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Multidimensional family therapy for adolescent drug users: a systematic review

Abstract: Adolescence is a period in human development during which people are more prone to risk-taking and less prone to impulse control. Some young people experiment with both licit and illicit substances during this time (alcohol, tobacco, cannabis and other drugs) and this can have an impact on their behaviour, their relationships with others and their functioning in society. For the few who develop substance use disorders, family has an important role in addressing this issue. Our report focuses on multidimensional family therapy — a process that includes the young person, their family and their environment. Initial experiments show that this holistic approach delivers promising results during therapy and that these can last after the treatment ends.

Five main studies carried out in the United States and the European Union are the starting point for our analysis and discussions. While initial results provided by the studies are promising, it appears important to assure implementation fidelity and family adherence, which in the most critical cases can be difficult. Furthermore, the relatively high cost of such treatment must be considered before recommending its general use.

Keywords Adolescence Cannabis Multidimensional family therapy Systematic review

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	Study 1 (Liddle et al., 2001)	Study 2 (Liddle et al., 2008)	Study 3 (Liddle et al., 2004)	Study 4 (CYT)	Study 5 (INCANT)
Outcomes		Both treatments showed a small trend associated with decreases in participants as a whole; no significant differences between treatments **30-day minimal use — *n* (%)** *MDFT* Intake: 8 (7) Termination: 27 (42) 6-month FU: 28 (42) 12-month FU: 47 (64) *CBT* Intake: 6 (4) Termination: 23 (39) 6-month FU: 24 (45) 12-month FU: 28 (44) Significant differences between treatments ($\chi^2 = 5.43$, $p = 0.020$). For the LS class of substance use problem severity, results indicated that the two treatments showed similar effects (treatment coefficient for slope = 0.43, SE = 1.17, pseudo-$z = 0.37$, $p = 0.712$, $d = 0.12$). For the HS class, there were significant differences in treatment effects, indicating that MDFT participants decreased their substance use problem severity more than CBT participants did (holding constant the effects of total number of diagnoses and family conflict) (treatment coefficient for slope = 5.63, SE = 1.95, pseudo-$z = 2.89$, $p = 0.004$, 95 % CI 1.73–9.52, $d = 1.58$). For substance use frequency, there were no significant differences in treatment effects in either class: HS, treatment coefficient for slope = 0.32, SE = 0.35, pseudo-$z = 0.91$, $p = 0.907$; LS, treatment coefficient for slope = –0.07, SE = 0.54, pseudo-$z = -0.13$, $p = 0.916$	**Any use — n (%)** *MDFT* Intake: 18 (45) 6-week FU: 6 (15) Termination: 4 (10) 6-month FU: 6 (15) 12-month FU: 5 (13) *Peer group* Intake: 31 (72) 6-week FU: 20 (47) Termination: 21 (49) 6-month FU: 25 (58) 12-month FU: 23 (54) Significant reductions in both treatments in youth reporting any substance use over the 12-month follow-up. Significant treatment effect ($b = -0.073$, pseudo-$z = -2.98$, $p = 0.003$, 95 % CI 0.24–1.23, OR 2.20) **Frequency of delinquent acts in the past 30 days — mean (SD)** *MDFT* Intake: 0.80 (1.01) 6-week FU: 0.19 (0.58) Termination: 0.15 (0.38) 6-month FU: 0.41 (0.73) 12-month FU: 0.36 (0.73) *Peer group* Intake: 0.88 (1.05) 6-week FU: 0.54 (0.95) Termination: 0.58 (1.03) 6-month FU: 0.68 (1.15) 12-month FU: 0.66 (1.04) No significant reduction in both treatments in frequency of delinquency. Significant treatment effect with greater decrease in MDFT ($b = -0.09$, pseudo-$z = -2.43$, $p < 0.05$, 95 % CI –0.17 to –0.02, $d = 0.31$)		*IP* Baseline: 66.7 (23.1) 3-month FU: 60.4 (27.5) 6-month FU: 59.7 (29.5) 9-month FU: 52.7 (29.1) 12-month FU: 62.2 (31.5) *Germany* *MDFT* Baseline: 58.8 (28.2) 3-month FU: 26.4 (30.5) 6-month FU: 20.1 (27.1) 9-month FU: 21.6 (29.5) 12-month FU: 21.3 (27.1) *IP* Baseline: 62.3 (24.1) 3-month FU: 37.5 (27) 6-month FU: 35.3 (29) 9-month FU: 32.6 (30) 12-month FU: 36.7 (33.6) *France* *MDFT* Baseline: 60.2 (24.7) 3-month FU: 38 (31.5) 6-month FU: 39.5 (34.8) 9-month FU: 36.6 (36.1) 12-month FU: 30.9 (32.8) *IP* Baseline: 63.2 (26.8) 3-month FU: 46.4 (31.1) 6-month FU: 36.2 (29.9) 9-month FU: 41.2 (32.9) 12-month FU: 35.2 (29.1) *The Netherlands* *MDFT* Baseline: 62.6 (22.7) 3-month FU: 44.1 (32.5) 6-month FU: 37.0 (29.9) 9-month FU: 48.1 (34.3) 12-month FU: 42.4 (34.2) *IP* Baseline: 60.9 (23.7) 3-month FU: 47.1 (32.3) 6-month FU: 46.4 (32) 9-month FU: 47.9 (29.3) 12-month FU: 49 (34.1)

