

## **Alcohol Use among Adolescents**

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### **Abstract**

*Alcohol use is a major social problem throughout the world; it affects all age groups, but especially adolescents. The aim of this paper is to review the research findings and evidence about the effectiveness of different treatment modalities for alcohol use disorder among adolescents. The review is comprehensive rather than systematic, and is limited to literature available in online databases. It provides the basis for developing comprehensive prevention and treatment programmes that are directed to adolescents.*

**Keywords:** Alcohol, Adolescents, Drug use, Modalities, Treatment, School nurse

### **1. Introduction**

Alcohol use is a major social problem throughout the world. One particularly alarming aspect over several decades has been that of alcohol use by adolescents (Chung & Martin, 2011; Kornblum & Julian, 2007). The social concern about adolescent alcohol use is exacerbated by the fact that early alcohol use is associated with an increased risk for problem behaviours, such as legal problems (Rockhole, 2011). More specifically, alcohol is the main cause of death for people less than 21 (NIAAA, 2005).

The literature indicates an increasing prevalence of adolescent alcohol use disorders. Approximately 40 percent of people with alcohol use disorders show their first symptoms between the ages of 15 and 19 (Helzer, Burnam & Mcevoy, 1991). People with an earlier age of start of alcohol use disorders tend to experience more severe alcohol problems and are more possible to have other psychiatric disorders (Babor et al., 1992).

Among adults of 21 or more, with reported alcohol dependence or abuse, 95% started drinking alcohol during adolescence, specifically, before the age of 20 (NSDUH, 2004). Those who begin drinking before the age of 15 are five times more likely to develop alcohol abuse disorders later in life than those who do not drink before the legal drinking age (NSDUH, 2004).

## **2. Aim of the Review**

The treatment of alcohol use disorder in adolescents is a very important issue in the field of substance use disorders, and many studies have discussed the effectiveness of different treatment modalities among adolescents. The aim of this paper is to review the research findings and evidence about the effectiveness of different treatment modalities.

## **3. Literature Search**

This review will provide a broad contextual understanding of the phenomenon of alcohol use among adolescents. The review is comprehensive rather than systematic, and is limited to literature available on online databases. A search on Medline, Science Direct and EBSCO was carried out to find relevant articles between s 1990 and 2014, and a general Internet search for the definition of alcohol use, alcohol use and adolescent development, and the effectiveness of different treatment modalities toward the problem of alcohol use among adolescents.

Inclusion criteria for this paper are studies that discussed alcohol or drug use disorder among adolescents, assessed one or more treatment therapy in a comparative way, and were performed from 1990 up to 2014. This strategy is used to locate evidence-based treatments, in order to promote the generalization and transference of research findings about effective treatments to healthcare providers. The following treatment modalities are reviewed: individual psychotherapies, group therapies, family therapy, 12-step/self-help programmes, behavioural therapy, motivational enhancement therapy, cognitive-behavioural therapy and pharmacological treatment.

## **4. Literature Review**

### **4. 1 Definition of Alcohol Use**

Clear and accurate definitions of medical problems and disorders are important for research and clinical practice. The most commonly used definitions for alcohol use disorders are found in two main classification systems of disease: the Diagnostic and Statistical Manuals of Mental Disorders (DSM) of the American Psychiatric Association (APA), and the International Classification of Diseases (ICD) of the World Health Organization (WHO). According to WHO (1993), alcohol use, as the term implies, is the consumption of alcohol. This definition does not indicate the amount used or the degree of harm that results from use. WHO (1993) also defined concepts related to alcohol use as alcohol abuse and alcohol dependence. Alcohol abuse is a pattern of excessive drinking that results in adverse health and social consequences to the drinker, and often to those around the drinker. On the other hand, alcohol dependence refers to a group of symptoms: craving, physical dependence, impaired control and tolerance.

