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Organizational Predictors and Use of Evidence-Based Practices in Adolescent Substance Abuse Treatment

Maria Paino, PhD,

Oakland University, Department of Sociology, Anthropology, Social Work, and Criminal Justice

Lydia Aletraris, PhD, and

University of Georgia, Owens Institute for Behavioral Research

Paul M. Roman, PhD

University of Georgia, Owens Institute for Behavioral Research

Abstract

Background—Adolescent substance abuse remains a significant problem in the United States, yet treatment centers do not always admit adolescent clients. In this article, we first determine the extent to which treatment is available for adolescents in general and whether or not adolescent-specific (segregated) tracks are offered. Second, we examine the organizational characteristics associated with adolescent treatment. Third, we illuminate how the adolescent caseload in a treatment center is related to offering evidence-based practices (EBPs).

Methods—Drawing upon a nationally representative sample of U.S. treatment programs, we use logistic regression to assess how organizational characteristics are associated with the provision of adolescent treatment. Using ordinal logistic regression, we analyze how the treatment center's adolescent caseload and organizational characteristics affect the extent to which a treatment center offers medication-assisted treatment (MAT) and psychosocial treatment.

Results—Half (49.5%) of treatment programs admitted adolescents and 41.8% offered an adolescent-specific track. Findings from the logistic regression suggested several organizational characteristics that were significantly associated with treating adolescents and/or having an adolescent-only track. Our findings from the ordinal models indicated a negative relationship between the percent of adolescents in a treatment center and the extent of MAT, and a positive relationship between the percent of adolescent clients and the extent of psychosocial treatment offered.

Conclusions—This paper highlights organizational barriers to treatment entry for adolescents, who remain a small proportion of clients in treatment centers. When treatment centers serve adolescents, however, those adolescents are likely to receive care in adolescent-only tracks and/or services and in programs that offer several psychosocial EBPs. Finally, adolescents are less likely to receive treatment in centers that offer a variety of MAT.

Please direct correspondence to Maria Paino at the Department of Sociology, Anthropology, Social Work, and Criminal Justice, Oakland University, 506 Varner Hall; Rochester, MI 48309; paino@oakland.edu.

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Keywords

Adolescent; Substance Abuse; Treatment Centers; Medication-Assisted Treatment; Evidence-Based Practices

Introduction

Adolescent substance abuse is a significant health problem^{1,2} and a U.S. public health priority.³ In 2011, one fifth of adolescents (i.e., 12–17 year olds) used an illicit drug and more than one quarter drank alcohol.⁴ While adolescent substance use disorders (SUD) are tied to negative physical and mental health consequences,^{5–7} early intervention can significantly reduce both duration and impact of a SUD.^{8,9} Nevertheless, only 10% of adolescents with SUD receive treatment.¹⁰ This treatment gap could be due to multiple reasons (e.g., limited availability of programs for adolescents, adolescents' lack of motivation to enter treatment,^{11–13} adolescents' lack of recognition of the need for treatment¹⁴). Our study focuses on the availability of programs for the treatment of adolescents, and we address two phases of innovation. First, the treatment of adolescents for SUD is innovative, with the diffusion of adolescent-specific treatment beginning in the 1980s and growing through the 1990s.¹⁵ Techniques used in such treatment offer a second opportunity for innovation, as the diffusion of evidence-based practices (EBPs) over the past decade has not precluded adolescent application. Thus, treatment programs offering adolescent treatment via EBPs may be viewed as markedly innovative.

Provision of services for adolescents with SUD offers multiple challenges for treatment centers. First, the majority of treatment models have been designed using adult-oriented language and assumptions about occupancy of typical adult family and work roles.^{16,17} Second, SUD among adolescents are intermingled with biological and psychosocial growth transitions that are typically stressful (e.g. onset of puberty and changes in parental relationships and peer groups).¹⁸ Further, adolescents often enter SUD treatment due to referrals and pressures from schools, families, and the criminal justice system;¹⁹ thus, they may lack the motivation and readiness for treatment, when compared to adult clients who have deeper drug-related trouble and psychosocial loss.^{20,21} In a context of such complex forces, this paper addresses the national scope and content of adolescent SUD treatment.

