Family Therapy

Toolkit technical report

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This report is produced in collaboration with staff from the Campbell Collaboration Secretariat. It is a derivative product, which summarises information from Campbell systematic reviews, and other reviews, to support evidence-informed decision making'.

Plain Language summary

The objective of this technical report is to review the evidence on the effect of two important family therapies, namely, multi-systemic therapy (MST) and functional family therapy (FFT) on youth crime and violence. There are a wide range of different 'family' based interventions for behavioural difficulties in children and adolescents, but the recent high-quality systematic reviews have focused on MST and FFT interventions.

This technical report is based on the systematic reviews published by Hartnett et al. (2017) on FFT and by Markham (2018) and van der Stouwe et al. (2014) on MST. Additional information comes from the review of reviews on FFT by Weisman and Montgomery (2019).

MST is a widespread family therapy programme that has been implemented empirically by more than 500 teams across 16 countries worldwide (Markham, 2018). Van der Stouwe et al. (2014, p. 469) describe MST as a "multi-faceted, short term, home and community-based evidence-based intervention for juvenile delinquents and juveniles with social, emotional, and behavioural problems". Criminal courts, or youth justice bodies, will often assign young people and their families to MST as a mandated treatment programme (Weisman & Montgomery, 2019). In a classic MST model, therapists deliver MST through a mixture of home visits and/or meetings with the support system (primarily the family) around a child or young person who is demonstrating risky behaviours or engaging in crime and violence.

FFT is an evidence-based approach for the treatment of adolescent behavioural problems and substance misuse (Hartnett et al., 2017). FFT is intended to "change the maladaptive behaviours of youth and families, especially those who at the outset may not be motivated or may not believe they can change" (Weisman & Montgomery, 2019, p. 334). FFT also strives to reduce the consequences associated with antisocial behaviour and crime and violence, particularly on the personal, societal, and economic levels (Weisman & Montgomery, 2019).

Overall, both MST programmes and FFT programmes were effective in reducing behavioural difficulties and delinquency. The observed effect size of 0.48 for FFT programmes corresponds to a reduction of approximately 51% in problem behaviour and the evidence rating is 2. The

observed effect size of 0.115 for MST programmes corresponds to a reduction of approximately 15% in violent delinquency and the evidence rating is 2.

The effect of MST is found to be greatest for children under 15 (d=0.42), where it corresponds to a 46% reduction in crime, compared to an insignificant effect for those over 15 (d=0.105). There is also a larger effect for studies with higher proportions of Caucasian and indigenous participants, and studies with higher proportions of youth who had been previously arrested.

Hartnett et al. (2017) report variations in the reduction in problem behaviour for FFT based on the type of comparison. The review reports a reduction of 40% compared to an alternative treatment and a 51% reduction compared to no treatment. Based on a narrative synthesis, Weisman and Montgomery (2020) conclude that the amount of time spent being supervised, and the quality of that supervision, was associated with overall better effectiveness. However, there was no clear relationship between effectiveness and the amount of treatment or the uptake of intervention. It was also found that evidence is lacking on how effective FFT is with children and adolescents from ethnic minorities or with lower socio-economic groups.

However, the desirable effects reported above have not been reproduced in the United Kingdom where, to date, there has been one rigorous RCT on each approach.[1]

Humayun et al. (2016) conducted an empirical evaluation of FFT for a group of 65 participants aged 10 – 18 years old. The control group was composed of 46 youth who received 'management as usual', which involves working with a case worker through a support and counselling model. There was no statistical difference between groups on the self-reported delinquency outcome after 6-months (t (156) = -0.65, p = 0.52; ES = 0.13) or 18-months (t (156) = -0.27, p = 0.79; ES = 0.12). There were no statistically significant differences between groups at the 6-month follow-up on any of a range of other outcomes, such as officially recorded offences, conduct disorder symptoms, oppositional defiant disorder symptoms, and

[1] There has also been an evaluation of MST in Essex, but no report has been found (there is a powerpoint presentation available online).

parent behaviour. Only changes in observed child positive behaviour (t (114) = 2.41, p = 0.02, ES = 0.43) and observed child negative behaviour (t (118) = -1.77, p = 0.08, ES = 0.42) were significant at the 18-month follow-up timepoint. It seems that FFT did not add significantly to the effectiveness of 'management as usual'.

