of individuals crossing into Mexico on weekends, and surveys women from these groups belonging to the target population.

Recruitment

On randomly selected nights, our survey staff approach naturally occurring groups of two to eight pedestrians with at least one female member younger than 21 who are entering Mexico between 9 p.m. and 1 a.m. Procedures for approaching potential participants are described fully in the original border survey study (Lange, Lauer, and Voas 1999; Lange, Voas, and Johnson 2002). Briefly, participants (male and female) complete a self-report questionnaire and provide a breath sample. Participants are then offered a \$20 incentive to contact the survey team on their return from Mexico early the next morning. Those who agree are identified with coded wristbands. To increase participation, a \$20 incentive (e.g., money order, WalMart gift card, Discover card) is given to each participant. The survey staff recorded observations (estimated gender, age, and group size) of participants who refused the opportunity to participate.

Because some crossers (approximately 10%) do not return to the research team to complete the Northbound Return Interview, information on the backs of the wristbands invite them to call and complete the interview by telephone. This feature is an attempt to include those who stay in Mexico beyond the 6 a.m. survey closing time. We are especially concerned about those individuals who do not return because of an emergency, perhaps because of a violent incident or severe alcohol impairment. We want to capture their experiences; however, less than 1% of those not returning by 6 a.m. contact us to complete the survey.

For the Northbound Return Interview, survey staff enter participants' verbal responses to questions directly into handheld computers/Personal Digital Assistants (PDAs). Then, participants complete pencil-and-paper questionnaires on drug exposure and evening social (victimization) experiences (the pencil-and-paper method provides participants with privacy about these

sensitive topics). Finally, the participants take a breath test and provide an oral fluid sample for later drug analysis. All participants remain anonymous during each step of this process.

After completing the Northbound Return Interview, female participants are offered another incentive (e.g., \$25 gift card) to participate in a follow-up telephone interview. A local or toll-free telephone number and instructions to call and participate anonymously in the telephone interview are printed on an informational follow-up card. When distributing the informational cards, participants are told to call within 7 days and from a location that affords some privacy for the interview. Staff take these calls on evenings and weekends to facilitate participation. The female respondent's unique ID number is also recorded on the follow-up card for verification purposes and for linking the field data with the information obtained in the follow-up interview. All respondents who agree to complete a follow-up telephone interview receive a \$25 gift card while at the border; however, they are informed that the incentive will not be validated and therefore cannot be redeemed until after the follow-up interview is completed. Providing participants with the incentive at the border (even though it is not usable at the time of issue) eliminates the need to collect any identifying information. The card or certificate is activated on completion of the interview and instructions for redemption of the gift card or certificate are reiterated verbally by the follow-up interviewer. Gift cards are in the form of Super Certificates that can be used at a variety of popular stores and locations frequented by emerging adults.

The 20-min follow-up telephone interviews are conducted with female participants within a week of their border visits. Female interviewers are used because of the sensitive nature of the questions. This interview captures any victimization experiences that occurred between the time participants left the border (following our Northbound Return Interview) and the time they returned home.

Survey Implementation

Using the portal survey technique (see model in Figure 1), we administer three instruments during three periods of the "Border Girls" survey. First, the "entry," or, Southbound Survey, is administered as they approach Mexico. Items include demographics as well as drinking history and experiences with victimization. After participants complete the survey, we administer an initial breath alcohol test.

The exit survey, or Northbound Return Interview, captures information from the same crossers (i.e., those who were interviewed while southbound)

as they return to the United States. As part of the northbound interview process, participants are also asked to provide an alcohol breath test, provide an oral fluid drug test, complete a drug usage questionnaire, and take a brief survey to assess their evening experiences while at Mexican bars. For female participants, the experience survey includes negative incidents ranging from verbal insults (sworn at, threatened) to moderate physical assaults (pushed, grabbed, or shoved), to sexual assaults (fondled or touched in an unwanted sexual way), to severe physical (punched, hit) and sexual assaults (forced or threatened to have sex).