### **4. 2 Adolescent Development and Alcohol Use**

Adolescence is the developmental stage during which the individual develops an identity role that is separate from others. Experimentation and increased risk taking are frequent during this phase (Carr-Gregg, 2005). In this developmental stage, tendency to risk-taking behaviours have been more associated with pubertal maturation rather than chronological age (Martin, 2002). It was found that social and emotional factors such as presence of peers or feeling excitement makes adolescents unable to think about and modify their behaviours in response to the risky situations (Steinberg, 2008).

Traditionally, it has been thought that adolescents engage in risky behaviours because they are more “irrational” or “less risk averse” than adults or do not perceive risk (Steinberg, 2008). Recent advances in neurobiology have challenged these beliefs and demonstrated that young people, including adolescents, are not “ignorant”, “deluded by invulnerability” or “poor assessors of risk” (Reyna & Farley, 2006).

Instead, it is suggested that these behaviours are more likely to be biologically driven and that changes to the brain's dopamine system at puberty lead to increased sensation-seeking behaviours in this age group (Steinberg, 2008). Moreover, some studies show that adolescents might be more sensitive to the neurotoxic effects of substances, contributing to their heightened addiction vulnerability (Newton, O'Leary-Barrett & Conrod, 2013).

#### **4. 3 Evidence-Based Treatment of Adolescent Alcohol Use**

The treatment of alcohol use disorders between adolescents is a very vital issue; however, it is a complex and understudied area in which there are limited data concerning evidence-based treatment (Avram & Richard, 2003).

##### **4. 3. 1 Individual Psychotherapies**

The effectiveness of individual psychotherapy used alone in the treatment of alcohol use among adolescents has not been clearly reported. Holder, Longabaugh, Miller and Rubonis (1991) reported that there was little empirical evidence from controlled studies that individual psychotherapy or counseling is an effective treatment for an alcohol use disorder. Individual psychotherapy produced better outcomes than a control condition in two of the eight studies reviewed. However, several studies reported success in uncontrolled conditions (Dodes, 2003).

A more recent review found support for individual therapy in 11 of 18 trials reviewed, although the quality of the studies was noted to be generally poor (Miller & Wilbourne, 2002). Although its efficacy has not been reported, individual therapy should be continued for 3-6 months after abstinence (Avram & Richard, 2003).

A recent systematic review of early interventions for adolescent substance use and behavioural outcomes (Tara & Bronwyn, 2012) concluded that early interventions for adolescent substance use do hold benefits for reducing substance use and associated behavioural outcomes. Interventions are most promising if delivered in an individual format and over multiple sessions.

##### **4. 3. 2 Group Therapies**

Although the efficacy of group therapy in adult patients with a dual diagnosis of substance abuse and personality disorder has been documented, there are insufficient studies of group therapy among adolescent alcohol users (Fisher & Bentley, 1996).

Kelley and Fals-Stewart (2002) examined group therapy in adolescents with substance use disorders (SUDs) and a comorbid psychiatric disorder, and found positive results. Among structured group psychotherapies, cognitive behavioural therapy groups (CBTGs) have been shown to be more effective in reducing alcohol use compared with interactional groups (Kaminer et al., 1998).

##### **4. 3. 3 12-Step/Self-Help Programmers**

12-step programmes, such as Alcoholics Anonymous (AA), are usually associated with the treatment of substance abuse including alcohol use. Although research has revealed that AA produces positive outcomes in adolescents (Kelly, Myers & Brown, 2000), and numerous naturalistic studies have recommended that AA can be an effective way for promoting an alcohol-free lifestyle in patients who are willing to attend (McKay, Murphy & Longabaugh, 1991), the ethical considerations and practical problems that associated with AA led to the difficulty in evaluating this treatment modality in randomized studies (McCrary et al., 1998).

Several studies have reported that positive outcomes usually associated with greater AA participation is (Humphreys & Huebsch 1999). For instance, in a study on 8,087 patients in 57 programmes, Hoffman and Miller (1992) documented that at a 1-year follow-up, those attending AA were 50% more likely to be abstinent than those not attending AA.