	Study 1 (Liddle et al., 2001)	Study 2 (Liddle et al., 2008)	Study 3 (Liddle et al., 2004)	Study 4 (CYT)	Study 5 (INCANT)
Outcomes			Any delinquency — *n* (%) *MDFT* Intake: 19 (48) 6-week FU: 4 (10) Termination: 6 (15) 6-month FU: 11 (28) 12-month FU: 9 (23) *Peer group* Intake: 22 (51) 6-week FU: 14 (33) Termination: 14 (33) 6-month FU: 13 (30) 12-month FU: 14 (33) No significant reduction in both treatments in the number of youths reporting any delinquent acts		*Switzerland* *MDFT* Baseline: 47.3 (25) 3-month FU: 47.2 (32.6) 6-month FU: 34.5 (31.7) 9-month FU: 34.8 (32.6) 12-month FU: 39.3 (35.1) *IP* Baseline: 52.2 (29.5) 3-month FU: 44.9 (31.1) 6-month FU: 44.7 (36.1) 9-month FU: 42.3 (35.8) 12-month FU: 39.3 (36.9) *Total* *MDFT* Baseline: 59.8 (25.3) 3-month FU: 39.4 (32.5) 6-month FU: 33.9 (31.5) 9-month FU: 35 (33.5) 12-month FU: 34 (32.6) *IP* Baseline: 61.5 (25.4) 3-month FU: 45.2 (30.2) 6-month FU: 41.8 (31.6) 9-month FU: 40.8 (32) 12-month FU: 42.3 (33.8)
Risk of bias					
Random sequence generation	Unclear* (not described)	Unclear (not described)	Unclear (not described)	Unclear (not described)	Low (block randomisation was used)
Allocation concealment	Unclear (not described)	Low	Low (a URN randomisation programme was used)	Low (a randomly ordered list was used)	Low (computer randomisation was concealed)
Blinding	Low (outcome assessors were blinded to treatment condition and assessment phase)	Unclear (not described)	Low (outcome assessors were blinded to treatment assignment and to study hypotheses)	Unclear (not described)	Low (local researchers were not blinded; central outcome assessors were blinded to treatment condition)
Incomplete outcome data	Unclear (ITT not reported)	Unclear (ITT was done but attrition is > 20 %)	Unclear (ITT was done but attrition was high)	Low (ITT was performed and attrition was low)	Unclear (ITT was done and attrition is not reported)
Selective reporting	Low (outcomes specified in measures section also reported in results section)	Low (outcomes specified in measures section also reported in results section)	Unclear (not all outcomes specified in measures section also reported in results section)	Unclear (not all outcomes specified in measures section also reported in results section)	Low (all outcomes specified in measures section are reported in results section)
Other bias	Low (no other important source of bias could be identified)	Low (no other important source of bias could be identified)	Low (no other important source of bias could be identified)	Low (no other important source of bias could be identified)	Low (no other important source of bias could be identified)

* Where the term 'unclear' is used, it means that insufficient information is provided by the report.