Few studies have explored the treatment programs available for adolescents. Most research on adolescent treatment has relied on non-random samples of programs,^{16,22,23} or on administrative data from the federal N-SSATS surveys.^{24,25} Data from over ten years ago revealed that just over half of SUD treatment facilities admitted adolescents, and one third offered specific programs for them,²⁶ and recent data suggest little change.²⁷ Adolescents require developmentally appropriate treatment; thus, researchers suggest that separation of adult and adolescent treatment is ideal.^{16,28,29} Adolescents have unique needs, such as issues in family functioning and adjusting to biological maturation, and co-occurring mental health problems that need to be addressed.^{16,28,30,31} Indeed, the Center for Substance Abuse Treatment²⁹ recommends segregated tracks as a minimum level of quality in adolescent SUD treatment.

We draw upon a nationally representative sample of SUD treatment programs to address three research questions. First, to what extent is treatment available for adolescents in general, and to what extent are adolescent-specific (segregated) tracks offered? Second, how are organizational characteristics related to the admission of adolescents and presence of adolescent-only tracks in treatment programs? Finally, how is a treatment program's adolescent caseload associated with the use of EBPs?

Earlier findings inform our selection of organizational factors to explain differences in adolescent treatment offerings. For instance, compared to privately-funded centers, publicly-funded centers are more likely to exclude adolescents and less likely to offer components of quality for adolescent treatment.²⁷ Larger centers are more likely to include adolescents and offer adolescent-only programming compared to integrated adolescent and adult programming.²⁷ Organizational age, indicative of greater experience with market opportunities, is often a predictor of organizational outcomes,³² and older programs are often in a better position to provide tailored programs for a specific group, such as adolescents. Furthermore, most adolescent treatment is delivered in an outpatient setting, where adolescents often receive treatment in a group setting.^{4,33}

The 12-step model is common among SUD treatment centers;^{34–36} however, there has been debate on the fit between 12-step-based principles and treatment of adolescent clients. For example, adolescents may not be as receptive to approaches that rely on abstinence and spiritual growth.³⁷ Moreover, scholars have questioned the practice of using a disease model to label individuals who are not yet developmentally mature.^{35,37–39} Attempts have been made to modify the 12-step treatment program design to be more compatible with the needs of adolescents. There is limited empirical research on the use of 12-steps for adolescents, however, and findings suggest low rates of 12-step meeting attendance among youth in outpatient programs.⁴⁰ Due to the pervasiveness of the 12-step model, it is important to investigate how a 12-step emphasis affects the admission of adolescents in treatment programs.

The current study also considers the role that counselors play in the treatment of adolescents. Highly qualified staff with advanced degrees and certifications are better trained in treating co-occurring mental health problems and providing adolescent-specific treatment.³⁸ While most SUD clients experience co-occurring mental health problems, adolescents with SUD are at an even higher risk for co-occurring problems.^{30,31} These specialized adolescent requirements underscore the need for highly qualified staff, so we take into account the relationship between counselor credentials and treatment of adolescents.

Finally, we address factors that exist in the organizational environment – urbanicity and competition. Research suggests there are elevated rates of alcohol and drug use among rural adolescents, compared to their urban counterparts;^{41–43} thus, we explore the relationship between the setting of treatment centers and the likelihood of treating adolescents or offering adolescent-only services. In addition, a relevant market factor in the provision of adolescent treatment services is the degree of competition faced by treatment programs. Organizational scholars argue that organizations respond to environmental pressures such that they increase

sources of revenue.⁴⁴ Past research on hospitals shows that competition encourages organizations to diversify their revenue base and broaden their services offered.⁴⁵

