

# RACIAL DIFFERENCES IN SURVEYS OF DRUG PREVALENCE: MORE THAN MEASUREMENT ERROR?

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## INTRODUCTION

Inconsistency in reported rates and levels of drug use reported for Black populations relative to White motivated this review of methodological issues affecting surveys of African Americans and their drug use. My personal experience conducting a 25 year prospective study of drugs, health and now HIV with an area representative cohort of African Americans both heightened and enlightened this interest. Reports from the national household and school surveys diverge regarding rates among 12-17 year olds but the divergence is even greater when these reports are compared to high African American rates of drug use reported from some community area surveys such as my New York City area cohort and compared to findings from NIDA's DAWN (Drug Abuse Warning Network) Emergency Room (ER) and Medical Examiner data.

With the U.S.A. increasingly identified as a multicultural society (Glazer, 1997), ethno-racial sensitivity needs continued reappraisal in at least three broad areas of survey research methods: (1) interviewer effects; (2) memory storage, recall and response (cognitive) processes; (3) differential norms of social desirability and the effects these have on respondent's interpretation and response to the survey questions.

Foremost in this reappraisal, the substantial within-African American group diversity with respect to variations in behavior norms that are tied to differing degrees of social integration needs to be accounted for. We need to be mindful that conditions that are correlated with and are the explanatory variables for substance use are subject to both this within African American group heterogeneity as well as the heterogeneity between Black and White groups. These are essential considerations in the selection and application of ethno-racially appropriate sampling, data collection, analysis and report procedures and in the interpretation of survey findings.

The potential contributors to measurement bias that might confound valid measurement of African American drug use are classified here

from this perspective and are grouped under three headings: logical fallacies, sampling bias, and then non-sampling sources of error.

### A. Logical Fallacies

These fallacies have ramifications for both sampling and non-sampling bias:

1. Geographic generalization fallacy: Levels of drug use and minority group concentrations both are unevenly distributed throughout the U.S. Surveys often overlook the implications of this skew and heterogeneity for their sample designs; in their analysis methods when uncorrected means and mean based deviation statistics are applied; and in reporting results when this heterogeneity is not acknowledged and not communicated to the reader.

2. Intra-group homogeneity fallacy: Differences in within group variance or heterogeneity, e.g., different correlations between class and substance use in African American and white populations, too often are neglected in cross-group analyses. Increased multivariate analysis will but partially redress this oversight. Specifically, the distribution of drug involvement is strongly skewed toward the low, no regular income portion of the African American population compared to its distribution by class/wealth among Whites. High levels of use are concentrated in a minority of the Black population, most often in the 13 percent of 25-29 year old and 14 percent of 30-34 year old Black males that census acknowledges in its undercount (NRC 1995).

This skewed distribution poses a particular threat to the validity of school surveys, where Black youths captured in school -- regardless of their real dollar SES -- will be more middle class in value orientation and behavior norms than their White equivalents. Additionally, research has shown that African American students are not only more likely to be absent from school but also to return incomplete drug reports when present (Bachman et al, 1984; Josephson and Rosen, 1978).

Intergroup heterogeneity in behavior by social class was demonstrated nearly a decade ago in Kessler and Neighbors' (1987) now classic study of race differences in the correlation of class and mental health. In that study, the excess in mental health problems among Blacks was restricted to low SES respondents, with no difference between middle class Blacks and Whites.

3. Fallacy of intergroup homogeneity in cognitive processing and response styles: Little research has been conducted around ethno-race variability in cognitive styles, including stylistic differences in processing questions, in memory storage, in kinds and use of recall cues or in normative response styles. Unforeseen bias can arise here from ethno-race varying values, norms and experiences (frames of reference) to which ethnographic research plus rigorous instrument pretesting can alert the investigator.

## B. Sampling Bias

4. Non-inclusivity bias. Household and school surveys (and the census), as noted above, underrepresent the most socially distressed and disarticulated segments of the Black population. Survey research professionals recognize that drug use is concentrated more heavily among "floaters" and the transiently housed, among those who populate the prisons, among those who are not acknowledged as part of the screened dwelling unit. Consumers of survey data are less well informed about this. In recent years, the National Household Survey on Drug Abuse has added shelters and certain group residences to its sampling frame as a step toward reducing non-inclusivity bias.

