

INTRODUCTION

Drug use among adolescents represents an important public health problem all over the world. It has been estimated that 1.5 million teenagers meet criteria for at least one substance use disorder (SUDs) (Office of Applied Studies, 2006). Among this population, substances most widely used are alcohol and marijuana/hashish (Hser et al., 2001). The impact of SUDs among youth is very serious considering that SUDs in adolescence is correlated with other significant problems with lifelong implications, including criminal involvement (Rockholz, 2011), physical, sexual and emotional abuse (Hoffman, Abrantes, Anton & Kingston, 2004), academic failure, poly-drug use, mental disorders (Hser et al., 2001), and driving under the influence of drugs (SAMHSA, 2004).

Adolescents have additional vulnerabilities due to their developmental stage. For instance, it has been demonstrated that youths may be more easily influenced by their peers given that individuals often engage in more risk-taking behaviour when in peer groups rather than alone, and peer effects on risk-taking behaviour was higher among adolescents (13-16 years) and youths (18-22 years) than adults (24 years and older) (G

Table 1.

Most relevant studies providing specific outcome measures concerning the treatment of adolescents with SUD

Authors	Setting	Sample	Use of drug	Follow-up	Treatment	Outcomes measures	Results
Killeen, T., et al.	Outpatient	31 subjects	Marijuana	10 weeks	CM	Urinalysis	CM is not useful as adjunctive treatment for outpatients but only for residential patients
*Santisteban, D.A., et al.	Outpatient	28 subjects	Marijuana, cocaine (only two adolescents reported metamphetamine use)	8 months	Family therapy	Drug use, parenting practices, behavioural problems	Family therapy significantly improved parenting practices and drug use
Hendriks, V., et al.	Outpatient	109 subjects	Cannabis	1 year	Multidimensional family therapy (MDFT) vs. CBT	Drug use, behavioural problems, treatment response and recovery	MDFT and CBT are equally effective in reducing drug use and behavioural problems. MDFT is better for patients with higher severity of SUD
Kelly, J.F., et al.	Outpatient	127 subjects	Marijuana (70.9%), alcohol (11.8%), heroin/narcotics (11.1%) and cocaine/ amphetamines (3.2%).	6 months	12-step group	Prior treatment; past 90 days substance use/severity and treatment; 12-step expectancies; treatment staff 12-step encouragement; parent 12-step perceptions; abstinence self-efficacy; biological verification of self-report	The attendance to the group is suggestive of goal of abstinence, prior groups attendance and prior SUD experiences. Participation is less common among less severe patients. Attendance to the groups strengthen and extend benefits of typical community outpatient program
Godley, S.H., et al.	Outpatient	320 subjects	Alcohol and cannabis	1 year	MET/CBT with and without ACC	Days of abstinence, substance use problem, recovery status at 1 year	The most cost-effective treatment is MET/CBT without ACC. ACC may be considered useful only for inpatients
Carroll, K.M., et al.	Outpatient	136 subjects	Marijuana	6 months	MET/CBT with and without CM; drug counseling (DC) with and without CM	Drug use and retention	CBT/MET with CM is superior to MET/CBT without CM and DC with and without CM.
Kaminer, Y., et al.	Outpatient	88 subjects	Alcohol and Marijuana	9 months	CBT/PET	Urinalysis and T-ASI	CBT is more effective than PET in older youths and males at 3-months. Worst outcomes are observed for adolescents with comorbid conduct disorder.
Hser, Y.I., et al.	Outpatient and inpatient (residential treatment, outpatient and short-term inpatient)	1167 subjects	Many of the patients before 25.4% were polydrug abusers (more than 3 drugs), 47.1% reported marijuana as their primary drug used, 20.6% alcohol use and 7.4% cocaine.	1 year	Many kinds of community-based treatment programs	Drug use, legal problems, psychological adjustment, and school performance	All treatments investigated in all the analyzed settings are effective in achieving multiple behavioural and psychological improvements but particular emphasis is placed on family therapy in both residential and outpatient programs
Waldrom, H.B., & Kaminer, Y	Outpatient	114 subjects	63% tobacco and marijuana, 8.7% alcohol, 2.6% cocaine/crack, 1.6% hallucinogens, 1.6% uppers, less than 1% opiates, sedatives, LSD, tranquilizers, inhalant, stimulants and downers	7 months	CBT/individual and group family therapy/group intervention	Days of drug use	Family therapy alone or combined is more effective when compared with the other treatment modalities alone
Winters, K.C., et al.	Outpatient/inpatient	245 subjects	86% cannabis 77% alcohol; 20% amphetamines, and 21% other drugs.	1 year	12-step program	Drug use	Attendance to the 12-step program significantly improves SUD in both settings. Completing treatment is related to improvement
Kaminer, Y., & Burleson, J.A	Outpatient	32 dual diagnosis patients	Alcohol and other drugs not specified	15 months	CBT/interactional treatment (IT)	Drug use, T-ASI	CBT and IT are equally effective in the long term period but CBT is superior in reducing severity of SUD

Cognitive-behavioural therapy = CBT; Contingency management = CM; Assertive continuing care = ACC; Motivational enhancement therapy = MET; Psychoeducation = PET; Teen-addiction severity index = T-ASI; Substance use disorder = SUD; *This study investigated a new family-based intervention called *Culturally Informed and Flexible Family-Based Treatment for Adolescent (CIFTA)*

Continuing Care Programs

Residential substance use treatment programs are generally brief and limited interventions (e.g., 20 days) (SAMHSA, 2006). Therefore, adolescents with a severe SUDs and psychiatric comorbidity often benefit from long-term treatment away from home in a therapeutic community (TC). It has been shown that a TC is a potentially effective intervention in reducing substance use, criminality, and unemployment.

patients at different time points and included different measurements, therefore relevant studies may have been inadvertently not included. Although the current review offers an overview on the phenomenon of SUDs among adolescents, the inclusion and exclusion of studies cited in this paper may reflect the authors' choice, both according to their expertise and the consultations that they engaged in with experts in the field. Moreover, some studies included in this review have several shortcomings. First, small sample sizes in some studies may have reduced the power to detect real effects. Second, interpretation of results may be difficult due to a number of methodological problems (e.g., the heterogeneity of the included studies in terms of different diagnostic criteria, changes related to psychopathology, etc.).

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