The START trial (Systemic Therapy for At Risk Teens) was a randomised controlled trial evaluating the effectiveness of MST compared to management as usual. In total, 684 families took part in the trial and were randomly allocated to either the intervention or the control group. The findings suggested that there were no statistically significant differences between the MST and control groups on criminal convictions at the 60-month follow-up; 55% of the MST group were convicted, compared with 53% of the management as usual group (OR = 1.13, 95% CI 0.82 – 1.56, p = .44). Therefore, MST did not seem to be any more effective than management as usual in preventing offending.

These last two studies suggest that further evidence is required from settings in England and Wales, as it appears that the evidence from the reviews – which is mostly from the United States – may not be readily transferable to the UK context.

Objective and approach

The objective of this technical report is to review the evidence on the effect of two important family therapies, namely, multi-systemic therapy (MST) and functional family therapy (FFT) on youth crime and violence. There are a wide range of different 'family' based interventions for problem behaviour in children and adolescents, but the most evidence is available for MST and FFT interventions.

This technical report is based on the systematic reviews published by Hartnett et al. (2017) on FFT and by Markham (2018) and van der Stouwe et al. (2014) on MST. An overview of reviews of FFT interventions for adolescent disordered behaviour also informs the current technical report (Weisman & Montgomery, 2019). Information about the implementation of family therapies is based on Weisman and Montgomery (2020).

The following inclusion and exclusion criteria were used to inform the selection of systematic reviews.

Inclusion criteria

Included in this technical report were systematic reviews of the effects of MST or FFT on youth antisocial behaviour, juvenile delinquency, and offending.

Exclusion criteria

Reviews were excluded for the following reasons:

- The review was published more than 10 years ago (e.g., Littell et al., 2005[2]). More recent reviews were favoured to provide the most relevant and current evidence on the effectiveness of family therapies.

Outcomes

Hartnett et al. (2017) reviewed the effectiveness of FFT on 'adolescent disruptive behaviour'[3] and substance use. Van der Stouwe et al. (2014) examined the effectiveness of MST on juvenile delinquency and several secondary outcomes, including psychopathology (e.g., mental health issues, depression, anxiety etc), skills and cognitions, substance use, family factors, out-of-home placements (i.e., when a child or young person is removed from their family residence), and peer factors. Markham (2018) reviewed the effect of MST on antisocial behaviour in adolescents, substance use, adolescent functioning, family functioning, peer and school factors but did not compute a meta-analysis. Weisman and Montgomery (2019) reviewed reviews that reported effects on adolescent disordered behaviour.

Description of interventions

The current technical report reviews two widely used evidence-based family therapies, Multisystemic Therapy (MST) and Functional Family Therapy (FFT). These interventions are

[2] Littell et al. (2005) is being updated, but at the time of producing this technical report the updated review was not yet published.

[3] Hartnett et al. (2017) do not provide a clear definition of what is meant by 'adolescent disruptive behaviour'. We can assume that it is operationally similar to 'adolescent problem behaviour'.

implemented with children and adolescents aged 10-17 years old and aim to reduce a range of behaviours, including, antisocial behaviour and crime and violence.

Multisystemic Therapy (MST)

MST is a widespread family therapy programme that has been implemented empirically by more than 500 teams across 16 countries worldwide (Markham, 2018) and was developed specifically as an intervention for 'hard-to-reach' families. Van der Stouwe et al. (2014, p. 469) describe MST as a "multi-faceted, short term, home and community-based evidence-based intervention for juvenile delinquents and juveniles with social, emotional, and behavioural problems". Criminal courts, or youth justice bodies, will often assign young people and their families to MST as a mandated treatment programme (Weisman & Montgomery, 2019).

Based on the assumption that juvenile delinquency is associated with an accumulation of criminogenic risk factors in a socio-ecological framework, MST programmes are flexible and designed to address individual risk factors (van der Stouwe et al., 2014).

MST is a structural multimodal intervention approach to reduce problem behaviours in adolescents (Markham, 2018). This intervention uses the 'Risk-Need-Responsivity' model (Andrews & Bonta, 2010) in that interventions need to take account of recidivism risk and match the criminogenic needs, learning style, and capabilities of the individual (van der Stouwe et al., 2014). This aims to ensure that the intervention is suitable for the targeted individual and will address not only their risk, but also their specific needs and how they respond to an intervention.

