
Are Adolescents Accurate Reporters of their Alcohol Use?

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ABSTRACT - Self-report is the most widely used measurement strategy for assessing adolescent alcohol use, but are adolescent self-reports accurate indicators of actual use? To answer this question, this study investigated the self-reporting patterns of 2,795 ninth-graders who participated at baseline in a three-year longitudinal study investigating ways to reduce adolescent alcohol use. While most adolescents were consistent in their reports of alcohol use, some were very inconsistent, reporting, for example, in one instance that they had never consumed alcohol and then reporting in another instance that they drank heavily. Self-reported honesty is discussed as a possible strategy that might buttress self-report measurement approaches by distinguishing between adolescents who are likely to be consistent versus inconsistent in self-reporting their alcohol use.

Key Words: Alcohol Use, Self-Report, Sensation Seeking, Decision-Making

Self-report is among the most widely used measurement strategies for assessing adolescent alcohol use. For example, etiological studies on the predictors and correlates of adolescent alcohol use, prevalence estimates of the magnitude of the problem, policy formulations on how to prevent it, and clinical decisions about how to treat it (e.g., diagnostic and referral decisions, and ratings of treatment effectiveness) all rely heavily on the self-report method (Williams et al., 1995; Winters et al., 1990-91). Yet, despite its heavy use, the validity of self-report measures, especially among adolescents, is questionable when sensitive or stigmatizing information is being gathered or when it is believed that adolescents may be invested in providing favorable or socially desirable answers (Zimmerman et al., 1997). Thus, researchers and clinicians have reason to question the veracity of adolescent self-reports concerning their alcohol consumption, particularly the stability of adolescents' self-reported alcohol use over time and whether their self-reports of alcohol consumption are accurate indicators of their actual use (Midanik, 1989; Stinchfield, 1997).

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Unfortunately, research findings on the reliability and validity of adolescent self-reports of alcohol use have been inconsistent. Researchers have used a variety of approaches to study this phenomenon. Some researchers have used external validation of self reports through biological measures or eyewitnesses (e.g., Smith, McCarthy, & Goldman, 1995), others have focused on issues of reliability or internal consistency (e.g., Bailey, Flewelling, & Rachal, 1992), and still others have focused on external or test-retest consistency (e.g., Barnea, Rahav, & Teichman, 1987). But, regardless of the approach used, the object of study has primarily been adolescents who drink. That is, researchers have been concerned about whether the self-reports of adolescents who indicate that they use alcohol are reliable and valid. In fact, some researchers have either excluded or adjusted their findings for non-users to obtain "purer" reliability and validity estimates (e.g., Bailey et al., 1992). Importantly, though most researchers contend that self-report information collected as research data is reliable and valid (Shillington & Clapp, 2000; Winters et al., 1990-91), some researchers have found significant inconsistencies in adolescent reports of alcohol use (e.g., Bailey et al., 1992 found only 35% agreement on questions of age of first use), and still others have argued that self-reports of alcohol consumption, particularly retrospective reports, are so questionable they should be supplemented with collateral reports (e.g., Maisto & Connors, 1992). Moreover, the heavy focus on the self-reporting patterns of adolescent alcohol users has eclipsed our understanding of the self-reporting patterns of adolescents who report that they have not consumed alcohol.

The purpose of the current study is to add to the growing body of literature on the stability of adolescent self-reported alcohol use in three ways. First, in contrast to most extant research, the current study focuses on the self-reporting patterns of adolescents who report they have never consumed alcohol. Second, this study adds to the scant literature on individual difference factors (Shillington & Clapp, 2000) by examining whether the stability of adolescent self-reports varies by demographic (i.e., gender, race, age) and personality (i.e., sensation seeking, impulsive decision making) variables. Third, self-reported honesty is explored as a variable that might allow researchers, who must rely exclusively on self-report measurement strategies, to better predict which adolescents are most likely to be inconsistent reporters. To date, self-reported honesty has not been explored in the research literature on adolescent alcohol use.

Method

Data

The data for the current study came from the first wave of a three-year longitudinal study that involved the implementation of interventions aimed at reducing alcohol use among adolescents in northern Ohio and north-central Kentucky. Students were followed from the beginning of the ninth grade to the end of the eleventh grade with surveys near the beginning and end of the ninth grade, and near the end of the tenth and eleventh grades. The primary data

collection approach for the variables used in this study was self-administered comprehensive surveys. For additional information on this study, please see Donohew et al., (1999).

