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Agreement between Parent and Adolescent Reports of Adolescent Substance Use

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Abstract

This study examined the correspondence between parent and adolescent reports of the adolescent's substance use in a population of parents concerned about, and experiencing problems resulting from, their teen's substance use. Seventy-five parents and their adolescent (76% not in treatment; 24% in treatment) were interviewed separately regarding the teen's recent use of cigarettes, alcohol, marijuana, and other illicit drugs. Irrespective of adolescent treatment status, fair-to-good congruence was found on cigarette and marijuana use, alcohol use frequency, and overall substance use frequency. Poor congruence was found on the incidence of alcohol and other illicit drug use, and the quantity of alcohol consumed per drinking day. Multiple regression analysis revealed that poorer congruence on substance use frequency occurred when the teen was younger, when the parent scored low on monitoring and high on psychological distress, and when the parent used alcohol more frequently. Results indicate that parental awareness of teen substance use varies with the substance used and its measurement. In the absence of a cooperative teen, however, parental report of the frequency of adolescent substance use appears to serve as a fair-to-good proxy.

Keywords

Adolescence; Parents; Adolescent substance abuse; Parent-adolescent agreement

Although lifetime prevalence of alcohol and illicit drug use by teenagers is declining, many continue to initiate substance use, and levels of problematic use remain high (e.g., Johnston, O'Malley, Bachman, & Schulenberg, 2005). Adolescent substance use is a public health concern due to its association with physical injury, suicide, homicide, and other negative consequences (e.g., Sells & Blum, 1996). Further, an earlier onset of substance use is associated with adult diagnoses of alcohol and drug dependence (Grant & Dawson, 1998).

Many studies have examined the parental role in the development of substance abuse and dependence (e.g., Curran & Chassin, 1996; Dobkin, Tremblay, & Sacchitelle, 1997; Kafka & London, 1991). Overall, parental factors seem to have a prominent role in the initiation and escalation of adolescent substance use and abuse. For example, evidence indicates that adolescent substance abuse is positively associated with parental substance abuse (e.g., Harford, Haack, & Spiegler, 1987; Velleman & Orford, 1993) and negatively associated with parental monitoring (e.g., Dishion, Patterson, & Reid, 1988; Reifman, Barnes, Dintcheff, Farrell, & Uhteg, 1998; Steinberg, Fletcher, & Darling, 1994). Additionally, individuals

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modify their parenting practices when they learn their child is using substances, and the changes can lead to reduced adolescent substance use (e.g., Duncan, 1978; Stice & Barrera, 1995). Therefore, the level of accurate information parents possess regarding whether, and how heavily their adolescent is using substances, is important. Further, data on the predictors of increased parent-adolescent agreement may be informative in the development of parent training programs, and in research accounts that, in the absence of a cooperating adolescent, rely solely on parental reports.

With few exceptions (e.g., Stinchfield, 1997), research has generally supported the validity of adolescents' own reports of cigarette, alcohol, and illicit drug use (e.g., Dolcini, Adler, & Ginsberg, 1996; Smith, McCarthy, & Goldman, 1995; Winters, 2001). However, conditions found to increase the validity of these reports (e.g., promises of confidentiality, and the adolescent's belief that disclosure will not result in negative consequences) (see Akinci, Tarter, & Kirisci, 2001; Buchan, Dennis, Tims, & Diamond, 2002) typically are not present when a parent questions their adolescent about substance use. Although the use of biochemical measures (e.g., urine tests, measurement of expired air) has at times increased the validity of self-report (e.g., Wagenaar et al., 1993), the majority of research studies suggest that the increase in validity is not large enough to warrant the additional cost (e.g., Buchan et al., 2002). Further, these methods cannot easily be used when the adolescent is not available. Hence, in the absence of the adolescent, the parent often is relied upon as a surrogate source of data on the adolescent's drug use. The accuracy of these parental reports, however, remain in question. Though an extensive literature exists on parent-adolescent agreement on adolescent mental health (e.g., Rey, Schrader, & Morris-Yates, 1992; Tarullo, Richardson, Radke-Yarrow, & Martinez, 1995), less is known about parent-adolescent agreement related to adolescent substance use. We briefly review the literature below.