Van der Stouwe et al. (2014) report that therapists deliver MST through home visits or meetings with families and youth demonstrating risky behaviours or engaging in crime and violence. Meeting with families in either their homes or community centres is said to reduce drop-out rates, so that treatment is implemented exactly 'where and when' it is needed and increases the generalisability of new skills. A range of existing treatment strategies derived from strategic family therapy, structural family therapy, behavioural parent training, and cognitive-behavioural therapy, are used in MST programmes. In this approach, the MST

therapist is also seen as an advocate for the family unit when dealing with the external agencies who provide these interventions.

Functional Family Therapy (FFT)

FFT is an evidence-based approach for the treatment of adolescent behavioural problems and substance misuse (Hartnett et al., 2017) and was developed to target "highly conflicted" families, i.e., families in whom there is a lot of conflict between individuals. FFT has been evaluated across the world, including in Ireland (Graham et al., 2014) and in the United Kingdom (Humayun et al., 2016). Weisman and Montgomery (2019, p. 334) highlight many goals of FFT, including, "…to change the maladaptive behaviours of youth and families, especially those who at the outset may not be motivated or may not believe they can change". FFT also strives to reduce the consequences associated with antisocial behaviour and crime and violence, particularly on the personal, societal, and economic level (Weisman & Montgomery, 2019).

An 'ecological multifactorial' model of risk and protective factors guides the intervention in FFT programmes, and treatments are based on family systems theory and cognitive-behavioural techniques (Hartnett et al., 2017; Weisman & Montgomery, 2019). This means that risk factors are identified on many different levels of the system (e.g., the individual, peer, family, community levels) and are assumed to interact with one another in many directions. FFT includes components such as reframing, interrupting of negativity or blame, redirection of focus, interpretations of patterns of maladaptive behaviour with links to emotions, a deepening understanding of actions, and communication training (Weisman & Montgomery, 2019).

FFT is implemented across five phases and can be implemented in the home, in schools or in a clinical setting. It is described as a short-term intensive intervention and requires between 8 and 30 hours of direct service to youth and families over an average of 12 home visits in 90 days (Weisman & Montgomery, 2019).

- Phase 1 ‘Engagement’

  FFT therapists aim to form relationships with families and identify structural or contextual barriers for behaviour change and/or participation in the intervention. For example, the therapist will address issues such as availability, cultural sensitivity and ‘matching’ the family unit during this initial phase (Weisman & Montgomery, 2019).

- Phase 2 ‘Motivation’

  During this phase, the therapist will try to reduce intra-familial negativity through relational reframing of problem behaviours and interactions, as “noble yet misguided intentions” (Hartnett et al., 2017, p. 608). ‘Changeable intrafamily risk factors’ are identified, particularly any negative feelings towards each other, the therapist, or the intervention. Any sense of hopelessness or blaming of individuals for problems will be addressed and reframed (Weisman & Montgomery, 2019).

- Phase 3 ‘Relational assessments’

  Assessments of familial functioning and relationships are conducted in order to prepare for the behaviour change and generalisation phases (Weisman & Montgomery, 2019). The focus is relational problems, rather than individuals’ problems.

- Phase 4 ‘Behaviour Change’

  This is the phase where therapists work with families is to develop specific behavioural competencies (Hartnett et al., 2017). The aim is to create culturally appropriate, context sensitive, and individualised long term behaviour change patterns and use components such as positive communication, parenting skills, role-play, and conflict resolution (Weisman & Montgomery, 2019).

- Phase 5 ‘Generalisation’

  The final phase of an FFT programme involves focusing on broader behaviour change in different settings and over time (Weisman & Montgomery, 2019). Skills learned during the behaviour change phase are practised and broadened to other contexts, planning for future challenges, and ‘other community supports are accessed if

necessary' (Hartnett et al., 2017). This phase, as with all others, focuses on obtainable and realistic goals for long term behaviour change.

Theory of change/presumed causal mechanisms

MST and FFT interventions have somewhat similar presumed causal mechanisms in that both approaches assume that youth who engage in crime and violence have a range of risk factors that interact to explain why the problem behaviour occurs.

According to the reviews that inform the current technical report, MST is "based on the assumption that the life course trajectories of adolescents can be changed by actively reducing those risk factors associated with antisocial behaviour and building on the strengths and protective factors that support desistance" (van der Stouwe et al., p. 68). Similarly, Weisman and Montgomery (2019, p. 334) state that FFT is based on "theoretical principles in which behaviour is seen as a representation of the family relational system, that is, as indicative of the communication, patterns, and purposes of the family".