Annex 2

Effects of MDFT compared with other intervention treatments

Outcome	AGT	MEI	CBT	Comparison treatment Peer group therapy	MET/CB5	ACRA	IP
Drug use (alcohol, marijuana and other drugs) at 12-month FU	–14.5 % (ns)	–29.4 % (p = 0.0006)		–57 % (p = 0.001)			
Cannabis use at 12-month FU			–12.6 % (ns)				
Other drug use at 12-month FU			–183 % (p > 0.05)				
Minimal substance use (no or one occasion of alcohol or drug use) at 12-month FU			Relative risk = 1.26 (p = 0.02)				
Abstinence at 12-month FU				Odds ratio = 2.20 (95 % CI 0.77-6.22)			
Days of abstinence from cannabis over 12 months					+6 (ns)	+8 (ns)	
Percentage meeting criteria for cannabis dependence							–14 % (p = 0.015)
Percentage meeting criteria for cannabis abuse							–11 %(p = 0.015)
Number of cannabis consumption days over 12 months							–12 % (p = 0.07)

Annex 3

Characteristics of intervention treatments

Description	Intervention						
	MEI	Peer group therapy	IP	CBT	AGT	MET/CBT5	ACRA
Type of intervention	Family-based, structured and psycho-educationally focused intervention	Manual-guided intervention combining education with skills training and social support	Individual treatment for adolescent cannabis users, usually used in such cases, based on counselling and motivational interviewing	Individual-based intervention over three stages	Peer group-based semi-structured intervention	Five-session intervention combining two sessions of individual MET with three sessions of group CBT	Behavioural intervention based on individual sessions with the adolescent
Aim	Change parenting behaviours and family interactions	Develop individual skills and promote group participation	Improve individual skills and strategies for relapse prevention. Includes elements of CBT	Reduce risky behaviours and improve individual skills	Develop individual social skills such as communication, self-control, self-acceptance and problem solving, as well as building social support among group members	Change risky behaviours and develop individual skills	Teach adolescents new ways of handling life's problems without using drugs and alcohol
Target	Families	Adolescents. Four to six adolescents participate in the groups. Groups are open, in that new members are admitted on a rolling basis as previous members complete the treatment	Adolescents	Adolescents	Adolescents	Adolescents	Adolescents
Intervention format	Content-specific group discussions, didactic presentations that include handouts, skill-building exercises, individual family problem-solving within a group meeting of several families, and homework assignments. In case of emergency, two individual sessions per family are available at the request of the family of the therapist	Worksheets, role-plays, handouts, videotapes and group discussions	Sessions are individual, with the adolescent. Parents may be seen alone, or in groups, purely for reasons of drug education and mutual support	Phase 1 determines and prioritises adolescents' problems and constructs the treatment contract. Phase 2 is aimed at increasing coping competence and reducing risky behaviours. Phase 3 focuses on relapse prevention	Didactic presentations, group discussions, group skill-building exercises and homework assignments	Brief didactic presentations, modelling, role-playing and homework assignments. Intervention begins with two individual MET sessions aimed at explaining treatment expectations, assessing and building motivation for change and preparing the adolescent for the group sessions. In sessions 3, 4 and 5, the adolescent joins a group of five or six adolescents for CBT skills training	Ten sessions with the adolescent alone and four sessions with caregivers (two with the caregivers alone and two with the caregivers along with the adolescent). First, the therapist assesses the adolescent's triggers for substance use and their satisfaction with life. Second, the treatment plan is completed.

Description	Intervention						
	MEI	Peer group therapy	IP	CBT	AGT	MET/CBT5	ACRA
Intervention content	Learning alternative forms of stress reduction, understanding family and individual risk and protective factors, improving family organisation, information on rules and limit-setting, and improving family communication and problem-solving abilities. Each session is structured in three parts: (1) didactic presentation (informal and conversional vs. formal lecture) by the therapist; (2) topic-focused intrafamily and/or interfamily group discussion; and (3) skill-building exercises. Families receive workbooks with content summaries of the session goals and activities	Exploring beliefs about drugs, understanding the roots and triggers of drug use, re-evaluating and eventually avoiding friends who use drugs, improving refusal techniques, recognising automatic thoughts about drug use and increasing prosocial, non-drug-related ways to have fun and feel good and other relapse prevention methods	Coping with stress, managing anger, increasing assertiveness in interpersonal contacts and addressing negative thoughts about substance use	In phase 1 parents attend the first two sessions to support the adolescent's participation in treatment. Phase 2 provides information and education, contingency contracting, information on self-monitoring, problem-solving training, communication skills training, information on identifying cognitive distortions and on increasing healthy recreational activities, and homework assignments	Phase 1 includes two individual family sessions to enlist cooperation and parental support, outline the goals and format of the treatment, and discuss group rules and procedures. The therapists also have an individual meeting with each teenager. Phase 2 has four structured AGT sessions to facilitate trust and self-disclosure among adolescents and establish group identity. Phase 3 is the adolescents' social skills building phase, aimed at developing drug refusal, improving conflict resolution and anger management skills, improving communication and problem solving with parents, peers and other adults, and developing pro social interests and behaviours. Phase 4 focuses on the generalisation and maintenance of new skills	Developing refusal skills and a positive social support network, reducing association with substance-using peers, planning for unanticipated high-risk situations and coping with relapse	Skills training and practice in relapse prevention, communication, problem-solving and prosocial recreation, communication and motivation
Duration	90-minute weekly sessions over a 16-week period	One therapist-led session in the 12–16 weeks of treatment. The intervention includes six modules, each approximately 2 weeks long	Each session is administered once a week over a period of 4–6 months (60- to 90-minute sessions)	Groups of between six and eight adolescents are led by two therapists for 90 minutes			
Therapist's role	Educator and facilitator of inter- and intrafamily communication processes	Active and directive, but not confrontational					

