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Consistency between adolescent reports and adult retrospective reports of adolescent marijuana use: Explanations of inconsistent reporting among an African American population

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Abstract

Drug use trends are typically monitored by surveys of retrospective self-reports of drug use; yet we know little about the consistency of reports made across the life course. This study examines the consistency of marijuana self-reports from adolescence and adulthood and what characterizes inconsistent reporting among a cohort of African American first graders followed longitudinally from age 6 to 32 ($N = 599$, 51% female). Self-reported lifetime adolescent marijuana use (ages 16–17) and retrospective reports at age 32 were combined to categorize respondents as consistent reporters of nonuse (22%), consistent reporters of use (42%), adult recanters (19%), adolescent underreporters (8%), and inconsistent reporters of age of initiation (9%). Overall, about 64% of the population were consistent in their reports of adolescent marijuana use from adolescence to age 32. Multivariate logistic regression analyses found that recanters reported less marijuana use as adolescents, lower parental supervision during adolescence, lower deviant behavior as an adult, and stronger anti-drug values as adults than did consistent reporters. Adolescent underreporters reported less assault behaviors and less alcohol use as adolescents and had lower first grade math achievement than consistent reporters. Family background, depression, criminal arrests, and the field conditions of the interview were not related to inconsistent reporting.

Keywords

African Americans; Self-reported marijuana use; Reliability; Adolescent drug use; Surveys

1. Introduction

1.1. Self-reports of drug use

National and local trends in drug use are commonly monitored by school or household surveys that utilize retrospective self-reports of illicit drug use. These surveys typically ask not only about current use but also about first use of substances. For example, the 2005 National Survey on Drug Use and Health includes questions that ask respondents at what age and the month during the year when they first used the substance. The evaluation of

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prevention and intervention programs often depends on self-reports of drug use. Despite widespread reliance on self-reported drug use, these retrospective reports may be subject to all sorts of biases: misremembering ages or other details of drug use, denial of illicit behaviors, answering in socially desirable ways, or telescoping so that the time frame for use is inaccurate. For example, behaviors that have continued may be more readily admitted or remembered than behaviors that have ceased. Moreover, psychological well-being or cognitive functioning may influence recall.

Although there is a host of reasons self-reports of drug use may not be valid and reliable, the literature suggests an acceptable level of accuracy of this method. In a review of self-reports among drug users, Darke (1998, p. 253) concludes that the “self-reports of drug users are sufficiently reliable and valid to provide descriptions of drug use, drug-related problems, and the natural history of drug use.” Though overall self-reports may be considered accurate; individual studies have found inconsistencies and various characteristics associated with inaccurate reporting. In a review of the accuracy of self-reports, Maisto et al. (1990) suggest a convergent validity approach be used. That is, validity is judged by consistency of various measures. Options include comparing self-reports to chemical assays or biomarkers, criminal justice reports, and reports by has limitations. Chemical assays are constrained by time and technology, as they are only able to provide information on recent use and are subject to error. Comparing self-reports to criminal records is limited in that much use never comes to attention of criminal justice officials. The use of multiple informants has many of the same drawbacks as self-reports in the first place (e.g., drug use is illegal and socially undesirable). Further, informants are not likely to have complete knowledge of drug use of another person (Maisto et al., 1990).

1.2. Consistency of reports across time

Another way to evaluate self-reports is to examine the consistency of reports made at different times in the life course, as we do in this paper. We expect that those who report lifetime use at one time point would also report lifetime use at a later time point. However, a number of prospective studies have found inconsistencies in drug use reporting over time. For example, Fendrich and Kim (2001) found in the National Longitudinal Survey of Youth (NLSY) that about 42% of those who had previously reported cocaine use, denied lifetime use in at least one of the subsequent follow-up surveys over a 10-year period. For marijuana it was 29%. Earlier analyses based on the NLSY also found inconsistencies across time in lifetime reports of substance use (Mensch and Kandel, 1988; Fendrich and Vaughn, 1994). Studies of self-reports of sexual activity, another sensitive topic, have also shown that some adolescents will later deny sexual behavior that they had earlier reported (Alexander et al., 1993; Rosenbaum, 2006). For example, Rosenbaum (2006) found using the National Longitudinal Study of Adolescent Health that 10% of adolescents who reported sexual intercourse at the first wave reported a year later that they had never had sexual intercourse.

The comparison of retrospective reports in adulthood of adolescent drug with self-reports in adolescence of current use has not been examined extensively; nor has there been much comparison of the characteristics of consistent and inconsistent reporters. Studying the concordance of self-reports over time provides an indication not only of consistency across

time in reports, but also gives some indication of how accurate or inaccurate cross-sectional surveys of lifetime use of substances might be. Comparing consistent reporters with inconsistent reporters may also help us better understand the issues that influence self-reports of drug use.

There are several kinds of inconsistencies in reports of drug use. First, *recanting* refers to the denial of lifetime drug behavior that was reported at an earlier assessment time. Second, *underreporting* refers to retrospectively indicating use of a substance at a certain age or time when earlier indicating nonuse at that age or time. We examine these two inconsistencies in this paper. Others have also examined inconsistencies in age of onset that is provided by respondents at two points in time (Engles et al., 1997).

What are the potential reasons for inconsistencies in reports? Perhaps, the most straight forward explanation is one of memory; respondents may not remember that they have used certain substances (Robins et al., 1985). However, given the salience of substance use as indicated by media attention and the informal and the formal rules surrounding its use in schools and communities, it is likely that most people will remember whether they have used substances such as alcohol, marijuana, or cocaine.