Avram and Richard (2003) reported some challenges to the application of these programmes with adolescents which need greater insight. For example, some adolescents may be too depressed or socially avoidant to attend AA without a great deal of support; another potential problem is that adolescents who need medication for Attention Deficit Hyperactivity Disorder (ADHD) are often discouraged from taking their medication at meetings, although this is against AA's stated policy.

##### **4. 3. 4 Family Therapy**

There are many studies reporting the effectiveness of using families in treatment of alcohol use. This therapy is grounded in family systems theory, in which there is an emphasis on the relational and contextual aspects of behaviour (Avram & Richard, 2003).

Family-based interventions can retain adolescents and their families in treatment, can significantly reduce alcohol use by adolescents, and can produce in-session changes in parent-adolescent conflict (Deborah, 2008).

Lewis et al. (1990) randomly assigned 84 adolescents to either family therapy or a family education intervention, in which parents received parenting skills training. The results demonstrated that adolescents who were randomly assigned to family therapy were significantly more likely to have lower post-treatment drug severity and greater overall improvement from baseline to the end of treatment.

In two-year longitudinal study, 24 secondary schools were randomly assigned to assess the behavioural outcome of resilient families, which is a general intervention designed to protect adolescents from early initiation of alcohol use (Toumbourou Gregg, Shortt, Hutchinson & Slaviero, 2013). It was found that resilient families were effective in reducing alcohol use among adolescents.

#### **4. 3. 5 Motivational Enhancement Therapies**

Motivational enhancement therapy, or motivational interviewing (MI) as it is Known, is an intervention focused on improving the adolescent's intrinsic desire to modify life situations that may lead to substance use (Deborah, 2008). It was found that substance use and other high-risk behaviours are primary targets of motivational enhancement therapy (Miller & Rollnick, 2002). This form of therapy is theoretically appealing because adolescents with alcohol use disorders often are non-treatment-seeking and need to be motivated to engage in treatment (Tevyaw & Monti, 2004). The primary principle of MI is using an empathic non-judgmental attitude, performing reflective listening, going along with resistance and avoiding arguments, and supporting self-efficacy for change.

McCambridge and Strang (2004) randomly assigned 200 adolescents (age range: 16-20 years; mean age not indicated) to one session of MI versus a non-intervention, education-as-usual, control condition. The purpose of this study was to investigate if a single session of motivational interviewing would lead effectively to decrease in drug use among adolescents. Generally, the group in motivational interviewing showed significant declines in substance use.

#### **4. 3. 6 Behavioural Therapies**

The effectiveness of Individual behavioural therapy has been observed among individuals with an alcohol use disorder (Higgins et al., 2003), especially those treatments that focus on positive reinforcements for targeted behaviours. Behavioural contracting was found to be effective in four out of five studies reviewed by Miller and Wilbourne (2002).

Azrin et al. (1994) randomly assigned 26 treatment-seeking adolescents with substance use disorders to either behavioural therapy or supportive counseling. The group in the behavioural therapy reported less frequent substance use compared with the group in the supportive counseling therapy. Also, adolescents in the behavioural therapy had improved school performance and attendance than did those in the supportive counseling therapy.

#### **4. 3. 7 Cognitive-Behavioural Therapy**

Cognitive behavioural therapy (CBT) aims to increase self control in the individual; it also improves on behavioural therapy by integrating the effect of cognitive elements in addressing substance use (Miller & Wilbourne, 2002). CBT depends on theories of social learning and focuses on functional analyses by addressing drug use in the context of its antecedents and consequences. The main features of CBT are the recognition of high-risk situations and the acquisition of skills aimed at addressing those high-risk situations (Deborah, 2008).

Kaminer et al. (1998) assigned 32 adolescents with dual diagnoses randomly to 12-week treatment with CBT, versus interactional group therapy. CBT involved purposeful presentations, role playing, and homework training. Even though treatment-matching effect was not considered, adolescents in the CBT group revealed significant reductions in substance use.

