DRUG & ALCOHOL FINDINGS *Review analysis*

This entry is our analysis of a review or synthesis of research findings added to the Effectiveness Bank. The original review was not published by Findings; click Title to order a copy. Links to other documents. Hover over for notes. Click to highlight passage referred to. Unfold extra text The Summary conveys the findings and views expressed in the review. Below is a commentary from Drug and Alcohol Findings.

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Research Review: The effectiveness of multidimensional family therapy in treating adolescents with multiple behavior problems – a meta-analysis.

van der Pol T.M., Hoeve M., Noom M.J. et al.

Journal of Child Psychology and Psychiatry: 2017,

Review finds multidimensional family therapy more effective than group therapies and other psychosocial therapies, particularly among adolescents with severe substance use and other behavioural problems.

SUMMARY Substance use issues frequently occur alongside other behavioural, psychological, and social issues, influencing the outcomes and success of treatment.

Various reviews have concluded that family-based treatments and cognitive-behavioural therapy are effective in treating young people with overlapping substance use disorders, mental health issues, and illegal or antisocial behaviour (referred to in the featured paper as 'delinquency') (1 2 3).

One promising and well-established family-based treatment programme is multidimensional family therapy, an intervention focusing not just the young person or their family members, but the environment around them, and the way they interact with it.

Multidimensional family therapy integrates assessment and treatment of:
• Issues affecting the young person (including mental health, substance use, and other behavioural issues).
• The parents' child-rearing skills and personal functioning.
• Communication and relationships between the young person and their parent(s).
• Interactions between family members and key social [eg, education, work, and peer group] systems.

Key points
From summary and commentary

A review of the effectiveness of multidimensional family therapy versus cognitive-behavioural therapy, group therapy, or treatments which combined cognitive-behavioural therapy with other approaches.

Compared with other therapies, multidimensional family therapy was more effective overall, particularly among young people with severe substance use and other behavioural problems.

This makes it a valuable therapy, especially for young people with more challenging treatment and support needs.

The featured study involved a meta-analysis amalgamating the results of studies that examined the effects of multidimensional family therapy relative to other interventions for adolescents with substance use disorder and/or other behavioural problems.

Three criteria guided the selection of studies either published, or available from primary authors, by the end of February 2016:
• They had to report on the results of a "randomised controlled trial".
• They had to examine the effectiveness of multidimensional family therapy.
• They had to report results for one or more of the following outcome measures: substance use, mental health, delinquency, and family functioning (or provide enough information for the researchers to calculate results).

A total of 210 manuscripts were found. This was filtered down to 71 on the basis of information in the abstract, and then a final number of 19 on the basis of information in the rest of the article. Authors of publications were contacted to check for unpublished materials. Seven manuscripts were received of which five were eligible to be included in the meta-analysis. They were also asked for supplementary information on substance use and psychopathology.

The researchers first examined the overall effectiveness of multidimensional family therapy for five key outcomes: substance use; delinquency; externalising behaviours ("outer-directed and generating discomfort and conflict in the surrounding environment") and internalising behaviours ("inner-directed and generating distress in the individual"); and family functioning. This was followed by an analysis of the average effects of multidimensional family therapy compared with cognitive-behavioural therapy, group therapy, and combined treatments; and then an analysis of the "moderating factors" including the sample's severity of psychiatric disorders and substance use to investigate whether study characteristics affected the impact of multidimensional family therapy.

Considered the most important question in this study was whether adolescents with severe substance use and/or severe behavioural issues would benefit more from multidimensional family therapy than those with less severe conditions.

Main findings

A total of eight studies were reviewed, involving 1,488 participants of whom 699 received multidimensional family therapy, and 789 received cognitive-behavioural therapy, group therapy, or treatments which combined cognitive-behavioural therapy with other approaches.

Compared with other therapies, the overall average effect size of multidimensional family therapy was significant but modest – the effect size was 0.24, where 0.20 is considered a small effect size, and 0.50 a medium effect size. This corresponded to about 13% more young people achieving desired outcomes after multidimensional family therapy than after alternative approaches. Multidimensional family therapy also led to better outcomes than each of the three types of comparators – findings statistically significant in respect of cognitive-behavioural therapies.

