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Prevalence and Predictors of Alcohol Consumption among African American Adults: A Community-Based Participatory Research Approach

A dissertation submitted in partial satisfaction of the
requirements for the degree of Doctor of Philosophy

in

Clinical Psychology

by

Feion Villodas

Committee in charge:

University of California, San Diego
Professor Erik Groessl
Professor Mark Myers
Professor Susan Tapert

San Diego State University
Professor Scott Roesch, Chair
Professor Terry Cronan

2012

The Dissertation of Feion Villodas is approved, and is acceptable in quality and form for publication in microfilm and electronically:

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Chair

University of California, San Diego

San Diego State University

2012

DEDICATION

This dissertation is dedicated in thanks to my family. To my husband, Miguel Villodas, for his love, support and wisdom; my mother for her ability to love me even when I'm hard to love; my dad for instilling me with discipline and courage to never to give up; to my sisters for their constant encouragement and friendship and to God who gets all the glory.

EPIGRAPH

Human progress is neither automatic nor inevitable... Every step toward the goal of justice requires sacrifice, suffering, and struggle; the tireless exertions and passionate concern of dedicated individuals.

Martin Luther King, Jr.

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VITA

2005 Bachelor of Arts in Psychology, San Diego State University

2007 Master of Arts in Psychology, San Diego State University

2009 Master of Science in Psychology, San Diego State University

2011 Masters in Public Health, San Diego State University

2012 Doctor of Philosophy, San Diego State University/University of California, San Diego

PUBLICATIONS

Villodas, F., Villodas, M. T. & Roesch, S. C. (2011). Reliability and Validity of the PANAS in a Multiethnic Sample of Adolescents. *Measurement and Evaluation in Counseling and Development*

Aldridge, A.A., Roesch, S.C., **Villodas, F.,** McCabe, C., Leung, Q., & Da Costa, M. (2011) Daily Stress and Alcohol Consumption: Modeling Between-Person and Within-Person Ethnic Variation in Coping Behavior. *Journal of Studies on Alcohol Drugs.*

Roesch, S.C., Aldridge, A.A., Stocking, S.N., **Villodas, F.,** Leung, Q., Bartley, C.E., & Black, L.J. (2010). Multilevel factor analysis and structural equation modeling of daily diary coping data: Modeling trait and state variation. *Multivariate Behavioral Research*.

Roesch, S., Norman, G., **Villodas, F.,** Sallis, J., & Patrick, K. (2010). Intervention-mediated effects for adult physical activity: A latent growth curve analysis. *Social Science & Medicine*, 71(3), 494-501

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Roesch, S., Vaughn, A., Aldridge, A., & **Villodas, F**. (2009). Daily diaries and minority adolescents: Random coefficient regression modeling of attributional style, coping, and affect. *International Journal of Psychology*, 44(5), 393-400.

Roesch, S., Aldridge, A., Huff, T., Langner, K., **Villodas, F.,** & Bradshaw, K. (2009). On the dimensionality of the Proactive Coping Inventory: 7, 5, 3 factors?. *Anxiety, Stress & Coping: An International Journal*, 22(3), 327-33

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ABSTRACT OF THE DISSERTATION

Prevalence and Predictors of Alcohol Consumption among African American Adults: A Community-Based Participatory Research Approach

by

Feion Villodas

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Professor Scott Roesch, Chair

Random Digit Dial Telephone Surveys (RDDTSs) are often used in public health and psychology research. Data from such surveys suggest that alcohol consumption rates are similar for African American (AA) and Caucasian adults in California (CA). While these finding are reliable, their validity is questionable because of the methodological problems present in RDDTS. Data collected from RDDTS are gathered from non-representative samples of higher SES landline phone owners and AA women residents of integrated neighborhoods. Thus, the validity of findings from RDDTS data is questionable.

The purpose of the current study was to overcome the methodological problems that are inherent in RDDTS by examining the prevalence of binge drinking in a random, statewide sample of 2,190 CA AA adults, using a community-based participatory

research approach, and to examine possible sociocultural variables that may contribute to alcohol use. Participants were 54% female, 46% male AAs, with ages ranging from 18 to 95. The results suggested that the current Community-Based Sample (CBS) was more representative of the CA AA population than CA RDDTS samples. Specifically, it was more diverse in age, was younger, and had a larger percentage of AA men and low-income adults. In addition, the current community-based sample reported engaging in significantly more binge drinking behavior than AA and Caucasian CA RDDTS samples, and that binge drinking was even more prevalent among African Americans who lacked landline telephones. Finally, multilevel statistical modeling revealed that neighborhood SES was a significant predictor of binge drinking, but neighborhood segregation was not. Cross-level interactions between measures of individual-level SES and neighborhood SES and individual SES and segregation were not significant. Moreover, social (e.g., racial discrimination, neighborhood dangerousness) and cultural (e.g., acculturation) factors did not significantly predict binge drinking behavior. Findings from the current study suggest that using a community-based participatory research approach may circumvent some of the methodological problems inherent in RDDTS and result higher quality alcohol behavior data.

INTRODUCTION

Data on California AA Adult Alcohol Use

Mental and public health research continue to demonstrate that excess alcohol use has negative effects on a person's mental and physical wellbeing (Galvan & Caetano, 2003). Alcohol consumption also contributes to legal problems, relationship issues, injuries, and accidents. Moreover, sustained heavy alcohol use can lead to serious medical problems.

There is a large percentage of Americans who consume alcoholic beverages. Sixty one percent of US adults are classified as current drinkers. Approximately one out of every five adults engages in binge drinking at least once a year (Schoenborn, 2010). Random Digit Dial Telephone Surveys (RDDTS), such as the California Health Interview Survey (CHIS) and the Behavioral Risk Factor Surveillance System (BRFSS), are widely used data sources that provide data on the populations alcohol consumption. The BRFSS is an on-going RDDTS that tracks health conditions and health behaviors annually. Similarly, the CHIS also tracks such data and is the largest state health survey, conducted every 2 years. Data from the 2001 CHIS suggest that were no significant differences between AA (22.6%) and Caucasians (26.6%) in alcohol consumption rates (www.chis.ucla.edu). These findings are similar to those found for the 2001 BRFFS data. Thus, data from both the CHIS and the BRFSS suggest that alcohol consumption prevalence rates are similar for AA and Caucasian adults in California. Although these data are reliable (i.e., consistent over time), because of methodological problems present in RDDTS methodology, they may lack validity

Problems with RDDTS Methodology

There are several reasons for the popularity of telephone surveys (Holbrook, Green & Krosnick, 2003). One advantage of telephone surveys is that they are less expensive than surveys conducted in person. In addition, the telephone survey data collection process is more expedient than conducting face-to-face surveys and typically results in obtaining larger samples Telephone surveys also allow for closer supervision of interviewers to assure the standardization of administration. Moreover, telephone survey interviewers may be able to reach individuals who live in dangerous situations without the risk of being harmed.

Noncoverage Bias. While the administration of surveys via telephone has its advantages, it also has its disadvantage. The most notable drawback of telephone surveys is that they exclude phoneless and cell-phone-only households (Blumberg, Luke, & Cynamon, 2006), which may result in noncoverage bias. Noncoverage bias refers to differences in specific characteristics between households that have telephones and those that do not (Massey, 1988). Noncoverage bias is one methodological factor that may limit the representativeness of telephone survey populations (Blumberg & Luke, 2009; Blumberg & Luke, 2008; Blumberg & Luke, 2007; Link & Mokdd, 2005).

For example, AAs who participated in the 2001 California Health Interview Survey (CHIS) were significantly better educated than the larger population of AAs in California. Moreover, the CHIS sample included more women, who tend to have lower alcohol consumption rates. Further, people who fall below the poverty line, irrespective of ethnicity, are more likely to live in a phoneless household and, therefore, are unlikely to participate in telephone surveys (Blumberg & Luke, 2007; Blumberg & Luke, 2009;

Blumberg &Luke, 2008; Blumberg, Luke & Cynamon, 2006; Frankel et al., 2003; U.S. Bureau of the Census, 1994). Moreover, AAs (15.1%) were more likely than Hispanic adults (14.5%), Caucasian adults (13.2%) to be living in wireless-mostly households (Blumberg & Luke, 2008). These findings suggest that the telephone survey's potential for noncoverage bias may systematically decrease the representation of AAs, low SES, men and young adult populations.

