

# Randomized Controlled Trial of Functional Family Therapy for Offending and Antisocial behaviour in UK Youth

[running head: RCT of FFT ]

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## **Abstract**

**Background:** Youth offending and antisocial behavior (ASB) are associated with low  
quality mental health and relationships and usually lead to poor adult functioning;  
they are very costly for society. Family interventions are effective in children but  
there are few reliably effective and inexpensive interventions for adolescents.  
Functional Family Therapy (FFT) is an evidence-based intervention but seldom tested  
outside the US.

**Methods:** 111 adolescents (10-17 years of age,  $M = 15.0$ ,  $SD = 1.63$ ) and their  
families were randomized to FFT + Management As Usual (MAU) ( $n=65$ ) or to MAU

(n=46). Assessments were made at baseline, 6, and 18 months after randomization and included interviews and questionnaires of parenting behaviors, Conduct Disorders and offending. Parent-child interaction was directly observed and police records obtained. Trial registration: ISCRTN27650478.

**Results:** 89 (80%) were followed-up. In both groups, there were large reductions over time in all measures of offending and antisocial behavior (e.g. primary outcome  $p < 0.001$ ), but no significant changes over time in parenting behavior or the parent-child relationship. However, there were no differences between intervention and control groups at 6 or 18 months on self-reported delinquency, police records of offending, symptoms or diagnoses of Conduct Disorders, parental monitoring or supervision, directly-observed child negative behavior, or parental positive or negative behavior. Against predictions, the intervention group showed lower levels of directly-observed child positive behavior at 18 months compared to controls.

**Conclusions:** In contrast to most previous trials of FFT, FFT+MAU did not lead to greater reductions in youth ASB and offending compared to MAU alone, and did not lead to improvements in parenting or the parent-child relationship. This may be because the trial was more rigorously conducted than prior studies; equally, the possibility that MAU was effective requires further research. **Keywords:** FFT, offending, RCT, UK, antisocial behavior, Conduct Disorder, parenting, youth.

## **Introduction**

Youth offending and antisocial behavior (ASB) is a serious problem. The US Surgeon General's report called it an epidemic and recommended rigorous evaluations of intervention programs (Office of the Surgeon General, 2001). There is high continuity to adult criminality (Loeber, Farrington, & Petechuk, 2013) and Antisocial Personality Disorder (Zoccolillo, Pickles, Quinton, & Rutter, 1992). These children are more likely to leave school without qualifications, end up unemployed, misuse drugs (Fergusson, Horwood, & Ridder, 2005), and develop adult mental health disorders including schizophrenia (Kim-Cohen et al., 2003), plus physical illnesses and early death (Maughan, Stafford, Shah, & Kuh, 2014).

The lifetime cost to the public of such high-risk youth was estimated at \$2.3 million in the USA (Cohen & Piquero, 2009) and in England individuals with CD aged 10 cost society ten times as much as controls by age 28 (Scott, Knapp, Henderson, & Maughan, 2001) with the greatest cost on justice and education agencies (Snell et al., 2013). Yet many expensive interventions, such as residential treatment and incarceration, are ineffective (Henggeler & Schoenwald, 2011). There is therefore a need to test interventions that are less costly but likely to be effective as they address known risk factors.

Negative family interactions are major risk factors for the development of ASB and delinquency (Hoeve et al., 2009; Murray & Farrington, 2010) and are potentially modifiable. A number of family interventions are effective, especially parent training for children which has over 70 RCTs supporting its effectiveness (Humayun & Scott, 2015; NICE, 2013). However, parent training appears to be less effective in

adolescence (NICE, 2013). Henggeler & Schoenwald (2011) concluded that the most effective youth programs target known risk factors, intervene at individual, family, peer, school and community level, and utilize behavioral-systemic interventions. The meta-analysis by Lipsey (2009) identified three factors associated with successful interventions for juvenile offenders: using a ‘therapeutic’ approach, working with high risk offenders and high quality implementation.

One of the best known of these interventions is Multisystemic Therapy (MST; Henggeler, 2012), an intensive, relatively expensive, multi-component treatment. Whilst early trial results were mixed, particularly outside of the US or those conducted independently of the developers (Littell, Campbell, Green, & Toews, 2005), some recent evaluations have been positive (van der Stouwe, Asscher, Stams, Deković, & van der Laan, 2014). A UK trial found it was more effective than MAU at 18 months follow-up, but only for non-violent behavior (Butler, Baruch, Hickey, & Fonagy, 2011).