The higher the percentage of young people with severe substance use problems or severe disruptive behaviour in the study sample, the better the overall responses to multidimensional family therapy compared with other therapies – indicating that adolescents with "high severity problems" benefited more from multidimensional family therapy (relative to other therapies) than adolescents with less severe conditions. There was also evidence of a severity *gradient* with average effect sizes for multidimensional family therapy being non-significant for those with low severity substance use issues, small for moderate severity users, and small to moderate for severe substance users.

The effect sizes for the outcome measures substance use, delinquency, externalising and internalising behaviours, and family functioning were all similar. Multidimensional family therapy was associated with a small incremental effect over other established treatments, with no significant differences between the five outcome categories.

The authors' conclusions

Multidimensional family therapy can be effective for adolescents with substance use, delinquency, or other co-occurring behavioural problems, and is likely to be most effective in adolescents with severe substance use and/or disruptive behaviour disorder. This makes it a valuable therapy, especially when treating the most challenging group of young people. The findings are consistent with meta-analyses of other programmes which intervene not just with the young person and their family but also with other influences on the child such as schools and the legal system, such as multisystemic therapy.

FINDINGS COMMENTARY The featured paper extracted 61 effect sizes across a range of domains, from 19 papers and eight studies comparing multidimensional family therapy with cognitive-behavioural therapy, group therapy, or treatments which combined cognitive-behavioural therapy with other approaches. Across all studies and outcomes, multidimensional family therapy achieved relatively greater positive effects, especially in studies with a larger proportion of young people with "high severity problems" – promising for the kinds of young people who might otherwise 'fall through the gaps' between services uncertain about who should take the lead. It also, importantly, appeared to be similarly effective for boys and girls, and for adolescents with different ages.

Previous meta-analyses have tackled the same subject, analysing the effectiveness of multidimensional family therapy and other family-based treatments (1 2 3). They found substantial variability in effectiveness across studies, which could have been related to the characteristics of participants. However, not being as comprehensive as the featured paper, they did not investigate the moderating effect of factors such as severity of substance abuse and mental health issues, which the authors of the featured paper considered important information for identifying which adolescents may benefit from multidimensional family therapy.

It seems none of the authors of this paper have been involved in the development of multidimensional family therapy, but the majority of studies incorporated into the meta-analysis were researched (or subsequent papers co-authored) by people involved in the intervention's development and/or testing over the past 25 years. This makes it difficult to rule out the possibility of some 'researcher allegiance' effects in the studies – ie, the possibility that researchers with an investment in the outcomes of the trial may (perhaps inadvertently) have influenced the outcomes or presented them in ways which matched their expectations or interests. Researcher allegiance can manifest itself in a number of ways, for example through less rigorous testing/analysis, and looking for ways to show the intervention works rather than testing effectiveness.

The authors of the featured paper compared the outcomes of studies conducted by the developers of the treatment, with studies conducted by others (developers and non-developers), reportedly to " test the assumption that studies carried out by the developers [would] yield higher effect sizes". Although they found similar average effect sizes of 0.24 and 0.23 (respectively), and confirmed that the small difference was not statistically significant, it would not be correct to draw from this that researcher allegiance had no effect on the overall results. In order to come closer to being able to draw this conclusion they would presumably have needed to compare studies involving developers, with studies that were wholly independent, rather than as they did, compare studies that were somewhat independent, with studies that were not at all independent.

According to *Table 2* in the paper, five out of eight studies involved some researchers who were independent, and six out of eight studies involved researchers who were not independent, indicating that only two studies were fully independent. The first which spanned five European countries, is analysed in the Effectiveness Bank. This found that overall multidimensional family therapy retained patients in treatment better than usual treatments, led to extra reductions in the prevalence and severity of cannabis dependence, and led to extra reductions in days of use among the children using most often. The second independent study, was located in four sites in the United States, and found that all the interventions tested (of which multidimensional family therapy was one) were associated with similarly significant effects, increasing days of abstinence during the subsequent 12 months. In one area, however, a higher percentage of young people allocated to the adolescent community reinforcement approach (40%) were in recovery, than multidimensional family therapy (22%) and motivational enhancement therapy plus cognitive behavioral therapy (18%). This difference was statistically significant, and possibly influenced the smaller non-significant observation that across all sites, a higher percentage of young people allocated to the adolescent community reinforcement approach (34%) were in recovery, than multidimensional family therapy (19%) and motivational enhancement therapy plus cognitive behavioral therapy (23%). When treatment costs were combined with clinical outcomes to estimate the cost-per-day of abstinence over the 12-month follow-up period, and cost-per-person in recovery at the last follow-up, the adolescent community reinforcement approach, and to a lesser extent motivational enhancement therapy plus cognitive behavioral therapy, were more cost-effective than multidimensional family therapy.