The potential for noncoverage bias has become more relevant as the number of households without landline telephones increases (Blumberg & Luke, 2007; Blumberg & Luke, 2009; Blumberg & Luke, 2008). While telephone coverage varies by state and subpopulation, there is an overall decrease in the number of households with landline phones across populations. For example, in 2008, 25% of the population reported that they lived in a household without a landline and only a cellular phone. In addition, 2% of the population did not own a phone at all. This means that almost 30% of the population was excluded from most major telephone surveys (i.e., Behavioral Risk Factor Surveillance System) based solely on not owning a landline phone. Shebl and colleagues (2009) conducted a study to examine cancer screening practices and found that 16% of the participants did not have landline phones. Another study found that one out of every six households does not have a landline telephone (Blumberg & Luke, 2008).

External Validity of Findings Noncoverage bias can also be a threat to the external validity of RDDTS research findings. Specifically, the use of telephone surveys may result in an underestimate of health problems for individuals who are not represented in the sample. For example, one study found that individuals without landline phones were twice as likely to binge drink as those with landline telephones. Moreover,

individual who live in household without a landline phone were also more likely to be current smokers. Researcher who conducted this study concluded that noncoverage bias is becoming more of a problem and may have potential implication for health surveys based on landline interviews (Blumberg & Luke, 2008).

Survey Nonresponse. A second disadvantage of using telephone surveys is that people are less responsive to telephone surveys than to in-person surveys (Link & Mokdd, 2005; Link, Mokdd, Stackhouse & Flowers, 2006; Satia, Galanko & Rimer, 2005). Survey nonresponse is the failure to obtain information from a portion of the selected sample (Groves & Lyberg, 1988). There are several causes of survey nonresponse; for example, respondents may refuse to participate, may not be physically or mentally able to participate, or simply choose not to answer the phone (Groves & Lyberg, 1988). Survey nonresponse has become increasingly burdensome in collecting data from RDDTs. For example, in 2002 the median overall response rate for the BRFSS across the 53 states and territories was 44%, with a minimum response rate of 25% and maximum of 79%. More recently, the 2007 California BRFSS response rate was less than 20% (www. cdc.gov/brfss).

Cultural Mistrust. Cultural mistrust may contribute to survey nonresponse among potential AA research participants. Cultural mistrust is defined as "the belief acquired by AAs, due to past and ongoing mistreatment related to being a member of that ethnic group, that Whites cannot be trusted" (Neville, Tynes, & Utsey, 2009, p. 299). AAs are often skeptical of Caucasians and tend to avoid sharing information and interacting with them because they fear that they will be betrayed or exploited.

Numerous studies demonstrate that AAs' high mistrust of health researchers contributes to the lack of AA participation in health surveys and in clinical trials (Corbie-Smith et al, 1999). For example, a study in Detroit on mistrust of research found that 81% of AAs cited Tuskegee as the reason for their refusal to participate in prior and future health surveys (Shavers, Lynch, & Burmeister, 2000). Likewise, a national telephone survey on the willingness of AAs and Caucasians to participate in health surveys found that AAs were 4.7 times more likely than Caucasians to express mistrust of researchers as their reason for not participating (Corbie-Smith et al., 2002). Moreover, 51% of the AAs sampled by telephone refused to participate, which may suggest that the AAs who did participate were more trusting of Caucasians. Other researchers have found similar results, which indicated that 42 to 81% of AAs reported that they have refused and will continue to refuse to participate in telephone and mailed health surveys, again with many citing Tuskegee and subsequent mistrust as their reason (Corbie-Smith, 1999; Corbie-Smith et al., 2002; Corbie-Smith et al, 1999).

Cultural mistrust is not experienced by all AAs, but tends to be present among AAs who have had negative interactions with, or been mistreated by, Caucasians (Terrell, Taylor, Menzise, & Barrett, 2009). Unfortunately, a long history of mistreatment of Blacks by Caucasians has been documented and continues to be prevalent in modern society (Neville et al., 2009).

Possible Alternatives to RDDTS Methodology

Community-Based Participatory Research.

Previous research has shown that implementing community-based participatory research (CBPR) may circumvent some of the cultural mistrust and methodological problems inherent in RDDTS (Fullilove,

Fullilove, Northridge, et al., 1999). CBPR is defined as "a community approach to research that equitably involves all partners in the research process and recognizes the unique strength that each brings. CBPR begins with a research topic of importance to the community with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities" (Minkler & Wallerstein, 2008, p. 6).

CBPR is different from traditional approaches to research in that it emphasizes the importance of engaging both community members and researchers throughout the research process (Wallerstein & Duran, 2006). It is a co-learning process in which both parties are active participants at each stage of the research process. Community members serve as vital sources of information about relevant community issues. Further, community members are empowered by being actively involved in improving the factors that affect their wellbeing (Minkler & Wallerstein, 2003), while researchers provide scientific expertise in research methodology, data analysis, and serve as agents of change. CBPR takes a practical approach that facilitates a balance between research and action.

Considering Contextual Factors in Alcohol Use

It is important both to examine the effectiveness of data collection methodologies and to explore factors that may contribute to excessive alcohol consumption. Previous ecological research suggests that contextual factors such as residential segregation and neighborhood SES are often strong predictors of health outcomes and should be examined (Duncan, Jones, & Moon, 1996). Unfortunately, few studies have examined the effects of segregation and neighborhood SES on AA alcohol consumption.

Residential Segregation. Residential segregation refers to the distribution of population groups among neighborhoods in a metropolitan area. It is a multidimensional construct related to one's social and economic well-being (Acevedo-Garcia, Lochner, Osypuk, & Subramanian, 2003; Massy & Deaton, 1989). Segregation may result from discrimination, but it also occurs when individuals have a preference for living separately from other groups. AAs are more segregated than any other group across all dimensions of the segregation construct (Johnston, Poulsen & Forrest, 2007; Iceland, Weinberg & Steinmetz, 2002). This is particularly important because AAs who reside in segregated neighborhoods are less likely to participate in RDDTs (Liao et al, 2004; .Link, Mokdad, Stackhouse & Flowers, 2006), which further suggests that RDDT samples may not represent the AA population. Furthermore, AA morbidity and mortality are higher in states, counties, metropolitan statistical areas (MSA), and zip codes where AAs represent a higher proportion of the population (Deaton & Lubotsky, 2003; Jackson, Anderson, Johnson, & Sorlie, 2000; Mellor & Milyo, 2001; Subramanian, Acevedo-Garcia, & Osypuk, 2005).

In addition, highly segregated AA cities or neighborhoods contain risk factors within the natural environment (e.g., poorer housing quality, higher exposure to environmental carcinogens and toxins) and the built environment (e.g., higher exposure to fast-food restaurants and lower access to inexpensive cancer screening facilities, vegetable/organic food markets, and activities that encourage physical activity) that influence health behaviors (e.g., diet and physical activity) and health outcome of AAs (Block, Scribner, & DeSalvo, 2004; Gee & Paine-Sturges, 2004; Moore, & Diez Roux, 2006;Morello-Frosh & Jesdale, 2006; Morello-Lopez 2006; Ponce, Hoggatt, Wilhelm, &

Ritz, 2005; Zenk, Schulz, Israel, James, Shuming & Wilson, 2005) Thus, such risk factors might directly and indirectly contribute to high morbidity and mortality rates of AAs who reside in these highly segregated neighborhoods. Together, such findings indicate that segregation must be investigated.

Neighborhood and Individual-level SES. SES is major contributor to health disparities because it influences one's living and working conditions, access to education and employment opportunities, and overall lifestyle (NCES, 2008). Researchers continue to find that, after controlling for individual SES, neighborhood SES continues to play a significant role in morbidity, mortality (Anderson, Sorlie, Backlund et al, 1997; Diez-Roux, Nieto Mutaner et al, 1997; Waitzman & Smith, 1998) and ethnic health disparities (Cagney, Browning, & Wen, 2005; Lochner, Pamuk , Makuc , Kennedy & Kawach; Lee & Cubbin, 2002; Pearl, Braverman, & Abrams 2001). Socioeconomic status (SES) is a multi-dimensional concept (Kaplan, 1999) that describes a person's economic and social status by combining one's income, occupational class and education, and wealth (Krieger, 1997).