However, experts[4] have also noted some differences. FFT assumes that behaviour serves a purpose for the child or young person. These functions may include the regulation of support or intimacy with family members and are assumed to be necessary for the young person. The theory of change therefore assumes that by changing communication patterns and improving family functioning, the problem behaviours can be addressed and ideally reduced or prevented. FFT uses a social learning approach and emphasises change in relationships.

In contrast, MST is an ecological intervention and aims to make changes across all levels of a child or young person's social environment. MST is designed specifically for conduct disorder and involves the family to effectively change the child or young person's behaviours. MST incorporates multiple different evidence-based intervention approaches and so incorporates numerous different presumed causal mechanisms.

[4] We are grateful to Peter Fonagy for his expertise and input into the understanding of MST and FFT interventions.

Evidence base

Descriptive overview

Hartnett et al. (2017) evaluated the effectiveness of FFT on offending and antisocial behaviour outcomes from 14 primary studies. These studies were categorised twice, firstly according to whether or not they used random or non-random assignment, and secondly based on the type of control group – no treatment control, treatment as usual control group, or an alternative treatment control group. The comparisons were based on data from 130 participants (i.e., non-random comparison of FFT and treatment-as-usual control group) to 548 participants (i.e., non-random comparison of FFT and the no-treatment control group).

Van der Stouwe et al. (2014) reported the effect of MST on juvenile delinquency based on 22 primary evaluations, representing data from 4,066 young people. Of the studies that reported the age of participants, 8 studies included participants under 15 years old, and 11 studies included those over 15 years old. Most evaluations were published (*n* = 15) and evaluated in the USA (*n* = 16).

Assessment of the evidence rating

We have confidence that, at the time of writing, the reviews by Hartnett et al. (2017) and van der Stouwe et al. (2014) represent the best available evidence on the effectiveness of family therapy programmes on our outcomes of interest. Our decision rule for determining the evidence rating is summarised in the technical guide.

Two independent coders used a modified version of the AMSTAR2 critical appraisal tool was used to appraise the reviews by Hartnett et al. (2017) and van der Stouwe et al. (2014). According to this tool, the reviews were rated 'low'. The results of this assessment are summarised in Annex 3.

The review by van der Stouwe et al. (2014) adequately specified the research questions and the inclusion/exclusion criteria. The inclusion criteria included components relating to the population, intervention, comparison group and outcome of interest. Similarly, van der Stouwe et al. (2014) included studies that evaluated the effects of MST on antisocial

behaviour, conduct disorder and delinquency in adolescents. Van der Stouwe et al. (2014) did not restrict inclusion criteria to studies that used random assignment but stipulated that evaluations must include pre- and post-assessment measures. Hartnett et al. (2017) did not clearly specify inclusion criteria.

Protocols were not published, or referred to, in either of the reviews that inform this report.

Both of the reviews reported a comprehensive literature search strategy including a number of different databases, designated keywords and search strategies. The reviews by Hartnett et al. (2017) restricted inclusion criteria to only reports published in English. Van der Stouwe et al. (2014) included reports published in peer-reviewed sources and unpublished reports. Hartnett et al. (2017) did not specify that they included unpublished reports.

Evaluations that met the inclusion criteria for were coded by two authors and inter-rater agreement was measured in reviews by van der Stouwe et al. (2014). Hartnett et al. (2017) state that literature searches and coding of studies was carried out by two of the authors and disagreements were settled by consensus.

Hartnett et al. (2017) carried out a risk of bias analysis using the EPOC risk of bias tool, as suggested by the Cochrane Collaboration, and conducted a series of analyses to evaluate the impact of possible risk of bias on outcomes. The reviews by van der Stouwe et al. (2014) did not conduct any risk of bias analyses, beyond normal publication bias analysis.

Neither of the reviews include information on any funding received.

The reviews conducted by van der Stouwe et al. (2014) and Hartnett et al. (2017) computed a meta-analysis, reported detailed information on the synthesis and estimation of weighted effect sizes and adequately reported the heterogeneity between primary effects. Both reviews reported separate weighted effect sizes for independent outcomes and assessed multiple moderators as possible explanations for heterogeneity among primary effect sizes. Markham (2018) did not compute a meta-analysis.