Similarly, inconsistencies might be due to changes in the interpretation of what substance use is. Some suggest that respondents change their definition of substance use as they age (Engles et al., 1997; Percy et al., 2005). For example, having a puff of marijuana at age 12 might be considered drug use during adolescence (and indeed the wording of questions on most surveys would suggest that it is) while this amount of use might be construed as nonuse as an adult. Along these lines, studies have shown that infrequent use is more likely to be recanted (e.g., Fendrich and Vaughn, 1994; Fendrich and Mackesy-Amity, 2000; Percy et al., 2005).

Another potential explanation includes answering in socially desirable ways so that the respondent does not present him/herself in ways that are seen as unfavorable (Bradburn, 1983). Latkin et al. (1993) found that among intravenous drug users, measures of social desirable response tendencies were related to certain aspects of drug using behavior (e.g., sharing injection equipment), but these response tendencies were not related to self-reports of cocaine use.

The interpretation of what is socially desirable may change as the individual and as society change. For example, during adolescence, individuals may not want to admit that they are engaging in illegal behaviors whereas as an adult they may view the drug use in the context of adolescent experimentation and be more likely to admit use. Fendrich and Rosenbaum (2003), analyzing eight waves of a longitudinal study of drug use administered in schools, found that the later the wave that drug use was reported, the more consistent the report, suggesting that maturity may play a role. Alternatively, adolescents may see their drug using behavior as acceptable; when as adults they may be ashamed of the behavior and deny it. Mensch and Kandel (1988) suggest that maturation may lead to a heightened awareness of societal norms and thus more socially desirable responses. The values that people have concerning drugs may change over the life course, and these changing values may influence

how individuals report on their own behavior. As adolescents, the values related to drug use may involve positive values about trying new things, being part of an important peer group, or establishing one's own identity in distinction to one's parents or other authority figures. In these circumstances, acknowledging drug use may be seen as positive. As the individual develops, however, the values about drug use could change so that more negative values about drug use develop; the individual may be more inclined to ignore and/or reinterpret past drug use. For example, with increasing age, involvement in church or other conventional institutions may influence how drug use is reported by the respondent. Further former drug users who have changed their behavior and attitudes over time may reflect their change in values by denying past use.

Another explanation for recanting suggested by Engles et al. (1997) is that respondents who have used drugs for several years may be distressed about their drug use and may underestimate their use as a way of alleviating stress. Again, this would relate to feelings of uncertainty or negative values regarding drug use that would translate into their recanting of previously reported drug use.

Recanting may also be related to perceived consequences of reporting earlier drug use. Johnson and O'Malley (1997) findings suggest that recanting is more likely to occur among those who have more to lose from reporting drug use. For example, those in certain professions may have severe consequences if a history of drug use was discovered. In contrast, those who engage in more deviant behavior (such as delinquency or crime) may be more consistent in their self-reports of drug use because they have less ambivalence about their behavior. Percy et al. (2005) found some evidence for this as those who report serious offending were less likely to recant their earlier reported drug use than those who did not report offending. They concluded that the social costs of reporting drug use may be comparably low for them while for others drug use may represent the most serious offense committed and thus disclosure has greater social cost.

Fendrich and Mackesy-Amiti (2000) suggest that recanting may be unintentional and the result of poor comprehension or carelessness. Mensch and Kandel (1988) analyzing National Longitudinal Study of Youth (NLSY) data did find that recanting was associated with dropping out of high school, and Siddiqui et al. (1999) analyzing data from a California sample collected over 3 years found recanting of marijuana use was associated with poorer grades in school. These findings might reflect that poorer comprehension of the survey wording and instructions is related to inconsistency in reports across time (i.e., both recanting and underreporting).

Mensch and Kandel also found that interviewer characteristics (i.e., sex, race, age, social class) and familiarity with the interviewer were related to recanting. This suggests perhaps that individuals may not want to admit socially undesirable behavior to a familiar person (Fendrich and Mackesy-Amiti, 2000).

A lack of trust in the research process may also lead to inconsistent reports of drug use. One of the relatively robust findings in the literature on characteristics of inconsistent reports of drug use is that African Americans are more likely to recant their use than other ethnic or

racial groups (Fendrich and Kim, 2001; Fendrich and Rosenbaum, 2003; Johnson and O'Malley, 1997; Mensch and Kandel, 1988; Siddiqui et al., 1999). However, studies rarely have explored what factors might be associated with the higher recanting within this population. Minority groups over time may become distrustful of the research process and may be less willing to acknowledge earlier deviant behaviors than those not in minority groups. According to Gamble (1997), African Americans have tended to be suspicious of research because of their experiences with the health care system and with dubious research practices as exemplified by the Tuskegee experiment (Thomas and Quinn, 1991). Siddiqui et al. (1999) suggest that recanting in minority groups may be a result of culturally based confusion of definitions of "ever using" a substance (e.g., infrequent or experimental use may not be considered use among minorities after additional time passes from the event). They also suggest that youth of low socioeconomic status may be more likely to lie to authority figures about illicit activities.

One assumption in the literature has been that the closer in time that reports are made, the more accurate the report is likely to be as there is less of a chance of misremembering the behavior (Robins et al., 1985). However, it is possible that some adolescents exaggerate their use and that the adult retrospective reports about adolescent use are more accurate. Percy et al. (2005) suggest that overreporting may occur among adolescents as an attempt to try to gain social status with peers. In this case, it would appear that there was recanting, when in fact the adult report was more accurate.

Another type of inconsistency is adolescent underreporting. We refer to those who do not report drug use as adolescents but do report adolescent drug use as adults drug use as *adolescent underreporters*. While researchers have specifically begun to examine the characteristics of adult recanting, few have considered the factors associated with adolescent underreporting. There are reasons why adolescent underreporting might occur. Adolescents who have strict parental rules regarding drug use might be more likely to deny use, and then when they are older be willing to report earlier use. Both cognitive and psychological factors may affect underreporting. Adolescents who are not achieving as well academically may have difficulty understanding the confidentiality procedures and thus be reluctant to report use. Similarly, those who do not do well in school may feel more alienated and less trustful than those who have done well and been rewarded by teachers and parents. As these individuals mature, they may become more willing to acknowledge prior use. Finally, reports during adolescence could be construed as "underreporting" if the retrospective reports by adults are inflated. For example, adults with psychological distress or who are current users could overestimate their past use of drugs or other deviant behavior (Robins et al., 1985).