SES can be assessed at multiple levels, including individual, household and neighborhood (Carstairs, 2000 Lynch & Kaplan, 2000; Krieger, 1992; Krieger, Williams & Moss, 1997). Krieger and colleagues (1997) suggest examining both individual-level and neighborhood SES (i.e., Area Based Measures (ABM)) to obtain a more accurate picture of SES. Neighborhood SES is derived from meaningful indicators of SES, such as social and economic conditions (i.e., concentrations of poverty, access to goods and services, neighborhood characteristics, household overcrowding or neighborhood economic deprivation) of an area that affect those who live in that environment (Krieger,

1992, Krieger & Moss, 1992; Shaver,2007). Thus, neighborhood SES is considered to be a more informative indication of SES than individual SES alone because it reflects characteristics of an area that cannot be derived from individual-level measures of SES (Krieger, Chen, Waterman, Rehkopf, & Subramanian, 2003; Krieger, Chen, Waterman, Rehkopf, & Subramanian, 2005; Krieger, Zierler, Hogan, Waterman, et al., 2003; Krieger & Moss, 1997; Krieger, Chen, Waterman, Rehkopf, & Subramanian 2003).

The Present Study

The information above suggests that 1) RDDTS samples exclude those who do not have phones, which tends to exclude young adults, low income, and AA populations; 2) cultural mistrust may increase survey non-response among AAs who do own phones 3) the exclusion of phoneless households may result in underestimating the true binge prevalence among AA adults and 4) Segregation and neighborhood SES may contribute to alcohol health disparities in ethnic minorities.

Consequently, the goal of the proposed study is to overcome methodological problems that are inherent in RDDTS by using in-person, community-based, research to examine AA average alcohol consumption and sociocultural factors that may influence that behavior.

Specific Aims and Hypotheses of the Present Study

Aim 1: To test the hypothesis that this community-based sample is more representative of the CA AA population than CA random digit-dial telephone (RDDTS) samples, insofar as it will vary more in age, gender, SES and (its correlated) landline phone ownership, and will more closely match the AAs in the CA Census.

Aim 2: To test the hypothesis that this community sample would significantly higher alcohol use rates than AA and Caucasian CA RDDTS samples, and that these consumption rates would be even higher among AAs who lack landline telephones.

Aim 3**:** To test the hypothesis that contextual (i.e., neighborhood segregation, neighborhood SES), social (i.e., racial discrimination, neighborhood dangerousness) and cultural (i.e., acculturation) factors predict AA alcohol use.

METHODS

Description of the parent (SDSU-CBHN) Study

To achieve the aims posed above, data from the TRDRP 2005-2009 study, *"Prevalence & Correlates of African-American Tobacco Use,"* were used. This study (TRDRP Grant 15 AT-1300) is a community-based participatory research (CBPR) project entailing collaboration between San Diego State University and the California Black Health Network. The purpose**s** of the community organization-academic researcher partnership were 1) to facilitate research on the AA community by decreasing AA distrust of researchers and to 2) assure dissemination of results to AAs in a manner that advances AA community health.

Participants

Participants were a random, statewide sample of 2190 CA, AA Adults. The sample consisted of 1254 women (54%) and 936 (46%) men, whose ages ranged from 18 to 95 (Mean = 43.8). Those not born in the U.S. were excluded, and the analyses will be based on the remaining N = 2190.

Sampling procedure.

A combination of community–based sampling (CBS) and community-based participatory research (CBPR) methods was used.

Community-Based Sampling Method. The CBS method entails (Stage 1) selecting counties where AAs reside with probability proportional to their representation, then (Stage 2) selecting census tracts (CTS) within those that are stratified by neighborhood SES and segregation, and finally (Stage 3), randomly sampling block-groups within the CTS and conducting door-to-door surveys of one randomly-selected adult from each

household. This procedure assures a sample from whom generalizations to CA AAs can be made, as detailed below.

In Stage 1, data in the 2000 Census were used to ascertain where CA AAs live. This revealed that 85% of the CA AA population (N = 2,263,882) resides in cities in these seven counties: San Francisco, San Diego, San Bernardino, Sacramento, Riverside, Los Angeles, and Alameda. Hence, these seven counties were selected for sampling. Treating these as the universe (as 100% of CA AAs) revealed that the AA population is roughly distributed across the counties as follows: San Francisco = 5%, San Diego = 8%, San Bernardino = 10%, Sacramento = 10%, Riverside = 10%, Los Angeles = 42%, Alameda = 15%. Hence, the plan was to sample the N = 2500 AA adults from the counties as follows: San Francisco = 125, San Diego = 200, San Bernardino = 250, Sacramento = 250, Riverside = 250, Los Angeles = 1050, Alameda = 375. Because sampling was proportional to representation of CA AAs and only one adult per household was surveyed, weighting of cases was not necessary during data analysis (e.g., Northridge et al., 1998; Fullilove et al., 1999; Dell, Whitman, Shah, Silva, & Ansell, 2005; Eschback, Ostir, Patel, Markides, & Goodwin, 2004).

In Stage 2, demographic data on the 4194 CTS that comprise the seven counties were examined, and the 513 CTS with > 20% AA residents selected; 20% AAs (non-segregated) was selected as the minimum CT% AAs for efficient, door-to-door sampling. The percent AAs in the 513 CTS ranged from 20% to 92%, and the percent AA residents Below the Poverty Line (AA % BPL) ranges from 0 to 100%. Next, CT -level data on the AA % BPL (area SES) were added to the census data to create a table of 513 CTS that varied in % AA, AA % BPL (the major contextual variables). These AA % BPL data

were obtained from public use datasets that are available at the US Census Bureau. Sampling continued (using any combination of CTS as needed) until each stratification cell was filled and each county N was acquired.

Finally, the 513 CTS were reduced to 85 (see Appendix) that vary simultaneously in % AA and AA % BPL (i.e., CTS were selected because they met the stratification criteria, not because of their locations). Table 1 shows the actual sample acquired, and demonstrates that the sample acquired matches the distribution of AAs across CA.

Community-Based Participatory Research Method (CBPR) CBPR was achieved by a partnership between the CA Black Health Network (CBHN) and San Diego State University academic researchers who study ethnic minorities, culture, and alcohol and substance abuse. The CBHN is a consortium of community health agencies, and is the oldest and largest organization of AA public health professionals in CA. Created in 1978, the CBHN is a 501 (c) not-for-profit organization devoted to improving the health of the CA AA population through programs and research. CBHN has access to CA's AA population (those who lack telephones and are mistrusting included) and thereby can facilitate the recruitment and collection of a large community sample needed to assess that population's alcohol use accurately. Moreover, the CA AA community respects and trusts CBHN, and has long been accustomed to health surveys for CBHN.

Survey Procedure. Participants completed the *California Black Health Network Health Survey*, a brief, anonymous survey created by CBHN and SDSU. The survey consists of simple questions that can be understood by those with a 7th grade reading level, and generally takes 10-15 minutes to complete.

AA/minority undergraduate students from SDSU and from colleges in each community (San Francisco, San Diego, San Bernardino, Riverside, Sacramento, Los Angeles, Oakland) were hired by CBHN or SDSU (depending on location) to collect the data. CBHN staff in each community (i.e., at the local CBHN office), and often the Project Director as well, accompanied 2-10 students during the door-to-door sampling in each CT. The local CBHN staff and local students from each community were trained in the sampling and survey procedures, and then conducted the sampling in their own communities. After CTS were selected, random block-groups were sampled within them until the criteria detailed in Table 2 were met.

Only households with self-identified AA adults were allowed to participate. At each randomly-selected household, the local survey team stated that they represented the (local) CBHN (and SDSU) and were conducting an anonymous survey of the health of AAs in that neighborhood. When a person answered the door, they were asked how many adults lived in the household and how many were currently at home. If the person who answered the door was the only one at home, that person was surveyed. If other adults were at home, one was randomly selected, using a modification of the Kish procedure (Kish, 1949). In this modification, instead of using a random-number generator to select a person in the household, the adult whose birthday is closest to the day of sampling is selected; this simple procedure assures a similar degree of randomness, as indicated in recent multi-level modeling studies entailing random samples of AAs and Latinos (Stuber, Galea, Ahern, Blaney, & Fuller, 2003). Each participant had the option of completing the survey while the local team waited outside, taking the survey to complete and turning it in to the local team a half hour later, or having the local

team read the survey aloud and fill in the person's answers. These options were included to increase participation by those with low literacy levels. Participants were reimbursed $10 cash upon turning in the survey, and the local team then moved to the next household. Sampling occurred on weekends (Saturday and Sunday) during the daylight hours and occasionally on weekday evenings from 4-6 PM in order to increase participation by adults and men.

Independent Variables (IVs).

The ten IVs were 1) Age; 2) Gender; 3) Education; 4) Annual Income; 5) Telephone Status; 6) Perceived neighborhood Danger; 7) Perceived neighborhood Discrimination; 8) Acculturation; 9) Neighborhood Segregation Level; and 10) Neighborhood SES.