Functional Family Therapy (FFT) is a less intensive, less expensive, alternative to MST but with similar effects on recidivism in the USA (Baglivio, Jackowski, Greenwald, & Wolff, 2014). FFT is a systemic, cognitive and behavioral intervention for 11-18 year olds, based on a family therapy model that aims to assist “hard to treat” youth and their families to make meaningful changes in their functioning (Alexander & Robbins, 2011). The FFT intervention model posits that youth behavior problems emerge and are maintained in a framework of interactions within the family, so addresses these by improving family communication and support while decreasing negativity and blame. It uses a range of systemic family therapy interventions, plus cognitive, behavioral and social-learning theory strategies to assist the young person

and family members to develop skills and make changes (Alexander & Robbins, 2011). It typically consists of 8-12 one hour sessions, varying according to family need, delivered in the family home over three to five months.

The effectiveness of FFT is fairly well established and includes trials independent of the developers (Baldwin, Christian, Berkeljon, & Shadish, 2012; Lipsey & Wilson, 1998; Waldron & Turner, 2008; Woolfenden et al., 2001). Early efficacy studies conducted by the developers found that FFT reduced rates and severity of recidivism in delinquent youth compared to routine intervention (Alexander & Parsons, 1973; Parsons & Alexander, 1973). In a five year US follow-up study independent of the developers, the recidivism rate for the FFT group was 9% versus 41% for MAU (Gordon, Graves, & Arbutnot, 1995). However, there were no differences between groups in felonies (severe offences), the sample was rather small (n=54), and the design not randomized.

A developer's implementation study in Nevada found FFT reduced recidivism by 50% (Sexton & Alexander, 2000). Large-scale dissemination studies in Washington State found FFT reduced felonies by 35% if implemented with fidelity. However it worsened felony rate when implemented poorly, and there was no difference in total offending rates between groups (Barnoski, 2002; Sexton & Turner, 2010). Additionally, neither the Nevada nor Washington State studies used a randomized design.

Whilst there is some good U.S. evidence that FFT reduces offending, interventions for delinquents may not be so effective in other countries. Thus for MST, trials in Canada and Sweden failed to find any effect over MAU, which may be better resourced and more effective than in the USA (Leschied & Cunningham, 2002; Sundell et al, 2008). Two Irish studies showed better outcomes with FFT but used a wait-list design (Graham, Carr, Rooney, Sexton, & Wilson Satterfield, 2014; Hartnett, Carr, & Sexton, 2016). A recent meta-analysis of FFT studies found 7 nonrandom studies and 5 published RCTs (Hartnett, Carr, Hamilton & O'Reilly, 2016). Amongst the former, FFT did no better than no treatment or MAU but outperformed alternative specified treatments. Amongst the latter, FFT did better against all comparators. However, three of the five RCTs were by the program developers, and none against MAU was outside the USA. In summary, there has been a handful of promising studies of FFT, but few well-designed RCTs independent of the program developers. Given FFT's potential to be a relatively inexpensive but effective intervention for young offenders, a rigorous RCT against MAU was needed.

We therefore planned such a trial, using a multi-informant, multi-method approach to measurement including detailed measures of wider aspects of ASB beyond offending, such as Oppositional Defiant Disorder and Conduct Disorder, since they indicate poor mental health and predict a wide range of poor outcomes (Kim-Cohen et al., 2003). We also included detailed measures of family process. These are absent from most studies, which is perhaps surprising since family process is the immediate, proximal intervention target and the proposed mediator of change. We wished to establish how much family change is needed to produce reductions in youth

ASB, and which dimensions are key. This trial was conducted independently of the program developers, who, however, supervised the intervention.

## Hypotheses

1. Youths in families allocated FFT+MAU will show less antisocial behavior and offending 6 and 18 months after randomization than those allocated MAU only.
2. Parents and youth allocated FFT+MAU will exhibit less directly-observed negative behavior and more positive behavior in family interactions 6 and 18 months after randomization and parents will report improvements in their parenting strategies, compared to MAU only.
3. Youths with more severe initial offending will show greater improvements with FFT+MAU (moderation).