1.3. Research questions

This study has two primary aims: (a) to evaluate the concordance of reports of drug use given in adolescence with retrospective reports of adolescent use made in adulthood among an African American population and (b) to identify the individual, contextual, and assessment characteristics that distinguish individuals who are inconsistent in their reporting from those who are consistent. Specifically, this study will examine the inconsistencies in

self-reports of marijuana use from two surveys conducted 16 years apart in an African American population. What is the concordance between adolescent self-reports of current marijuana use and adult retrospective reports of marijuana use during adolescence? How do gender; family background; cognitive performance and school performance; parental modeling and supervision; adolescent problems; adult family and economic conditions; adult drug-related values, religiosity, depression and deviance; and field conditions of the interview relate to recanting and underreporting of adolescent marijuana use reported in adolescence and young adulthood? Very few, if any, studies have examined consistencies in self-reports of drug use from adolescence to adulthood. In addition, hardly any studies have focused on inconsistencies within an African American cohort to determine what factors are associated with inconsistent reporting within this minority group.

2. Methods

2.1. Description of woodlawn study

Data for this paper come from a prospective, longitudinal study consisting of a cohort of 1255 children who began first grade in Woodlawn in 1966–1967. Woodlawn is an inner city community on the South side of Chicago. All first grade children in the nine public and three parochial schools in the community were invited to participate. Thirteen families chose not to have their children participate, leaving a cohort size of 1242 (98.9%). In the middle 1960s, when this study began, the neighborhood community was one of the five poorest of the 76 Chicago communities, and over 95% of Woodlawn residents were African American. Over 99% of the first graders were African American.

First grade teachers were asked about each child's classroom behavior, clinicians observed the children in standardized play situations, and mothers (or mother surrogates) were interviewed about their child and their family. In 1975–1976, 10 years after the children had been in first grade, 939 (75%) of the mothers or mother surrogates were re-interviewed. Of the 939 teenagers of the re-interviewed mothers, 705 (75% of those whose mothers were interviewed, 56% of those alive from the beginning cohort) participated in the follow-up group assessment. They were assessed with a psychological self-report instrument and a questionnaire that included questions on family and school life, drug use, delinquency, sexual activity, and social bonds (Ensminger et al., 1983; Ensminger, 1990; Kellam et al., 1983). These two instruments were presented on audiotape to control for reading differences and were led by African American college students who were trained to discuss issues of trust and confidentiality.

In 1992–1993 (at ages 32–34), about 80% ($N=952$) of the original cohort were located and interviewed (44 were deceased and 3 were incapacitated); 39 (3%) were located but refused to participate; 204 (17%) of the cohort members were not found. The study population includes 456 males (47.8%) and 496 females (52.2%). Although similar proportions of males and females were interviewed, refused, and unlocatable, males were more likely to be incapacitated or deceased than females (5.6% versus 1.9%). Individual interviews were conducted either in person or by telephone using the UM-CIDI (Anthony et al., 1994; Kessler et al., 1994). Of the 952 cohort members who were interviewed in young adulthood, 599 of them were also assessed in adolescence. This 599 comprise the respondents for this

study. These 599 cohort members represent about half of the original cohort of children who were initially asked to participate in the study. A more detailed description of the study design can be found in earlier published work (see Ensminger et al., 1997; Juon and Ensminger, 1997).

2.2. Sample attrition

Most longitudinal studies lose some of their original subjects. This loss to follow-up occurs due to mortality, inability to locate subjects, or an unwillingness to continue study participation. The biggest loss to the Woodlawn population came during the adolescent follow-up. Only those who were living in the Chicago area were targeted for follow-up, and because the adolescents were still minors, we only contacted those adolescents whose mothers were interviewed and who consented for us to contact their adolescent child. In addition, there were funding cutbacks so that the field period ended prematurely. To study differences between those adolescents who were reassessed and those not reassessed, we compared three groups from the original population: (1) children followed as adolescents whose mothers had been interviewed ($N = 705$); (2) children who were not followed as adolescents whose mothers were interviewed ($N = 234$); (3) children who were not interviewed as adolescents and whose mothers were not interviewed ($N = 303$). We found no differences among these groups in the children's or mothers' psychological well-being, early family income, household composition, or welfare status. The third group had more residential mobility before and during first grade and were more likely to have been in a parochial school in first grade. It was harder to trace parochial school students because at that time the parochial schools did not maintain centralized and computerized records as did the Chicago Public Schools.

We compared the young adults who were interviewed to those not interviewed in terms of their first grade and adolescent characteristics focusing on those characteristics that might indicate that those who were more disadvantaged in the beginning of the study or those whose early behavior assessments showed them to be at risk for later drug use were less likely to be interviewed. Examining poverty, family type, mother's education, welfare status, number of residential moves, age of the mother at the birth of her first child, teachers' ratings of first grade behavior (cognitive achievement, aggressive behavior, shy behavior and concentration), and first grade reading and arithmetic grades, we found those whose families had been living below the poverty line in 1966–1967 were less likely to be interviewed. We interviewed 81% of those whose families had been above the poverty line when they were in first grade compared to 74% of those who had been below the poverty line ($\chi^2 = 7.86$; $p < .01$). Those we interviewed were also more likely to be living in families that included both parents than those not interviewed. None of the other family background measures, first grade behavior ratings, or grades were related to follow-up. Self-reported drug use made by adolescents was not related to interview status at young adulthood (Ensminger et al., 1997).