Measuring demographic variables. The questions used to assess the demographic IVs (age, gender, telephone status, education, household income) have been used in prior population-based studies (i.e., National Health Interview Survey [NHIS], Behavioral Risk Factor Surveillance System [BRFSS], California Health Interview Survey [CHIS]), and have moderate to high reliability and validity (http://www.chis.ucla.edu/methods.html). Of the five demographic variables measured, Education and Income were reduced for ease of interpretation. Specifically, the six education categories were reduced to the following: 1) less than high school degree, 2) high school graduate or GED, and 3) some college or higher. Income was reduced as follows 1) $0-10,999, 2) $11,000-$25,999, 3) $26,000-49,999, and 4) ≥$50,000. The question to assess telephone status was, "do you have a landline telephone" and response options included 1) yes and 2) no.

Measuring Latent variables. Confirmatory factor analysis was used to create three

socioculural latent variables 1) Perceived neighborhood dangerousness, 2) Perceived Racial Discrimination and 3) Acculturation.

Perceived Neighborhood Dangerousness latent construct represents 1) perceived dangerousness of current neighborhood (not at all to very dangerous); 2) perceived amount of crime in current neighborhood (none to a lot); 3) fear of going outside at night in current neighborhood (not at all to a lot). The Perceived Racial Discrimination latent construct represents 1) racial discrimination personally experienced in lifetime (none to a lot) and 2) in the past year (none to a lot); 3) racial discrimination experienced in the past year by friends/family (none to a lot). The Acculturation latent construct represents 1) frequency of reading AA magazines/newspapers and 2) watching AA TV shows (never to more than once per week), and 3) how often do you watch AA TV shows (never to more than once per week) 4) how often do you attend AA community events (never to more than once per week).

Measuring Neighborhood Segregation. Segregation can be measured in a variety of ways, including the % AAs in a geographic area, the Dissimilarity Index (SI), and the Isolation Index (ISO). Recent studies indicate that ISO, a measure of the probability that AAs will encounter AAs (and no Caucasians) in their CT, has better construct validity and is more sensitive to disparities than the more commonly-used Dissimilarity Index (SI) a measure of the uneven distribution of AAs vs. Caucasians across a CT (Cooper, Friedman, Tempalski, & Friedman, 2007; Subramanian, Acevedo-Garcia, & Osypuk, 2005; Acevedo-Garcia, & Lochner, 2003). Thus, by using ISO to measure segregation, the measure of segregation used here is superior to that in most studies *(*Subramanian, Acevedo-Garcia, & Osypuk, 2005; Acevedo-Garcia, & Lochner, 2003). In studies using

ISO, high segregation is defined as ≥ .70 *(*Subramanian, Acevedo-Garcia, & Osypuk, 2005; Acevedo-Garcia, & Lochner, 2003). The Isolation Index for the CTs sampled is this study is shown in Table 2.

Measuring Neighborhood SES. Neighborhoods were operationally defined as census tracts (CTS) (Krieger, Williams, & Moss, 1997). Because neighborhood poverty is often associated with segregation (Collins & Williams, 1999; Schulz, Williams, Israel, & Lempert, 2002), neighborhood-level poverty was included in the analyses. Neighborhood SES was measured as the percent of AA CT residents below the poverty line. Several well-known geocoding studies consistently indicate that this measure is superior (i.e., better highlights SES-disparities) to other CT-level SES measures, such as CT-Median Household Income, Median Home Value etc. (Krieger, Williams, & Moss, 1997; Krieger, Zierler, Hogan, Waterman, Chen, Lemieux, and Gjelsvik, 2003). Neighborhoods are defined as a poverty area if ≥ 20% of residents in that neighborhood live below the federal poverty line. This cutoff was used in order to be consistent with the literature.

Dependent Variable.

The dependent variable investigated was average alcohol use.

Measuring Alcohol Use. Participants were asked "On days when you drink alcohol, how many drinks do you typically drink?" The stem of this item was similar item used in the comparison CHIS RDDTS (i.e., On the days when you drank, about how many drinks did you drink on the average?).

Data Analytic Strategy

Aim 1: To test the hypothesis that the CBS was more representative of the CA AA population than CA RDDTS samples, the current sample was statistically compared to the 2005 CHIS sample on comparable demographic variables on (age, gender, education, income etc.) and telephone status, using a chi-square test of independence (CBS vs. CHIS RDDTS).

Aim 2: To test the hypothesis that the current CBS would have significantly more alcohol use rates than AA and Caucasian CHIS RDDTS samples, and that these consumption rates would be more prevalent among AAs who lack landline telephones, a series of chi-square test of independence were conducted. A logistic regression was also conducted to examine the variance in alcohol use accounted for by sample (CBS vs. CHIS RDDTs) after controlling for covariates (education, income, age, gender and telephone status). All analyses for Aims 1 and 2 were conducted using IBM SPSS version 19.

Aim 3: To test the hypothesis that contextual (i.e., neighborhood segregation, neighborhood SES), social (i.e., racial discrimination, neighborhood dangerousness) and cultural (i.e., acculturation) factors predict AA alcohol use, a multilevel logistic regression was conducted. More formally, a two-level nested data structure, with individuals nested within CTs, was evaluated. First, the outcome variable was tested for significant variance at each level of the model. Then, bivariate analyses were conducted to examine the relationships between individual level 1 predictor variables (e.g., gender, income, ethnicity etc.) and individual level 2 predictor variables (i.e., neighborhood segregation and neighborhood SES) and the alcohol use outcome variable. However,

some individual predictor variables were measured via multiple items. For these variables, confirmatory factor analysis was used to create sociocultural latent variables (i.e., perceived neighborhood dangerousness, perceived racial discrimination and acculturation) for use in the multilevel predictive model described above. Mplus version 5.21 was used to conduct all aim 3 data analyses.

RESULTS

Response Rates.

Twenty census tracts in six CA cities were visited approximately 160 times over the course of 2 years. Approximately 10 households, and one entire block in two high poverty neighborhoods, were skipped by the surveyors because of potential danger (i.e., loose dogs, suspicious activity). Of the households where someone was home and there was an adult who met the eligibility criteria, the participation rate was 99%.

Demographics of the Sample

A total of 2,190 self-identified A As completed the California Black Health Network Health Survey. Of the 2,190 survey respondents, 47% (N=1024) resided in Los Angeles, 18% (N=403) in San Diego, 16% (N=345) in Oakland, 8% (N=181) in Sacramento, 6% (N=124) in San Francisco, and 5% (N=113) in San Bernardino. The sample's overall demographic characteristics are summarized in Table 3. As shown, the sample contained slightly more women (54%) than men, had large proportions of individuals with at least some college education or higher (64.3%), and household incomes of $50,000 or more (36%). Ages ranged from 18 to 95 years, with a mean of 43.6 (SD=16.3).

Demographic by segregation and poverty. The distribution of demographic characteristics by segregation and poverty levels is shown in Table 3. As shown, the sample was diverse in age, gender, marital status, education, and income, in both high and low poverty and high and low segregated neighborhoods.

Demographics by Telephone Status. The distribution of demographic characteristics by phone ownership was also examined. About 83% of the CBS sample

answered questions on their telephone status (n = 1975). Of these, 13.3% (n = 262) were phoneless. Table 4 compares CBS-phoneless to CBS-landline and RDDTS AAs. The CBS-phoneless (Mean age = 37.9) were relatively younger than CBS-landline (Mean age = 44.8) and RDDTS AAs (Mean age = 49.3). Likewise, the CBS-phoneless sample contained a relatively larger percentage of men (55.1%) than the CBS-landline (40.6%) and RDDTS (37.6%) samples. The CBS-phoneless sample also had relatively lower income levels; 46.8% of the CBS phoneless were in the lowest income group compared to 18% of CBS-landline sample and 13.6% of RDDTS AA sample.

Demographics by Methodology (CBS vs.CHIS RDDTs)

Aim 1 was to examine the extent to which the AA CBS was more representative of the CA AA population than the CHIS AA RDDTS. To achieve Aim 1, a chi-square test of independence was conducted with Methodology (CBS vs. CHIS RDDTS) as the criterion variable and age, gender, income, education as the predictor variables. As hypothesized, the CBS was more representative of the CA population than RDDTS. The CBS sample was more diverse in age, and was younger; 16% of the CBS sample was between 18-25 years of age while 9% of the RDDT AAs were in this age range. Moreover, the CBS sample included significantly more AA men (42.7% vs. 37%), low-income adults (21.7% vs. 13.6%) and fewer high-income adults (36.3% vs.41.2%) than the RDDTs AAs. These results are summarized in Table 5.

