Predictors of Engagement in Adolescent Drug Abuse Treatment

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ABSTRACT

Objectives: To identify key demographic, parent, and adolescent characteristics that influence engagement in outpatient drug abuse treatment. Method: Youths aged 12 to 17 years (N = 224; 81% male and 72% African American) referred for drug treatment and their parents participated in this study. Marijuana was the primary substance of abuse. Data were gathered prior to treatment on demographic variables as well as on both parent and youth perspectives on youth, parent, and family functioning. Results: A discriminant function analysis revealed that engagement in treatment was related to, in order of weighting, more positive parental expectations for their adolescent's educational achievement (standardized discriminant function coefficient [SDF] = 0.68), higher parental reports of youth externalizing symptoms (SDF = 0.59), and higher levels of family conflict perceived by the youth (SDF = 0.36). Family income, gender, juvenile justice status, minority group status, family structure, parental age and psychopathology, and treatment characteristics did not distinguish treatment-engaged from unengaged adolescents. Conclusions: The results suggest that both parent and youth perceptions are pivotal to whether or not adolescents are engaged in psychotherapy. These findings lead the authors to recommend adolescent engagement interventions focusing on both the youth and his or her parents and suggest a content focus for adolescent engagement interventions. J. Am. Acad. Child Adolesc. Psychiatry, 2001, 40(3):274-281. Key Words: adolescence, dropout, drug abuse, treatment.

Health statistics reveal an urgent need for adolescent mental health services. Results from the National Comorbidity Survey indicate "increasing psychopathology in more recent cohorts" (p. 13), with youths aged 15 to 25 showing the highest yearly prevalence of mental health disorders (Kessler et al., 1994). Moreover, teenage drug use continues to be a major health problem, with more than 40% of high school seniors reporting annual drug use (Institute for Social Research, 1997). The failure to provide adolescents with needed psychotherapeutic services is a problem of considerable significance given that adolescent mortality (i.e., motor vehicle accidents, homicide, and suicide) is closely tied with mental health problems and substance use. Even though the necessity for and efficacy of behavioral interventions for adolescent problems are well recognized (Kazdin and Weisz, 1998; Shadish et al., 1997), many youths fail to obtain treatment (U.S. Department of Health and Human Services, 1990), and those who enter treatment frequently terminate prematurely (Pompi, 1994). Although there is considerable research concerning treatment attrition among child (Armbruster and Kazdin, 1994) and adult patients (Wierzbicki and Pekarik, 1993), very few researchers have attempted to understand why adolescents referred to mental health treatment do not obtain needed services. Such research is necessary because the knowledge gained could lead to innovative interventions designed to increase treatment retention and, ultimately, outcome.

Adolescents are both similar to and different from children in ways that may influence their retention in treatment. With respect to therapy-seeking behavior, both adolescents and children are typically brought to therapy by their parents, whereas adults frequently seek therapy of their own accord. For children and adolescents, parents or referral sources such as teachers, social welfare workers, and judges may have a greater stake in treatment than
does the child or adolescent patient (Taylor et al., 1985). Thus parental and family characteristics are likely to play a significant role in attrition among both adolescent and child clients. However, adolescents are more developmentally independent and autonomous than children and more challenging for parents to control (Holmbeck and Updegrove, 1995). Therefore, it seems reasonable to hypothesize that engaging an adolescent in treatment would be influenced by features of the adolescent as well as the family.

Although it has been suggested that characteristics of the youth and family are more influential on treatment retention than are demographic variables (Blood and Cornwall, 1994; Gilbert et al., 1995), most studies have focused on demographic characteristics such as age, family income, race, and family structure. Dropping out of psychotherapy appears to be greater among youths from lower-income, minority, single-parent families (Armbruster and Fallon, 1994; Feigelman, 1987; Kazdin and Mazurick, 1994; Kazdin et al., 1995; Pelkonen et al., 2000; Viale-Val et al., 1984).

Family characteristics such as family functioning, parental psychopathology, and parental expectations about their child's future have been less frequently examined. However, some studies suggest that adolescents are more likely to drop out of treatment when their parents have serious psychological or social problems (Feigelman, 1987; Kazdin, 1990; Kazdin and Mazurick, 1994). With regard to family variables, we found only one study that investigated family functioning and attrition, and it focused on child patients (i.e., Armbruster and Fallon, 1994). Nevertheless, the results from this single study indicate that family functioning differentiated dropouts from continuers, with more attrition among children from inadequate family environments (e.g., high conflict and low support).