2.3. Measures

Table 1 provides descriptive statistics and coding for all study variables. The 599 adults (98.9% African Americans) who had complete data on both adolescent and young adult interview are listed in the table.

2.3.1. Dependent variable—In order to compare the consistency of reports over time, we compared lifetime drug use reported during adolescence (age 16–17) and adolescent use reported retrospectively during adulthood at age 32. Although data were collected on a variety of substances, we chose to examine the consistency of reports for marijuana as adolescents reported its use most frequently. The outcome variable is based on the consistency or inconsistency of reports of marijuana use made during adolescence and then retrospective reports of marijuana use made as adults. At age 16–17, adolescents reported if they had ever used marijuana, the frequency of use, and age of first use. During young adulthood (age 32–33), interviewers asked about marijuana use. If the respondents reported lifetime use, he/she was asked age of first use.

Based on questions of marijuana use, we categorized respondents into six groups (see Table 2)—(a) consistent reporters of nonuse: 130 (22%) reported no lifetime use concurrently as adolescents and retrospectively as adults (cell A); (b) adolescent underreporters: 46 (8%) reported no use as an adolescent but as adults reported adolescent use with onset before the age of 18 (cell B); (c) consistent reporters of adult use only: 52 (9%) reported no use in adolescence and use reported at age 32 with onset after age 18 (cell C); (d) adult recanters: 115 (19%) reported adolescent marijuana use, but as an adult reported no lifetime use of marijuana (cell D); (e) consistent reporters of adolescent use: 197 (33%) reported using marijuana at each assessment with age of onset in both assessments as being before age 18 (cell E); (f) inconsistent reporters of age of onset: 56 individuals (9%) reported use during both adolescent and adult interviews, but as adults they reported their age of onset was after age 18 (cell F). Overall, about 64% of the retrospective reports made by adults were consistent with self-reports made as adolescents (cells A, C, and E).

2.3.2. Independent variables—Based on the rationale presented earlier we included variables that might differentiate consistent and inconsistent reporters. Family background was included to control on initial social resources. School variables were included because we thought that cognitive performance might be related to how well the respondents could understand confidentiality and questions. Maternal drug and alcohol use and parental supervision regarding substances were included as an indication of the family values and behavior regarding drug use. Several studies have shown that those who are engaged in other kinds of deviant behavior are more likely to be consistent about their self-reports of drug use. We include measures of adolescent alcohol use and delinquency and a scale of adult deviance. For those who recant their adolescent marijuana use as adults, we examine the frequency of use as adolescents since several studies show that those who report less use as adolescents are more likely to recant their use later. The field characteristics of the assessment were also examined as the literature has shown that characteristics of the assessment context can affect consistency.

Gender was based on reports of the mother when the child was in first grade. Family background measures include *mother's education* and *childhood family poverty*; these were reported by the mother during first grade. Mother's education was continuous measure with a range of 0–18 years. Poverty was based on the government definition for 1967 and takes into account both family income and family size. This variable was dichotomized as above poverty level and at or below poverty level.

School measures include *arithmetic grade* in first grade as indicated in the school records and *high school graduate* as indicated both in the school records and by self-report (no, yes). Arithmetic grade was dichotomized as high (A or B) and low (C or D).

Mother's regular alcohol use was based on the mother's self-report during her child's adolescence. It was dichotomized as infrequent/nonuse and regular use. The measure of *parental supervision* of drug use (three items, Cronbach's $\alpha = .64$) was based on questions to the adolescents assessing rules their parents had regarding use of beer and wine, drugs, and cigarettes. For each, responses ranged from parents absolutely forbidding the use (=6) to leaving the decision up to the adolescent (=1). The sum of these three items ranged 3–18. Those who scored above a half standard deviation (corresponding to a score of 15) were considered to have high parental supervision of drugs.

Adolescent problems were measured by self-reports of *alcohol use*, *marijuana use*, *assault behavior*, and *depression*. Adolescent alcohol use was based on self-reports of the lifetime frequency of beer or wine. Adolescent marijuana use was based on self-reports of the frequency of lifetime marijuana use. These two measures ranged from never (=1) to more than 40 times (=6) and were categorized as low (0–19 times) and high (20+ times). Adolescent assault was based on self-reports of carrying a weapon, having a serious fight at school, being in a gang fight, getting something by threatening, hurting someone badly, and hitting a teacher in the last 3 years on a five-point scale (1 = never to 5 = more than 5 times). The six items were summed together and used as a scale (Cronbach's $\alpha = .78$). Since the scale was skewed to the lower end, it was dichotomized as low and high (=highest quartile). Adolescent depressed feelings (Cronbach's $\alpha = .69$) included six self-report items (i.e., feel sad, feel hopeless, cry and do not know why, feel ashamed of myself, feel guilty, people would be better off without me). Adolescents who scored in the lowest three quartiles on this scale were compared with those who scored in the highest quartile. This categorization was based on earlier findings that found adolescent depressed feelings were related to cigarette smoking trajectories (Juon et al., 2002).

A *deviance scale* was constructed as an index of self disclosure based upon 53 items related to antisocial, criminal, and other socially undesirable behaviors asked during the young adult interview. Each of these items represents an aspect of behavior or personal characteristics that might embarrass the respondent, be regarded as deviant, or be illegal, such as play hooky a lot from school, ever run away from home, ever steal something, and ever carried a gun (Ensminger et al., 1997). The sum of these items ranged from 0 to 40. For the analysis, the measure was categorized into four quartiles since the data were highly skewed. *Criminal arrest records* were also examined. They were collected from the Chicago Police Department in 1985 and 1992 and from the FBI in 1993. This variable was dichotomized as having criminal record or not.