Besides examining the factors associated with the availability of adolescent treatment, we also examine the relationship between the proportion of adolescent clients in a treatment program and the availability of EBPs, specifically medication-assisted treatment (MAT) and psychosocial treatment. SUD medications have not been extensively evaluated in clinical trials with adolescents.^{17,46,47} Clinical trials that do address adolescent use of disulfiram,^{48,49} and naltrexone^{17,48} find that MAT can be an effective adjunct to psychosocial treatment. Pharmacotherapy is not uncommon in adolescent treatment, with studies finding that as many as 55% of adolescents in treatment are receiving medications, although this number includes medications for co-occurring psychiatric disorders.⁵⁰ Conversely, medications specifically for treating SUD are rarely used for adolescents.⁵¹ This is partly due to age restrictions. For example, buprenorphine, which is associated with greater abstinence rates for adolescents,⁵² is available for those 16 years and older and if state/local laws permit.^{53,54} Methadone is limited to individuals who are at least 18 years old, although it is allowed for those younger if they have relapsed following two attempts at short-term rehabilitation.⁵⁴ Therefore, we expect that the greater the percentage of adolescent clients in a program, the less likely the program is to offer extensive MAT. In contrast, psychosocial EBPs that have been effective in treating adults, including Cognitive Behavioral Therapy and Motivational Enhancement Therapy, have been adopted or modified to be appropriate for adolescents,^{55–57} and we expect a variety of these to be offered in centers with a greater proportion of adolescents.

Methods

Data for these analyses come from the XXXX-Study (*Blinded-for-Review*), a family of ongoing surveys of SUD treatment providers in the US. Treatment program inclusion in the sample required a minimum level of care at least equivalent to structured outpatient services as defined by the American Society of Addiction Medicine's (ASAM) placement criteria.⁵⁸ For this survey, programs had at least 25% of their clientele admitted with alcohol as a primary substance abuse problem. Counselors in private practice, transitional living facilities, court-ordered driver education classes, detoxification services, programs located in Veterans Health Administration facilities or correctional facilities, and methadone-only programs were excluded.

Centers for the study were randomly selected using the SAMHSA substance abuse treatment facility locator and screened by telephone to establish eligibility. First, all U.S. counties were assigned to one of ten strata based on population size, then treatment centers were sampled proportionately across strata. Data were collected between June 2009 and January 2012, using face-to-face interviews with administrators and clinical directors of each program. All research procedures were approved by the IRB of the (*University-blinded-for-review*).

Dependent Variables

Serves Adolescents—Treatment centers were coded as 1 if they reported admitting any adolescents.

Adolescent-Only Track/Services—Treatment centers were coded as 1 if they offered segregated, adolescent-only tracks and/or services.

EBPs—We used two ordinal variables that indicate the extent to which the treatment center used extensive MAT (disulfiram, acamprosate, tablet naltrexone, injectable naltrexone, and buprenorphine) and the extent to which the center offered all of the following psychosocial therapies: motivational enhancement therapy (MET), contingency management (CM) (also known as motivational incentives or voucher-based reinforcement therapy), motivational interviewing (MI), and cognitive behavioral therapy (CBT). We used each of the two treatment types as dependent variables for separate analyses. See Table 1 for more detail.

Independent Variables

Our independent variables capture organizational and environmental characteristics that may influence treatment of adolescents, having a segregated adolescent-only track and/or service, and the types of EBPs offered within the treatment center.

Analytic Strategy—First, we used logistic regression in order to understand how organizational characteristics are associated with admitting adolescents and offering adolescent-only tracks. Second, we used ordinal logistic regression when assessing the relationship between a treatment program's adolescent caseload and two types of treatment. The two dependent variables in the second analysis had three or more categories and were ordinal in nature. Ordinal rankings ranged from low to high, and were not truly continuous variables, thus making Ordinary Least Squares regression inappropriate. After analyses, we ran a Brant test to determine whether or not a multinomial logistic regression was more appropriate.⁵⁹ The Brant test was not significant, indicating that the parallel regression assumption had not been violated, and ordinal logistic regression was the most appropriate statistical technique. Analyses were conducted using Stata 13.

Results

Our randomly selected sample resulted in 454 eligible centers. Of those randomly sampled centers, 307 treatment programs completed interviews, resulting in a response rate of 68%. After excluding cases with missing data on any variables, our final sample consisted of 287 treatment programs.