Correspondence between Parent and Adolescent Reports of Adolescent Substance Use

Typically, parent-adolescent agreement has been evaluated by comparing reports of (a) the incidence of adolescent substance use (i.e., whether it occurred), or (b) the frequency of use (Ciesla, Spear, & Skala, 1999; Donohue et al., 2004; Friedman, Glickman, & Morrissey, 1988; Langhinrichsen et al., 1990; Waldron, Slesnick, Brody, Turner, & Peterson, 2001; Williams, McDermitt, Bertrand, & Davis, 2003; Winters, Anderson, Bengston, Stinchfield, & Latimer, 2000). Within this area, some evaluations have been conducted in the general population; others in populations in which the adolescent is receiving substance abuse treatment.

Studies conducted on general populations (e.g., Langhinrichsen et al., 1990; Williams et al., 2003) have focused on parent and adolescent reports of adolescent cigarette, alcohol, marijuana, or other illicit drug use incidence over a specified time period. Overall, these studies suggest adequate parent-adolescent agreement on the incidence of cigarette use, poor agreement on alcohol use, and contradictory results regarding marijuana use [i.e., Langhinrichsen et al. (1990) reported good congruence, whereas Williams et al. (2003) reported poor congruence]. These studies also examined factors related to parent-adolescent disagreement; overall, discrepancy was more common when the parent was male, when there was low family cohesion and high family conflict, and when the teen was older (the latter being applicable in regard to alcohol). The impact of other variables on discrepancy is less clear; whereas Langhinrichsen et al. (1990) found discrepancy to be higher when the adolescent lived in a single-parent home, Williams et al. (2003) found discrepancy to be higher when the adolescent lived in a two-parent home. Similarly, whereas Langhinrichsen et al. (1990) reported higher discrepancy for cigarettes when the adolescent was younger, Williams et al. (2003) reported higher discrepancy when the adolescent was older. These latter results may be

due to differences in the adolescents' ages; whereas Langhinrichsen et al. (1990) surveyed adolescents between 10 and 16 years of age, Williams et al. (2003) surveyed adolescents approximately two years older. Importantly, no general population study has reported parent-adolescent agreement on the frequency or intensity of the adolescent's substance use.

Studies examining adolescent treatment populations and their parents have generally found good agreement on the incidence of adolescent alcohol, marijuana, or other illicit drug use immediately preceding treatment (e.g., Friedman et al., 1988; Winters et al., 2000), and up to nine months following treatment (e.g., Ciesla et al., 1999). Results regarding alcohol and marijuana use frequency have been less consistent, however. Whereas Donohue et al. (2004) and Waldron et al. (2001) found fair-to-good agreement, Friedman et al. (1988) and Winters et al. (2000) reported unacceptable agreement levels. This discrepancy may be due to the response formats used; both Friedman et al. (1988) and Winters et al. (2000) used a Likert rating scale, whereas Donohue et al. (2004) and Waldron et al. (2001) used a timeline followback, which provides a daily accounting of substance use.

Summary and the Current Study

To summarize, few studies have assessed the congruence between parent and adolescent reports of adolescent substance use. When assessed in general population samples, parent-adolescent correspondence has focused only on the incidence of adolescent substance use, and differences in study findings may be attributed to differences in the age of the adolescents. Findings with treatment populations appear to be confounded by measurement method. In this regard, it is noteworthy that only two studies have used the timeline follow-back interview, a method widely viewed as the optimal method for assessing self-reported substance use (Fals-Stewart, O'Farrell, Freitas, McFarlin, & Rutigliano, 2000; Sobell & Sobell, 1992). Beyond these methodological concerns, however, it also is noteworthy that no study has assessed parent-adolescent agreement in populations where there is parental concern about the adolescent's substance use but the adolescent is not in treatment. This latter population has been little studied, yet it is likely comprised of a much larger population of parents than that of parents with an adolescent in treatment. Even when aware of a substance use problem in their adolescent, parents often are reluctant to seek help, and if they seek treatment for the adolescent, they frequently do so only after an extended period of substance use (e.g., Donohue et al., 2004). During this time, the parent may be attempting to convince the adolescent to seek treatment, but the adolescent is uncooperative. This parent population may be particularly receptive to training programs offering assistance to those experiencing stress from an adolescent's substance use—regardless of whether the adolescent eventually receives treatment. Understanding the correspondence of parent-adolescent reports in this population may therefore assist parents to more accurately monitor their adolescent's substance use, and help investigators evaluate parent skill training programs when the adolescent is not in treatment and is unavailable or uncooperative.