#### **4. 3. 8 Pharmacological Treatment**

Although medication like naltrexone, disulfiram and acamprosate have been effective in the treatment of alcohol use disorders in adults, few studies recommended the use of these medications with adolescents (Riddle, Kastelic & Frosch, 2001).

Even though experts are not against the use of pharmacotherapy as a choice to treat adolescents with psychiatric disorders, medication is rarely used with adolescents directly (Deborah, 2008).

When medication is used in this population, it is often to relieve the withdrawal symptoms of alcohol or to treat co-occurring psychiatric disorders (Deborah, 2008).

Geller et al. (1998) randomly assigned 25 adolescents with bipolar disorder and secondary substance use disorder to a six-week trial of lithium versus placebo treatment. Measurements were urine drug screening to measure drug use and the Clinical Global Assessment Scale to measure clinical improvement. Drug screenings asserted more improvement in the lithium-treated group, which also had higher Clinical Global Assessment Scale scores.

Deas et al. (2000) assigned ten adolescents with alcohol use and depression to 12 weeks of either sertraline or placebo treatment to assess its effectiveness. In both cases, there was significant improvement.

### **5. Discussion**

Alcohol use is a major social problem throughout the world, affecting all age groups but especially adolescents. Many studies have indicated an increasing prevalence of adolescent alcohol use disorders over recent decades.

Alcohol use and related concepts were defined by WHO. Alcohol use, as the term implies, is the drinking and consumption of alcohol and it does not indicate the amount used or the extent of harm from use. Alcohol abuse is a pattern of excessive drinking that results in adverse health and social consequences to the drinker, and often to those around the drinker, while alcohol dependence refers to a cluster of symptoms such as craving, loss of control, physical dependence and tolerance.

Considering all the treatment modalities, it is important to note that, as with many other medical conditions, treatment does not ensure a “cure.” The effectiveness of treatment can be relatively difficult to measure due to specific patient characteristics that may play a significant role in that person’s treatment experience. However, recent research has greatly advanced the statistical and clinical efforts in determining which treatment modalities and programme characteristics have the most successful outcomes for adolescents (Ken, Andria & Tamara, 2011).

This review has considered different treatment modalities for alcohol use among adolescents; the effectiveness of some of these modalities, including family therapy, motivational enhancement therapy, behavioural therapy and cognitive-behavioural therapy, has been examined in a sufficient number of control trial studies. On the other hand, there are some modalities, such as individual therapy and group therapy, that lack sufficient control trial studies to examine their effectiveness, and this is most often related to ethical and practical problems. The clearest evidence in the literature on different treatment modalities is summarized below (Table 1).

