Effective Approaches to Adolescent Addiction: Evaluation of the Alberta Adolescent Recovery Centre (AARC) 

Findings and Implications for Clinicians, Researchers, and Policymakers

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Suggested Citation


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Description of AARC

The Alberta Adolescent Recovery Centre (AARC) is located in Calgary, Alberta, Canada and provides treatment for adolescents and young adults ages 12 to 21 with a substance use disorder and related problems, including co-existing mental or behavioral disorders. The program consists of a rigorous screening and assessment process and is organized around an abstinence-based 12-step model. Unlike many adolescent addiction treatment programs, treatment at AARC is not time-limited and is designed so that the person works through all 12 steps, rather than the first few steps as is typical for 12-step-based programs. AARC also incorporates other therapeutic strategies, including cognitive behavioral interventions, peer-facilitated groups, and family and individual therapy. A unique feature of treatment at AARC is that adolescents spend nights in “Recovery Homes”—the private residences of selected local families who either have an adolescent currently in treatment at AARC or an alumni family who volunteer to be a host.¹

Evaluation Design

A team of experts in adolescent substance use disorders and evaluation of addiction treatment at the University of Maryland School of Public Health (UMD) and the University of Minnesota worked in collaboration with AARC to design and conduct the evaluation. Ethics approval was obtained from the UMD Institutional Review Board. Figure 1 provides an overview of the two studies that comprised the evaluation.

Figure 1. Study design for the evaluation of the Alberta Adolescent Recovery Centre

¹ For more information about AARC, please visit www.aarc.ab.ca and www.go.umd.edu/aarc.
Study #1: What factors were associated with completing treatment?

Background
The first study sought to obtain a description of the characteristics of AARC adolescents and to document the proportion who completed the program. Toward this aim, UMD research staff conducted a site visit at AARC. De-identified adolescent treatment information from 2008 to 2012 was abstracted from charts, including the number of pre-assessments, client intakes, departures, and graduations each year. Personal identifying information was removed to protect the privacy of the adolescents.

Main Findings
Between 2008 and 2012, 297 adolescents completed a “pre-assessment” to evaluate their suitability for the program and during which more information about AARC was provided to the adolescent and their family. Following a pre-assessment, 50.2% of adolescents entered treatment at AARC. The average age at treatment entry was 16.2 years, and the majority of adolescents were male (61.7%) and white (75.2%). The vast majority of admitted adolescents completed all required treatment components and were considered to be program “graduates” (80.5%).

It is rare in North America for an adolescent to receive 90 days of intensive treatment; most programs are limited to 30 days. Among AARC program graduates, the median length of stay was 277 days.

Twenty-nine adolescents (19.5%) left the program prior to graduation. The number of treatment days for these early departures ranged from 4 to 449 days, with a median of 64 days. The most common reasons for early discharge were: 1) parents deciding not to continue with treatment (n=9), and 2) the adolescent did not show signs of a drug problem that was severe enough to warrant treatment at AARC (n=7). When treatment completers were compared with non-completers on demographic and other variables assessed at intake, the only significant difference was that adolescents with a higher level of substance use severity (as measured by the SASSI) at intake were more likely to complete treatment. This finding most likely reflects a higher degree of involvement in the addiction treatment process by adolescents who have more serious substance use problems.

Treatment length is an exceptional feature of AARC that makes it stand out from most programs. It is rare in North America for an adolescent to receive 90 days of intensive treatment; most programs are limited to 30 days. Among AARC program graduates, the median length of stay was 277 days (range 217 to 400 days).
Study #2: Evaluating Post-Treatment Outcomes

Background
The second part of the evaluation focused on describing the functioning of AARC adolescents following graduation. Substance use and psychosocial function (e.g., education, employment, and family functioning) variables following treatment were of great interest and were assessed during a 60-minute phone interview. The study was conducted in cooperation with AARC staff, who initially contacted adolescents who had completed a pre-assessment and/or received at least some treatment at AARC between 2008 and 2012. Family members of the former clients were also contacted and invited to participate in a 30-minute phone interview. After AARC staff gained initial consent from the adolescents and/or their family members to be contacted by the research team, individuals were interviewed by research staff to learn about their experiences and behaviors after leaving the program, as well as family functioning and quality of relationships between the adolescents and family members. AARC staff were not involved in the interview process and did not have access to the interview data.