Table 1 provides descriptive statistics. Just under half of our sample (49.5%) admitted adolescents for treatment and 41.8% of all centers offered an adolescent-only track, although 79.6% of the 142 centers that treated adolescents offered an adolescent-only track. The average percentage of adolescent clients in a center was 10.43%, indicating that the majority of clients in treatment were adults. (See Table 1 for more detail on each variable).

Table 2 tests the relationship between organizational characteristics of treatment centers and admission of adolescents, and whether or not the center offered segregated adolescent-only tracks and/or services. Model 1 examined predictors of admitting adolescents to the center. We found a significant and positive association with the treatment center's size and number of client admissions, suggesting that larger treatment centers are more likely to have adolescents as part of their substance abuse population. Offering inpatient services was negatively associated with treating adolescents. A 12-step orientation was common in centers (only 10% of centers were not based on a 12-step model to any extent at all), and as the extent to which 12-steps were used increased, a center was less likely to treat adolescents ($p=.051$). The odds of including adolescents for admission were slightly greater in centers with a greater percentage of counselors with a Master's degrees or higher, while the percent of counselors with alcohol and/or drug certification trended toward a negative association with treating adolescents. Lastly, treatment centers located in urban areas were less likely to admit adolescents than suburban or rural centers.

In Model 2, we used logistic regression to examine the organizational factors associated with offering adolescent-only tracks. We found that greater client admissions were positively associated with providing adolescent-only tracks/services. There was a similar finding for older treatment centers. Offering inpatient services was negatively associated with having an adolescent-only track. With regard to counselor characteristics, we found that an increase in the percentage of certified counselors was negatively associated with having adolescent-only tracks/services. Finally, centers located in urban areas were negatively associated with providing a segregated adolescent-only track and/or special services.

In supplemental analyses, not shown here, we replicated Model 2 using the subsample of centers that reported treating adolescents ($n=142$). These results indicated that the center's age had a positive effect on having an adolescent-only track (vs. an integrated adolescent/adult track), and as the percentage of counselors who held Master's degrees increased, centers were less likely to offer an adolescent-only track. Treatment centers in counties with increased competition were less likely to offer adolescent-only services.

Table 3 presents descriptive statistics on the use of MAT and psychosocial treatment. The table shows that the use of any MAT was relatively low across centers. Using a chi-square test, we found that disulfiram and buprenorphine were less likely to be offered in centers that treated adolescents. While the remaining medications were also less likely to be used in centers that treated adolescents, these differences were not statistically significant. The use of psychosocial EBPs was prevalent in all centers, with the exception of CM. The only significant difference was for the use of CBT, where use was greater in centers that admitted adolescents.

In Table 4, we took our analyses a step further by examining the relationship between adolescent caseload and the extent of services offered. In Model 1, we assessed the relationship between the percentage of adolescent clients in a treatment center and the extent to which a center used MAT. We found that as the percentage of adolescents in the treatment center increased, the extent to which the center used a variety of MAT options

decreased. In addition, privately-funded centers, accredited centers, centers with more employees, and centers with a greater percentage of counselors with advanced education were all positively associated with offering more extensive MAT. Client admissions were negatively associated with offering a variety of MAT.

In Model 2, we focused on the relationship between treating adolescents and use of psychosocial EBPs. We found a significant and positive relationship between the percent of adolescents and behavioral therapies, indicating that an increase in a center's adolescent caseload was significantly associated with the extent to which a center offered psychosocial EBPs. Privately-funded centers were less likely to offer extensive psychosocial EBPs, while centers with more client admissions and a greater percentage of certified counselors were more likely to offer a greater variety of psychosocial interventions.

The findings we present in Table 4 relied upon a continuous independent variable of a center's adolescent caseload. Supplemental models, not shown here, tested Model 1 and Model 2 using a dichotomous independent variable of adolescents (vs. no adolescents). In addition, we tested models from Table 4 using *only* those cases with adolescents (n=142), and results were substantively similar. Thus, we feel confident that the results shown in these models are robust.

