Multisystemic therapy versus management as usual in the treatment of adolescent antisocial behaviour (START): a pragmatic, randomised controlled, superiority trial


Summary

Background Adolescent antisocial behaviour is a major health and social problem. Studies in the USA have shown that multisystemic therapy reduces such behaviour and the number of criminal offences committed by this group. However, findings outside the USA are equivocal. We aimed to assess the effectiveness and cost-effectiveness of multisystemic therapy versus management as usual in the treatment of adolescent antisocial behaviour.

Methods We did an 18 month, multisite, pragmatic, randomised controlled, superiority trial in England. Eligible participants aged 11–17 years with moderate-to-severe antisocial behaviour had at least three severity criteria indicating past difficulties across several settings and one of five general inclusion criteria for antisocial behaviour. We randomly assigned families (1:1) using stochastic minimisation, stratifying for treatment centre, sex, age at enrolment to study, and age at onset of antisocial behaviour, to receive either management as usual or 3–5 months of multisystemic therapy followed by management as usual. Research assistants and investigators were masked to treatment allocation; the participants could not be masked. The primary outcome was out-of-home placement at 18 months. The primary analysis included all randomised participants for whom data were available. This trial is registered, number ISRCTN77132214. Follow-up of the trial is still ongoing.

Findings Between Feb 4, 2010, and Sept 1, 2012, 1076 families were referred to nine multi-agency panels, 684 of whom were assigned to management as usual (n=342) or multisystemic therapy followed by management as usual (n=342). At 18 months, the proportion of participants in out-of-home placement was not significantly different between the groups (13% [43/340] in the multisystemic therapy group vs 11% [36/335] in the management-as-usual group; odds ratio 1·25, 95% CI 0·77–2·05; p=0·37).

Interpretation The findings do not support that multisystemic therapy should be used over management as usual as the intervention of choice for adolescents with moderate-to-severe antisocial behaviour.

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Introduction

Antisocial behaviour in adolescence is a common and serious problem, with costly consequences for the young person, their family, and wider society.1 Such behaviour is also associated with an increased risk of health and social problems and a ten times increase in public sector costs by age 28 years.2,3 Multisystemic therapy is an intensive family-based and home-based intervention for young people with serious antisocial behaviour.4 High-quality, quantitative systematic reviews5 of 22 randomised controlled trials showed that multisystemic therapy is a promising intervention for improving the prognosis of antisocial and offending behaviour in adolescence, mitigating effects on public health and improving individual and family morbidity. However, outside the USA, the replicability of these findings has been mixed, with some studies showing that multisystemic therapy does not reduce antisocial behaviour more than usual interventions.6–9

A small, UK-based randomised controlled trial provided preliminary support for multisystemic therapy versus comprehensive, targeted services delivered by youth offending teams in reducing non-violent offending in the 18 months after randomisation.10 In this study, we assessed the effectiveness and cost-effectiveness of multisystemic therapy in addition to management as usual versus management as usual alone in reducing the risk of out-of-home placement and criminal behaviour in young people with moderate-to-severe antisocial behaviour over an 18 month period. We also assessed the effect of multisystemic therapy on family relationships, well-being, and educational performance, and the effects of previously identified moderating factors (callous and unemotional traits,6 pre-adolescent onset,11 and delinquent peers12) on out-of-home placements and criminal behaviour. Potential mediators, such as parental attitudes and discipline practices,12 were also assessed in the context of a full economic evaluation.
Panel: Research in context

Evidence before this study
We did a systematic review to identify randomised controlled trials and systematic reviews of multisystemic therapy for adolescent antisocial behaviour. We searched Embase, MEDLINE, and PsycINFO from inception to Dec 31, 2016, using the terms “multisystemic therapy” or “MST” in combination with 49 terms covering conduct problems. Only English-language articles were included. The search terms were based on systematic searches originally done in 2012 by the National Collaborating Centre for Mental Health for National Institute for Health and Care Excellence (NICE) guidelines. We identified 495 papers with relevant abstracts, and full-text screening of these yielded 22 primary randomised trials of multisystemic therapy for inclusion. Previous reviews (eg, those for NICE) identified multisystemic therapy as a promising intervention for delinquent adolescents in reducing recidivism and improving individual and family pathology, mitigating this major public health problem; these findings justified the national rollout of multisystemic therapy in England and elsewhere in Europe. Our review, like others with similar scope, found the replicability of findings in some non-USA studies to be mixed, with some reports showing that multisystemic therapy did not reduce antisocial behaviour more than usual services, but even then often showing significant economic advantages.

Added value of this study
To our knowledge, this study is the only independent, large-sample, community-based, superiority, cost-effectiveness trial assessing the medium-term effects and costs of multisystemic therapy. We did not find any long-term benefit or superior cost-effectiveness for multisystemic therapy compared with management as usual. No benefit for multisystemic therapy was observed in terms of reduced custodial or other out-of-home arrangements, and a beneficial effect was associated with management as usual versus multisystemic therapy with regard to offending behaviour at 18 months’ follow-up. However, multisystemic therapy did appear to bring about more rapid change in young people’s behaviour, as rated by their parents and, to a lesser extent, themselves. Post-hoc analysis pointed to early-onset conduct problems and association with delinquent peers as contraindications for multisystemic therapy.

Implications of all the available evidence
Previous evidence from the USA and some European countries suggested that multisystemic therapy was a promising treatment, but whether it would be similarly effective in the UK had not been fully investigated before this study. Our results do not provide strong evidence for the continued national rollout of multisystemic therapy in child and adolescent health and social services. We found no evidence that major savings would ensue from further implementation of the model. The substantial improvements observed in both groups reflect the effectiveness of routinely offered interventions for this group of young people, at least when observed via trial methodology. Further post-hoc analysis of differences in management-as-usual outcomes might provide suggestions for rational investment or disinvestment in this expensive domain of service provision.

Methods
Study design and participants
The Systemic Therapy for At Risk Teens (START) study\(^1\) was a pragmatic, randomised controlled, superiority trial at nine multisystemic therapy pilot centres in England. The centres all had at least 12 months’ experience in running the multisystemic therapy programme. Young people with moderate-to-severe antisocial behaviour were recruited from social services, youth offending teams, schools, child and adolescent mental health services (CAMHS), and voluntary services; all were referred to local multi-agency panels to standardise the referral process. These panels identified participants’ suitability for multisystemic therapy and invited them for formal assessment.

A multisystemic therapy supervisor and investigator visited the participants and their families at their homes to assess inclusion and exclusion criteria and to discuss the trial, including identification of an acceptable management-as-usual path. Eligible young people had at least three severity criteria indicating past difficulties across several settings (appendix) and one of five general inclusion criteria for antisocial behaviour: persistent (weekly) and enduring (≥6 months) violent and aggressive interpersonal behaviour; at least one conviction plus three additional warnings, reprimands, or convictions; conduct disorder diagnosed according to DSM-IV criteria and not responding to treatment; permanent school exclusion for antisocial behaviour; and significant risk of harm to others or self. Full inclusion and exclusion criteria are described in the appendix.

Written informed consent was obtained at the second visit, 3–7 days after the first, when a research assistant did the baseline assessment. The study protocol was approved by the London South-East Research Ethics Committee (09/H1102/55).

Randomisation and masking
Eligible families were randomly assigned (1:1) to management as usual or to 3–5 months of multisystemic therapy followed by management as usual by an assistant from University College London’s Trials Unit who was independent of the trial team. For randomisation, the assistant used an automated, 24 h telephone randomisation service and stochastic minimisation, stratifying for treatment centre, sex, age at study enrolment (<15 years or ≥15 years because of differences
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