Sample Sizes
Adolescents for whom at least a pre-assessment was completed between 2008 and 2012 were eligible to participate, regardless of whether or not they chose to enter treatment following the pre-assessment. The reasoning for this design feature was to compare outcomes between adolescents who did and did not receive treatment at AARC. Twelve adolescents were excluded from participating in the study either because they would not allow future contact by AARC staff, they were employed by AARC, or they were incarcerated. One individual was determined to be deceased. Therefore, 284 adolescents met eligibility criteria for being interviewed \((n=142 \text{ pre-assessment only}, n=38 \text{ non-graduates}, \text{ and } n=104 \text{ program graduates})\). Interviews were completed with 51 former clients and 71 family members, together representing 84 families, divided as follows: 11 pre-assessment only, 12 non-graduates, and 61 graduates.
Sample Characteristics
Slightly more than half of the sample was male and most (88%) came from families who had an annual income of more than $30,000. Most adolescents (73%) had received treatment for substance use, mental health conditions, or behavioral issues prior to entering treatment at AARC. The majority of the sample (80.5%) graduated from AARC, while the remaining 19.5% choose not to enter treatment after completing a pre-assessment or left AARC without completing the program. All adolescents, regardless of treatment completion, are included in the results described in this section.

Substance Use After Leaving AARC
Abstinence (defined as no use of alcohol and/or all other drugs) was assessed at two time points: one year after leaving AARC and two years after leaving AARC. Figure 2 shows the proportion of graduates and non-graduates who were abstinent at 12 months and 24 months post-AARC. Abstinence at these time points was more common among AARC graduates compared with non-graduates. Not surprisingly, among AARC graduates, abstinence peaked at the one-year after leaving AARC data point (73%) and was lower at 24 months post-AARC (59%). Abstinence was also more prevalent among AARC graduates than non-graduates during the 12 months preceding when each participant completed the telephone interview (56% vs. 10%, respectively). The proportion of graduates who were “recently” abstinent is impressive given that the average length of time between leaving treatment at AARC and the administration of the interview was 5.3 years.

When relapse occurred, nearly all of such instances involved alcohol use (97%). Among adolescents who had consumed alcohol during the past 12 months, the average number of days drank during the past year during this period was 50 days, and three-quarters of these adolescents (75%) met criteria for alcohol use disorder. Similarly, the majority of instances of relapse also involved marijuana use (88%). Among adolescents who used marijuana during the 12 months prior to the interview, the mean frequency of use was 66 days and about half (55%) met criteria for a cannabis use disorder.
Numerous client characteristics and treatment experiences were tested for their association with abstinence vs. non-abstinence at the past-year data point. After accounting for the influence of age, gender, and prior criminal history, only graduation from AARC was a statistically significant predictor of recent abstinence. That is, program graduation was associated with greater odds of being abstinent. Length of treatment was associated with recent abstinence (more days spent in treatment was associated with greater likelihood of recent abstinence), but this association was not statistically significant after controlling for demographic characteristics. Also, among the AARC graduates who relapsed at least once, almost half (42%) returned to AARC for a refresher.

At the time of their interview, 22% attended Alcoholics Anonymous (AA) or Narcotics Anonymous (NA) weekly or daily. One-third (33%) of adolescents who were currently abstinent attended AA/NA meetings regularly, compared with 11% of adolescents who were not abstinent.

Psychosocial Functioning

Results from the assessment of several domains related to psychosocial functioning are described below.