Participants

Participants in the current study were 2,795 ninth grade adolescents who participated in the baseline assessment. Though participants ranged in age from 13 to 19, most participants were either 14 (54%) or 15 (34%) ($M = 14$, $SD = .76$). Fifty-one percent of the participants were female; 48.3% were Caucasian, 34.6 were African American, 6.8% were Hispanic, 1.4% were Asian/Pacific Islander, 1.0% were Native American, and 5.4% belonged to other ethnic groups.

Measures

Alcohol use. Six items were used to tap alcohol use. Participants were asked, "have you ever had alcohol to drink?" and responded either yes (coded as one) or no (coded as two). Three items were used to assess frequency of alcohol consumption. Participants were asked to indicate the number of days they had had alcohol in their lifetime, in the past year, and in the past month. Responses on these three items were coded as 1 = none, 2 = one to two days, 3 = three to five days, 4 = six to nine days, 5 = 10 to 19 days, 6 = 20 to 39, and 7 = 40 or more days. As indices of the volume of alcohol consumed, participants were asked two questions: "the last time you drank, how many drinks did you have?" (responses were coded 1 = one drink, 2 = two drinks, 3 = three drinks, 4 = four drinks, 5 = five drinks, 6 = six to nine drinks, 7 = 10 or more drinks, or 8 = never drink alcohol), and "when you drink alcohol, how often do you drink enough to feel drunk?" (responses were coded on a likert scale with 1 = always, 2 = often, 3 = sometimes, 4 = seldom, 5 = never, and 6 = never drink alcohol). Finally, as an indicator of the duration of alcohol use, participants were asked to indicate what grade they were in when they first consumed alcohol.

Sensation-seeking. A 16-item sensation-seeking scale was adapted from Zukerman's (1994) 40-item sensation seeking scale for adolescents and used to assess the personality style known as sensation seeking, which is the degree to which individuals become bored easily and are constantly seeking thrill and adventure. Sample items include "I like to do frightening things" and "I would like to live in the fast lane." Participants responded using a five-point continuum where 1 = disagree a lot, 2 = disagree a little, 3 = neither agree or disagree, 4 = agree a little, 5 = agree a lot. Cronbach's alpha was .79, indicating good internal consistency for this scale.

Decision-making style. An 11-item impulsive decision-making scale was used (Donohew et al., 1999) to assess decision-making style. Specifically, this scale tapped impulsive decision making, which is the degree to which individuals act spontaneously and rely on noncognitive cues such as affective and physiological cues to make decisions. Sample items include "I think about my choices very carefully" and "I do the first thing that comes to mind." Participants responded

using a 4-point continuum where 1 = never, 2 = sometimes, 3 = often, and 4 = always. Cronbach's alpha was .72, indicating good internal consistency for this scale.

Self-reported honesty. Participants were asked, "overall, how honest would you say you were in answering this survey?" and responded on a five-point continuum where 1 = not honest at all, 2 = not very honest, 3 = fairly honest, 4 = very honest, and 5 = completely honest. For descriptive analyses, these responses were collapsed into two categories: honest (which included codes four and five) and not honest (which included codes one and two).

Results

Consistency of Self-Reported Alcohol Use

To investigate the consistency of self-reports of alcohol use, adolescents' responses to the seven alcohol use questions were examined. First, adolescents were divided into two groups: those who indicated they had consumed alcohol and those who indicated they had not. Then, crosstabulation analyses were conducted for each group on the remaining six alcohol use variables. The key indicator of response consistency in this analysis was the pattern of responses for the 769 adolescents (27.5% of the sample) who indicated they had never consumed alcohol.

As shown in Table 1, the responses of adolescents who reported they had never consumed alcohol were very inconsistent. On questions of lifetime, past year, and past month alcohol use, nearly 24% of these adolescents who previously said they had never consumed alcohol provided a count of the number of days in their lifetime on which they had consumed alcohol, about 18% provided a count of the number of days on which they had consumed alcohol in the past year, and nearly 10% provided a count of the number of days on which they had consumed alcohol in the past month. About 25% of these supposedly "abstinent" adolescents were able to indicate the grade they were in when they first consumed alcohol. Additionally, 21.8% reported the number of alcoholic beverages they consumed the last time they drank, and some (12%) reported drinking heavily (i.e., five or more drinks). Moreover, 10% reported that when they drink, they drink to get drunk.

The Role of Moderator Variables

Three sets of moderator variables were examined: demographics, personality and self-reported honesty. In each analysis, adolescents were divided into two groups: those who were inconsistent (i.e., reported they had never consumed alcohol yet reported lifetime alcohol use) and those who were consistent (i.e., reported they had never consumed alcohol and reported no lifetime alcohol use). Then, t-tests were conducted to determine whether these groups (i.e., consistent versus inconsistent youth) were different on each moderator variable.