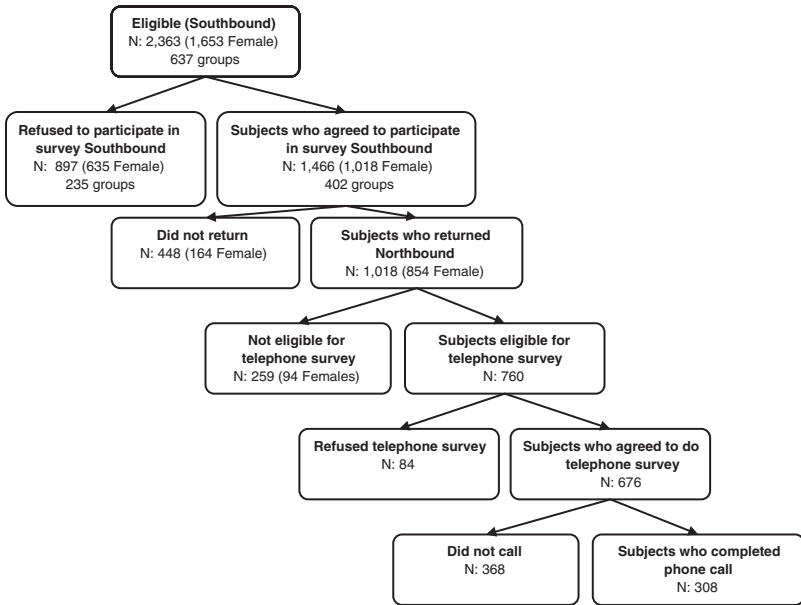
Finally, the new addition to the portal technique, the follow-up telephone interview, is completed by eligible females (aged 16 to 23) within a week of their visit to Mexico. This interview repeats the same questions asked during the Northbound Return Interview concerning their negative experiences in Mexico and their assessment of experiences after leaving the border. The extended time available during this interview is used to obtain information on their previous history of victimization and AOD use, as well as more in-depth information on their experiences in Mexico. Participant ID numbers are recorded on each data collection measure to link all measures to one individual while still maintaining their anonymity.

Results

Participants

During more than 10 weekends of data collection (20 nights) between May 2005 and February 2006, 637 peer groups containing 2,363 individuals (1,653 women) were recruited for participation as they headed toward the border crossing into Mexico. Of those groups contacted by research staff, 402 groups (63.1%) containing 1,466 individuals, agreed to take part in the research. Participants included 1,018 women (69.4% of the sample), and in all, 854 female participants (83.9%) completed both entry (southbound) and exit (northbound) surveys. A total of 760 female participants who completed both interviews were eligible to take part in the telephone follow-up survey (participants were ineligible if they were 24 years old or older). Eighty-four young women (11.1%) refused participation in the telephone survey at the time of the field interview, leaving a sample size of 676 that initially agreed to take part in the telephone survey. Finally, 308 (45.6%) of those who agreed actually completed the follow-up telephone interview. Figure 2 presents the number of participants eligible for participation through completion of the telephone interview.

Figure 2
Eligible Participant Flowchart



Telephone survey participants ranged in age from 16 to 23 years, with a median age of 19. Approximately one third of participants reported being White (34.5%); 21.0% of participants reported being Black, and 16.6% reported being Asian. Almost half of the participants (41.8%) reported being Hispanic. All were female. 60.7% of telephone participants had visited Tijuana bars in the past 30 days, and 82.9% reported going within the past 12 months.

Research Questions

Analyses were conducted to determine (1) whether individuals who participated in the survey at the border differed on observable characteristics (estimated gender and age, along with group size and composition) from

those who declined participation; (2) whether young female participants who were eligible to participate in the telephone survey and did so differed from those who were eligible to take part in the phone survey but did not do so, and (3) whether the telephone survey provided additional information that was not captured by the border field survey.

Analytic Procedures

Our analyses were conducted using generalized linear mixed modeling (GLMM) with PROC GLIMMIX in SAS. This analytic approach was necessary because our sampling procedure produces correlated data. Our experience with field survey research, and with the "portal survey method" (e.g., Voas et al., 2006) in particular, suggests that people visit real-world drinking environments in groups, and are hesitant to participate in research if it means being separated from their group. Thus, our recruitment plan in this study involved randomly sampling entire peer groups from the flow of pedestrian traffic as they approached the border crossing.

This procedure produces an unpredictable sample that is representative of the population of interest (i.e., peer groups containing at least one female under age 25 heading into Tijuana). However, because people tend to be similar to their peers, select fellow group members that have similar substance use goals, and enter the same drinking environments as other people in their group, group members tend to be more similar to each other than to individuals in other groups. The fact that responses within groups are correlated violates the General Linear Model assumption of independent observations.

One approach to dealing with the presence of correlated data would be to randomly select one individual from each group and exclude the other from analysis. However, given the expense of field data collection, we are motivated to avoid losing data whenever possible. An alternative approach is using GLMM to model the covariance structure associated with the participants' peer groups. Using GLMM, peer groups were treated as a random variable, and the variability attributable to these peer groups was introduced in the analysis. Including peer group in the model produces appropriate standard errors for testing the fixed effect variables, whereas failing to accommodate group level variability can greatly increase the risk of making a Type I error.

One assumption of GLMM is that the group intercepts (in our case, the proportion of each peer group that participated in the follow-up survey) follows a Gaussian distribution, and that our sample of peer groups was drawn randomly from that distribution. Although our groups were sampled at

random, in fact we do not know the true shape of the distribution in the population. It is tenable, however, that group intercepts are approximately normally distributed in the population, and there is no clear or compelling reason to believe otherwise. Equally important is the fact that the maximum likelihood estimation (used by PROC GLIMMIX) is asymptotically Gaussian, and tends toward the Gaussian distribution as sample size increases. In practice, the distribution from maximum likelihood often is assumed to approximate normality when the sample size is not small. This makes the use of GLMM tenable for analyzing our survey data.