In the present study we address several of the issues noted above. In particular, we assess correspondence on a wider range of adolescent substance use measures (incidence, frequency, and intensity) than prior research. We also use the timeline follow-back method to collect adolescent substance use data from parents and the adolescent. When parent-adolescent disagreement occurs, we examine its direction and magnitude, and explore predictors of discrepancy. Although some researchers have done similar work on the incidence of substance use, this is the first known study that explores predictors of discrepancy on substance use frequency. Further, we examine the correspondence between parent and adolescent reports of the adolescent's substance use in a group of parents concerned about their adolescent's substance use. Specifically, this population includes parents of adolescents in treatment, and

parents of adolescents not in treatment but for whom adolescent substance use was causing stress and problems in the family.

Method

Participants

The participants were recruited through media advertisements, and fliers distributed at a diverse group of social service agencies (including, but not limited to, adolescent alcohol and drug treatment programs) for a larger study examining coping in parents stressed about their teen's substance use, and/or who were experiencing problems as a result of the teen's substance use (see McGillicuddy, Rychtarik, & Morsheimer, 2004). Interested parents telephoned the project, and were screened briefly to ensure study eligibility (i.e., the caller was a parent of a child between the ages of 11 and 22 either currently abusing alcohol or illicit drugs, or currently receiving substance abuse treatment).

Eligible parents were given the option of participating alone or with the substance-using adolescent. One-way ANOVA (for continuous variables) and chi-square analyses (for dichotomous variables) were conducted to examine whether parents who participated with the adolescent ($n = 75$) differed from parents who participated alone ($n = 125$) on demographic (e.g., own age and parent age, parent employment status, adolescent treatment status) and behavioral (e.g., family cohesion, global functioning, parent alcohol and illicit drug use frequency, adolescent alcohol and illicit drug use frequency) measures. Group differences were found on only two of 19 variables examined: Parents who participated with the adolescent were more likely to be females (85% vs. 72%), and to report a lower percentage of adolescent alcohol use days (22% vs. 35%) over the previous six months. This report examines only data of the parent group whose adolescent participated.

Biological parents comprised 99% of the parent sample. Twenty-one percent ($n = 16$) of the parent-adolescent pairs were accompanied to the interview by a second parent, but only data from the parent who reported interacting more frequently with the adolescent was examined. All participating family members were assessed confidentially, on the same day and time in separate rooms. Each participant was paid \$30.

Parent Assessment

Parents were administered the following measures to obtain composite data, and to be used in the analyses examining predictors of parent-adolescent agreement.

Sociodemographic.—We used a self-administered questionnaire to obtain sociodemographic information. The sample averaged 39.44 years of age ($SD = 5.32$) with 12.56 years of education ($SD = 3.11$). With regard to ethnicity, 35% of the sample was European-American, with the remainder being African-American. Less than half of the sample lived with a spouse or cohabiting partner (41%), and approximately 39% of the parents were employed. A similar questionnaire administered to the adolescents revealed that they averaged 16.16 years of age ($SD = 2.01$), were 61% male, and that 24% were receiving assistance for substance use.