<table>
<thead>
<tr>
<th>Education and Employment</th>
<th>High-risk Behaviors</th>
<th>Relationships</th>
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<tbody>
<tr>
<td>15% had completed a high school degree or equivalent prior to entering treatment. By the time of the interview, 73% had a high school degree or equivalent, and 48% had completed at least some post-secondary education.</td>
<td>A slight majority of adolescents (53%) said that all or the majority of their current friends still use alcohol and/or other drugs.</td>
<td>Nearly half (47%) of adolescents were currently in a serious relationship or married.</td>
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<td>69% were currently employed full- or part-time, 18% were unemployed but looking for work, and only 9.8% were unemployed and not looking for work.</td>
<td>A sizeable number of respondents engaged in unlawful or delinquent behavior. Since leaving treatment, 61% had engaged in at least one delinquent act. Theft and making money doing something illegal were the most commonly endorsed delinquent behaviors (47% and 41%, respectively). Very few participants (10%) had been arrested for drug offenses.</td>
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Relationship between Abstinence and Psychosocial Functioning

Compared with adolescents who recently used alcohol and/or drugs, those who were abstinent during the year prior to being interviewed were: 1) more likely to complete high school, 2) more likely to be currently employed, 3) had more stability with respect to interpersonal relationships, 4) had greater levels of self-reported life satisfaction, 5) were less likely to be affiliated with drug-using friends, 6) were less engaged in delinquent behaviors, and 7) were less likely to engage in risky driving.

Mental Health Conditions

Since leaving treatment, the majority of adolescents (67%) had been either diagnosed with or treated for at least one mental health condition. Approximately one-third of adolescents (35%) had more than one mental health condition. The most common conditions were anxiety (43%) and mood disorders (43%). The prevalence of mental health conditions was roughly the same among abstainers and non-abstainers.
Strategies for Remaining Abstinent

Among adolescents in the past-year abstinent group, the overwhelming majority judged that they were “somewhat” or “very” likely to remain abstinent from alcohol (100%) and other drugs (96%) during the upcoming year. However, among non-abstainers, this level of confidence to be abstinent during the upcoming year was lower (85% and 67% for alcohol and other drugs, respectively).

It is informative to highlight the strategies and approaches the abstainers identified to support their abstinence from drug use. When asked how often they used specific strategies, more than half of the sample said they used the following approaches “frequently”:

- When someone has criticized me, I have tried to find some way to deal with it without using alcohol or drugs.
- I have adopted a positive outlook that helps me not to drink or use drugs.
- I have shown interest in what other people have to say and the feelings they express.
- I have done something else instead of drinking or using drugs when I need to deal with tension.
- When I have felt angry, I have tried first to calm myself down.

Interestingly, some approaches suggested by the research literature as effective in promoting abstinence were not widely used among abstainers. These include the following:

- I used willpower to keep from drinking and using drugs.
- I have considered that feeling good about myself includes changing my drinking and drug use behavior.
- I have tried to think about other things when I begin to think about drinking or using drugs.
- I have told myself that if I try hard enough, I can keep from drinking or using drugs.

AARC Connections and Recovery

An important source of support in recovery noted by several adolescents was maintaining connections to friends from AARC. One adolescent stated that “school was awkward at times because you hear about people partying and stuff, but there were enough AARC grads at that school that I could go to them for support.” Another said “I ended up relapsing. I isolated myself from my AARC friends. I made excuses that they were too far away.”

Abstinence strategies that worked

When someone has criticized me, I have tried to find some way to deal with it without using alcohol or drugs.

I have adopted a positive outlook that helps me not to drink or use drugs.

I have shown interest in what other people have to say and the feelings they express.

I have done something else instead of drinking or using drugs when I need to deal with tension.

When I have felt angry, I have tried first to calm myself down.
Dealing with Relapse Triggers

During the interview, adolescents were asked about things that could “trigger” drug use. The following things were cited by nearly all past-year non-abstainers as powerful triggers:

- You are in agony because of stopping or withdrawing from alcohol or drug use
- You are being offered alcohol or drugs in a social situation
- You are on vacation and want to relax
- You are excited or celebrating with others

By incorporating assessment tools and behavior change strategies, AARC provides an impressive model of a long-term, comprehensive, semi-residential treatment program.