Description	Intervention						
	MEI	Peer group therapy	IP	CBT	AGT	MET/CBT5	ACRA
References	Barrett, K. (1990), *Multi-family educational intervention (MEI) manual*, University of Washington, Seattle (unpublished)	Bandura, A. (1999), 'A sociocognitive analysis of substance abuse: an agentic perspective', *Psychological Science* 10, pp. 214–217. Carroll, K. M. (1998), *A cognitive–behavioral approach: treating cocaine addiction*, NIH publication no 98-4308, National Institute on Drug Abuse, Rockville, MD. Nowinski, J. (1990), *Substance abuse in adolescence and young adults: a guide to treatment*, Norton, New York. Kaminer, Y. (2005), 'Challenges and opportunities of group therapy for adolescent substance abuse: a critical review', *Addictive Behaviors* 30, pp. 1765–1774		Beck, A. T., Wright, F. W., Newman, C. F. and Liese, B. (1993), *Cognitive therapy of substance abuse*, Guilford Press, New York	Concannon, C., McMahon, B. and Parker, K. P. (1990), *Peer group treatment for adolescent drug abuse*, University of California, San Francisco, CA (unpublished)	Sampl, S. and Kadden, R. (2001), *Motivational enhacement therapy and cognitive behavioral therapy (MET-CBT5) for adolescent cannabis users*, DHHS Publication no 01-3486, Cannabis Youth Treatment (CYT) manual series, vol. 1, Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, Rockville, MD. Available at: http://www.chestnut.org/LI/cyt/products/index.html	Godley, S. H., Meyers, R. J., Smith, J. E., et al. (2001), *The adolescent community reinforcement approach for adolescent cannabis users*, DHHS Publication no 01-3488, Cannabis Youth Treatment (CYT) manual series, vol. 4, Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, Rockville, MD. Available at: http://www.chestnut.org/LI/acra-acc/

Annex 4

Search strategy for MEDLINE

1. (substance-related disorders) MeSH terms
2. (abus* or use or misuse or depend* or addict*) ti, ab
3. 1 or 2
4. (treatment or therapy) ti, ab
5. (adolescent) MeSH terms
6. (adolescent* or teen* or youth or "young people") ti, ab
7. 5 or 6
8. (MDFT or multidimensional family therapy or multi-dimensional family therapy or multidimensional family therapy) ti, ab
9. 3 and 4 and 7 and 8

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The European Monitoring Centre for Drugs and Drug Addiction is the hub of drug-related information in Europe. Its mission is to provide the European Union and its Member States with 'factual, objective, reliable and comparable information' on drugs and drug addiction and their consequences. Established in 1993, it opened its doors in Lisbon in 1995, and is one of the European Union's decentralised agencies. The Centre offers policymakers the evidence base they need for drawing up drug laws and strategies. It also helps professionals and researchers pinpoint best practice and new areas for analysis.

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- *Drugs and vulnerable groups of young people,* Selected issue, 2008
- *A cannabis reader: global issues and local experiences,* Monograph, 2008
- *Preventing later substance use disorders in at-risk children and adolescents,* Thematic paper, 2009
- *Children's voices. Experiences and perceptions of European children on drug and alcohol issues,* Thematic paper, 2010
- *North American drug prevention programmes: are they feasible in European cultures and contexts?* Thematic paper, 2013

- Best practice portal: www.emcdda.europa.eu/best-practice
- Characteristics of frequent and high-risk cannabis users: http://www.emcdda.europa.eu/topics/pods/frequent-cannabis-users
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