Discussion

Our research extends the literature on adolescent SUD treatment by examining services offered within a national random sample of programs. We found that the availability of adolescent treatment and separate adolescent tracks was limited. A substantial percentage of treatment organizations did not offer specific adolescent tracks (compared to integrated adolescent/adult tracks) and many excluded adolescents from admission altogether. Just over half (50.5%) of the programs did not admit adolescents. Of those that did admit adolescents, nearly 80% offered a separate adolescent track, suggesting that these programs are reaching a minimum threshold of quality in adolescent treatment.²⁹ Even so, very few centers (n=11) were adolescent-only, a feature which might indicate a greater level of quality that is best suited to meet adolescents' unique needs. Only 10% of adolescents with SUD are receiving treatment,¹⁰ however, suggesting that programs are not reaching as many adolescents as needed. Therefore, adolescents with SUD may face significant barriers in accessing quality treatment services.

Reports on adolescent treatment state that segregating adolescents is ideal,^{16,28,29} and understanding how organizational factors are linked to the delivery of adolescent treatment is critical. Future SUD treatment will be impacted by Affordable Care Act provisions that emphasize prevention, leading to a possible increased emphasis on adolescent interventions, since they occur earliest in the life cycle. Future policies should consider mandating adolescent-specific training for practitioners.

Our findings suggest that adolescents tend to be in centers with specific organizational characteristics, and these associations may have real implications for the level and type of treatment received. Importantly, adolescents are less likely to receive treatment in centers

that have higher percentages of counselors with alcohol and/or drug certifications. There is concern about the provision of SUD treatment being provided by individuals without adequate training and credentials required to effectively deliver EBPs.⁶⁰ We found that treatment centers located in urban settings were less likely to treat adolescents, or have adolescent-only tracks, and this is consistent with extant research finding that rural adolescents are more likely to abuse alcohol and drugs.^{41,42} Nevertheless, research suggests that smaller communities often have difficulty attracting adequately trained SUD workers.⁶¹

Consistent with other findings, inpatient services were negatively associated with treating adolescents and with offering adolescent-only tracks.⁴ We found that larger centers (measured separately through staff and clients) were more likely to admit adolescents and older centers as well as those with more clients were more likely to offer segregated tracks. Age and size are often key predictors of organizational stability and health,³² and these findings suggest that adolescent-only treatment is common in more stable organizations.

While a 12-step orientation was prevalent among treatment centers, adolescents were less likely to find themselves in centers that extensively used the 12-steps. Some researchers suggest that the age gap between adolescents and other members, and the spiritual emphasis which may be developmentally inappropriate for adolescents, may be barriers to 12-step participation.³⁷ Future studies should continue to examine how 12-step participation is linked to outcomes for adolescents.

Despite the fact that MAT is considered an effective EBP,^{62,63} adolescents with SUD were significantly less likely to be located in centers that emphasize MAT. In our sample of treatment centers, use of MAT was low overall, a finding consistent with past research.^{64–67} Our finding that use was even lower in treatment centers with adolescents could be due to the fact that scientific research on MAT for adolescents remains a nascent area.¹⁷ We also found that as the center's adolescent caseload increased, the center was more likely to offer extensive psychosocial EBP options. While there is a great deal of concern in the literature about the failure of treatment programs to adopt EBPs,^{3,65,68,69} particularly medications, the lack of extensive empirical research to guide the use of such an innovation for adolescents is one potential explanation for this particular “gap” in research to practice.

SUD clients are typically offered a single type of treatment,⁷⁰ and that single treatment is seldom an EBP.⁶⁹ While any single treatment may be effective for some, it is important to consider patients' unique needs and preferences, highlighting the need for several treatment options.⁷⁰ Quality care should include several treatment options that encompass MAT and evidence-based psychosocial treatment, and not rely on a single treatment.⁷⁰ Although it is encouraging that programs with a greater percentage of adolescent clients are offering a variety of behavioral treatments options, there are still barriers to adoption of MAT, particularly for centers with more (or any) adolescents.