Discussion

The adolescent substance abuse treatment field has benefitted since 1990 from the development and rigorous evaluation of treatments for adolescent drug abuse and addiction. The field now benefits from evidence-based strategies and practices that are associated with reductions in substance use and the associated short- and long-term individual and societal costs that result from this disorder.¹ Thus, the field is characterized by a wide range of quality treatment approaches, that include the use of assessment tools developed for and validated on adolescent populations and several behavior change strategies that target drug use and co-occurring problems. By incorporating these approaches, AARC provides an impressive model of a long-term, comprehensive, semi-residential treatment program. In the context of the published outcome literature, the proportion of AARC graduates who were abstinent from drug use is impressive.
Implications for Clinical Practice

The positive and encouraging evaluation findings suggest that AARC “stay the course” regarding its core components (e.g., rigorous assessment process, 12-step focus supplemented by other counseling techniques, use of both individual and group counseling, treating the whole family, Recovery Homes, addressing co-existing disorders, and being flexible with length of treatment).

To further maximize the benefits of treatment, it is recommended that AARC staff strengthen efforts to educate and support their clients in preparing for the challenges after treatment. Helping adolescents develop skills for dealing with recovery and many other “life issues” is important for promoting sustained recovery. The following are suggested strategies to strengthen the AARC program:

1. **Developing a personalized recovery roadmap:** Prior to discharge, each adolescent with guidance from staff, should develop a personalized “recovery roadmap” that details the keys for preparing for and navigating life after treatment. This approach should be personalized; it cannot be one-size-fits-all. The roadmap would include, at minimum, addressing challenges common to young adulthood (e.g., long-term relationships, employment, long-term career decisions) and dealing with relapse triggers (e.g., strategies for hypothetical situations, such as “You’re at a party and a friend offers you a drink. What do you do?”).

2. **Strengthening cognitive behavioral skills as a part of the treatment process:** It is instructive that many AARC graduates viewed using willpower and some cognitive strategies as relatively ineffective for maintaining abstinence (e.g., “I have told myself that if I try hard enough, I can keep from drinking or using drugs”). Fortunately, there is a rich literature on the use of cognitive strategies to support recovery; such approaches might merit more regular inclusion during AARC group and individual sessions.

3. **Providing opportunities to practice skills:** AARC staff can help adolescents develop foundational skills and assets for recovery roadmaps by targeting topic areas for group and individual counseling. **Table 1** provides a list of topic areas, counseling objectives, and suggested learning activities for each. The list is based on the research literature and informed by findings from the AARC evaluation (e.g., many AARC graduates viewed using willpower and some cognitive strategies as relatively ineffective for maintaining abstinence).
Implications for Research

As noted earlier, rigorous research during the past three decades has provided a substantial knowledge base about effective clinical strategies for adolescent substance use treatment. However, long-term examinations of treatment programs remain relatively rare. To improve the effectiveness of adolescent treatment programs, several considerations should be taken into account when designing evaluation studies:

1. **Assess psychosocial functioning using a long-term, naturalistic approach:** Existing evaluations are often limited to assessing short-term abstinence rates. Focusing on abstinence fails to account for the effects that treatment can have on other aspects of an adolescent’s life, such as improved personal relationships or consistent employment. Studies that incorporate measures of psychosocial functioning, particularly long-term functioning, can better describe these important treatment effects. For this purpose, naturalistic studies are more appropriate than a clinical trial study.

2. **Locator update protocols are necessary:** To assess long-term outcomes, protocols must be implemented to track adolescents following treatment completion (or non-completion) and routinely update their contact information. Access to recent information facilitates contacting former clients to gather data during an evaluation study.