In addition to accommodating correlated data, another advantage to GLMM is that it does not require that the outcome variable be normally distributed. GLMM assumes that the distribution of the data conditional on random effects is known, and can be used for dependent variables that follow a variety of distributions from the exponential family. In this study, our dependent measure is dichotomous (e.g., participation vs. nonparticipation in the telephone follow-up survey), and will be analyzed using a logit link function.

GLMM assumes that the conditional expected value of the data takes the form of linear model after a monotonic transformation (i.e., logit) is applied. We have no theoretical basis for believing that the relationship between the variables examined and participation rates is anything other than linear; therefore we assume a linear (vs. nonlinear) relationship out of parsimony.

The GLMM for these analyses takes the form of a random intercepts model predicting a dichotomous outcome, and be expressed mathematically as follows:

$$\log(p/(1-p)) = X\beta + Z\gamma$$

Where:

$\log(p/(1-p))$ is a monotonic transformation of the probability (of survey participation),

X is a vector of fixed effect predictors (i.e., BAC is our only fixed-effect predictor),

β is a vector of unknown parameter associated with the fixed effects,

Z is a vector of random effect predictors (i.e., peer group is our only random effect),

γ is a vector of unknown parameters associated with the random effects.

The random effect is assumed to follow a normal distribution, and the relationship between our predictor and the transformed response variable is assumed to be linear.

Findings

Analysis of field survey participants versus field survey refusals. Survey staff conducting the field survey at the U.S.–Mexico border recorded whole-group refusals and estimated the gender and age of each member of the group. Thus, group size and group composition (included estimated age of group members) could be derived from these nonparticipant data. Participant responses also were reduced to a comparable group level data set so they could be compared to nonparticipants.

On average, groups that were contacted by the survey team but that refused to participate in the field survey were larger than were groups that initially agreed to participate, $t(635) = 2.74$, $p < .01$ ($M = 3.82$ vs. 3.44 , respectively). The magnitude of this size difference, however, was minimal (approximately 11%). Analysis of group composition revealed that the proportion of women in the groups did not vary between participants and refusal ($M = .683$ vs. $.735$), $p = .18$.

Furthermore, the proportion of group members between (and including) ages 16 and 23 did not differ significantly between participants and refusals ($M = .922$ vs. $.954$), $p = .09$. Neither did the proportion of group members ages 24 through 30 differ between participation and nonparticipant groups ($M = .071$ vs. $.038$), $p = .06$.

Analysis of telephone participants versus telephone refusals. Participant's returning BAC, age, and the experience of victimization were used to predict participation in the telephone follow-up. Five categories of victimization were derived from the results of the Northbound Experiences Survey: verbal (e.g., insulted, threatened), moderate physical (e.g., pushed, grabbed, shoved), severe physical (punched or hit with an object, slammed against a wall), moderate sexual (rubbed up against, fondled or touched in an unwanted sexual way), and severe sexual (used threats or forced to have unwanted sexual intercourse). Additionally, two group variables—the gender composition of the group (proportion of group members who were men) and group size—were analyzed. The nine variables (BAC, age, five victimization variables, gender composition, and group size) were analyzed separately to determine whether they predicted participation in the telephone survey.

Comparison of eligible female participants who completed the “Border Girls” telephone survey versus those who did not (but were invited to participate) revealed that the likelihood of a returned telephone call decreased as a function of the participant's BAC, $F(1, 405) = 4.93$, $p < .05$, odds ratio = $.026$.

This does not imply, however, that persons who are inclined to drink heavily are disinclined to participate in the research. Rather, the results may indicate that persons drinking heavily on a given occasion are less likely to remember the invitation to participate in the follow-up, as they accept the offer in the field but do not follow through. This latter explanation is supported by subsequent analyses. We found that telephone survey participants did not differ significantly from nonparticipants in the number of days on which they consumed alcohol (out of the 30 days) nor in the number of days on which they felt drunk (out of the past 30 days), p values = .48 and .42, respectively. Thus, a heavy drinking history was not predictive of an individual's participation or nonparticipation in the telephone interview.

Participants and nonparticipants did not differ in age ($p = .51$) or on any measure of reported victimization, nor did we find any possible marginal significant differences between the groups on any of the victimization categories (p values ranged from .53 to .93). Thus, telephone survey participants do not differ disproportionately from those who were eligible but did not complete the survey.

These analyses were repeated using only women who took the gift card, thereby accepting the offer to participate in the telephone survey. After excluding the 84 women who refused the gift card, the analyses revealed the same pattern of results described previously.