Alcohol use by Methodology (CBS vs. CHIS RDDTS)

Aim 2 was to examine whether or not this AA CBS reported had significantly higher alcohol use rates than the AA and Caucasian CHIS RDDTS sample. To achieve Aim 2, a chi-square test of independence was conducted with alcohol use as the criterion

variable and Sample (CBS, RDDTS AA, RDDTs Caucasian) as the predictor variable and was statistically significant X^2 df =2 = 521.64 P<.001. Alcohol use prevalence for RDDTS Caucasians (3.2%) was slightly higher than RDDTS AAs (3%) alcohol use prevalence. However, the CBS AAs reported significantly higher alcohol use rates (13.5%) than Caucasians and AAs from the RDDTS.

Alcohol use by Telephone Status (Landline vs. no Landline)

Aim 2 also examined whether or not alcohol use was more prevalent among CBS-phoneless AAs than among the RDDTs AA sample. A chi-square test of independence was conducted with alcohol use as the criterion variable and telephone status (CBS phoneless, CBS landline, CHIS RDDTs) as the predictor variable and was statistically significant X^2 df =2 = 543.10 P <.001. As hypothesized, CBS-phoneless AAs reported significantly higher alcohol use rates than CBS-landline AAs and RDDTS AAs. The CBS-phoneless prevalence for alcohol use behavior (21.6%) was almost twice that of the CBS-landline sample (12.5%) and 7 times greater than RDDTS (3%).

Individual Predictors of Alcohol use

To examine the hypothesis that differences between the CBS AAs and RDDTS AAs demographic and telephone-status variables might account for their differences in alcohol consumption, a hierarchal logistic regression was conducted with alcohol consumption as the criterion variable and education, income, age, gender and telephone status entered as predictor variables on step one. Sample (CBS vs. RDDTs) was entered as a predictor variable on step 2. Education did not account for a significant amount of overall variance and the regression coefficient relating education to alcohol consumption was also not significant. However income, age, gender and telephone status did account

for a significant amount of overall variance and were significantly associated with alcohol consumption. For income, the odds of alcohol consumption were 2 times greater for individuals in each successively decreasing income category (e.g., <$10,000 vs. ≥ $50,000). For age, the odd of alcohol consumption were 1.8 and 1.5 times greater for the young (i.e., 18-25 years) and middle (i.e., 26-39 years) age groups, respectively, than for the oldest individuals (i.e., 40 years and older). For telephone status, the odds of alcohol consumption were 2.5 more likely for individuals without phones than those with phones. Adding sample on step 2 revealed that the odds of alcohol consumption were 5 times higher for CBS AAs than for RDDTS AAs, even when controlling for demographic variables and telephone status. These results are summarized in Table 6.

Social/Cultural/Contextual Predictors of Alcohol consumption

Aim 3 was to examine the extent to which contextual (i.e., neighborhood segregation, neighborhood SES), social (i.e., racial discrimination, neighborhood dangerousness) and cultural (i.e., acculturation) factors predicted alcohol use among AAs. To achieve Aim 3, a multilevel logistic regression analysis was conducted. First, Confirmatory Factor Analyses (CFA) were used to create three sociocultural latent variables: 1) perceived neighborhood dangerousness, 2) perceived racial discrimination and 3) acculturation. The sociocultural factors were each indicated by 3 observed variables. Bivariate correlations among these sociocultural latent indicators were also conducted (see Table 7). These models were just-identified (i.e., the number of parameters that were estimated was equal to the number of covariances that were estimated, which resulted in 0 degrees of freedom for each model), so no indices of overall fit could be estimated. However, individual parameter estimates were estimated

(e.g., factor loadings) (See Table 8). For the one-factor model of perceived neighborhood dangerousness, all standardized factor loadings were generally large and statistically significant (values ranged from .541 to .773). For the one-factor model of perceived discrimination , standardized factor loadings ranged from small to large and were all statistically significant (values ranged from .122 to .803). For the one-factor model of acculturation, standardized factor loadings ranged from medium to large and were all statistically significant (values ranged from .463 to .705).

Finally, a multilevel logistic regression was conducted to statistically analyze a data structure in which participants (level 1) were nested within CTS (level 2). In multilevel logistic regression, the Intraclass Correlation Coefficient (ICC) is calculated as $\sigma/(\pi/3 + \sigma)$, where σ represents the variance of the dichotomous outcome at level 2. The intercept-only model revealed an intraclass correlation coefficient of .15. Thus, 15% of the variance in alcohol use scores is at the CT level and 85% of the variance in alcohol use scores is at the individual-level. Because variance existed at both levels of the data structure, predictors were individually added at each level. Specifically, bivariate analyses were conducted between individual predictor variables at levels 1 (e.g., gender, income, etc.) and 2 (i.e., neighborhood segregation and neighborhood SES) and alcohol use in order to indentify statistically significant predictors to be included simultaneously in an overall model predicting alcohol use. Gender (OR=, 1.6 $p<.001$), individual level income (OR= 1.4, $p <.001$), telephone status (OR= 1.7, $p< 001.$) and neighborhood SES (OR= 1.02, $p< 001$) were significantly related to alcohol use and were retained in the overall model. However, education, age, perceived discrimination, neighborhood

dangerousness and acculturation were not significantly related to alcohol use. Moreover neighborhood segregation did not predict alcohol use among this CBS.

Next, level 1(gender, individual level income and telephone status) and level 2 (neighborhood level income) predictor variables were entered simultaneously as predictors of alcohol use in the overall model. At level 1, gender remained statistically significantly associated with alcohol use. The odds of alcohol use were 1.44 times greater for males than for females. Individual level income was also significantly associated with alcohol use. The odds of alcohol use were 1.31 times greater for each successively decreasing level of income. Moreover telephone status was also significantly associated with alcohol use. The odds of alcohol use were 1.2 times greater for individuals who did not have a landline phone compared to those who did have a landline phone. At level 2, neighborhood SES was significantly associated with alcohol use; individuals who resided in lower income neighborhoods were 1.02 more likely to report alcohol use than those who did not live in lower income neighborhoods.

An additional model was tested in order to examine the interactions between individual level income and CTS-level income and segregation. In this model, the same level 1 and level 2 predictor variables from the previous model were retained and cross-level interactions between individual level income and neighborhood level SES and segregation tested. Neither of these cross-level interactions was statistically significant. These results are summarized in Table 9.

DISCUSSION

The purpose of the current study was to overcome methodological problems that are inherent in RDDTS using a random, statewide sample of CA AA adults, using a community-based participatory research approach to provide a more accurate representation of the AA population and of alcohol use prevalence.

Key Findings and Implications.

Response Rate. The current study achieved a 99% response rate among AA adults. The 99% response rate is a vast improvement over the rates obtained with other methods such as telephone and mail surveys, which obtain very low response rates from AAs – and especially from segregated AAs (Link & Mokdad, 2005; Link, Mokdad, Stackhouse, & Flowers, 2006; Blumberg, & Luke, 2007; Blumberg, Luke, & Cynamon, 2006; Keeter, Kennedy, Clark, Tompson, & Mokrzycki, 2007; Kempf, & Remington, 2007; Blumberg, & Luke, 2008). This unprecedented response rate may be attributed to the methodology used. Specifically, an in-person CBPR approach was implemented and included the involvement of a well known and respected AA organization (i.e., CBHN) and the use of an anonymous, written survey. The increase in response rate may also be attributed to the use of AA surveyors. The presence of AA surveyors may have overcome the problem with cultural distrust that has decreased AA research participation in the past.

Representativeness of Sample. The current study also examined whether the CBS was more representative of the CA AA population (i.e., more similar to census data) than the RDDTS. As hypothesized, the CBS sample was more representative of the CA AA population than the RDDTS sample in age, gender, and income. The RDDTS sample

consisted mostly of older, middle-income, women, whereas the CBS sample contained twice as many young adults, more men, and more low-income adults than the RDDTS sample. This supports past research which suggests that telephone samples under-represent less educated, low income, younger, and minority populations (Blumberg & Luke, 2007; Blumberg & Luke, 2009; Blumberg & Luke, 2008; Blumberg, Luke & Cynamon, 2006; Keeter, Kennedy Clark et al., 2007; Nelson, Powell-Griner, Town & Kovar, 2003).