Van der Stouwe et al. (2014) provide a direct estimate of the effectiveness of MST programmes on violent delinquency outcomes based on 7 studies. However, the results are significantly heterogeneous ($Z = 4.0$, $p < .001$)[5], the review was rated 'low' as per the AMSTAR tool, and a small number of evaluations were included, so the overall evidence rating is 2. Van der Stowe et al. (2014) also provide a direct estimate of the effectiveness of MST programmes on general juvenile delinquency based on 20 studies. The evidence rating for this estimate is 3, due to the 'low' AMSTAR rating and heterogeneity between primary evaluations.

Hartnett et al. (2017) present multiple effect size estimates for the effectiveness of FFT programmes on problem behaviour outcomes. Studies were grouped together based on the type of control group, resulting in groups of 2-5 studies. Six analyses were conducted, and the most relevant were the comparison of randomised controlled trials with a no-treatment control group ($n = 3$) or a well-defined alternative treatment group ($n = 5$). In these analyses, heterogeneity was low ($I^2 = 8\%$) and moderate ($I^2 = 56\%$), respectively and their overall evidence rating is 2 in both cases.

Impact

Summary impact measure

Based on the two meta-analyses that inform the current technical report, the findings suggest that family therapy programmes have a desirable impact on antisocial behaviour and juvenile delinquency outcomes. The mean effect sizes are summarised in Table 1.

Table 1

Mean effect sizes for adolescent problem behaviour and juvenile delinquency outcomes.

Review	Comparison	ES (*d* and OR)	*p*	% reduction	Evidence rating on	Evidence rating on crime

[5] The scale of heterogeneity is not known.

					indirect outcomes	and violence
Hartnett et al. (2017), *n* = 3 FFT on problem behaviour	random assignment and no-treatment control	*d* = 0.48 OR = 2.39	.004	51%	3	2
Hartnett et al. (2017), *n* = 5 FFT on problem behaviour	random assignment and alternative treatment control	*d* = 0.35 OR = 1.89	< .05	40%	3	2
van der Stouwe et al. (2014), *n* = 20. MST on total juvenile delinquency	Quasi-experimental before-after or RCT	*d* = 0.201 OR = 1.44	<.001	25%	n.a.	3
van der Stouwe et al. (2014), *n* = 7. MST on violent juvenile delinquency	Quasi-experimental before-after or RCT	*d* = 0.115 OR = 1.23	Ns	15%	n.a.	2

Note: ES = the weighted mean effect size; *p* = the statistical significance of the mean ES; OR = odds ratio; *d* = Cohen's d; *n* = number of studies; ns = not significant

Hartnett et al. (2017) also reported a mean effect size when participants were randomly assigned to an FFT intervention group and compared to a poorly defined 'treatment as usual' control group (*d* = 0.20, *p* = .13, *n* = 3 studies). Mean effect sizes for comparisons between

groups that were not randomly assigned are also reported; for non-randomly assigned FFT intervention groups and no-treatment control groups (d = 0.90, p = .13, n = 2), a poorly defined treatment as usual group (d = 0.08, p = .89, n = 2), and a well-defined alternative treatment group (d = 0.75, p < .001, n = 3).

Van der Stouwe et al. (2014) reported different mean effect sizes from MST for different types of delinquency. The mean effect size for general delinquency was d = 0.233, while the mean effect sizes for violent delinquency and non-violent delinquency were d = 0.115 (7 studies) and d = 0.082 (5 studies) respectively. Only the mean effect size for general delinquency was statistically significant.

In order to convert the d measures to a percentage reduction, we first used the equation: Ln(OR) = d / 0.5513 (Lipsey & Wilson, 2001). Then we assumed that there were equal numbers (n = 100) in the experimental and control conditions, and that 25% of persons in the control condition became involved in delinquency (or demonstrated problem behaviour). A prevalence of delinquency of 25% is a plausible assumption; for example, in the Cambridge Study in Delinquent Development, which is a prospective longitudinal survey of 411 London boys, 25% were convicted between ages 10 and 17 (Farrington, 2012). However, prevalence can vary greatly, for example depending on the time, place, sample, definition and measurement of delinquency.

With these assumptions, the OR of 1.44 in van der Stouwe et al. (2014) translated to 18.8% of experimental persons being delinquent, which is a 25% decrease. With the same assumptions, the reduction in violent delinquency is 15%. However, because it is based on a large number of studies, we have the most confidence in the estimate of 25% reduction in total delinquency reported by van der Stouwe et al. (2014).