In this paper, we examined the characteristics of treatment organizations that admit adolescents, those that offer adolescent-only tracks, and the types of interventions typically offered, but the findings have limitations. While our sample is representative of treatment centers, the findings cannot be generalized to the field in general. The data are based on self-

reports of administrative and clinical directors, which may be subject to social desirability and recall bias, although this is a common practice in federal surveys (e.g. N-SSATS) as well as other organizational-level research. Our data do not allow us to examine which of the EBPs are provided directly to adolescents in the program. Our supplemental models examining adolescent-only tracks, using only the sub-sample of centers that treated adolescents, were limited in scope due to the fact that there was very little variation on our dependent variable. This precludes us from conducting multinomial regression comparing treatment centers that do not treat adolescents, those that have segregated tracks, and centers that integrate adolescents with adults. Further, limitations due to cross-sectional data reduce our ability to make firm causal claims.

The findings are crucial for improving our understanding of the settings in which adolescents receive SUD treatment. Future research should examine these relationships using longitudinal data in an effort to better understand how adolescents are served. Substance abuse scholars should continue to explore the factors and barriers associated with providing adolescent SUD treatment.

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Table 1

Descriptive Statistics

Variable	Description	M (SD) or % (n)	Min.	Max.
<i>Dependent Variables</i>				
Serves Adolescents	This dichotomous variable indicates if the treatment center treats adolescents or not. Only 11 centers (3.8%) solely admitted adolescents.	49.5% (142)	0	1
Adolescent-Only Track/Services	This dichotomous variable indicates whether or not the treatment center has a segregated "adolescent-only" track or special services (e.g. counseling, groups) for the adolescent population. Coded as 1 if an adolescent-only track is available or the treatment center includes special services specifically for adolescents in treatment.	41.8% (120)	0	1
Medication-Assisted Treatment (MAT)	The extent to which the treatment center uses MAT for SUD treatment. This includes: disulfiram, acamprosate, tablet naltrexone, injectable naltrexone, and buprenorphine. This ordinal variable ranges from 0–2, where 0= no medications are used, 1=1 type of medication is used, and 2=2+ medications are used. Fewer than 7% of centers offered 3, 4, or 5 medications, therefore we combine the latter 4 categories.	0.49 (0.79)	0	2
Psychosocial Treatment	The extent to which the treatment center uses psychosocial treatment. This includes contingency management (CM), motivational interviewing (MI), motivational enhancement therapy (MET), and cognitive behavioral therapy (CBT). This ordinal variable ranges from 0–2, where 0=0–1 type of behavioral treatment used in the center 1=2 behavioral treatments and 2=3+ behavioral treatments. Approximately 99% of centers used at least 1 psychosocial treatment, thus we combine 0–1 into one category.	1.41 (0.71)	0	2
<i>Independent Variables</i>				
Percent of Adolescent Clients	The percentage of adolescent clients in the treatment center. This variable is only included in the models examining the extent to which centers use MAT and psychosocial treatment. Among treatment centers that treat adolescents (n=142) the mean is 21.1%	10.43 (22.65)	0	100
Privately-Funded	The treatment center is primarily privately funded. Coded as 1 if more than 50% of revenues come from private sources (e.g. client fees, private insurance, and income sources other than "block" funding such as government contracts or grants). Medicaid and Medicare were not regarded as "block" funding because, unlike government block grants, they are not guaranteed sources of revenue for centers, and thus are more similar to private sources (i.e. centers must seek individual Medicaid/Medicare patients).	44.9% (129)	0	1
Accredited	The treatment center is accredited through either of the following accreditation bodies: Commission on Accreditation of Rehabilitation Facilities (CARF) or The Joint Commission on Accreditation of Healthcare Organizations (JCAHO).	36.2% (104)	0	1
Organizational Size	The size of the center is measured through full-time equivalent employees (FTEs). This variable is logged to adjust for skew. A mean of 2.56 is equivalent to around 23 FTEs	2.56 (1.09)	-1.39	6.81
Client Admissions	Client admissions is based on the center's reported census from among the following levels of care: inpatient (IP) (30 days or less), IP detox, partial hospitalization, residential (more than 30 days), outpatient (OP), OP detox, intensive OP. This variable is logged to adjust for skew. A mean of 4.15 is equivalent to about 63 client admissions.	4.15 (1.09)	1.39	6.47
Age	The age of the center in years.	27.94 (16.08)	0	162
For-Profit	The treatment center is coded 1 for a for-profit institution.	22.0% (63)	0	1
Inpatient Services	Coded as 1 if treatment center offers standard inpatient and/or intensive inpatient care and 0 if treatment does not offer inpatient and/or inpatient care.	46.7% (134)	0	1