5. Selection bias. This refers to biased or race differentiated survey participation rates stemming from unavailability or unwillingness of selected respondents to be interviewed. It differs from non-inclusivity bias (above) which is a function of sample design. Appropriate interviewer selection and training, as well as respondent sensitive protocols and incentives might limit bias from this source.

6. Sample weighting fallacy: For reasons apparent from the discussion above, weighting up the obtained sample responses to Census proportions cannot correct for non inclusivity, selection and other sampling, as well as response, biases.

7. Biased execution of sample design: This

contributor to measurement error derives not from the sample design but from improper execution of that design. Differential willingness on the part of interviewers to enter into and/or to make repeated call-backs to poor, neglected and sometimes hazardous dwellings along with deficiencies in interviewer training, ability or willingness to execute the specified sample design all contribute to biased completion and response rates.

8. Field rules or protocol bias. Constraints on call-backs and time in the field that are written into the survey protocol also play a role in producing biased, i.e., understated drug use reports that are representative of only a part of the Black population. Howard (1997), using data from the writer's longitudinal African American Cohort Study, compared substance use reports under conditions of relatively unlimited time in field to those obtained from age, race and gender matched members of the study cohort whose interviews were completed within 180 days of first assignment. Significantly more heavy alcohol consumption for men and significantly more heavy alcohol and heroin use were reported for women under the relaxed time limit condition.

## C. Non-sampling Sources of Measurement Bias

9. Interviewer characteristics: Concordance of interviewer's race, gender, and class with respondent's characteristics influences quality of response on sensitive issues. Gender of interviewer has shown significant effects on sexual behavior reports (Catania, et al 1996). Race of interviewer effects were observed among White respondents, but not among Black, in a preelection poll where a Black candidate was running (Finkel, Guterbock and Borg, 1991). Area drug studies use race matched interviewers (e.g., Ensminger, Anthony and McCord, unpublished), while the New York City African American Longitudinal Cohort study matches on both gender and race (Brunswick 1984, 1991).

Since what constitutes a sensitive issue itself will be subject to varying ethno-racial, gender and age or period norms, the need for interviewer-respondent matching needs judging with these considerations in mind. .

10. Modality bias: Evidence is accumulating regarding modality bias, i.e., that drug use reports vary according to the modality or setting in which they are collected. Results from the

1990 NHSDA field experiments (Turner, Lessler and Gfroerer, 1993) as well as from other investigators show that drug use reports are highest when obtained through self administered (SAQ) drug questions included in personal interviews; next highest are obtained through interviewer administered personal interview questions. Drug use is relatively underreported in telephone interviews (Fendrich and Vaughn 1994; Gfroerer and Hughes 1991, 1992; Turner, Lessler and Devore 1992; Aquilino 1994). Aquilino and Wright (1996), similarly, found increased screening refusals among Black respondents on telephone compared to personal visits. Tourangeau and Smith (1996) report that computer assisted self-administered interviewing (CASI) and its audio counterpart (ACASI) produce better interview reports on sensitive issues than the computerized interviewer administered equivalent (CAPI).

Importantly, the few investigators who have examined race differences in modality effects have found them. Aquilino and LoSciuto (1990) found greater divergence between Black respondents' drug use reports obtained on personal vs. phone interviews than appeared for Whites. Similarly, Fendrick and Vaughn (1994) found that for Blacks the odds of underreport on telephone relative to personal interview were twice as great as they were in other groups.

In contrast to the general advantage reported for SAQ's in obtaining drug use reports, Aquilino (1992) found that Black respondents reported more drug use when questions were interviewer administered than on SAQ's. Thus, while relative advantage of SAQ's has been established for Whites, this cannot be generalized to African Americans. This finding underscores the need for race-specific tests of the effects of different survey procedures and the hazards of generalizing from White samples to Black. No race differences have yet been reported in results from ACASI and it will be important to determine the intra- and inter-group differential efficiency of that modality.