Family Relations.—Family relations were assessed through the Cohesion and Conflict subscales of the Family Environment Scale (FES; Moos & Moos, 1994). Cohesion assesses perceptions of the degree of commitment, help, and support family members provide one another; Conflict assesses perceptions of the amount of openly expressed anger among family members. Each subscale is comprised of nine dichotomous items, and the parent is asked to respond whether the item is true or false for their family. The two subscales are internally valid (Moos & Moos, 1994), and are included here as potential predictors of parent-adolescent

substance use report discrepancy. We obtained a mean cohesion score of 5.50 ($SD = 1.55$), similar to that found in “distressed” families, whereas the mean conflict score of 3.85 ($SD = 1.59$) is intermediate relative to that of “normal” and “distressed” families (Moos & Moos, 1994). Square root transformations were used on each variable to reduce skew.

Parenting Measures.—Parents answered two items (used by Reifman et al., 1998) measuring the degree to which they monitor the adolescent's whereabouts: (1) “How often do you know where your adolescent is after school?” and (2) “How often do you know where your adolescent really is when they go out evenings and weekends?” Each item had five response options, coded 0 (“never”) to 4 (“always”). The internal consistency of this scale was .87. Scores on the two items were summed, and the mean score was 5.43 ($SD = 1.87$). In addition, parents reported interacting with the adolescent an average of 38.96 ($SD = 42.48$) hours weekly. These two measures were unrelated, and square root transformations of each reduced skew.

Parent Functioning.—The Global Severity Index (GSI) of the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982) measured parental functioning. The GSI measures the severity of psychological symptoms along nine dimensions (e.g., anxiety, depression, etc). Each item is rated on a five-point scale of distress (0–4); the mean item score of 1.03 ($SD = .76$) is indicative of moderate psychological distress. A square root transformation reduced skew.

Parent substance use.—Parents reported, through a Timeline-Followback (TLFB) procedure (e.g., Fals-Stewart et al., 2000; Sobell & Sobell, 1992), their own alcohol and illicit drug use (i.e., marijuana, tranquilizers, cocaine, crack cocaine, hallucinogens, opiates, inhalants) during the previous 180 days. As each drug category was asked, the interviewer provided examples (e.g., angel dust, mushrooms, and LSD were provided as examples of hallucinogens). Participants were given a calendar for the previous 180 days; holidays and dates of personal significance (e.g., birthdays, anniversaries, etc) were recorded to aid recall. Parents reported using alcohol and marijuana on 15% ($SD = 27$) and 3% ($SD = 12$) of the days, respectively; reports of other illicit drug use were negligible. Days in which the parent reported no alcohol use were coded as zero drinks; on average, parents reported drinking 4.58 standard drinks per drinking day ($SD = 6.76$). (A standard drink was defined as being equivalent to one 12 oz beer, one 3-ounce glass of fortified wine, one 4-ounce glass of table wine, or 1.25 ounces of hard liquor.) To reduce skew, a square root transformation was employed on drinks per drinking day; an arcsine transformation was used for the proportion of days alcohol and marijuana were used.

Adolescent substance use.—Timeline-followback procedures also were used to obtain parent reports of adolescent alcohol and illicit drug use over the previous 180 days. Derived variables included (a) the percentage of days alcohol was used; (b) the percentage of days illicit drugs from each drug category were used; (c) the percentage of days the parent reported the adolescent used either alcohol or an illicit drug; and (d) the mean number of drinks consumed (in standard drink units) per alcohol use day. Parents also were asked whether the adolescent smoked cigarettes over the previous 180 days, and when use was reported, the quantity of use over the past week.

Adolescent Assessment

Following procedures similar to those used with the parents, adolescents were assessed regarding their own alcohol, illicit drug, and cigarette use. In addition, by combining the daily reports of their own alcohol and illicit drug use, we computed the percentage of days the

adolescent reported using any substance (i.e., alcohol, marijuana, or another illicit substance) during the 180-day period.