Variable	Description	M (SD) or % (n)	Min.	Max.
12-Step Orientation	The extent to which the center's treatment is based on a 12-step model. This variable ranges from 0–5, where 0=no extent, and 5=a very great extent.	3.25 (1.67)	0	5
Percent of Counselors with Master's Degree	The percent of counselors in the treatment center who have a Master's degree or higher.	43.45 (35.15)	0	100
Percent of Counselors with Alcohol/Drug Certification	The percent of counselors in the treatment center who have a certification in alcohol and/or drug abuse.	55.81 (37.41)	0	100
Urban	The treatment center is coded 1 if it is located in a county in a metro area.	70.0% (201)	0	1
Competition	Competition is measured using density. This variable indicates the number of treatment centers per 100,000 people within the county (Source: National Survey of Substance Abuse Treatment Services (N-SSATS). On average, counties have about 6 treatment centers for every 100,000 individuals in the county.	6.21 (4.88)	0.19	44.5

N=287

Table 2

Logistic Regression of Treatment of Adolescents and Adolescent-Only Tracks and/or Services on Organizational Characteristics

	Center Serves Adolescents	Center offers Adolescent-Only Track
Variables	Model 1 (Odds Ratios)	Model 2 (Odds Ratios)
Privately-Funded	1.410	0.992
Accredited	0.707	0.850
Organizational Size	1.478 *	1.296
Client Admissions	1.344 *	1.401 *
Age	1.004	1.018 †
For-Profit	0.960	0.970
Inpatient Services	0.561 †	0.591 †
12-Step Orientation	0.853 †	0.940
Percent of Counselors with Master's Degree or Higher	1.009 *	1.003
Percent of Counselors with Alcohol/Drug Certification	0.993 †	0.991 *
Urban	0.371 **	0.446 **
Competition (Density)	1.022	0.965

N=287

†
p<0.10

*
p<0.05

**
p<0.01

p<0.001

Table 3

Percentages of Evidence-Based Practices

Treatment	Center Treats Adolescents (n=142)	Center Does Not Treat Adolescents (n=145)	Chi-Square Test
<i><u>Medication-Assisted Treatment</u></i>			
Disulfiram	9%	16%	†
Acamprosate	17%	17%	
Tablet Naltrexone	11%	14%	
Injectable Naltrexone	10%	16%	
Buprenorphine	11%	19%	†
<i><u>Psychosocial Treatment</u></i>			
Motivational Enhancement Therapy (MET)	52%	43%	
Contingency Management (CM)	40%	37%	
Motivational Interviewing (MI)	77%	79%	
Cognitive Behavioral Therapy (CBT)	94%	88%	*

†
p<0.10*
p<0.05

Table 4

Ordinal Logistic Regression of MAT and Psychosocial Treatment on Adolescents

Variables	Model 1	Model 2
	Medication-Assisted Treatment (Odds Ratios)	Psychosocial Treatment (Odds Ratios)
Percent of Adolescent Clients	0.964 ***	1.012 *
Privately-Funded	2.359 **	0.656 †
Accredited	2.138 *	1.058
Organizational Size	2.067 ***	1.104
Client Admissions	0.765 †	1.428 **
Age	0.999	0.990
For-Profit	0.521	0.748
Inpatient Services	0.900	0.975
12-Step Orientation	0.904	0.952
Percent of Counselors with Master's Degree or Higher	1.017 ***	1.002
Percent of Counselors with Alcohol/Drug Certification	1.002	1.006 †
Urban	0.755	1.203
Competition (Density)	1.039	0.958

N=287

†
p<0.10*
p<0.05**
p<0.01***
p<0.001