Demographics. Key demographic variables were gender, race, and age. T-test results revealed that youth only differed in age, $T(758) = 3.43, p = .001$.

Table 1
Comparison of Adolescent Reports of Alcohol Use at Baseline

	Ever Had Alcohol To Drink	
	Yes	No
Lifetime Alcohol Use		
None	102 (5.1%)	583 (76.2%)
1-2 days	416 (20.9%)	79 (10.3%)
3-5 days	326 (16.4%)	30 (3.9%)
6-9 days	260 (13.1%)	24 (3.1%)
10-19 days	316 (15.9%)	20 (2.6%)
20-39 days	231 (11.6%)	10 (1.3%)
40 or more days	340 (17.1%)	19 (2.5%)
Alcohol Use Past Year		
None	275 (13.8%)	623 (81.8%)
1-2 days	589 (29.5%)	66 (8.7%)
3-5 days	334 (16.7%)	23 (3.0%)
6-9 days	269 (13.5%)	13 (1.7%)
10-19 days	244 (12.2%)	20 (2.6%)
20-39 days	160 (8.0%)	6 (.8%)
40 or more days	128 (6.4%)	11 (1.4%)
Alcohol Use Past Month		
None	972 (48.7%)	688 (90.1%)
1-2 days	484 (24.2%)	38 (5.0%)
3-5 days	255 (12.8%)	16 (2.1%)
6-9 days	130 (6.5%)	7 (.9%)
10-19 days	104 (5.2%)	8 (1.0%)
20-39 days	51 (2.6%)	7 (.9%)
Number of Drinks Last Time		
Never Have	95 (5.7%)	570 (78.2%)
One	692 (41.4%)	102 (14.0%)
Two	318 (19.0%)	26 (3.6%)
Three	250 (15.0%)	16 (2.2%)
Four	73 (4.4%)	3 (.4%)
Five	60 (3.6%)	2 (.3%)
6-9	103 (6.2%)	6 (.8%)
10 or more	80 (4.8%)	4 (.5%)
Frequency of Drinking to Get Drunk		
Never Drink	102 (5.1%)	568 (74.4%)
Always	196 (9.8%)	10 (1.3%)
Often	215 (10.7%)	10 (1.3%)
Sometimes	304 (15.2%)	32 (4.2%)
Seldom	432 (21.6%)	30 (3.9%)
Never	753 (37.6%)	113 (14.8%)
Grade First Used Alcohol		
Never have	68 (3.4%)	572 (75.2%)
First	103 (5.2%)	11 (1.4%)
Second	48 (2.4%)	8 (1.1%)
Third	64 (3.2%)	7 (.9%)
Fourth	82 (4.1%)	7 (.9%)
Fifth	169 (8.5%)	24 (3.2%)
Sixth	346 (17.4%)	25 (3.3%)
Seventh	495 (24.9%)	36 (4.7%)
Eighth	476 (24.0%)	45 (5.9%)
Ninth	134 (6.8%)	26 (3.4%)

Inconsistent adolescents tended to be older than consistent adolescents, but there were no difference between these groups on gender and race.

Personality factors. To determine whether the pattern of results that emerged is due to personality characteristics, two personality variables were examined in this study: sensation-seeking and decision-making style. Results indicated that inconsistent youth differ from consistent youth in sensation-seeking, $T(756) = 2.11, p = .035$, but not in decision-making style. That is, inconsistent youth were higher in sensation seeking than were consistent youth, but there was no difference between consistent and inconsistent youth in impulsive decision making.

Self-reported honesty. Comparisons between consistent and inconsistent adolescents on self-reported honesty revealed a significant difference between groups. Adolescents who were consistent in their reports of alcohol use tended to also report having been honest when completing the questionnaire packet, $T(699) = -2.31, p = .021$, whereas inconsistent youth tended to report not having been honest in completing the questionnaire packet.

Discussion

While self-report data are generally accepted by behavioral scientists, there continues to be concern about the validity and reliability of self-reports of sensitive behaviors such as drug use. Findings from this study indicate that this is a justifiable concern. Consistent with literature on the stability of self-report among adolescent alcohol users, results from this study suggest that the self-reports of adolescents who report they have never consumed alcohol are of questionable accuracy. One fourth of the youth that reported that they have never consumed alcohol also reported using alcohol, and some even reported abusing alcohol (e.g., drinking five or more drinks in one setting, drinking to get drunk, etc.).