One factor that may contribute to the differences among the samples is survey nonresponse bias (i.e., the failure to obtain information from a portion of the selected sample). As mentioned previously, RDDTS may be more prone to survey nonresponse, which can result in homogeneous samples with characteristics that differ from those of a targeted sample. This is particularly true for more elusive populations (people who do not trust researchers) that have historically been difficult to engage in research studies.

Telephone noncoverage bias (i.e., differences in specific characteristics between households that have telephones and those that do not) may have also contributed to demographic differences between CBS and the RDDTS, considering that telephone surveys exclude phoneless households. This is particularly important given the rapid development of telephone technology, which has contributed to an increase in the number of cell-phone only households.

To further explore the possibility that noncoverage bias may have affected the representativeness of the sample, the current study examined whether the characteristics of phoneless respondents differed from the characteristics of respondents with landline phones. The findings indicated that, indeed, the characteristics of phoneless respondents

differ from those of people with landline phones. In the current study it was found that the CBS phoneless sample was younger, less education, contained more men, and lower-income adults than the CBS with landlines and the RDDTS. Differences in the characteristics of individuals who own telephones, compared to those who do not own a landline phone, suggest that RDDTSs might recruit biased samples.

Findings from the current study indicate that the noncoverage and nonresponse biases that are inherent in RDDTS may affect the representativeness of their samples. Thus these biases may limit the generalizablity of the findings from those data. The inclusion of cell-phone-only households will likely decrease bias and increase the representativeness of telephone survey samples. The CHIS and BRFSS are continuing to study the impact of cellular phones on survey response and the feasibility of various methods for data collection to complement present survey methods (Mokdad, Stroup & Giles, 2003). Findings from the current research also suggest conducting surveys in person may increase the participation of individuals who have historically been difficult to recruit because of past mistreatment, partly by the research community.

Differences in Alcohol use. Another interesting finding from the current study was the difference in reported alcohol consumption that was based on survey methodology (i.e., RDDTS vs. CBS). In the current study, reported alcohol use prevalence was much higher among the CBS respondents than among RDDTS AAs and RDDTS Caucasians. Moreover, alcohol use prevalence among the CBS remained higher than that among RDDTS AAs even after controlling for sample differences in age, gender, education, income, and telephone-status. The standard assumption is that higher prevalence of the outcome variable indicates more accurate reporting (Pridemore,

Damphousse & Moore, 2005), indicating that alcohol data collected from the CBS sample may be more accurate than RDDTS data. Other researchers have also found that respondents were more likely to report the use of alcohol in face-to-face interviews than in telephone interviews (Aquilino & LoSciuto, 1990, Aquilino, 1992; Aquilino, 1994; Fullilove et al., 1999; Miller et al., 2004; Nebot, et al., 1994.

One possible explanation of the observed differences in alcohol use estimates between the two surveys methods could also be attributed to telephone noncoverage, given that health risk behaviors are typically higher among those without telephones, who are often of lower SES (Nelson, Powell-Griner, Town, Kovar, 2003). In the current study, CBS alcohol use prevalence remained statistically higher than CHIS AA drinking prevalence, even when controlling for telephone status, which suggests that telephone coverage alone does not explain these differences.

Another possible explanation for differences is that there may have been significantly less socially-desirable responding among this CBS. Researchers have suggested that research subjects have a propensity to underreport behaviors that are embarrassing or are perceived to be undesirable. A recent review conducted by (Holbrook, 2003) indicated that RDDTs manifested greater social desirability response bias than did in-person surveys. This may be because people feel more comfortable disclosing personal information face-to-face- rather than over the phone. Seeing the person and being able to check their confidentiality may reassure the respondent that their information is protected and may result in more honesty. In addition, the ability of an interviewer to build rapport during a face-to-face interview is likely considerably

enhanced by the ability to communicate non-verbally, which is not possible for telephone surveys.

These findings suggest that, when examining alcohol use outcomes across population subgroups, researchers may reach different conclusions depending on which survey methodology they employ. Specifically, it appears that surveys conducted in person may provide a more accurate representation of alcohol use among AAs, while RDDTS significantly underestimate alcohol use among AAs – and, by implication, may underestimate other health and health-behavior disparities as well.

Social/Cultural/Contextual Predictors of Alcohol use. In the current study possible community, social and cultural factors that may affect AA's alcohol use or that may explain alcohol alcohol use disparities were also examined. The results revealed that neighborhood SES was a significant predictor of alcohol use among this AA sample. Individuals who lived in lower SES neighborhoods were more likely to binge drink. This is consistent with past research, which suggests that neighborhood SES contributes to ethnic health disparities directly and indirectly through altering health behaviors. Specifically, low SES neighborhoods are laden with environmental risk factors, such as significantly more liquor outlets and alcohol advertisements than more affluent neighborhoods (Alaniz, 1998; Nielsen, Hill, French and Hernandez, 2010). The surplus of alcohol-related cues in AAs neighborhoods may influence a person's decision to purchase and consume alcohol. Moreover, low SES neighborhoods lack grocery stores, which results in community members purchasing food items from liquor stores; that also may influence their decision to purchase and consume alcohol.

Residential segregation was not a significant predictor of alcohol use. This finding is inconsistent with the past research that suggests that health-related disparities are associated with racial minority concentration (Subramanian, Acevedo-Garcia, & Osypuk, 2005. Massey & Fischer, 2000; Acevedo-Garcia & Lochner, 2003; Acevedo-Garcia, Lochner, Osypuk, & Subramanian, 2003; Deaton & Lubotsky, 2003; Jackson, Anderson, Johnson, & Sorlie, 2000; Polednak, 1997). One possible explanation for this inconsistent finding is CAs unique ethnic composition; that is, CA is less segregated than other areas of the US, such as Midwestern (e.g., Chicago, Detroit) and Northeastern (e.g., New York, Newark) cities. Hence it is possible that the segregation effect found in other research studies was lacking in the CA sample because CA is less segregated.

Limitations

Self Report Data. Although the research presented suggests that face-to-face surveys provide more accurate data than RDDTS, it is important to recognize that the methodology used was not without limitation. For instance, both face-to-face and telephone surveys are based on self-report data. The validity of survey data depends on the ability of the respondent to recall past behaviors. There is no way to validate the self report of alcohol use. Therefore, the findings presented are based on proxies, which may not be accurate representations of actual outcomes.

Inclusion of Cell Phone Data. The current study did not examine whether the inclusion of cell-phone households would improve the quality of RDDTs AA alcohol data. Cell phone data was not examined in the current study because cell-phone-only households were not included in the 2005 CHIS. However, in 2009 CHIS included separate RDDs of cell phone numbers (CHIS, 2007). Unfortunately, these data were

unavailable when the current research was conducted. Given that cell phone only household were recently included in RDDTs, there is limited research discussing the impact of their inclusion on quality of RDDTs data. While it is likely that the inclusion of cell phone only household will decrease noncoverage bias it may not decrease nonresponse bias related to cultural mistrust. Findings from the current study suggest that the use of CBPR may be one way to overcome this barrier.

Weighting Adjustments. Weighting adjustments are typically used to adjust for noncoverage and nonresponse biases by realigning the distribution of a targeted sample to either known or estimated population distributions, as reported by the Bureau of the Census (Massey & Fischer, 1988). Previous researchers have shown that demographic variables such as region, race, age sex and educational attainment can be used to define the domains for weighting cell adjustments (Massey & Fischer, 1988). In the current study, weighting adjustments were not performed on the CHIS data given that accurate demographic estimates for phoneless and low socioeconomic populations are not available.

Alcohol Use Outcome Variable. The current study identified observed differences between the CBS and the CHIS on typical alcohol use behavior. Although findings from the current study provided important methodological implications related to assessing AAs average alcohol use behavior, this study did not examine whether these findings extend to excessive alcohol use or binge drinking behavior. Highlighting the distinction between moderate alcohol use and binge drinking is important because not all drinking is problematic. Researchers have shown that excessive drinking or binge drinking is linked to serious long-term health problems and social consequences (Dawson, 2000; Rehm,

2011, Rehm et al. 2003; Rosen, Miller & Simon, 2008). According to the National Institute on Alcohol Abuse and Alcoholism (2004) binge drinking is defined for men as consuming five or more drinks in a single occasion and for women as four or more drinks on one occasion. In the current study the alcohol outcome measure may serve as a proxy for binge drinking, but does not actually measure binge drinking behavior. Future researchers should replicate the methodology of the current study and examine whether CBS samples and RDDTs demonstrate observed difference in true binge drinking behavior.