Data Analyses

Due to the lack of an acceptable gold standard for evaluating concordance on dichotomous measures, we follow other researchers in this area (e.g., Buchan et al., 2002; Langenbucher, Labouvie, & Morgenstern, 1996) and present (a) percent agreement, (b) kappa, and (c) Yule's Y on the correspondence between parent and adolescent reports of adolescent cigarette, alcohol, marijuana, and other illicit drug use incidence. Each of these has its own particular benefits and drawbacks. The percent agreement statistic can be inflated by chance agreement, and hence provides a biased estimate of correspondence. The kappa statistic corrects for chance agreement and is therefore often recommended (e.g., Bartko, 1991; Langenbucher et al., 1996; Maisto & Connors, 1992). However, kappa is subject to its own biases, particularly when the base rate of the behavior is high (see Spitznagel & Helzer, 1985). Consequently, Yule's Y statistic has been recommended (Hoffman & Ninonuevo, 1994) and used as an alternative measure of agreement (e.g., Fals-Stewart, Birchler, & Kelley, 2003; Stasiewicz, Bradizza, & Connors, 1997). However, Yule's Y is inflated when one form of disagreement (e.g., parental underestimates of use) occurs more frequently than the other form of disagreement (Langenbucher et al., 1996; Shrout, Spitzer, & Fleiss, 1987). Though we present multiple indices of agreement, qualitative judgements regarding the adequacy of parent-adolescent congruence are based on the kappa and Yule's Y statistics. In addition, for each substance, we report sensitivity (i.e., the proportion of adolescents reporting use that the parent also reports use) and specificity (i.e., the proportion of adolescents reporting no use that the parent also reports no use) data. Agreement on frequency and quantity measures are evaluated through the intraclass correlation coefficient (ICC), a computation that corrects for chance agreement, and is considered the "gold standard" for evaluating agreement on continuous variables (Bartko, 1991; Cicchetti, 1994). We use Cicchetti & Sparrow's (1981) guidelines for evaluating parent-adolescent agreement: (a) Coefficients greater than .75, "excellent"; (b) .60 – .74, "good"; (c) .40 – .59, "fair"; and (d) below .40, "poor".

To explore the predictors of parent-adolescent report discrepancy on adolescent substance use, we developed a hierarchical regression model in which the dependent variable was the absolute value of the difference between the parent's report and the adolescent's report of the percentage of days during the 180-day report period the adolescent used any alcohol, marijuana, or other illicit drug. Variables examined as potential predictors were those which previous research suggested may impact the magnitude of report discrepancy including sociodemographic measures (i.e., parent gender, age, race, employment, education and number of parents in the home, adolescent gender and age), adolescent treatment status, family functioning (cohesion and conflict as measured on the Family Environment Scale), parenting variables (i.e., parent monitoring, number of hours spent interacting with adolescent), parent functioning (global severity index), and parent substance use.

Results

Agreement on the Incidence of Substance Use

Table 1 presents information on adolescent and parent reports on the incidence of adolescent cigarette, alcohol, marijuana, and other illicit drug use; agreement coefficients also are presented. We found fair-to-good agreement on whether the adolescent used cigarettes and marijuana, with sensitivity and specificity for both being high. However, poor agreement was found for alcohol, and for illicit drugs other than marijuana. In addition, although sensitivity was high, the specificity for alcohol and other illicit drugs was low.

Agreement Regarding the Quantity and Frequency of Substance Use

Table 2 presents information on adolescent and parent reports of the quantity of adolescent cigarette and alcohol use; intraclass correlation coefficients (ICCs) of parent-adolescent agreement are also included. We found fair agreement regarding the quantity of past week cigarette use; further exploration of the data indicated that a moderately large percentage (36%) of parents were in perfect agreement with the adolescent, with a slightly higher number of remaining parents providing underestimates, rather than overestimates (36% compared to 29%). Poor agreement was found regarding the quantity of alcohol consumed per drinking day, and parents were nearly twice as likely to underestimate average consumption (63% vs. 37%).

Parent-adolescent agreement regarding the frequency of adolescent alcohol use, marijuana use, and substance use days was fair-to-good (see Table 3). Nearly equal percentages of parents underestimated and overestimated alcohol use (49% and 47%, respectively) and substance use frequency (52% and 41%, respectively). By contrast, parents were nearly twice as likely to underestimate, rather than overestimate, marijuana use frequency (59% and 31%, respectively).