**Table1: Evidence-Based Treatment Modalities**

<b>Author/s name and publication date</b>	<b>Study Design</b>	<b>Sample</b>	<b>Results</b>
<u>Miller &amp; Wilbourne,</u> (2002)	Systematic review	361 controlled studies	Strongest evidence of efficacy was found for brief interventions, social skills training, the community reinforcement approach, behavior contracting, behavioral marital therapy and case management.
Tara & Bronwyn, (2012)	Systematic review	8 studies	Early interventions for adolescent substance use do hold benefits for reducing substance use and associated behavioral outcomes. Interventions are most promising if delivered in an individual format and over multiple sessions.
<u>Fisher &amp; Bentley,</u> (1996)	Quasi experimental design (compare group therapy vs. cognitive-behavioral therapy)	Inpatient subjects (N1=19) & outpatient subjects (N2=19)	Cognitive-behavioral group therapy was significantly more effective (in the outpatient setting) & subjects in both experimental groups had significantly improved (In the inpatient setting)
Kelley & Fals-Stewart, (2002)	Quasi experimental design (Compare couples-based therapy versus individual-based therapy)	Alcohol men(N1 = 71) and drug-abusing men (N2 = 64)	Parents' ratings of children's psychosocial functioning was higher for children whose fathers participated in BCT at posttreatment and at 6- and 12-month follow-up than for children whose fathers participated in IBT
Kaminer et al., (1998)	Quasi experimental design (CBT vs interactional group therapy)	N=32	CBT group showed significant reduction in severity of substance use
Kelly et al., (2000)	Quasi experimental design (evaluate 12-step program)	Adolescent inpatients (N = 99)	Results revealed modest beneficial effects of 12-step attendance, which were mediated by motivation but not by coping or self-efficacy.
Humphreys et al., (1999)	Quasi experimental design (Compare 12-step counseling Vs cognitive behavioral programs)	N=3018 treated veterans	12-Step approaches more effective & 12-Step oriented treatment programs enhance the effectiveness of 12-Step self-help groups.
Lewis et al., (1990)	Quasi experimental design (Family therapy vs. family education intervention)	N=84	Family therapy participants were more likely to have lower posttreatment drug severity index values and greater overall improvement from baseline to end
Toumbourou et al., 29 (2013)	randomized controlled trials	Intervention group (N1=12) & Control group (N2=12)	Family-school-based interventions appear promising as a strategy to contribute to population reductions in currently high rates of adolescent alcohol misuse.
McCambridge & Strang,	Quasi experimental design (MI vs.	N=200	MI group showed significant reductions in nicotine, alcohol, and marijuana use

(2004)	nonintervention education as usual)		
Higgins et al., (1991)	Quasi experimental design (Compare 12-step counseling vs. behavioral treatment)	Subjects in behavioral treatment (N1=13) & Subjects in 12-step counseling (N2=15)	The behavioral treatment is an effective intervention for achieving initial cocaine abstinence.
Azrin et al., (1994)	Quasi experimental design (Behavioral therapy vs. supportive counseling)	N=26	Behavioral therapy group had significantly greater reductions in drug use at end of treatment and at follow-up evaluation; behavioral therapy group also showed more days worked, less alcohol use, and more days in school
Deas et al., (2000)	Quasi experimental design (Sertraline vs placebo)	N=10	There were significant reductions in depression scores and alcohol use but no group differences

Some studies evaluated different substances of abuse in addition to alcohol, which confirms the fact that adolescents tend to use multiple substances and also that treatment modalities are applicable to different substance use disorders

Moreover, it is notable that few studies addressed development factors of adolescents and how it might affect treatments or outcomes; this is most often related to the difference between studies regarding the specific age range of adolescents and also to the different points of view regarding the relationship between development process in adolescence and risk-seeking behaviours like alcohol use. Therefore, this review has only been concerned with illustrating, as a start, the different suggestions regarding the relationship between development in adolescence and risk-taking behaviour such as alcohol use.

## 6. Conclusion and Recommendations

Alcohol use among adolescents is a critical social problem. The findings of the literature review provide the basis for developing comprehensive prevention programmes directed at adolescents. It is important to coordinate efforts and increase communication among organizations across the country in the prevention, intervention, and treatment of adolescent alcohol use.

Although previous research has discussed evidence-based treatment modalities such as motivational interviewing, family therapy, behavioural therapy and cognitive behavioural therapy that can be applied with adolescent alcohol users, it is important to increase support for research comparing treatment approaches specifically for adolescents that focus on further variables. These include client characteristics, healthcare networks that identify and refer clients to treatment, gender issues, parents' sensitivity to types of problem behaviour, and the treatment programmes themselves.

Nurses should have the ability to communicate an appropriate level of concern and possess the requisite skills to provide information, support, follow-up, or referral to an appropriate level of care if there are signs and symptoms suggestive of substance abuse and high-risk behaviours.

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### ***Abbreviations***

- MI: Motivational interviewing  
CBT: Cognitive-behavioral therapy  
BCT: Couples-based therapy  
IBT: Individual-based therapy  
N: Number of sample