Generalizablity of Findings. The current study was limited to examining whether methodology affects the quality of alcohol data. Thus, the findings from the current studies do not generalize to other health outcomes. Although all telephone surveys are susceptible to bias, the extent of bias may differ, depending on the focus of the survey. For example, people may be more willing to particpate in a telephone survey that contains questions about dietary habits than in a survey that requests information about sexual behavior. Thus, the topic of interest could result in higher or lower response rate. Along the same lines, respondents may feel more comfortable endorsing desirable behaviors than undesirable behaviors, which may affect a study's outcomes.

Taken together, findings from the current study suggest that the observed differences between this CBS and CHIS RDDTs alcohol use prevalence estimates were most likely related to methodological differences. In addition, it appears that the methodology implemented in the current study decreased the effects of nonresponse bias, provided a more representative sample, and confirmed the presence of binge-drinking health disparities. Moreover, contextual factors specific to low SES populations seem to

contribute to those disparities. In order to develop a more comprehensive public health response to alcohol use, alcohol surveillance must be improved. These and other implications of the current research findings highlight the need to replicate our methodology and to further examine the utility of RDDTS

APPENDICES

Reduced Set of Census Tracts to Sample (N=85)

CTS FROM WHICH TO SAMPLE			CT Total N	CT Whites		CT Blacks		CT Residents Below Poverty Line		
ROW #	CT	County		N	%	N	%	% Overall	% Blacks	% Whites
01	424.11	Riverside	2847	1637	57%	580	20%	4.61%	4%	3%
02	610	San Francisco	2542	484	19%	506	20%	10%	4%	13%
03	458	Riverside	11137	3625	33%	2216	20%	21.45%	6%	10%
04	4052	Alameda	4991	1804	36%	1004	20%	7.41%	9%	5%
05	426.06	Riverside	3670	1797	49%	729	20%	12.75%	11%	8%
06	5401.02	Los Angeles	6839	2308	34%	1335	20%	14%	13%	14%
07	2911.3	Los Angeles	3369	1026	30%	688	20%	8%	14%	3%
08	1041.03	Los Angeles	3840	1261	33%	755	20%	13%	15%	6%
09	2286	Los Angeles	4667	1460	31%	929	20%	37%	22%	51%
10	5753	Los Angeles	4919	1062	22%	998	20%	31%	25%	33%
11	12	San Diego	5641	3231	57%	1107	20%	20.17%	27%	15%
12	5421.02	Los Angeles	7669	1893	25%	1504	20%	29%	28%	41%
13	4235	Alameda	2967	1569	53%	596	20%	27.32%	33%	21%
14	2285	Los Angeles	4506	1313	29%	890	20%	43%	35%	45%
15	462	Riverside	3335	1323	40%	658	20%	29.61%	37%	24%
16	27.09	San Diego	4212	1328	32%	836	20%	45.28%	37%	14%
17	74.08	San Bernardino	3785	1599	42%	762	20%	33.06%	49%	18%
18	428	Riverside	6451	2009	31%	1300	20%	35.48%	52%	20%
19	425.04	Riverside	2808	1370	49%	574	20%	41.98%	62%	26%
20	408.05	Riverside	5350	3851	72%	1280	24%	0.00%	0%	0%
21	426.05	Riverside	18387	7902	43%	4357	24%	13.53%	14%	7%
22	4055	Alameda	4147	642	15%	996	24%	18.13%	15%	9%
23	305.01	Riverside	4597	1142	25%	1090	24%	35.33%	29%	25%
24	34.02	San Bernardino	8543	3054	36%	2081	24%	27.65%	31%	20%
25	42	Sacramento	4861	954	20%	1179	24%	34%	34%	30%
26	425.19	Riverside	1652	712	43%	396	24%	37.17%	59%	11%
27	27.06	San Diego	8096	2879	36%	2410	30%	17.60%	19%	9%
28	42	Sacramento	5722	1836	32%	1724	30%	17%	22%	13%
29	158	San Francisco	6871	3284	48%	2029	30%	19%	31%	8%
30	163	San Francisco	4521	2452	54%	1355	30%	18%	41%	5%
31	2397	Los Angeles	5991	1491	25%	1820	30%	40%	46%	75%
32	31.12	San Diego	4484	823	18%	1613	36%	16.41%	19%	6%
33	4611	Los Angeles	4840	1821	38%	1739	36%	20%	20%	10%
34	34.01	San Diego	5890	1833	31%	2114	36%	12.95%	21%	9%
35	38	Sacramento	5307	1607	30%	1901	36%	21%	23%	11%
36	2221	Los Angeles	3738	644	17%	1333	36%	28%	28%	0%
37	65	Sacramento	5890	1816	31%	2143	36%	32%	30%	28%
38	33.02	San Diego	9347	1730	19%	3358	36%	32.98%	32%	19%
39	42.02	San Bernardino	4645	1166	25%	1695	36%	39.37%	38%	55%
40	2321.1	Los Angeles	2943	606	21%	1046	36%	39%	44%	0%
41	2398	Los Angeles	7563	1341	18%	2689	36%	45%	47%	0%
42	83	Sacramento	6828	2440	36%	2460	36%	53%	51%	57%

Reduced Set of Census Tracts to Sample (cont.)

CTS FROM WHICH TO SAMPLE			CT Total N	CT Whites		CT Blacks		CT Residents Below Poverty Line		
ROW #	CT	County		N	%	N	%	% Overall	% Blacks	% Whites
43	2073	Los Angeles	3804	1310	34%	1368	36%	48%	58%	42%
44	2062	Los Angeles	3467	549	16%	1238	36%	57%	68%	72%
45	53	Sacramento	1483	574	39%	531	36%	63%	69%	70%
46	2172	Los Angeles	3950	827	21%	1727	44%	13%	11%	9%
47	4005	Alameda	3415	1376	40%	1488	44%	14.12%	16%	14%
48	31.03	San Diego	6159	1063	17%	2703	44%	15.46%	17%	7%
49	4093	Alameda	5492	1129	21%	2417	44%	26.73%	32%	30%
50	605.02	San Francisco	3393	253	7%	1500	44%	37%	55%	47%
51	2411.1	Los Angeles	2653	259	10%	1173	44%	32%	56%	0%
52	2063	Los Angeles	4995	1148	23%	2183	44%	66%	71%	62%
53	5410.01	Los Angeles	1175	242	21%	593	50%	20%	4%	27%
54	5413	Los Angeles	5696	730	13%	2855	50%	18%	22%	0%
55	5410.02	Los Angeles	3320	936	28%	1705	51%	6%	3%	6%
56	4604	Los Angeles	859	139	16%	434	51%	11%	7%	0%
57	4078	Alameda	2340	701	30%	1198	51%	7.90%	11%	5%
58	161	San Francisco	5257	1577	30%	2690	51%	22%	18%	19%
59	6001	Los Angeles	6172	690	11%	3152	51%	4%	43%	74%
60	4603.02	Los Angeles	4330	1012	23%	2362	55%	8%	7%	6%
61	2349	Los Angeles	7064	1046	15%	3875	55%	44%	42%	38%
62	6002.02	Los Angeles	6312	965	15%	3457	55%	15%	48%	73%
63	232	San Francisco	4490	403	9%	2661	59%	17%	19%	0%
64	5716	Los Angeles	1980	214	11%	1161	59%	11%	66%	49%
65	31.01	San Diego	3718	643	17%	2259	61%	11.52%	11%	17%
66	4016	Alameda	1768	290	16%	1087	61%	40.88%	46%	10%
67	4077	Alameda	4599	958	21%	2877	63%	11.52%	11%	10%
68	4082	Alameda	4388	829	19%	2762	63%	20.53%	23%	9%
69	4014	Alameda	4765	439	9%	3003	63%	49.75%	51%	33%
70	6003.02	Los Angeles	3378	242	7%	2428	72%	38%	18%	0%
71	5408	Los Angeles	5583	423	8%	4008	72%	37%	29%	85%
72	4010	Alameda	5709	805	14%	4110	72%	30.72%	32%	10%
73	2362.01	Los Angeles	6289	496	8%	4518	72%	42%	41%	46%
74	231.03	San Francisco	4657	76	2%	3354	72%	52%	54%	0%
75	2379	Los Angeles	3537	66	2%	2879	81%	19%	16%	0%
76	2382	Los Angeles	5243	260	5%	4228	81%	20%	21%	0%
77	4021	Alameda	1258	13	1%	1020	81%	52.07%	58%	#DIV/0!
78	7031	Los Angeles	5445	420	8%	4671	86%	18%	4%	0%
79	2380	Los Angeles	5887	154	3%	5046	86%	16%	11%	49%
80	6005.01	Los Angeles	2716	33	1%	2343	86%	46%	17%	40%
81	6007.04	Los Angeles	2996	179	6%	2585	86%	44%	19%	18%
82	5433.04	Los Angeles	6374	122	2%	5786	91%	7%	4%	32%
83	6004	Los Angeles	4151	186	4%	3762	91%	43%	22%	62%
84	6008.01	Los Angeles	3181	47	1%	2929	92%	14%	9%	0%
85	2343	Los Angeles	4262	77	2%	3940	92%	16%	17%	0%