We explored whether the generally fair-to-good coefficients of parent-adolescent agreement could be explained in large part by high levels of agreement when the adolescent was in treatment, and hypothetically more forthcoming about their substance use. Consequently, we repeated the above analyses separately on the treatment ($n = 18$) and non-treatment ($n = 57$) subsamples. Results indicated that agreement coefficients were equivalent across the two subsamples for all measures. Finally, we explored whether adolescents receiving treatment differed from those not receiving treatment in their reported level of substance use; these analyses revealed that the two samples reported similar rates of substance use frequency (57% vs. 54% of the previous 180 days, respectively). However, perhaps indicative of a more severe alcohol problem, adolescents in treatment reported consuming more alcohol per drinking day than adolescents not in treatment [11.23 ($SD = 13.21$) vs. 5.73 ($SD = 5.17$) standard drinks].

Predicting Parent-Adolescent Discrepancy

We used a hierarchical multiple regression model to examine, preliminarily, the factors predictive of parent-adolescent report discrepancy; the dependent variable was the absolute value of the difference between parent and adolescent report on the percentage of adolescent substance use days over the previous 180 days. Blocks of conceptually-related measures described above were regressed sequentially on the dependent variable. When all sociodemographic variables were regressed simultaneously, only adolescent age contributed significantly to the model. Adolescent treatment status and family functioning (i.e., FES) measures then were examined separately in subsequent steps; neither variable block added significantly to the model, and each was eliminated from the model. On the next step, the set of parenting variables did contribute significantly to the model, above and beyond the influence of adolescent age. The parent functioning variable also added significantly to the model, above and beyond the influence of adolescent age and the parenting measures. Finally, due to low rates of parental illicit drug use, only days of parental alcohol use was included in the parent substance use block; this measure also added significantly to the model, above and beyond that provided by the variables previously entered. As seen in Table 4, the final full model suggests that parent-adolescent discrepancy was highest when the adolescent was younger, when the parent did less monitoring, when the parent scored high on psychological distress, and when the parent drank alcohol more frequently.

Discussion

Results of this study suggest that for the most part, parents and adolescents achieved “fair-to-good” agreement regarding the adolescent’s substance use. These findings are important given that this sample, unlike those previously studied, was predominantly comprised of parent-adolescent pairs in which the adolescent’s substance use was causing problems for the parent, but the adolescent was not in treatment. This population has received little empirical study, but is likely a much larger group than parents of an adolescent currently in treatment. These results suggest that even if the adolescent is not in treatment, parents are somewhat aware of the level of the teen’s substance use. It is this awareness, and the associated stress they experience, that may motivate them to participate in training programs geared toward modifying their own coping—regardless of whether the adolescent eventually receives treatment. It may be the subsequent changes in the parent’s coping that influence the adolescent to enter treatment, and/or change their substance use.

Our findings of adequate agreement on point-prevalence measures of cigarette use, and poor agreement regarding use of illicit drugs other than marijuana, are consistent with those obtained in general population studies (e.g., Langhinrichsen et al., 1990; Williams et al., 2003). Also consistent with Langhinrichsen et al. (1990), we found fair agreement regarding the incidence of marijuana use. Research examining parent-child agreement on matters related to the child’s psychological functioning suggest higher correspondence for more observable behaviors (e.g., Rey, Schrader, & Morris-Yates, 1992; Weissman et al., 1987); the higher congruence for cigarettes and marijuana may be because use of these substances is more noticeable (e.g., residual odors, etc). Furthermore, due to their status as a more socially-accepted substance, parents are more likely to have observed their adolescent smoking cigarettes than using other substances. Similar to Langhinrichsen et al. (1990) and Williams et al. (2003), we found that adolescents and parents were discordant with regard to whether the adolescent used alcohol. The low congruence appears due to poor specificity (i.e., parents reporting alcohol use when the adolescent reported no use). Despite the apparent discordance, further examination of the data revealed that when the adolescent reported no use, the parent reported infrequent use (i.e., on 2% of the days, or fewer). These results, coupled with the good agreement found for alcohol use frequency, suggests that when relying on parental reports, frequency measures of adolescent drinking may be more accurate. Our research, as well as that reported by Donohue et al. (2004) and Waldron et al. 2001, suggests that the Timeline-Followback (TLFB) may be the ideal way to collect this information. Also, although results indicate that parents and adolescents were discordant regarding the quantity of alcohol consumed per drinking day, we note that drinking levels reported by both the adolescent and the parent pose health risks for the adolescent, and suggest that when relying on parental reports of the quantity of alcohol consumed, use of a Likert rating scale may be most suitable.