Finally, a few studies have examined features of the adolescent separate from his or her family circumstances. Severity and nature of youth symptomatology have been the most extensively studied characteristics. The results have been inconsistent. There is evidence that severity and nature of symptomatology did not influence attrition (Armbruster and Fallon 1994; Viale-Val et al., 1984), and there are also reports that youths with fewer symptoms attended more sessions (Gaines and Stedman, 1981) or fewer sessions (Feigelman, 1987; Kazdin, 1990; Kazdin et al., 1993). Moreover, a recent study of adolescent patients found that premature termination was greater among youths with a substance abuse disorder compared with mood-disordered and suicidal youths (Pelkonen et al., 2000).

The current study was designed to examine the relative influence of demographic, family, and youth characteristics on engagement in treatment among adolescents referred for psychotherapy. We hypothesized that both family and youth characteristics, other than demographic, will distinguish youths engaged in treatment from those not engaged in treatment.

METHOD

Participants

Study participants were urban families with an adolescent between 12 and 17 years old who had been referred to treatment by the criminal justice, social welfare, or educational system for substance abuse and associated mental health problems. Upon referral, youth and parent participated in a two-session initial evaluation. After this evaluation, and as part of a larger project to evaluate treatment outcome, youths were randomly assigned to either individual or family therapy.

Two hundred twenty-four youths participated in this study (182 boys and 42 girls). The mean age of adolescents was 15.4 years (SD = 1.2). Seventy-two percent of the youths were African American; 18% were white, non-Hispanic; and 10% were Hispanic. The median annual family income was between $11,000 and $13,000. Forty-one percent of the families were receiving public assistance.

Diagnoses of the youths, based on criteria set forth in the DSM-III-R, were obtained from the Diagnostic Interview for Children (DISC-2) (Piacentini et al., 1993). All of the youths were drug users, with 78% meeting criteria for dependence and 17% meeting criteria for abuse. Seventy-eight percent of the youths had one or more of the following conditions: conduct disorder (67%), oppositional defiant disorder (50%), attention-deficit hyperactivity disorder (27%), dysthymia (21%), and major depressive disorder (17%).

Treatments

Adolescents who participated in this study received either one of two manualized treatments: multidimensional family therapy (Liddle et al., 1991) or cognitive-behavioral therapy (Turner, 1993). Multidimensional family therapy is a family-based model that targets both the family system and the intrapersonal functioning of the youth through an interconnected series of therapeutic interactions between therapist and adolescent, therapist and parents, and therapist and extrafamilial systems. The form of cognitive-behavioral therapy used in the current study is broadly based on four main cognitive-behavioral treatises: Linehan's (1993) dialectical behavior therapy, Beck's cognitive therapy (Beck et al., 1979). Masters and colleagues' (1987) compendium of behavior interventions, and Marlatt's harm reduction model (Marlatt and Tapert, 1993). The therapy provided to youths, whether family or individual therapy, was office-based and conducted once per week in sessions lasting from 60 to 90 minutes for up to 25 sessions. On an as-needed basis, clinicians held sessions more or less than once per week and made home visits, but these were more the exception than the rule. Treatment was offered free of charge, as were bus tokens and parking.

Although the two treatment modalities are undoubtedly different, both focus on treating multiproblem, dually diagnosed adolescent sub-
stance users. Moreover, the engagement interventions of the two treatments were similar; both provided family and individual engagement sessions during the first month of treatment. The individual treatment, for example, held at least two engagement sessions with the parents during the first few weeks of treatment in an effort to engage the family in facilitating the youth's participation in therapy. The family treatment held at least two sessions alone with the youth during the first few weeks to directly engage the youth in the treatment process.

Engaged in Treatment Versus Not Engaged in Treatment

Treatment engagement was defined as participating in a minimum of four face-to-face psychotherapy sessions. Participating in fewer than four sessions was considered as not engaged. This particular cutoff was determined on both theoretical and empirical grounds. First, 1 month of treatment arguably is the minimum length necessary to judge that the engagement in treatment has been accomplished. Second, in this particular study, the steepest dropout rate occurred between zero and three therapy sessions. For the purposes of the present study, then, 118 youths (53%) were classified as engaged in treatment and 106 (47%) were classified as not engaged. The median number of therapy sessions for both treatments was 16 sessions occurring over 4 to 16 months.