These numbers are not greatly affected by different assumptions about the prevalence of delinquency or externalising behaviour. This is explained further in Annex 1.

Moderators and mediators

Van der Stouwe et al. (2014) included a number of different moderator variables to investigate possible reasons for heterogeneity between primary evaluations of MST. The results are summarised as follows:

- How delinquency was measured or when follow-up occurred did not moderate the effect size.
- The mean effect size for studies where participants were younger than 15 years old were statistically significant (d = 0.421, p < .001, n = 8 studies) but the mean effect size for studies with participants over 15 was not (d = 0.105, n = 11).
- Studies with higher proportions of Caucasian and "indigenous"[6] participants, and studies with higher proportions of youth who had been previously arrested, were associated with greater reductions in delinquency.

Hartnett et al. (2017) did not conduct any moderator analysis and Markham (2018) did not compute a meta-analysis.

Implementation and Cost analysis

A narrative analysis of the qualitative evidence on FFT programmes suggests that, although there was no reported harm as a result of participating in the intervention, there were factors that were associated with greater effectiveness (Weisman & Montgomery, 2020). Across all study designs therapist supervision, and the amount of time spent being supervised and the quality of that supervision, was associated with overall better effectiveness. The review also highlighted that there was no clear relationship between effectiveness and the amount of treatment or the uptake of intervention (between primary evaluations). The majority of evaluations of FFT were implemented with predominantly "White, middle-class, and from low-risk environments or neighbourhoods" (Weisman & Montgomery, 2020, p. 465).

[6] van der Stouwe et al. (2014) do not specify what they mean when they refer to indigenous populations. This could refer to non-immigrant groups or Indigenous groups such as Aboriginal Australians, First Peoples in Canada or Native American in the United States of America.

Therefore, evidence is lacking on how effective FFT is with children and adolescents from ethnic minorities or lower socio-economic groups/higher-risk environments.

In a qualitative evaluation of MST in the United Kingdom, Fonagy et al. (2020) found that there were multiple common themes underlying participants' reported experiences of the intervention. The following is a brief summary of some of these themes:

- Participants reported different trajectories of change following participation in the programme, with some continuing to improve, and others finding it difficult to maintain desirable changes or not seeing any change at all.
- There were different factors that families reported were responsible for initial changes due to the intervention. Factors that encouraged an initial effect included motivation to change, therapeutic alliance, learning better communication and seeing initial results.
- Factors that influenced the sustainability of behavioural changes included the continued use of MST techniques and skills, generalising skills to wider contexts, improved family relationships and recovering progress after setbacks.
- There were also changes on the individual and environmental levels that were not attributed to the MST programme.

Fonagy et al. (2020) also conducted an economic evaluation of the intervention, and found that overall, MST was not considered to be more cost-effective than treatment as usual (since, as reported below, the study was not found to have an effect compared to treatment as usual).

Findings from the UK

Functional Family Therapy

Humayun et al. (2016) conducted an empirical evaluation of FFT using a randomised controlled trial design. A group of 65 participants aged 10 – 18 years old (mean age 15 years old; 71% male and 9% non-White British) received FFT plus 'management as usual'. The

control group was composed of 46 youth (mean age 15.1 years; 72% male and 11% non-White British) who received 'management as usual'. Management as usual is required under English law and involves working with a case worker through a support and counselling model (Humayun et al., 2016).

The FFT treatment involved 12 sessions implemented over 3-6 months by qualified systemic family psychotherapists who were trained to deliver FFT. The primary outcome was self-reported delinquency and it was measured at 6-months and 18-months after baseline. In total, 59% of the intervention group completed all FFT phases and the fidelity of 77% of FFT sessions was rated as adequate or better.

The results showed that there was no statistical difference between groups on the self-reported delinquency outcome after 6-months (t (156) = -0.65, p = 0.52; ES = 0.13) or 18-months (t (156)= -0.27, p = 0.79; ES = 0.12). Humayun et al. (2016) included a range of secondary outcomes, such as officially recorded offences, conduct disorder symptoms, oppositional defiant disorder symptoms, and parent behaviour. There were no statistically significant differences between groups at the 6-month follow-up. The only statistically significant difference between the FFT and control groups was on observed child positive behaviour (t (114) = 2.41, p = 0.02, ES = 0.43) and observed child negative behaviour (t (118) = -1.77, p = 0.08, ES = 0.42) at the 18-month follow-up timepoint. It seems that FFT did not add significantly to the effectiveness of 'management as usual'.