Our data indicated that there was at least a tendency on some substance use measures for parents to provide lower estimates of the teen’s use than the adolescents themselves did. This finding is consistent with what is typically reported in comparisons of adult alcohol abusers’ self-reports of drinking, and reports provided by collateral informants; when discrepancies between subject and collateral occur, it is typically the collateral who reports lower use (see Connors & Maisto, 2003). Also, although other researchers examined predictors of parent-adolescent congruence on substance use incidence, our study is seemingly the first to explore predictors of report discrepancy on substance use frequency. Results of the hierarchical regression analysis suggested that in the full model, parent-adolescent discordance was larger when the adolescent was younger, the parent did less monitoring of the adolescent’s behavior, the parent had poorer psychological functioning, and the parent drank alcohol more frequently. Our finding that younger adolescent age was predictive of report discrepancy is similar to findings reported by Williams et al. (2003), and regarding alcohol, to Langhinrichsen et al. (1990). Perhaps parents

of younger adolescents are more likely to underestimate the teen's substance use because it is a relatively new phenomenon. Additional research examining the dynamics of younger substance-abusing adolescents and their parents is necessary. In addition, parents who scored lower on monitoring provided more discrepant reports. Although a lack of parental monitoring has been associated consistently with adolescent substance abuse (e.g., Reifman et al., 1998; Steinberg et al., 1994), this study suggests that monitoring is predictive of more accurate estimates of teen substance use. Additional research is necessary to examine whether the increased accuracy that results from monitoring could also bring forth substance use reductions.

Previous research indicated that although parents with increased psychological distress are in good agreement with their offspring regarding the child's depression or anxiety (e.g., Tarullo et al., 1995), they are discrepant with regard to whether the child has a substance abuse diagnosis (Weissman et al., 1987). Our findings that discrepancy was higher among parents with increased psychological distress support these latter findings, and suggest that distressed parents may be poor sources of information regarding adolescent substance use. Finally, heavy parental alcohol use has been associated with reduced awareness of a child's behavior (e.g., Mayes & Truman, 2002), and with poorer coping in response to adolescent substance use (McGillicuddy et al., 2004). Taken together, it is not surprising that parents who drink more heavily provide more discrepant reports of adolescent substance use; future studies should explore whether parents who reduce the frequency of their alcohol use become more congruent with the adolescent regarding substance use, and whether the increased congruence mediates subsequent changes in parenting and teen substance use. Future research also should examine longitudinally whether discrepancy is reduced if parents (a) increase monitoring their teen's behavior, particularly if the teen is younger, or (b) reduce their psychological distress.

Results must be considered in light of the following limitations. First, data were collected on a fairly small sample of European-American and African-American participants. Replication of these findings with larger samples which include other ethnic groups (e.g., American Indian, Hispanic-American) is necessary. Second, the proportion of adolescents in the study currently receiving treatment was modest; although findings reported here suggest that adolescent treatment status does not influence parent-adolescent correspondence, future studies may benefit from recruiting a larger number of treatment adolescents as our data suggest, at least in regard to drinking intensity, that they use alcohol more heavily than adolescents not in treatment. Third, although adolescents typically provide valid self-reports of substance use, future research would benefit from inclusion of additional substance use measures (e.g., biochemical). Although biochemical measurements have not provided the "gold standard" for measurement of substance use that many had hoped (e.g., Buchan et al., 2002), the convergence of data obtained from multiple sources would allow for increased confidence in a given set of findings, and prevent reliance on just one or two sources when more are available (e.g., Weissman et al., 1987).