Research Procedures

Parents of referred youths were contacted by telephone and screened for initial eligibility. It was emphasized that participation was voluntary and that subjects had the right to discontinue participation in the research at any time. Research assistants explained the general procedure and purpose of the assessment and obtained written informed consent prior to the evaluation. Participants were randomly assigned to the two treatments after completing the initial assessment.

Measures

Demographic Characteristics. Information on adolescent, maternal, and paternal age; gender; ethnicity; juvenile justice involvement; and family income and structure were gathered through a structured interview format. Adolescent, maternal, and paternal ages are reported in years. Ethnic identification was measured by asking each youth to select one of four categories: African American; Hispanic; white, non-Hispanic; and Asian. Adolescent juvenile justice involvement was measured by whether the youth was ordered to treatment by the court. Youths and parent were asked, "Are (is) you (your child) court ordered to treatment?" and this information was confirmed with the juvenile justice probation department. Information on total yearly family income was gathered from the parent. Parents were asked, "Taking into consideration all sources of income, what do you think the total family income will be this year for [adolescent's name] and his/her family?" Finally, family structure consisted of four categories: two parents or grandparent, single parent (mother, father, grandmother, or grandfather), stepfamily (mother and stepfather or father and stepmother), or other family structures (e.g., other relatives, foster parent).

Drug Use. The youth's consumption of drugs was measured by an adaptation of the Timeline Follow-Back method (TLFB) (Sobell and Sobell, 1992), which has been adapted to measure adolescent drug use (Bry and Krinsley, 1992; Waldron, 1997). The version of the TLFB used in the present study obtained retrospective reports of daily substance use directly from the youth. With the TLFB technique, a calendar and other memory prompts were used to stimulate recall. Information was gathered on daily use of specific substances for the 30-day period prior to the intake evaluation. The variables from the TLFB used in the current study were (1) the sum of days of marijuana use and (2) the sum of days of alcohol use.

Externalizing and Internalizing Symptoms. The extent of externalizing and internalizing symptoms was measured by the Child Behavior Checklist and Youth Self-Report (Achenbach, 1991a,b). Externalizing includes the Delinquent Behavior and Aggressive Behavior syndromes. Internalizing includes Withdrawn, Somatic Complaints, and Anxiety/Depressed syndromes.

Educational Expectations. Self- and parent report of the youth's potential educational attainment was measured by a single item: "What is the highest grade you (your son/daughter) expect to complete?" Responses were (1) "not a high school graduate," (2) "high school graduate," (3) "vocational or trade school," (4) "some college," (5) "4-year college degree," (6) "graduate or professional degree."

Family Functioning. Family functioning from the youth and parent point of view was measured by the Conflict and Cohesion subscales of the Family Environment Scale (Moos and Moos, 1986). These two subscales were designed to assess key aspects of the relationship dimension of family environment. The Cohesion scale measures the extent of family commitment and support. The Conflict scale measures expressed anger, aggression, and conflict among family members.

Parent's Antisocial Behavior. The primary parent was considered to have a positive history of antisocial behavior if she or he had ever been arrested, convicted, or held in jail.

Parent Psychopathology. Parent psychopathology was measured by the Symptom Check List 90-R (Derogatis, 1992). The Global Severity Index, a composite measure of symptoms and amount of distress, was used in the current analyses.

RESULTS

The hypotheses were examined through two types of analyses. First, one-way univariate analyses of variance were conducted on the demographic, adolescent, and family variables hypothesized to be important predictors of adolescent engagement. Next, discriminant function analysis was conducted to examine the relative contribution of each variable to predicting engagement in therapy.

Univariate Analyses of Variance

Table 1 presents the means, percentages, and standard deviations. First, as expected, given the similarity between the two treatments in terms of engagement procedures and therapist characteristics, there were no differences between those engaged in treatment and those who were not engaged with respect to therapeutic modality (family versus individual) and therapist.