Multisystemic Therapy

An RCT conducted in the UK of the START trial (Systemic Therapy for At Risk Teens) analysed the effectiveness of MST on outcomes of reoffending (Fonagy et al., 2020) and antisocial behaviour (Fonagy et al., 2018). In total, 684 families took part in the trial and were randomly allocated to either the intervention or control group. The effectiveness of MST was evaluated in comparison to a management as usual (MAU) control group on criminal convictions up to 60 months after baseline (Fonagy et al., 2020) and various outcomes related to juvenile delinquency and conduct disorder (Fonagy et al., 2018).

The MST intervention was delivered in families' homes by a specialist MST therapist three times per week over 3-5 months. The therapist was also available 'on-call' to families throughout the trial. The control group received management as usual and were offered services to match their needs through Child and Adolescent Mental Health (CAMHS) services. The services included help with substance misuse or engaging in education. At baseline, the mean age of participants in the MST condition was 13.7 years (13.9 years in MAU condition). Participants were mostly White (76% MST; 80% MAU) and male (63% MST; 64% MAU). Relatively few participants were categorised as a 'non-offender' when referred to the intervention (36% MST; 32% MAU), but 80% met the clinical cut-off for conduct disorder and 65% reported violent and aggressive interpersonal behaviour.

Fonagy et al. (2018) found that, after 12 months, participants in the MST condition reported less conduct disorder behaviours (d = 0.90, 95% CI 0.62 – 1.30, p = 0.12) in comparison to the MAU participants, but the difference was not statistically significant.

In relation to offending behaviour, Fonagy et al. (2018) found that, at the 18-month follow-up point, more participants in the MST condition had committed offences (20%) than participants in the MAU condition. Moreover, the difference in the mean number of crimes was statistically significant (d = 0.65, 95% CI 0.28 – 1.02, p < .001). More of the MST participants had also committed violent offences (8%) and non-violent crimes (10%) in comparison to the MAU condition (violent: 6%; non-violent: 8%).

Fonagy et al., (2020) suggested that there were no statistically significant differences between the MST and control groups on criminal convictions at the 60-month follow-up; 55% of the MST group were convicted, compared with 53% of the management as usual group (OR = 1.13, 95% CI 0.82 – 1.56, p = .44). Therefore, MST did not seem to be any more effective than management as usual in preventing offending.

What do we need to know? What don't we know?

The two studies from the United Kingdom suggest that further evidence is required from settings in England and Wales, especially for at-risk groups, as it appears that the evidence

from the reviews – which is mostly from the United States – may not be readily transferable. The differences in effectiveness may be explained by the nature of the comparison group, but also by differences in the experience of therapists and implementation fidelity.

There is also a lack of process evaluation evidence (see Annex 2) which would help to better understand the different trajectories identified by Fonagy et al. (2020), and what implementation challenges exist in our national settings.

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Annex 1: Effect size calculation: Family therapy

This annex shows the calculation based on the results and assumptions given in the text. We assume 200 youth, evenly divided between treatment and control groups. That means there are 100 youth in the control group and 100 youth in the treatment group. Assuming that 25% of youth in the control group become involved in delinquency, the mean effect sizes for both reviews can be easily transformed to a percentage reduction in delinquency.

If the odds ratio for the incidence of delinquency is 2.39 (Hartnett et al., 2017), then using the table below and the formula for an OR, we can estimate the value of X. The odds ratio is estimated as: A*D/B*C, where A is the number of children who do not become involved in delinquency in the treatment group, B is the number of children who do become involved in the treatment group, C is the number of children who don't become involved in the control group, and D is the number who do become involved in the control group. Therefore, the value of X is 12.24 in the case of Hartnett et al. (2017).

	Non-delinquents	Delinquents	Total
Treatment	100-x	x	100
Control	75	25	100

Therefore, the relative reduction in delinquency is (25 – 12.24)/25 = 51.04%. In relation to the review by van der Stouwe et al. (2014) and the outcome of juvenile delinquency, the value of X is 18.79 and the relative reduction in delinquency is 24.84%.