Since most "abstinent" adolescents were consistent in their self-reports of alcohol use, a key question concerns what factors distinguish consistent versus inconsistent youth. This study explored the role of two possible explanatory factors: demographics and personality. Of the three demographic variables examined in this study, only age emerged as significant. Older youth tended to be more inconsistent in their self-reports. A limitation of this study is its cross-sectional design which does not allow us to examine change in the inconsistency of self-reports over time, leaving us only to speculate about what these age effects might mean. Perhaps the older youth would have been more vulnerable to the effects of social desirability. That is, perhaps older youth were more inconsistent because they were more likely to judge their alcohol use as problematic, or because they were more likely to feel guilt, shame, and/or ambivalence about accurately reporting the extent of their use than were younger adolescents. Future research using a longitudinal design would help clarify the meaning of this finding. Importantly, that we found no statistically significant gender or ethnic differences in this study is consistent with extant research (e.g.,

Shillington & Clapp, 2000).

Since the link between personality and substance use is well-established (e.g., Huba, Newcomb, Bentler, 1981; Krueger et al., 1996; Trull & Sher, 1994; Wills, Vaccaro, & McNamara, 1994), this study sought to explore whether one aspect of personality, sensation seeking, might distinguished between consistent and inconsistent youth. Findings indicated that youth who were inconsistent reporters of their alcohol use tended to be higher in this personality characteristic than were consistent youth. The sensation seeking scale measures the degree to which participants become bored easily and are constantly seeking thrill and adventure. Thus, one possible explanation for this pattern of results is that adolescents high in sensation seeking may have become bored during data collection and, as a result, responded inconsistently, either unintentionally out of boredom or intentionally as a way to increasing the "thrill" of participating in the research. Regardless, the link between sensation seeking and inconsistent self-reports observed in this study suggests that researchers, clinicians, and policy makers might be wise to question the self-reports of adolescents high in sensation seeking who indicate they do not consume alcohol. Future research should examine the link between other personality characteristics inconsistent self-reports of substance use. Ultimately, it may be possible develop a personality profile of types of adolescents most likely to respond inconsistently on self-report measures of substance use or other sensitive behaviors.

Despite the problems with self-reported alcohol use found in this study – and by others – some researchers are in the unenviable position of having to rely exclusively on self-report in their research. This begs the question of what recourse researchers in such a position have to increase the veracity of their self-reported alcohol use data. Results from this study suggest that the answer is to build validity checks into self-report data. This can be done in a variety of ways and some researchers have suggested asking participants to indicate whether they have used a fictitious drug (e.g., Whitehead & Smart, 1972) as one approach. However, another potential validity indicator examined in this study is self-reported honesty. Importantly, a key finding of this study is that self-reported honesty distinguished between adolescents who were consistent versus inconsistent in their self-reports of alcohol use. Adolescents who were inconsistent in reporting about the specifics of their alcohol use appeared, nonetheless, to accurately indicate they had not been honest when responding to the questions on the survey. It is possible that individuals who said they were not honest may have admitted their dishonesty as a way of taking their falsely reported behavior back. Though replication is needed, it would appear that even youth who misrepresent their substance use will own up to the distortion if asked in a general way. Thus, researchers who must rely on self-report may be able to use a self-reported honesty question as a way to screen out youth who likely misrepresented their alcohol use prior to conducting data analyses. Alternatively, researchers could weight their data by self-reported honesty as a way to yield more accurate estimates of alcohol use.

In summary, the importance of obtaining information regarding adolescent substance use that can be trusted cannot be overstated. Researchers, clinicians, and policy-makers rely heavily – and in most cases exclusively – on adolescents' self-reported substance use. Unfortunately, most of the questions raised to date about the veracity of adolescents' self-reports of their alcohol use have centered on adolescents who report that they do consume alcohol. Results from this study suggests there is also reason to be concerned about the veracity of self-reports from adolescents who indicate they do not use alcohol. Importantly, asking adolescents, in a general way, how honest they have been in responding to a questionnaire may provide a useful, cost-effective, strategy for detecting – and screening out – adolescents whose self-reports of alcohol use should not be trusted. Given (a) that alcohol (and other drug) use seriously disrupts adolescent development and role performance during early adulthood (Dembo, Williams, & Schmeidler, 1993; Dembo et al., 1994; OTA, 1991), (b) the myriad deleterious physical, psychological, and behavioral outcomes associated with its use in adolescents (Arria et al., 1995; Barnes & Welte, 1986; Lewinsohn, Gotlib, & Seeley, 1995; Riggs et al., 1995; Weinberg et al., 1998), (c) that valid estimates of the prevalence of alcohol use are critical precursors to the development of effective prevention and intervention programs, policy formulations, and the estimation of individual risk status, and (d) the heavy reliance on self-report to assess adolescent substance use, vigorous pursuit of self-reported honesty (and other validity indicators) in future research is imperative.

Author Notes

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