Five variables were significantly different between those engaged in treatment and those unengaged. Of the demographic variables, only one yielded a significant difference between the two groups. Adolescents in the engaged group appeared to be older than the unengaged adolescents ($F_{1,222} = 4.06, p < .05$). In addition, although the results only approached significance, it is noteworthy that girls were approximately twice as likely as boys to be engaged in treatment ($\chi^2 = 4.06, p = .059$). Race, parent
TABLE 1
Group Means (SD) for Treatment-Engaged and Unengaged Adolescents

<table>
<thead>
<tr>
<th></th>
<th>Engaged Mean/SD (%)</th>
<th>Unengaged Mean/SD (%)</th>
<th>F/χ²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent age</td>
<td>15.25 (1.2)</td>
<td>15.58 (1.2)</td>
<td>4.06*</td>
</tr>
<tr>
<td>Adolescent gender (%)</td>
<td></td>
<td></td>
<td>4.05</td>
</tr>
<tr>
<td>Male</td>
<td>86</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>13</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Adolescent race (%)</td>
<td></td>
<td></td>
<td>1.89</td>
</tr>
<tr>
<td>African American</td>
<td>69</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>21</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Treatment court-ordered (%)</td>
<td></td>
<td></td>
<td>3.25</td>
</tr>
<tr>
<td>Court-ordered</td>
<td>32</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Not court-ordered</td>
<td>73</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Maternal age</td>
<td>41.63 (9.0)</td>
<td>40.93 (9.9)</td>
<td>0.26</td>
</tr>
<tr>
<td>Paternal age</td>
<td>41.04 (11.5)</td>
<td>39.42 (14.7)</td>
<td>0.58</td>
</tr>
<tr>
<td>Yearly family income (%)</td>
<td></td>
<td></td>
<td>1.10</td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>32</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>$10,000−20,000</td>
<td>58</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>More than $20,000</td>
<td>10</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Family structure (%)</td>
<td></td>
<td></td>
<td>3.39</td>
</tr>
<tr>
<td>Two parents</td>
<td>20</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Single parent</td>
<td>72</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td><strong>Adolescent point of view</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marijuana use</td>
<td>11.79 (11.6)</td>
<td>10.43 (12.5)</td>
<td>0.71</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>2.39 (5.5)</td>
<td>1.98 (5.8)</td>
<td>0.29</td>
</tr>
<tr>
<td>Externalizing behaviors</td>
<td>18.77 (9.4)</td>
<td>17.43 (9.6)</td>
<td>1.08</td>
</tr>
<tr>
<td>Internalizing behaviors</td>
<td>11.10 (8.4)</td>
<td>9.7 (8.4)</td>
<td>1.53</td>
</tr>
<tr>
<td>Educational expectations</td>
<td>3.02 (1.4)</td>
<td>2.95 (1.5)</td>
<td>0.15</td>
</tr>
<tr>
<td>Family cohesion</td>
<td>5.62 (2.2)</td>
<td>5.90 (1.8)</td>
<td>1.01</td>
</tr>
<tr>
<td>Family conflict</td>
<td>4.16 (2.3)</td>
<td>3.54 (2.0)</td>
<td>4.61*</td>
</tr>
<tr>
<td><strong>Parent point of view</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Externalizing behaviors</td>
<td>25.93 (12.3)</td>
<td>21.87 (12.6)</td>
<td>5.73**</td>
</tr>
<tr>
<td>Internalizing behaviors</td>
<td>12.17 (7.9)</td>
<td>10.75 (9.6)</td>
<td>1.46</td>
</tr>
<tr>
<td>Family cohesion</td>
<td>5.66 (2.4)</td>
<td>5.79 (2.3)</td>
<td>0.17</td>
</tr>
<tr>
<td>Family conflict</td>
<td>3.85 (2.1)</td>
<td>3.62 (2.1)</td>
<td>0.61</td>
</tr>
<tr>
<td>Educational expectations</td>
<td>3.05 (1.5)</td>
<td>2.50 (1.4)</td>
<td>7.55***</td>
</tr>
<tr>
<td>Primary parent symptoms</td>
<td>0.44 (0.39)</td>
<td>0.49 (0.54)</td>
<td>0.53</td>
</tr>
<tr>
<td>Primary parent antisocial history (%)</td>
<td></td>
<td></td>
<td>1.76</td>
</tr>
<tr>
<td>Positive</td>
<td>9</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>91</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td><strong>Treatment characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDFT (%)</td>
<td>27.2</td>
<td>22.8</td>
<td>1.53</td>
</tr>
<tr>
<td>CBT (%)</td>
<td>25.4</td>
<td>24.6</td>
<td>1.46</td>
</tr>
<tr>
<td>Therapist*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Because of the number of therapists (n = 13), cell frequencies are not provided for brevity. Therapist crossbreak is available from the first author. MDFT = multidimensional family therapy; CBT = cognitive-behavioral therapy.