11. Instrumentation bias. Question wording, meaning, ease of comprehension, and appropriateness or proximity to everyday experience have obvious ethno-race variability. Little has been reported about ethno-race differences in the efforts to adapt question wording, format and sequence to respondent cognitive response styles. Bradburn (1997), for example, suggested a limit of ten days for valid

recall after an event. Tourangeau and Bradburn, (1997) recommend positioning recall relative to (i.e., before or after) "critical" key events. What are to be targeted as key events requires testing from the perspective of ethno-race variability.

Unfortunately, investigators who work with minority samples have not yet systematically accumulated their experiences concerning optimal question wording and variable question meanings. For example, 25 years of interviewing an African American cohort has taught this investigator to avoid questions that require numeric replies and quantitative estimation; to avoid the term "problem" when inquiring about health or drug use experience. An example of overlooked wording bias arose in regard to asking for information on income in the seemingly flexible format of "by the week, month or year". Male heroin users often gave "no answer", not as a refusal but because they lacked a regular income no matter what the time frame. Indeed, this might be the subject for an added fallacy, the "fallacy of the ordered life".

Instrumentation bias can be reduced by paying particular attention to ethno-race (gender, age and region) differences in pretesting and then modifying instruments in light of these differences. Some investigators who have reported greater inconsistency in African American reports of drug use (Fendrich and Vaughn, 1994; Mensch and Kandel, 1988), for example, may well have uncovered instances of instrumentation bias and neglect of cognitive style differences.

## CONCLUSION

Five next steps are proposed to advance our recognition and integration of intra- and inter-ethno-racial heterogeneity in survey design, instrumentation, field procedures and analysis:

1. For the problem of sample non-inclusivity, increase testing of innovative sampling strategies and field procedures to reach the socially disarticulated (Wilson 1987). This might include street intercept surveys and supplemental intensive small area studies using protocols to accommodate the hard-to-reach. The difficulty of integrating or at best coordinating the results from non-probability based sampling supplements with the estimates derived from the national samples remains to be unresolved.

2. Increase multivariate analysis and discussion of drug use correlates in presenting drug survey findings.

3. Design and analyze studies of modality effects, cognitive processing, and instrumentation that focus on ethno-racial heterogeneity. The need is two-fold -- to design ethno-race-gender appropriate methods that measure different population groups with equivalent sensitivity and then to incorporate the resulting methodologic improvements into systematic survey procedures.

4. That said, can we find ways for AAPOR and its members to be more proactive in influencing others who adopt and apply our methods to adopt our survey research standards as well? Some non-survey professionals who, for example, enjoy the economy of telephone surveys in health research, produce low response and completion rates without acknowledging the concomitant bias and non-generalizability of their findings..

5. As Sudman and Bradburn (1974) long ago noted, and we practitioners of survey research in minority communities are constantly reminded, "social desirability" has a pervasive influence in response bias. It itself is a subjective and heterogeneous phenomenon. Its variations by social status within and between ethno-race-gender groups has not been examined systematically. How can we operationalize the concept of social desirability in relation to population subgroup values and norms? In this multicultural society, might we begin by examining the social vectors that delineate variations in tolerance and social desirability regarding drug use? After that, how do we account for varying interpretations of social desirability when reporting race and gender levels of drug use? And then how do we report these variations in presenting drug survey findings?

In conclusion, I reiterate the need for increased communication about survey research standards to those outside the profession, who not infrequently borrow our methods in botched up fashion, with little regard in their procedures for either sampling or non-sampling error. They may not recognize and they certainly do not communicate the limited internal and external validity of their findings when rigorous standards and procedures have not been followed. To cite but one recent example from a public health journal that often considers itself an arbiter of rigorous scientific method: results from a large-scale multi-site cardiovascular study reported a 53 percent response rate with

no mention of the race differential in this response rate or its implication for the external validity of the reported biracial differences in effects of cocaine use on cardiovascular disease.

Small wonder that "invalid" and "invalide" surveys share a common spelling.

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