We included two adult family and economic conditions that represent important young adult roles: *marital status* (married or living with partner, not married) and *employment status* (employed, not employed).

Several adult variables were included that indicate adult values that might lead to recanting. Adult religiosity may reflect traditional values and was measured by church membership and frequency of church attendance with responses ranging from does not belong and does not attend (=0) to attend church several times a week (=4). For a measure of *drug-related values*, the adults were asked to list the most important things they would teach their children or other young people. These were open-ended questions. Staying off drugs was often mentioned (24.2%). If this was mentioned, we coded the respondent as having anti-drug-related values. Those who reported depressive symptoms may have been more likely to recant previous use as a way of alleviating stressful feelings. *Major Depressive Disorder* (MDD) during one's lifetime was measured during the young adult interview by the Michigan version of the CIDI, which was developed for the National Comorbidity Survey (Kessler et al., 1994). Respondents were categorized as being depressed or not.

Several studies have found that field conditions pertaining to the interview itself can influence the consistency of self-reports. We include several measures of the interview situation: the *gender of the interviewer*, the *method of interview* (phone or face-to-face), and the *presence of another person* during the interview (no or yes). *Interviewer ratings* were collected on each the following: whether the respondent was friendly, relaxed, interested, frank, cooperative, or understood the questions on a 6-point scale (6 items, Cronbach's $\alpha = .92$). These ratings were summed to create a scale ranged 6–36 with lower scores representing better ratings by the interviewer. We also coded the whether the interviewer and the respondent were the same sex or not (same sex or different sex). All interviewers were African American.

2.4. Analysis

Two sets of preliminary analyses were conducted: First, bivariate logistic regression analyses were performed to examine what distinguishes those who give inconsistent reports from those who give consistent reports. All independent variables described above were included individually. We compared those who reported consistent use (Table 2, cell E), with both adult recanters (cell D) and adolescent underreporters (cell B). Consistent reports of nonuse (cells A and C) were not included in these analyses as we were interested in what characterized inconsistency rather than what differentiated those who had used marijuana from those who had not. We also did not include those who were inconsistent with regards to age of onset (cell F).

Next, two separate multiple logistic regressions were estimated to examine the relationship of the independent variables to the two categories of concordance and discordance between adolescence and young adulthood. We included those variables that were significant at the $p < .20$ level in the bivariate analyses following the rationale of Hosmer and Lemeshow (2000) that in the step of choosing variables for multivariate regression, it is better to err on the side of inclusiveness (i.e., a cut-point p -value of .20 rather than .05). The analysis was conducted using statistical package STATA (StataCorp, 2003), which provides maximum likelihood logit coefficients, identification, and collinearity statistics.

3. Results

3.1. Distinguishing adult recanters compared to consistent reporters

Table 3 shows the results from the unadjusted and adjusted odds ratios examining the characteristics of adult recanters compared to consistent reporters. In bivariate analysis, gender, adolescent alcohol use, adolescent marijuana use, lifetime depression (MDD), and deviant activities were related to recanting ($p < .05$). High school dropout, adolescent assault, and adult related drug values were associated with the consistency of reporting at $p < .10$. Parental drug rules during adolescence, employment, church attendance in adulthood, and whether the interview was done over the phone or in person were related to whether individuals were consistent or inconsistent in their report at $p < .20$. These variables were included in multivariate logistic regression analyses. Since adolescent alcohol use and marijuana use were highly correlated ($r = .61$, $p < .001$), only adolescent marijuana use was included in the multivariate model.

In multivariate logistic regression analyses, parental supervision of drug use during adolescence, frequency of adolescent marijuana use, adult drug-related values, and adult deviance were associated with adult recanting. Those adolescents who reported low parental supervision of drug use were more likely to recant their use as adults (OR = 2.63, 95% CI 1.38–5.03) than those with high parental supervision. Those who had used marijuana frequently were less likely to be recanters (OR = 0.48, 95% CI 0.26–0.87) than those who had used marijuana less frequently. Those who as adults said they would teach their children to stay off drugs were more likely to be recanters (OR = 1.93, 95% CI 1.06–3.63) than consistent reporters. Those in the lowest quartile of reported deviance in adulthood (OR = 13.37, 95% CI 5.77–30.99) and those in the second lowest quartile of deviance (OR = 3.93, 95% CI 1.67–9.27) were more likely to be recanters than consistent reporters compared to the highest quartile of deviance.

3.2. Distinguishing adolescent underreporters compared to consistent reporters

Table 4 shows the results from the unadjusted and adjusted odds ratios examining the characteristics of adolescent under-reporters compared to consistent reporters. The unadjusted independent variables that were statistically significant ($p < .05$) were adolescent assault, adolescent depressed feelings, adolescent alcohol use, and deviant activities reported in adulthood. (By definition none of the underreporters reported using marijuana as an adolescent, so adolescent marijuana use was not included in the analysis.) Gender, first grade arithmetic grade, and church attendance in adulthood were marginally associated with the consistency of reporting ($p < .10$). Two field conditions, the interviewers' ratings of the interviewee and having a same sex interviewer, were associated with consistency of reporting at $p < .20$. These independent variables were included in multivariate analyses.

In multivariate logistic regression, first grade arithmetic grade, adolescent assault, and adolescent alcohol use distinguished adolescent underreporters and consistent reporters. Those first graders with a low arithmetic grade (C's or D's) were more likely to be adolescent underreporters than consistent reporters (OR = 2.31, 95% CI 1.01–5.30) compared to those who received A's and B's in arithmetic in first grade. Those who were

high on the adolescent assault scale were less likely to be adolescent underreporters than consistent reporters (OR = 0.33, 95% CI 0.11–0.94). Those who reported frequent use of alcohol during adolescence were less likely to be adolescent underreporters than consistent reporters (OR = 0.19, 95% CI 0.06–0.60).