*p ≤ .05; **p ≤ .02; ***p ≤ .01.

Age, family income and structure, and adolescent juvenile justice involvement were not significantly different between the two groups. From the parent's point of view, externalizing symptoms of the adolescent were different between the two groups (F1,216 = 5.73, p < .02). Parents of engaged youths reported higher levels of youth externalizing symptoms than did parents of unengaged youths. No such difference was observed on the internalizing...
symptoms scale. Differences were also observed between the two groups on parental reporting of adolescent achievement expectation \( (F_{1,211} = 7.55, p < .01) \), with parents of engaged youths reporting a higher level of expectation on educational attainment when compared with parents of the unengaged group. Parental symptoms, specifically total symptoms and antisocial history, were not different between the two groups.

From the adolescent point of view, family conflict was significantly different between engaged and unengaged youths \( (F_{1,218} = 4.61, p < .05) \), with adolescents engaged in treatment reporting more family conflict at intake than those who were unengaged. Adolescent self-reports of drug use, externalizing symptoms, and internalizing symptoms were not significantly different between the two groups.

**Discriminant Function Analyses**

The results revealed a number of variables that might prove useful in predicting engagement in adolescent psychotherapy. We were also interested in the relative contribution of these variables in predicting engagement. To examine the contribution of each variable, we conducted a discriminant function analysis using all variables that were significantly different between engaged and unengaged groups at \( p < .05 \) in the univariate analyses (Table 1). These variables were adolescent age, parent report of adolescent's externalizing symptoms, parent expectations for their youth's academic achievement, and adolescent report of family conflict. The results of the discriminant function analysis presented in Table 2 yielded a significant function \( (\text{Wilks } \lambda = 0.94, \chi^2_4 = 15.92, p < .003) \). The canonical correlation was 0.28, with 63% of engaged youths and 60% of unengaged youths correctly classified.

An interesting consequence of the discriminant analysis was that adolescent age failed to reliably predict engagement. Thus, the discriminant function analysis was repeated with adolescent age removed. This resulted in a significant function \( (\text{Wilks } \lambda = 0.93, \chi^2_3 = 15.33, p < .002) \). The canonical correlation for this function was 0.27, and 62% of the engaged and 61% of the unengaged group were accurately classified.

The canonical correlations and discriminant function weights in the final discriminant function analysis suggest that engagement in adolescent psychotherapy is related to, in order of weighting: greater parent expectations for their adolescent's educational achievement, greater externalizing symptoms reported by parents, and higher levels of family conflict reported by the adolescent.

**DISCUSSION**

As expected, adolescents engaged in treatment were distinguished from the teenagers not engaged primarily in terms of parent and family characteristics. The findings reveal, in particular, the importance of parents' perceptions and attitudes. First, parents who perceived more externalizing symptoms in their adolescent were more likely to have their child remain in treatment than those who perceived less externalizing. These results suggest that parents' recognition of a serious problem increases the odds of an adolescent remaining in treatment. Clearly, a parent who acknowledges a problem will be more motivated to seek treatment for a child than a parent who minimizes such problems. Few would deny that participation in adolescent treatment relies on the parents' belief that the costs (e.g., disruption of daily routine, transportation and child care challenges, shame of not being able to solve one's own problems) are worth the potential benefits.

Next, the results suggest that recognition of a serious problem is not the only parental characteristic necessary for treatment engagement. We also found that parental expectations about their child's potential educational attainment were a critically important variable. Parents of engaged youths had higher educational expectations for their child compared with the expectations of parents of unengaged youths. We find this maintenance of educational expectations quite remarkable under the circumstances. The typical child in this study was involved in the juvenile justice system, a regular drug user, and had multiple school problems. We do not know whether the relatively high educational expectations from the parents of engaged youths stem from naiveté and ignorance, blind
faith, enduring hope, or deep parental love. Nevertheless, it is compelling that adolescent children of parents with this combination of recognizing trouble and believing their child can ultimately overcome this trouble (i.e., through success in school) were engaged in treatment.