## Method

### Participants and procedure

The study was approved by the local Research Ethics Committee. Participants were 111 youths (70% male), aged 10-18 years ( $M=15.0$ ;  $SD = 1.6$ ) and their parents (or primary caregivers) recruited through youth Offending Services (YOS; 67%), Targeted youth Support Services (TYSS: multi-agency prevention services for antisocial youth; 22%), and other crime prevention agencies (11%) in two counties in England between 2008 and 2011. All youth had been sentenced for offending or were receiving agency intervention following contact with the police for ASB. Table 1 provides baseline characteristics. Youth were predominantly White British (90%),

with below average IQ ( $M = 84$ ). Most lived with single (55%), unemployed (57%) carers, 85% of whom were the youth's biological mother; 60% carers had no education beyond the age of 16. Exclusion criteria: youth not living at home, sibling in the study, severe developmental delay, < two months left of MAU intervention; parent had received a parenting program in last two months; youth or parent not fluent in English.

After baseline assessment, families were randomized to FFT or control group by a statistician independent from the research team using a random number generator employing constrained adaptive randomization. The randomization ratio was varied to ensure adequate caseloads for FFT therapists and varied from 3:1 cases (FFT:control) during the early period to 1:3 cases at the end. Participants were re-assessed 6 and 18 months after randomization. See Figure 1 for participant flow/CONSORT diagram.

[Figure 1 about here]

## **Interventions**

### **Management As Usual (MAU)**

This was delivered by referring agencies through a case worker usually using a support and counseling model. MAU included help with education, employment, substance misuse, anger management, sexual health, mental health problems, and social skills as well as reparation programs and victim awareness programs. Family therapy was not used. The control group was also offered additional MAU



(constructive and diversionary pursuits) to try to ensure both intervention groups received comparable intervention doses.

### **Functional Family Therapy (FFT)**

This has five phases. The first is *engagement* which includes active outreach to connect with the young person and their parents to gain agreement to attend an initial family session. The second phase is *motivation* where the therapist works to enhance the perception that change is possible. Building a balanced alliance with individual family members is key to maintaining families in treatment. The third is *assessment* of risk and protective factors. The intervention is carefully shaped according to the relational style of each family member. The focus is to change meaning in the family through use of a range of techniques including reframing. The fourth phase, *behavior change*, uses a range of active techniques, including communication training, problem-solving skills and parent training. The fifth phase is *generalization* of improvements made in a few specific situations to wider contexts, including help negotiating positively with community agencies such as school.

The FFT group received FFT plus MAU, since MAU is obligatory under English law. FFT typically consisted of 12 sessions across 3 - 6 months. The FFT team consisted of two full-time and one part-time qualified Systemic Family Psychotherapists. Therapists had a range of experience working with families, including some with ten years' experience working intensively with families and youth with multiple problems, including ASB, mental health problems, and substance misuse; all were educated to Masters level or above; the senior therapist had taught systemic therapy at graduate level. FFT LLC provided initial training then twice

weekly supervision by phone, plus by 6 in-person training visits which included DVD review of therapy and live supervision. To further ensure fidelity, the FFT consultant monitored therapists' routinely completed clinical session notes.

## **Measures**

### **Demographics and Treatment Fidelity**

Demographic measures included parent and youth age, ethnicity, gender, marital status, living situation, employment and income. IQ was measured using the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999). The FFT consultant rated therapist fidelity on each call on a 7-point scale using the Therapist Adherence Measure (TAM; Sexton, Alexander, & Gilman, 2004).

### **Primary Outcome**

#### ***Self-report delinquency (SRD)***

This asks about 19 criminal acts committed during the past year, e.g. criminal damage, stealing and robbery, and how often (Smith & McVie, 2003). The frequency of each act is summed. At 6 month follow-up youth reported on acts in the last 6 months, and at 18 months follow-up in the preceding 12 months; 6 month values were doubled for comparability. The instrument correlates with official police arrests (Mcara & McVie, 2005) and showed good internal consistency in this sample ( $\alpha = .87$ ).