TABLES

Table 1. Sampling Proportionate to Representation

County	% CA AA population	% of sample Collected	N
San Francisco	5	6	124
San Diego	8	18	403
San Bernardino	10	5	113
Sacramento	10	8	181
Riverside	10	0	0
Los Angeles	42	47	1024
Alameda	15	16	345
	100%	100%	2190

Table 2. Final CTS sampled

				CT AAs		CT Residents Below Poverty Line		Segregation	
ROW #	CT	City	CT Total N	N	%	% Overall	% AAs	Isolation Index (ISO)	N collected
01	38	Sacramento	5307	1901	36%	21%	23%	0.3794	87
02	65	Sacramento	5890	2143	36%	32%	30%	0.4859	60
03	33.02	San Diego	9347	3358	36%	32.98%	32%	0.4449	98
04	42.02	San Bernardino	4645	1695	36%	39.37%	38%	0.4116	113
05	53	Sacramento	1483	531	36%	63%	69%	0.3594	34
06	31.03	San Diego	6159	2703	44%	15.46%	17%	0.5449	123
07	5413	Los Angeles	5696	2855	50%	18%	22%	0.5810	86
08	5410.02	Los Angeles	3320	1705	51%	6%	3%	0.7701	108
09	4078	Alameda	2340	1198	51%	7.90%	11%	0.5381	92
10	6001	Los Angeles	6172	3152	51%	4%	43%	0.5379	119
11	31.01	San Diego	3718	2259	61%	11.52%	11%	0.6208	123
12	4082	Alameda	4388	2762	63%	20.53%	23%	0.6745	126
13	4010	Alameda	5709	4110	72%	30.72%	32%	0.7244	127
14	231.03	San Francisco	4657	3354	72%	52%	54%	0.7385	124
15	2382	Los Angeles	5243	4228	81%	20%	21%	0.8170	144
16	6005.01	Los Angeles	2716	2343	86%	46%	17%	0.8927	114
17	5433.04	Los Angeles	6374	5786	91%	7%	4%	0.8858	112
18	6004	Los Angeles	4151	3762	91%	43%	22%	0.9036	111
19	6008.01	Los Angeles	3181	2929	92%	14%	9%	0.9167	112
20	2343	Los Angeles	4262	3940	92%	16%	17%	0.9132	118
								Total N	2190

San Diego N = 403	Los Angeles N =1024	Southern CA N =1427	
Oakland N = 345	San Francisco N =124	Northern CA N = 294	
Sacramento N = 181	San Bernardino N = 113	Central CA N = 469	

Table 3. Demographic characteristics of the sample by Segregation and Poverty

		Segregation (ISO)		POVERTY (Pov)	
	Overall Sample N=2190	Low (ISO <.70)	High (ISO≥.70)	Low (Pov<20%)	High (Pov≥20%)
Mean Age	43.58	43.74	43.41	46.48	40.72
(SD)	(16.26)	(16.48)	(16.01)	(16.28)	(15.732)
Gender					
Women	53.8	51.9	48.1	50.3	49.7
Men	39.3	51.7	48.3	50.8	49.2
Education					
<HS	6.8	56.8	43.2	39.9	60.1
HS grad or GED	28.7	52.4	47.6	37.4	62.7
≥Some college	64.3	52.1	47.9	57.6	42.4
Household income					
≤$10,999	22.6	52.5	47.5	27.1	72.9
$11,000 to 25,999	18.5	58.0	42.0	42.0	58.0
$26,000 to 49,999	22.8	55.8	44.2	50.8	49.2
≥$50,000	36.0	46.9	53.1	64.8	35.2

Table 4. Demographics by Telephone Status

		CBS Phoneless (N=253)	CBS Landline (N=1664)	CHIS RDDTS AAs (N=1954)
Age	Mean(SD)	37.9 (13.95)	44.8(16.30)	49.3 (16.8)
	Range	18-88	18-95	18-85.
Age Groups	18-25 years	24.3%	14.9%	9.2%
	26-39 years	31.4%	23.7%	20.8%
	$\leq$ 40 years	44.4%	61.3%	70%
Gender	Men	55.1%	40.6%	37.6%
	Women	44.9%	59.4%	62.4%
Income	< $10,999	46.8%	18%	13.6%
	$11,000-25,999	17.9%	19%	21.9%
	$26,000-49,999	16.6%	24%	23.3%
	$\geq$ $50,000	18.7%	38.9%	41.2%
Education	< High School (HS)	11.5%	6.3%	8%
	HS Grad or GED	41.1%	26.6%	28.4%
	> HS Grad	47.4%	67.1%	63.6%

Table 5. Demographics by Methodology (CBS vs.CHIS RDDTs)

		CBS AAs (N=2190)	CHIS RDDTS AAs (N=1954)	Significance Test	P
Age	Mean(SD)	43.58 (16.26)	49.3 (16.8)	$F_{1,3967} = 107.22$	<.001
	Range	18-95	18-85		
Age Groups	18-25 years	16.8%	9.2%	$X^2_{df=2} = 73.4$	<.001
	26-39 years	24.8%	20.8%		
	$\leq$ 40 years	58.4%	70%		
Gender	Men	39.3%	37.6%	$X^2_{df=1} = 8.65$	<.003
	Women	53.8%	62.4%		
Income	< $10,999	22.6%	13.6%	$X^2_{df=3} = 56.0$	<.001
	$11,000-25,999	18.5%	21.9%		
	$26,000-49,999	22.8%	23.3%		
	$\geq$ $50,000	36%	41.2%		
Education	< High School (HS)	6.8%	8%	$X^2_{df=2} = 129.05$	<.001
	HS Grad or GED	28.7%	28.4%		
	> HS Grad	64.3%	63.6%		

Table 6 Logistic Regression Predicting Alcohol use from Individual Demographic Variables

Predictor	B	P	OR	95%CI
EDUCATION (Reference= >HS)				
HS Grad/GED	.244	.107	1.27	.948,1.71
< HS	.139	.442	1.21	.742,1.98
INCOME (Reference= ≥ $50,000)				
$26,000-49,999	.313	.97	1.38	.945,1.98
$11,000-25,999	.402	.04	1.45	1.01,2.19
≤ $10,999	.715	<.001	2.04	1.37,3.03
AGE (Reference =≥ 40 years)				
26-39 years	.591	<.001	1.80	1.34,2.16
18-25 years	.401	.034	1.49	1.03,2.16
Gender (Reference =Women)				
Men	.358	.008	1.43	1.09,1.85
PHONE (Reference =Landline)				
Phoneless	-.941	<.001	2.56	.251,.584
SAMPLE (Reference=RDDTS)				
CBS	-1.509	<.001	4.52	.161,.303

Table 7. Confirmatory Factor Analysis for Sociocultural Latent Variables			
Item	Neighborhood Dangerousness	Racial Discrimination	Acculturation
1. Dangerousness of neighbor hood	.773		
2. Crime in neighborhood	.541		
	.652		
3. Fear of going outside at night			
		0.717	
4. Racial discrimination in lifetime			
		0.803	
5. Racial discrimination in past year			
		0.122	
6. Racial discrimination experienced by friend/family			
			0.705
7. Reading AA magazines			0.463
8. Watching AA shows			0.442
9. Attend AA community events			

Table 8. Multi-level logistic regression predicting alcohol use from individual- and area-level predictors		
Predictors		
Individual- level Variables	OR	95% CI
GENDER	1.44*	1.05, 1.97
INCOME	1.31 *	.64,.90
TELEPHONE STATUS	1.18	.60,1.18
Area-level variables		
Neighborhood Income	1.02 *	1.01,0.1.03
Cross level Interaction Terms	Estimates	95% CI
Neighborhood x Individual Level Income	-0.006	-0.018, 0.006
Neighborhood Segregation x Individual Level Income	-0.009	-0.957, 0.974

p<.05,*

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