Additional information gathered by telephone survey. Results of our field survey indicated that 52.7% of female participants reported at least some type of victimization while in Mexico (ranging from harassment to sexual aggression, and verbal abuse to physical violence). The follow-up telephone field survey revealed that an additional 17 participants (5.5% of telephone respondents) experienced victimization while in Mexico that they did not report as part of the exit survey, and an additional 25 participants (8.1%) reported victimization after leaving the border. These are conservative estimates, given that only a portion of field participants completed the follow-up. These additional negative experiences could only have been recorded in a follow-up survey.

Finally, although not within the scope of this article, the telephone interview provided valuable qualitative information concerning negative experiences—both while in Mexico and immediately post-Mexico. These included details on individuals' actual experiences—how they attempted or succeeded in stopping the experience from evolving and how the group assisted or protected them from any further danger. Additional group dynamic data were collected, including length of relationship, frequency

of being together or “hanging out,” and perceived group support. This information was used to assist in the development of a group intervention to protect young women when they visit high-drinking and high-drugging locals.

Conclusions/Discussion

The “Border Girls” study illustrates that it is possible to obtain follow-up interviews with a substantial portion of those participating in data-collection activities at a site where alcohol and drugs are consumed. Furthermore, it is possible to do so without collecting any personally identifying information (e.g., name, phone number).

Using follow-up telephone interviews offers several advantages. First, a telephone interview, unlike an on-site survey, allows more time to collect additional information, especially of a sensitive nature. In our study, personal identifiers were not available, which provided participants with a greater sense of anonymity that may have increased the validity of the data. Furthermore, information collected initially (on site) can be followed with an interview within one week of the event to record any problems relating to AOD consumption experiences after leaving the site. Finally, the background information collected on site can then be supplemented with a postuse report on consumption and negative and positive experiences, supplemented with biological measures of actual consumption.

One limitation—the modesty of the follow-up response rate among all eligible women (40.5%) of our “Border Girl” study—merits discussion. It is not clear why the response rate was so low, but our analyses reveal that the only significant difference among responders and nonresponders was BAC on the Northbound survey. This factor did not influence acceptance of the offer to participate in follow-up, but did predict actual follow-up participation. These women may need additional prompting, and in the future, we will test an enhanced follow-up procedure that includes collecting a telephone number and first name so we can contact women who do call within the defined follow-up window. This enhanced procedure is currently being field tested in our studies of young adult club attendees. Nonetheless, our analyses indicated no significant differences between telephone interview participants and non-participants regarding demographic characteristics, northbound reports of victimization (i.e., responses provided immediately on return from Mexico), or drinking history. This is noteworthy, given that victimization and negative experiences are among the primary outcome measures in the study. Still, because drinking history was not predictive of telephone interview participa-

tion, we suspect that those at higher BACs were less likely to recall the follow-up offer and retain the needed information to complete the call.

Despite this limitation, we found a significant proportion of young women who crossed the border to binge drink did have negative experiences, both while in Mexico (58%) and on return from Mexico (8%). Of these women, 56% had positive BAC levels and 26% had BAC levels greater than .08 (the legal drinking level in the United States). This is particularly relevant because the southbound and northbound contacts in the portal survey program are opportune times to provide brief interventions to women that can be mounted for individuals and for groups. If the women who do not call in the week following a night of binge drinking are having similar or more serious negative experiences, there is a need for further, deliberate investigation of this at-risk population.

Future investigations in this area of research will include refinement of the telephone follow-up procedures. One possibility we have explored in an NIAAA-funded pilot survey of at-risk drivers is the collection of drivers' telephone contact information if they agree to participate in the follow-up. Thus, we can provide them with our information in the days following the survey. This approach, however, breaches anonymity as we had to obtain the respondent's first name and telephone number—but, we never linked this information to the survey data of biological specimens. This approach was productive, as an additional 20% of the sample completed a follow-up interview. More than half of the participants who did not call us reported they had lost the follow-up card within 24 hr of receiving it. As stated earlier, this approach is currently being tested in a study of young adult EMDE attendees. Another potential remedy to this problem is creating a "catchy" toll-free number that can be easily remembered. These and other innovative methods should be explored in future investigations to increase follow-up response rates.

Other applications for future investigations should be the implementation of brief interventions with young women to improve group responsibility and safety plans for the evening. Brief interventions are relatively inexpensive, provide minimal burden to the respondent, and can beneficially affect short-term, but potentially serious, behavior.

In summary, our "Border Girls" investigation demonstrated the feasibility of implementing a telephone follow-up procedure within the portal survey context. Furthermore, our preliminary estimates show a link between binge drinking and subsequent negative experiences among young women. This study is an important first step in refining the methodology that will inform and guide future targeted intervention programs for high-risk emerging adult populations.

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