Addressing multiple vulnerabilities

Public Health England figures showed that most of the 17,077 young people accessing specialist substance use services in England in 2015/16 had additional vulnerabilities (some of which were mentioned in the featured study) including: mental health issues; being in the care of local authorities; not being in education employment or training; offending; self-harming; experience of sexual exploitation; and experience of domestic abuse. Among girls in treatment there were particularly high levels of domestic abuse (28% compared with 18% for boys) and mental health issues (25% vs. 15%).

Substance use treatment caseloads are such that many British health areas could justify the kind of resource-intensive and specialist service provided through multidimensional family therapy. Yet, an audit by the English National Treatment Agency for Substance Misuse found that family therapy is very much a minority response to youth drug and alcohol problems. For suitable patients, family-based therapies are among the most effective, but not always the most cost-

effective, according to one US-focused review examined in the Effectiveness Bank. Among those that were the most cost-effective were three family-based treatments, and two individual treatments. Multidimensional family therapy was included in the review, but did not fall within the five most cost-effective treatments. A more recent study evaluated its cost-effectiveness compared with cognitive-behavioural therapy for young people with cannabis use disorders, and found it to be at least as cost-effective, if not more so. What affected the outcome considerably was the addition of the costs of delinquency, as well as the more traditionally reported health care and quality of life.

Family-based therapies are typically intensive, and require a high level of competence on the part of the therapist to be able to exercise judgement and flexibility in working with highly stressed families and to intervene simultaneously in several aspects of the young person's life, which in turn mandates a high level of support in the form of training, supervision and opportunities for sharing experiences with other therapists.

Multidimensional family therapy pays attention to the social environments of young people – tackling the root causes of their vulnerabilities, helping them to access treatment and support, and become more resilient and able to cope with people and situations significant in their individual lives (1 2) (▸ see figure). Theoretically, its therapists engage systems which would also be engaged by a coordinated multidisciplinary team, but where such coordination may be imperfect, and a single person orchestrating the various systems might have more success. The complexity and challenge of working with people with multiple support needs is explored in an Effectiveness Bank hot topic through the lens of 'dual diagnosis' – a term used to describe people with coexisting mental health and substance use issues.

Goals Within MDFT Domains

ADOLESCENT DOMAIN	• Improve self-awareness and enhance self-worth and confidence • Develop meaningful short-term and long-term life goals • Improve emotional regulation, coping, and problem-solving skills • Improve communication skills • Promote success in school/work • Promote pro-social peer relations and activities • Reduce substance use, delinquency, and problem behaviors • Improve and stabilize mental health problems
PARENT DOMAIN	• Strengthen parental teamwork • Improve parenting skills & practices • Rebuild parent-teen emotional bonds • Enhance parents' individual functioning
FAMILY DOMAIN	• Improve family communication and problem-solving skills • Strengthen emotional attachments and feelings of love and connection among family members • Improve everyday functioning of the family unit
COMMUNITY DOMAIN	• Improve family members' relationships with social systems such as school, court, legal, workplace, and neighborhood • Build family member capacity to access and actualize needed resources

The goals of multidimensional family therapy (*see programme website*)

In Europe, the implementation of multidimensional family therapy has been facilitated by a Multidimensional Family Therapy Academy, based in Leiden (the Netherlands). For more on Multidimensional Family Therapy see the approach's website, the therapy's entry in the US government's directory of evidence-based therapies, or download the manual used in one of the US studies. For more on family therapy in general see this US expert consensus document.

Thanks for their comments on this entry in draft to Dr. Rigter and research author Dr. van der Pol, both of Leiden University Medical Centre, The Netherlands. Commentators bear no responsibility for the text including the interpretations and any remaining errors.

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