The prevalence of delinquency is likely to vary between studies and can be influenced greatly by the type of report (e.g., self-report, parent-report, or official data), the survey used, the questions asked (e.g., questions specific to one behaviour or questions about multiple different behaviours), the types of samples, etc. If we were to adjust our assumption that 25% of the control group are delinquent, the relative reduction in the intervention group is not greatly affected.

For example, if we assume that 10% of the control group are delinquent, the 2x2 table would be as follows and the value of X is 4.44 (for Hartnett et al., 2017). Therefore, the relative reduction is 55.6% (i.e., (10-4.44)/10]*100).

	Non-delinquent	Delinquent	Total
Treatment	100-x	X	100
Control	90	10	100

Similarly, if we assume that 40% of the control group are delinquent, the value of X is 21.81 (for the Hartnett et al., 2017 review) and the relative reduction in juvenile delinquency is 45.48%. Given the dramatic difference in the assumed prevalence of delinquency, the percentage relative reduction does not vary in a similar fashion. Table 2 shows this further.

Table 2

Variation of the relative reduction in juvenile delinquency depending on various estimates.

	Hartnett et al., (2017) OR = 2.39 *experimental group versus no-treatment control*	Hartnett et al., (2017) OR = 1.89 *experimental group versus alternative-treatment control*	van der Stouwe et al. (2014) OR = 1.44 *juvenile delinquency*	van der Stouwe et al. (2014) OR = 1.23 *violent delinquency*
Assumed prevalence	Relative reduction			
10%	55.6%	44.5%	28.4%	17.1%
25%	51.04%	40.04%	24.84%	14.72%
40%	45.48%	34.8%	20.88%	12.13%

Annex 2: Process evaluation evidence

Note: No process evaluations of MST or FFT in UK and Ireland have been found. Fonagy et al. (2020) is a qualitative study as part of a trial. It is not a process evaluation, and so does not focus on implementation issues. Weisman et al. (2020) is a review of the reporting of implementation fidelity in reviews of FFT; we list issues identified, but they are not tested in the paper.

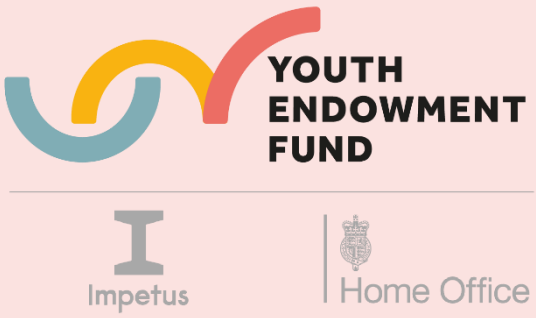
	Success factors	Challenges	What parents and children say
MST (Fonagy et al., 2020)	Non-judgemental role of therapist	Children believe therapist is taking children's side [whilst parents valued a mediator] Families follow different trajectories; for some there is a sustained difference and for others there is none.	Before, I didn't know that quite a lot of the things I was doing was making the situation worse; even though I was trying to stop it, I was making it 10 times worse. (parent)
Functional family therapy (Weisman et al., 2020)	Supervision amount, quality, and adherence		

	Training of therapists: both general education level and FFT-specific training.		

Annex 3: AMSTAR Rating

Modified AMSTAR item		Scoring guide	Family therapy (MST)		
			van der Stouwe 2014	Markham (2018)	Hartnett et al 2017
1	Did the research questions and inclusion criteria for the review include the components of the PICOS?	To score 'Yes' appraisers should be confident that the 5 elements of PICO are described somewhere in the report	Yes	Yes	Partial Yes
2	Did the review authors use a comprehensive literature search strategy?	At least two bibliographic databases should be searched (partial yes) plus at least one of website searches or snowballing (yes).	Yes	Yes	Yes
3	Did the review authors perform study selection in duplicate?	Score yes if double screening or single screening with independent check on at least 5-10%	Yes	Yes	Yes
4	Did the review authors perform data extraction in duplicate?	Score yes if double coding	Yes	Yes	Yes
5	Did the review authors describe the included studies in adequate detail?	Score yes if a tabular or narrative summary of included studies is provided.	Yes	Yes	Yes

6	Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?	Score yes if there is any discussion of any source of bias such as attrition, and including publication bias.	Partial Yes	Partial Yes	Yes
7	Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?	Yes if the authors report heterogeneity statistic. Partial yes if there is some discussion of heterogeneity.	Yes	No	Yes
8	Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? Overall	Yes if authors report funding and mention any conflict of interest	No Low	No Low	No Low



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