3. **Evaluate overall treatment models rather than just specific components:** Existing research often focuses on evaluating one specific treatment component. Further research is needed to evaluate overall treatment models to help clinicians and researchers understand whether or not certain combinations of treatment components are more effective than others.
Policy Implications

Policymakers play a critical role in ensuring that individuals have access to the treatment and recovery support services they need. Policy-based strategies to support recovery include:

1. **Support long-term treatment:** The positive findings related to the AARC program provide further evidence that policies should support long-term treatment as opposed to emphasizing short-term care models. Health insurance should be encouraged to cover the cost of longer-term management of addiction as it is a chronic relapsing condition.\(^2\)\(^,\)\(^3\) In the long run, paying for long-term management of addiction will reduce the risk for relapse and be much more cost-effective due to the cost-savings on major health events that can occur when addiction is not managed as well as criminal justice-related expenditures.\(^4\)\(^,\)\(^5\) Costs should be covered for not only acute inpatient treatment but also for the continuing care programs that are essential to supporting long-term recovery.

2. **Integrate recovery support into schools:** Educational leaders in Canada should seriously consider integrating recovery support services into the secondary school system, either as a separate option (as has been done with recovery high schools in the United States\(^6\)) or by providing access to recovery support services to adolescents enrolled in mainstream high schools. Certainly, ensuring that adolescents who have been treated for their substance use disorder are given the opportunity to complete their education is a shared goal for students, parents, educational professionals, and policymakers. Furthermore, schools offer an opportunistic setting in which to educate parents about addressing adolescent drug use, whether it’s pertaining to primary prevention or assisting a daughter or son who needs treatment or is in recovery.