Finally, youths who were engaged in treatment perceived more conflict in their families than did the dropouts. It is interesting that there was no difference between the two groups in parents' perception of family conflict; likewise, there was no difference in adolescents' reporting of their symptoms. Perhaps the adolescent's perception of family conflict was his or her way of acknowledging the problem, whereas parents acknowledged the problem as one that resided within the youth (i.e., severity of externalizing behaviors). This interpretation is consistent with the clinical reality that most referred adolescents do not see themselves as needing treatment—a fact that makes engagement, and treatment itself, difficult. In the engaged cases, both the parent and youth acknowledged the presence of a serious problem, whereas unengaged youths and their parents acknowledged the problem to a lesser degree. It is important to underscore that there were no differences between the two groups in extent of drug use, youth perception of their externalizing and internalizing symptoms, and juvenile justice involvement.

The finding that parental and family characteristics predict treatment attrition among youths is consistent with previous treatment research (Armbruster and Kazdin, 1994) and with developmental theory and research, which demonstrates that parental connection with their child changes but does not disappear as the child enters adolescence (Petersen, 1988). Furthermore, intervention research suggests that even after adolescent problem behaviors begin, parental changes are associated with positive changes in their adolescents (Dishion and Andrews, 1995; Schmidt et al., 1996). Given this situation, then, these findings offer empirical support for efforts to conduct specialized engagement interventions that work directly with the parent, as one way of engaging the teenager in treatment (Liddle et al., 1998). At the same time, the results also indicate that adolescent perceptions contribute to whether the youth will be engaged in treatment and therefore suggest that specialized, adolescent-focused engagement interventions are necessary.

Limitations

Before we discuss the clinical implications of these findings, three study limitations should be noted. First, the study is limited by its focus on adolescents referred to treatment primarily for their drug abuse and related externalizing problems. The present findings, then, might not generalize to adolescents referred for other problems. The three variables found to differentiate engaged participants from dropouts, namely parental perception of externalizing symptoms, adolescent perception of family conflict, and parental expectations about their child's academic achievement, might be uniquely related to adolescents with drug abuse and other externalizing problems. Whether these variables would distinguish treatment dropouts from those adolescents engaged in treatment for depression or anxiety, for example, is a question that cannot be answered by the current investigation.

Second, certain potentially important influences on retention were not studied; notable among these were motivational factors and barriers to treatment. For example, Melnick et al. (1997) found that adolescents' motivation and readiness predicted retention. In a study of child clients, Kazdin et al. (1997) found that parents' belief that the treatment will not solve the problem, the quality of the parent's relationship with the therapist, and practical obstacles to treatment (such as the lack of child care) were associated with attrition. Thus variables that were not measured in the current study—youth and parent motivation, practical obstacles to treatment, and therapeutic alliance—are potentially important additional predictors of premature termination from treatment.

Finally, the sample is composed of primarily low-income, urban, African-American males, a group known to be at high risk of dropping out of psychotherapy (Armbruster and Kazdin, 1994). The results, then, could depend on these sample characteristics. Although we found no differences with respect to ethnicity and income, the homogeneity of the sample only allowed us to explore the generality of findings in limited ways. Hence, we cannot know whether or not these results would generalize to youths of other backgrounds.

Clinical Implications

Despite these limitations, this study has identified a clinically relevant dropout risk profile. Moreover, it is one of a few studies that gathered information from both the parent and the youth, thereby demonstrating that both parent and youth perceptions influence the engagement process. This would suggest that adolescent engagement interventions be directed toward both the adolescent and the parents.
Although several family-focused engagement interventions have demonstrated improved retention of adolescents in psychotherapy (Ozchogowski and Liddle, in press), these interventions are highly specialized and might not be practical for many clinicians. For example, Henggeler et al. (1996) credit their high retention rates to the following features of their family-based treatment approach: holding sessions in the home, having low caseloads of four to six cases per therapist, and having therapists available to work with the family at any time and any place. The findings presented here, then, add a specific content focus to engagement interventions that is potentially useful to clinicians regardless of their service delivery context.