In conclusion, results from this study suggest that parents experiencing stress due to an adolescent's substance use are generally aware of many aspects of the teen's substance use, but their degree of correspondence with the teen's report varies with the substance used and its measurement. Though additional studies are necessary, the findings suggest that in research or treatment settings in which an adolescent is uncooperative or unavailable, parental report of at least the frequency of alcohol and other substance use may serve as a fair-to-good proxy. It also is noteworthy that parent-adolescent report discrepancy was higher when the parent reported more frequent alcohol use, had poorer psychological functioning, and did less monitoring of the teen's behavior. Longitudinal research is needed to determine whether parental changes in these domains will lead to increased congruence with the adolescent, and subsequent reductions in adolescent substance use.

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Adolescent and Parent Reports of Whether Adolescent Used Cigarettes, Alcohol, Marijuana, and Other Illicit Drugs During the Previous 180 Days, and Statistics of Correspondence

Substance	Ad	% ^a Par	% Agreement (Proportion)	Kappa	Yule's Y	Sensitivity	Specificity
Cigarettes ^b	60	60	.82	.63*	.63*	.86	.76
Alcohol ^b	90	86	.86	.21	.38	.91	.33
Marijuana ^b	89	82	.86	.43*	.61*	.88	.71
Other Illicit Drugs ^c	31	26	.72	.31	.35	.89	.50

Note: Ad = Adolescent; Par = Parent.

^aPercentage of participants who reported that adolescent used substance over previous 180 days.

^bn = 73

^cn = 71.

* Indicates "acceptable" kappa or Yule's Y coefficient for parent-adolescent agreement, using standards established by Cicchetti & Sparrow, 1981.

Table 2

Adolescent and Parent Reports of Quantity of Adolescent Cigarette and Alcohol Use, and Associated Intraclass Correlation Coefficients

Substance	Adolescent Mean (SD)	Parent Mean (SD)	ICC
Cigarettes ^a	39.62 (54.93)	31.49 (49.17)	.51 [*]
Alcohol ^b	7.76 (8.11)	5.36 (4.67)	.19

Note: ICC = Intraclass Correlation Coefficient

^aReported number of cigarettes smoked weekly.

^bMean number of standard drinks consumed each drinking day.

* Indicates "fair" level of agreement, using standards established for evaluating ICC by Cicchetti & Sparrow, 1981.

Table 3

Adolescent and Parent Reports of Frequency of Alcohol, Marijuana, and Substance Use Days Over the previous 180 Days, and Associated Intraclass Correlation Coefficients

Substance	Adolescent Mean ^a (SD)	Parent Mean ^a (SD)	ICC
Alcohol	18 (25)	23 (24)	.61 **
Marijuana	42 (36)	37 (35)	.52 *
Any Substance ^b	54 (35)	49 (36)	.45 *

Note: ICC = Intraclass Correlation Coefficient

^aPercentage of days use was reported (out of previous 180 Days).

^bReported proportion of days (out of past 180) that adolescent used alcohol, marijuana, and/or other illicit drugs.

* Indicates “fair” level of agreement

** Indicates “good” level of agreement, using standards established by Cicchetti & Sparrow, 1981.

Table 4

Hierarchical Regression Analysis of Parent-Adolescent Discrepancy on Number of Adolescent Substance Use Days

Variable	Discrepancy ^a	
	R ²	Beta
Adolescent Age	.09 [*]	-.32 ^{**}
Parenting	.17 [*]	
Monitoring		-.24 [*]
Interaction ^b		-.11
Parent Distress ^c	.24 [*]	.27 [*]
Alcohol Use Days	.30 [*]	.25 [*]

Note: Significance Levels in the R² columns reflect significance of R² change; betas are for the final, full regression model. Overall $F(5,60) = 5.19$, $p < .01$.

^aThe absolute difference between the parent report and the adolescent report on the percentage of days (of the previous 180) that the adolescent used alcohol, marijuana, or other illicit drugs.

^bNumber of hours parent and adolescent interact weekly.

^cGlobal Severity Index, as measured on the Brief Symptom Inventory

*
 $p < .05$

**
 $p < .01$