4. Discussion

This longitudinal study provided a unique opportunity to examine the consistency of self-reports of adolescent drug use among African Americans by comparing adolescent concurrent reports with retrospective reports made over 16 years later in adulthood. Cross-sectional surveys of drug use such as the *Monitoring the Future Survey* and *National Survey on Drug Use and Health* ask questions about lifetime use and age of first use but are unable to consider consistency over time. With longitudinal studies the consistency of these recall questions can be evaluated. Because studies have repeatedly found that African Americans tend to recant self-reports of drug use more than other ethnic group, this study aimed to learn more about the factors associated with inconsistency in self-reports within an African American population.

Overall, 64% of the respondents were consistent when asked about their drug use 16 years apart. An additional 9% were inconsistent only with regard to age of onset. However, of those adolescents who reported marijuana use, almost one third (31%) recanted this use as adults. Of those adolescents who did not report marijuana use, 20% indicated 16 years later that they had used marijuana as an adolescent. Similarly, in a study of six follow-up assessments in a 6-year period, Fendrich and Rosenbaum (2003) report nearly one-third of those reporting marijuana use recanted in one of the follow-up assessments. Mensch and Kandel (1988) had slightly different findings in their study with only a 4-year interval between assessments. They found in the National Longitudinal Survey of Youth (NSLY) that only 8% of males and 12% of females who reported use in the 1980 survey failed to report any lifetime use 4 years later in 1984. However, 20% of the males and 10% of the females who reported in 1980 that they had not used marijuana within the last year reported in 1984 that they were using marijuana in 1980 (underreporters). A major difference with the Woodlawn study is the length of time covered by the retrospective reports—16 years between assessments.

The second aim of this study was to identify characteristics associated with inconsistent self-reports. A major differentiating characteristic between those who were consistent reporters of use and those who were recanters was the reported number of times that the adolescent had reported use during adolescence. About 41% of those who recanted their adolescent use as an adult reported as an adolescent having used marijuana only one to two times. Only 20% of those who were consistent in their reporting used marijuana one to two times. As others have suggested, infrequent or experimental use during adolescence is more likely to be forgotten or denied than regular, frequent, or heavy use. It may be that adults, in looking back on their drug use, do not consider experimental or infrequent use as use.

Adult reports of values concerning drugs were also related to a higher likelihood of recanting. Those adults who spontaneously reported that staying off drugs was an important

value to teach children were more likely to recant their adolescent reports of using drugs compared to other adults who did not mention this as a value. This suggests that those whose values are against drug use may be less likely to admit earlier drug use since their past behavior does not align with their current attitude. Those who had high parental supervision regarding drug use were less likely to recant their drug use later. This was opposite of what we hypothesized. In hindsight, it may be that those who reported drug use during adolescence despite strong parental supervision were more comfortable reporting behaviors that went against parental or other authority norms.

Also, those who scored low on the deviance scale were more likely to be recanters than those who scored higher. This finding indicates a consistency in that those who are willing to report deviant behavior are less likely to deny past marijuana use. This finding corresponds to Maisto and colleagues' review (1990); they found that most often drug users gave higher self-reports of use than other corroborating sources and suggest that this argues against the view that drug users are compulsive deniers of drug use. Similarly, consistent with findings of Fendrich and Rosenbaum (2003), those who reported assault during adolescence were less likely to underreport marijuana use during adolescence. Thus, those who report one kind of deviance may be willing to report a second kind of deviance.

Adolescent underreporting (i.e., those who did not report use as an adolescent but later reported that they had used as an adolescent) was related to grades in school. Those with a lower math grade in first grade were more likely to be adolescent underreporters. It might be that individuals who had difficulty in school were less likely to understand the questions or were less likely to understand or trust the confidentiality of the procedures. The adolescent assessment was designed to control for reading differences among the adolescents and to reassure the adolescents of the confidentiality of the questions. Moreover questions were presented on audiotape, and African American college students were used as assessors and were trained to deal with trust issues in the assessment; nonetheless those with low grades may be alienated from school and do not feel safe to disclose drug use as adolescents.

The study also identified several factors to be unrelated to inconsistent reporting. It is important to note that having a criminal arrest record was not associated with either underreporting or recanting. The survey conditions during adulthood were not related to inconsistent reporting. Whether the interview was conducted face to face or over the telephone was not associated with either type of inconsistency. The interviewers' ratings of the interview situation or their ratings of the respondents did not relate to inconsistency. Neither did the presence of another person for part of the interview, the sex of the interviewer, or whether the interviewer was of the same sex.

In conclusion, we found that 64% of reports of adolescent marijuana use are consistent across the period of 16 years. Is the glass half full or half empty? The findings suggest that cross-sectional surveys that ask about lifetime drug use may have a relatively large percentage of respondents who deny former use. Based on these findings and the findings of others we have some clues about who is more likely to be inaccurate in their reports. First, it is important to keep in mind that those who have used drugs less frequently may be less likely to report that use. Second, those who have strong values against drugs and for whom

this is an important value may be more likely to deny drug use in the past. Third, our finding that inconsistencies were related to early academic performance suggest the importance of being very careful about the reading level required for the interview questions, especially those questions pertaining to drug use. The gaining of trust of respondents and emphasizing the confidentiality of the assessment is also suggested by this finding.

Several caveats to our findings are necessary. First, we have evaluated consistency of the reports across time. While consistency is important for validity, consistency is not the same as validity. For example, those who consistently reported that they did not use drugs as adolescents may have misreported both times. The validity of self-reports must be evaluated by varying techniques, including comparisons with biological markers, asking others to give collateral information, asking respondents to rate their own accuracy in anonymous evaluations, as well as comparing reports made at different times. Evaluating the validity of lifetime reports is difficult because biological markers are not able to be used.