First, these findings suggest that both the adolescent and his or her parents must be helped to acknowledge the presence of a serious problem. At the engagement phase, it seems unimportant that the parent might blame the youth and the youth might blame the parent; rather, what is essential at this early stage is that each sees a problem in need of a solution. Thus therapists working with adolescents need to assess both the parents' and adolescents' perceptions of the problem state. If one or both appear to minimize the problem, the therapist must act quickly to help them see the seriousness of the problem and the seriousness of likely consequences if it is left untreated. Some models achieve this in a stepwise fashion by first accentuating the distress about the life circumstances of each individual family member, using distinct rationales and methods based on the parents' (Liddle et al., 1998) and adolescents' (Liddle et al., 1991) perspectives.

Next, we note the importance of parents' educational expectations for their adolescent child influencing engagement in treatment. This suggests that therapists ought to regularly assess such expectations and, if they are found wanting, work to help the parents gain more hope for their adolescent's academic and vocational future. This is especially important given that hopelessness is associated with dropout and poor response to treatment (Brent et al., 1997). Moreover, evidence suggests that parental educational expectations (or the lack thereof) for their adolescent are related to adolescents' academic and emotional functioning (Trusky, 1998).

The clinical implications derived from this study can potentially improve treatment engagement and retention among adolescent clients and perhaps facilitate treatment outcome. The influence of both family and youth characteristics in attrition and retention among adolescents suggests that adolescent engagement interventions need to involve both the parents and the adolescent in the engagement phase. Furthermore, the specific and different contents that are relevant for the parents and youths provide clues for particular thematic foci of engagement. Providers of family-based treatments understand the need to engage parents and adolescents differentially. Even group and individual modalities should include at least some family work to ensure youth participation, and family therapy should similarly include individual work with the adolescent (Liddle, 1995). Perhaps screening for the dropout risk factors identified in this study, followed by articulated engagement interventions driven by specific content, can improve retention and outcomes of adolescents in psychotherapy.

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**Factors Associated With Tobacco Sales to Minors: Lessons Learned From the FDA Compliance Checks.** Pamela I. Clark, PhD, Sharon L. Natanblut, MPA, Carol L. Schmitt, MA, Charles Wolters, MD, Ronaldo Iachan, PhD

**Context:** Tobacco products continue to be widely accessible to minors. Between 1997 and 1999, the US Food and Drug Administration (FDA) conducted more than 150,000 tobacco sales age-restriction compliance checks. Data obtained from these checks provide important guidance for curbing illegal sales. **Objective:** To determine which elements of the compliance checks were most highly associated with illegal sales and thereby inform best practices for conducting efficient compliance check programs.

**Design and Setting:** Cross-sectional analysis of FDA compliance checks in 110,062 unique establishments in 35 US states and the District of Columbia. **Main Outcome Measure:** Illegal sales of tobacco to minors at compliance checks; association of illegal sales with variables such as age and sex of the minor. **Results:** The rate of illegal sales for all first compliance checks in unique stores was 26.6%. Clerk failure to request proof of age was strongly associated with illegal sales (uncorrected sales rate, 10.5% compared with 0.03; 95% confidence interval [CI], 0.03–0.04. Other factors associated with increased illegal sales were employment of older minors to make the purchase attempt (adjusted ORs for 16- and 17-year-old minors compared with 15-year-olds were 1.58 [95% CI, 1.46–1.66] and 2.43 [95% CI, 2.31–2.59], respectively), attempt to purchase smokeless tobacco (adjusted OR, 2.16 [95% CI, 1.90–2.45] versus cigarette purchase attempts), and performing checks at or after 5 pm (adjusted OR, 1.28 [95% CI, 1.21–1.35] versus before 5 pm). Female sex of clerk and minor, Saturday checks, type of store (convenience store selling gas, gas station, drugstore, supermarket and general merchandise), and rural store locations also were associated with increased illegal sales. **Conclusions:** This analysis found that a request for age verification strongly predicted compliance with the law. The results suggest several ways in which the process of compliance checks might be optimized. JAMA 2000;284:729–734. Copyright 2000, American Medical Association.