3. **Maintain strong links between the criminal justice system and treatment:** Individuals working with juvenile offenders should be aware of how to screen for substance use disorder and refer to quality treatment programs as needed. Because of the known contribution of substance use problems to criminal offending, providing options to receive appropriate clinical interventions for an underlying substance use problem will in the long run reduce recidivism and save criminal justice costs.
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<tr>
<th>Topics</th>
<th>Objective</th>
<th>Counseling Activity/Strategy</th>
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<tr>
<td>Develop Coping Skills to Deal with Stress(^1)</td>
<td>Recognize warning signs of stress; identify sources of stress; recognize sources that can and cannot be changed; increase skills and self-efficacy to reduce stress; increase awareness that drug use is not an effective response to stress</td>
<td>Engagement; cognitive restructuring to change stress appraisal; training in assertive communication skills; planning to increase pleasant activities; and training in exercises to control stress arousal (e.g., deep breathing; mindfulness); setting goals</td>
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<td>Mood Management: Anger(^2)</td>
<td>Recognize symptoms and sources of anger; recognize sources that can and cannot be changed; increase skills and self-efficacy to reduce anger; increase awareness that drug use is not an effective response to anger</td>
<td>Engagement; cognitive behavioral strategies to change anger appraisal; training in anger-reduction strategies (e.g., cognitive restructuring; assertive communication rather than aggressive communication; mindfulness to defuse anger); emphasize the importance of seeking support from others; setting goals</td>
</tr>
<tr>
<td>Mood Management: Depression(^2)</td>
<td>Recognize symptoms and sources of depression; recognize sources that can and cannot be changed; increase skills and self-efficacy to address depressed mood; increase awareness that drug use is not an effective response to depression</td>
<td>Engagement; cognitive behavioral strategies to improve self-image; training in positive mood strategies (e.g., cognitive restructuring; social skills); planning to increase pleasant activities; emphasize the importance of seeking support from others; setting goals</td>
</tr>
<tr>
<td>Mood Management: Anxiety(^2)</td>
<td>Recognize symptoms and sources of anxiety; recognize sources that can and cannot be changed; increase skills and self-efficacy to address anxiety; increase awareness that drug use is not an effective response to anxiety</td>
<td>Engagement; cognitive behavioral strategies to improve self-image; training in strategies to reduce anxiety (e.g., cognitive restructuring; social skills); planning to increase pleasant activities; emphasize the importance of seeking support from others; setting goals</td>
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<tr>
<td>Dealing with Trauma(^2)</td>
<td>Acknowledge and process trauma-related memories; recognize the need to release any pent up ‘fight-or-flight’ energy; learn how to regulate strong emotions; learn to trust others again; increase awareness that drug use is not an effective response to trauma</td>
<td>Engagement; cognitive behavioral strategies to process and evaluate thoughts and feelings about the trauma and to improve self-image; training in strategies to reduce negative emotions related to the trauma (e.g., cognitive restructuring); planning to increase pleasant activities; emphasize the importance of seeking support from others; setting goals</td>
</tr>
<tr>
<td>Improving Decision Making Skills(^1)</td>
<td>Recognize how context can influence decision making; recognize situations when decision making is challenged; increase skills and self-efficacy to improve decision making; increase awareness that poor decision making can contribute to drug use</td>
<td>Engagement; training in a decision-making strategy; generating a list of critical decision-making situations and generating a list of alternative solutions; training to deal with negative peer influences; weighing the pros and cons of each alternative, and implementing the solution most likely to be effective; emphasize seeking support from others; setting goals</td>
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<tr>
<td>Engaging in Healthy Behaviors(^1)</td>
<td>Emphasize the importance of the personal health and well-being; enhance awareness of the importance of diet, physical activity, sleep, and a drug-free lifestyle on health; increase pro-health behaviors; increase self-efficacy regarding responsibility for one’s own health</td>
<td>Engagement; cognitive behavioral strategies to have realistic expectations and to change or strengthen lifestyle choices; identifying personal barriers to health; training in ways to overcome barriers; using social supports to promote health; setting goals</td>
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<tr>
<td>Establishing Healthy Relationships(^1)</td>
<td>Recognize the value and characteristics of healthy interpersonal relationships</td>
<td>Engagement; discussion of keys to establishing and supporting safe and healthy relationships; social cognitive behavioral strategies to support these ingredients of healthy relations; setting goals</td>
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<tr>
<td>Building a Healthy Self Image(^1)</td>
<td>Recognize symptoms and sources of poor self-image; recognize sources of negative self-image that can and cannot be changed; increase skills and self-efficacy to improve self-image; increase awareness that drug use is not an effective response to low self-image</td>
<td>Engagement; cognitive behavioral strategies to improve self-image (e.g., cognitive restructuring; social skills); planning to increase pleasant activities; emphasize the importance of seeking support from others; setting goals</td>
</tr>
<tr>
<td>Dealing with Young Adulthood(^1)</td>
<td>Recognize that the transition from adolescence to young adulthood is a time of unique, challenging and rewarding life events and experiences</td>
<td>Engagement; discussion of the major issues of young adulthood (e.g., continuing education; career decisions; intimate relationships; living arrangements); cognitive behavioral strategies to address these issues; emphasize the importance of the use of social supports; setting goals</td>
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<tr>
<td>Dealing with Peer Influences(^1)</td>
<td>Acknowledge the impact of peer pressure and influences on one’s behavior; understand that a person can be an influencer or be influenced by peer influences; recognize types of and settings in which peer influences occur; increase skills and strategies to address peer influences</td>
<td>Engagement; cognitive behavioral strategies to address when a recipient of negative peer influences occur; cognitive behavioral strategies to address eliciting negative peer influences; emphasize the importance of engaging in positive peer influences; setting goals</td>
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<tr>
<td>Dealing with Bullying(^2)</td>
<td>Acknowledge and process memories related to bullying experiences; recognize symptoms resulting from being bullied; increase skills and self-efficacy to address being bullied; increase awareness that drug use is not an effective response to cope with bullying</td>
<td>Engagement; cognitive behavioral strategies to process and evaluate thoughts and feelings about past bullying; training in strategies to address future bullying and to reduce related negative emotions (e.g., social skills training; cognitive restructuring); planning to increase pleasant activities; emphasize the importance of seeking support from others; engage parent and teachers to assist with enforcing zero-tolerance; setting goals</td>
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\(^1\) Suggested as a group/counseling topic for all adolescents in treatment

\(^2\) Suggested as a specialized group/counseling topic for a subgroup of teens
References