When there are inconsistencies, we do not know which report is accurate. On the one hand, the concurrent reports given in adolescence would not be as subject to memory loss. On the other hand, adults may be more willing to report use in adolescence than they were as adolescents because the consequences of the reports are much less threatening. In addition, adults can put drug use into perspective with subsequent events in their lives. For adult recanters, their adolescent use may have been brief and they may not think important enough to report. We found some evidence that how they felt about drug use as adults may have affected their retrospective reporting of use.

Second, because the study is on a specific population, how generalizable the findings are to other racial/ethnic groups or other birth cohorts can only be assessed by comparing these findings to findings from other populations. In this regard, there are findings reported here that were consistent with others findings reported in the literature. For example, other studies have reported that those who are less frequent users of drugs are more likely to recant than those who report higher frequencies. Also, those who report other deviant behaviors are more likely to be consistent in their reports across time. Other studies have also found that those who do better in school are more consistent in their reports. Similar findings from very different studies provide some assurance of the external validity of the finding, despite differences in study populations or other aspects of study design.

A third caution of the study is the attrition. The adolescent follow-up had fewer cohort members than the later adult follow-up. Only about half of the original cohort is represented in these analyses. When we compared who was included in the assessments to who was not, there were only a few differences. Those who were poor as first graders were less likely to be assessed as adults. However, poverty was not related to the consistency of the reports.

Future research has much to learn about self-reports. Since there are few other ways to evaluate a history of drug use, it is important to know the amount of inconsistencies and the factors that relate to that inconsistency. While biological markers can be used to evaluate the accuracy of concurrent self-reports, there is no ideal way to evaluate self-reports that summarize a person's use over a long period of time. Many other areas of inquiry also

depend on retrospective reports. For example, Henry et al. (1994) points out that the DSM diagnostic criteria for antisocial personality disorder requires retrospective reports of antisocial behavior before age 16. There seem to be some respondents who are more likely to report deviant activities in general—those who reported assault behavior as an adolescent were less likely to be underreporters, and those who reported deviant behavior as adults were less likely to be recanters. Remember that both of these are compared to those who are consistent reporters of drug use, so it is not just that deviant behaviors are related to one another. While we have identified several factors that distinguish inconsistent reporters from consistent reporters, clearly we need better understanding of those factors that influence self-reports. Findings concerning trends, policies directed at drug use, evaluations of prevention and intervention programs, and testing of theories depend on self-reports of drug use. Understanding what influences drug self-reports is an important issue for researchers, program designers, and policy makers.

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Table 1Characteristics of the study sample ($N = 599$)

	% or mean (S.D.)
Male ^a	48.1%
Mother's years of education (1–18) ^a	10.58 (2.29)
Poverty index (yes) ^a	50.6%
First grade arithmetic grade of A or B ^a	49.4%
High school graduate ^b	81.8%
Mother's regular use of alcohol ^b	9.9%
High parental supervision on drugs ^b	35.6%
High (12+ behaviors) self-report of assault behavior ^b	25.3%
High adolescent depressed feelings (top quartile) ^b	24.3%
High adolescent alcohol use (20+ times) ^b	26.1%
High adolescent marijuana use (20+ times) ^b	25.8%
Married/living with partner ^c	36.2%
Employed ^c	64.1%
Anti-drug-related values ^c	24.2%
Church attendance (0–4) ^c	1.61 (1.35)
Lifetime major depressive disorder ^c	14.5%
Deviance scale (0–40) ^c	
First quartile	34.6%
Second quartile	19.5%
Third quartile	21.4%
Fourth quartile	24.5%
Criminal arrest record ^c	40.9%
Interviewer's sex: male ^c	15.7%
Telephone interview ^c	19.0%
No other person present during interview ^c	67.9%
Overall interviewer's rating (6–28) (28 = worse) ^c	9.36 (4.47)
Same sex interviewer ^c	52.6%

Note: The sample consists of 593 African Americans and 6 who are not this heritage.

^a Measured during childhood (first grade).

^b Measured during adolescence.

^c Measured during young adulthood.

Table 2

Use of marijuana in adolescence: reported in adolescence and in adulthood ($N = 596$) [adolescent report (ages 16–17)]

<u>Adult report (age 32)</u>			
	No lifetime marijuana use	<u>Lifetime marijuana use</u>	
		Onset age 17 and younger	Onset after age 17
Adolescent Report(age 16–17)			
No lifetime marijuana use	(A) 130 (22%)	(B) 46 (8%)	(C) 52 (9%)
Lifetime marijuana use	(D) 115 (19%)	(E) 197 (33%)	(F) 56 (9%)

Note: Percentages are based on the total. A = consistent reporters of nonuse; B = adolescent underreporters; C and E = consistent reporters of use; D = adult recanters; F = inconsistent reporters with regard to age of onset.

Table 3

Odds of being an adult recanter ($N = 115$) compared with a consistent reporter ($N = 197$): unadjusted and adjusted odds ratios

Variable	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
I. Gender		
Male	1.00	1.00
Female	1.72 (1.08–2.74) [*]	0.84 (0.45–1.55)
II. Family background		
Mother's years of education (1–18)	1.01 (0.90–1.13)	–
Poverty index, 1966		
No	1.00	–
Yes	1.35 (0.84–2.17)	
III. School		
Arithmetic grade, first grade		
A, B	1.00	–
C, D	1.01 (0.63–1.63)	
High school graduate/GED		
Yes	1.00	
No	0.58 (0.32–1.05) ⁺	0.79 (0.39–1.63)
IV. Parental modeling and supervision during adolescence		
Mother's regular use of alcohol		
No	1.00	–
Yes	0.85 (0.40–1.75)	
Parental supervision on drugs		
High	1.00	1.00
Low	1.51 (0.87–2.60) [§]	2.63 (1.38–5.03) [*]
V. Adolescent problems		
Self-report of assault behavior		
Low	1.00	1.00
High	0.66 (0.40–1.08) ⁺	1.20 (0.63–2.33)
Depressed feelings		
Low	1.00	–
High	1.22 (0.70–2.13)	
Alcohol use		
Infrequent	1.00	N/A [†]
Frequent	0.40 (0.24–0.67) [*]	
Marijuana use		
Infrequent	1.00	1.00
Frequent	0.39 (0.24–0.64) [*]	0.48 (0.26–0.87) [*]
VI. Adult family and economic condition		

Variable	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Married/living with partner		
Yes	1.00	–
No	0.82 (0.51–1.32)	
Employment		
Yes	1.00	1.00
No	0.69 (0.43–1.03) [§]	0.88 (0.48–1.62)
VII. Adult drug-related values, religiosity, mental health and deviance		
Value re: stay off drug		
No	1.00	1.00
Yes	1.53 (0.92–2.54) ⁺	1.93 (1.06–3.63) [*]
Church attendance (0–4)	1.15 (0.96–1.36) [§]	1.05 (0.85–1.29)
Major depressive disorder		
No	1.00	1.00
Yes	0.38 (0.18–0.82) [*]	0.85 (0.36–2.04)
Deviance scale		
First quartile	13.61 (6.62–27.98) [*]	13.37(5.77–30.99) [*]
Second quartile	3.85 (1.77–8.37) [*]	3.93 (1.67–9.27) [*]
Third quartile	2.37 (1.12–4.99) [*]	2.01(0.90–4.48) ⁺
Highest quartile	1.00	1.00
Criminal arrest record		
No	1.00	–
Yes	0.74 (0.46–1.18)	
VIII. Field conditions of adult interview		
Sex of interviewer		
Male	1.00	–
Female	0.80 (0.43–1.51)	
Method of interview		
Telephone	1.00	1.00
In-person	0.62 (0.33–1.15) [§]	0.68 (0.33–1.40)
Presence of other person		
No	1.00	–
Yes	1.00 (0.88–1.14)	
Overall interviewer's rating (6–28)	1.02 (0.97–1.07)	–
Same sex of interviewer and respondent		
Same sex	1.00	–
Different	0.89 (0.56–1.42)	

Note:

[†] Alcohol use was not entered in the multivariate model due to multicollinearity with adolescent marijuana use ($r = 0.61$, $p < .001$).

[§] $p < .20$.

⁺
p < .10.

^{*}
p < .05.

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Table 4

Odds of being an adolescent underreporter ($N = 46$) compared with a consistent reporter ($N = 197$): unadjusted and adjusted odds ratios

Variable (reference category)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
I. Gender		
Male	1.00	1.00
Female	1.82 (0.95–3.47) ⁺	0.60 (0.18–1.95)
II. Family background		
Mother's years of education (1–18)	0.89 (0.77–1.03)	–
Poverty index, 1966		
No	1.00	–
Yes	1.23 (0.63–2.41)	
III. School variables		
Arithmetic grade, first grade		
A, B	1.00	1.00
C, D	1.88 (0.94–3.73) ⁺	2.31 (1.01–5.30) [*]
High school graduate/GED		
Yes	1.00	–
No	1.29 (0.64–2.60)	
IV. Parental modeling and supervision during adolescence		
Mother's regular use of alcohol		
No	1.00	–
Yes	1.09 (0.42–2.86)	
Parental supervision on drugs		
High	1.00	–
Low	0.68 (0.35–1.33)	
V. Adolescent problems/behavior		
Self-report of assault behavior		
Low	1.00	1.00
High	0.34 (0.15–0.77) [*]	0.33 (0.11–0.94) [*]
Depressed feelings		
Low	1.00	1.00
High	2.22 (1.11–4.54) [*]	2.27 (0.87–5.88)
Alcohol use		
Infrequent	1.00	1.00
Frequent	0.14 (0.05–0.37) [*]	0.19 (0.06–0.60) [*]
VI. Adult family and economic condition		
Married/living with partner		
Yes	1.00	–
No	1.49 (0.73–3.07)	

Variable (reference category)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Employment		
Yes	1.00	–
No	1.04 (0.54–1.98)	
VII. Adult drug-related values, religiosity, mental health and deviance		
Value re: stay off drug		
No	1.00	–
Yes	0.65 (0.29–1.50)	
Church attendance (0–4)	1.23 (0.97–1.57) ⁺	1.24 (0.92–1.67)
Major depressive disorder		
No	1.00	–
Yes	1.41 (0.66–3.03)	
Deviance scale		
First quartile	2.64 (1.00–6.98) [*]	1.01 (0.28–3.51)
Second quartile	2.98 (1.23–7.20) [*]	2.31 (0.75–7.09)
Third quartile	1.69 (0.71–4.04)	0.98 (0.33–2.89)
Highest quartile	1.00	1.00
Criminal arrest record		
No	1.00	–
Yes	1.52 (0.78–2.94)	
VIII. Field conditions of adult interview		
Interviewer's sex		
Male	1.00	–
Female	0.83 (0.34–2.01)	
Method of interview		
Telephone	1.00	–
In-person	0.87 (0.39–1.94)	
Presence of other person		
No	1.00	–
Yes	0.99 (0.83–1.18)	
Overall interviewer's rating (6–28)	1.05 (0.98–1.12) [§]	1.03 (0.95–1.12)
Sex of interviewer and the respondent		
Same sex	1.00	1.00
Different	0.61 (0.32–1.16) [§]	0.69 (0.23–2.11)

Note: Reference group is in parentheses.

[§] $p < .20$.

⁺ $p < .10$.

^{*} $p < .05$.