### **Secondary Outcomes**

#### ***Official records of offending***

Official records of convicted offences were obtained from the UK Police National Computer (PNC) database. These included community sentences, custodial sentences, and police cautions ('pre-court disposals') for minor offences, e.g. criminal damage, but not the lowest level of orders, such as Antisocial Behaviour Orders. Data was recorded for the 6 months prior to randomization (baseline), 6 months after randomization (6 month follow-up), and 12 months after that (18 month follow-up).

### ***Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD)***

Symptom counts and diagnoses of Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) were made using the Adolescent Parent Account of Child Symptoms (APACS; Taylor, Chadwick, Heptinstall, & Danckaerts, 1996). This is a semi-structured, diagnostic interview. The single-measure intraclass-correlation coefficient on 20 randomly selected interviews for total antisocial behavior score was 0.95, for number of ODD symptoms 0.99 and for number of CD symptoms 0.98. Onset age of conduct problems was dichotomized as before or after 10 years old.

### ***Parent-youth relationship***

#### ***Alabama Parenting Questionnaire, short version (APQ-15)***

Parents completed the short version of the Alabama Parenting Questionnaire monitoring scale, example item: "your child is out with friends you do not know" This has good reliability and validity (Scott, Briskman, & Dadds, 2010); internal consistency,  $\alpha = .74$  in this sample.

### ***Directly observed parent-youth interactions***

The parent-youth relationship was directly observed using the 'Hot Topics' measure. The dyad spends 5 minutes discussing youth concerns and 5 discussing parental concerns (Hetherington et al., 1999), coded on a 5-point scale. Coders were extensively trained then checked for reliability on 30 dyads. We used the factor structure of the developers: a positive factor comprising warmth, communication, assertiveness and involvement and a negative factor comprising anger and coercion. Intraclass correlations for each scale ranged from .74 to .86.

### **Sample size calculation**

The trial was powered to detect a minimal clinically important reduction of 5 points on the Self-Report Delinquency scale, an effect-size of 0.6 standard deviations (Smith & McVie, 2003), similar to other successful trials of FFT and MST. Based on 80% power and  $p < 0.05$ , G\*Power software (Erdfelder, Faul, & Bruner, 1996) returned 90 participants, increased to 106 to allow for 15% loss at follow up.

### **Statistical Analysis**

All analyses were undertaken on an intention-to-treat basis using linear mixed modelling. The model contained SRD as the dependent variable and SRD at baseline, dummy variables indicating the randomization regime, trial arm and a trial arm by time (6 versus 18 months) interaction term as explanatory variables. The model allowed the two repeated measures from the same youth/parent to be correlated by fitting random intercepts that varied at the level of the individual. Residual plots were used to check normality assumptions, with separate estimates of therapy effects at 6 and 18 months follow-up. We standardized effect sizes by dividing differences by the

common baseline standard deviation (SD) of the measure. Similar modeling was employed for secondary outcomes, with binary variables expressed as odds ratios.

We empirically identified baseline variables associated with missing outcome values at 18 months using logistic regression. We examined the association between missing data for each outcome at follow-up and each of a set of a baseline covariates separately. If an association was found, we then included such variables as covariates in the analysis model to relax the assumptions regarding missing data. The extra covariates were gender in models for SRD, hot topics, and APQ, age and referral agency for CD and ODD, and agency and gender for official records. The final generalized linear mixed models were fitted by maximum likelihood which provides valid therapy effect estimates provided the missing data generating process is missing at random (MAR). We also used mixed modelling to estimate the change in outcome between baseline and post randomization time points irrespective of group allocation. Finally, we performed a moderator analysis of baseline severity of SRD by including an interaction term between it and treatment arm in the regression model. The significance level was set to 5%. Statistical analyses were carried out in SPSS 22 and Stata 13.

## **Results**

### **Sample Characteristics**

65 youth were randomized to FFT and 46 to the control group (see tables 1 and 2). Table 1 shows the groups were well balanced. Figure 1, the CONSORT diagram,

illustrates participant flow including follow-up rates, which were good for this population (80% at 18 month follow-up).

[ Figure 1 and Table 1 about here]

### **Treatment adherence and fidelity to the model**

Table 3 presents hours of intervention received and treatment adherence. 95% of families allocated FFT commenced therapy, 83% completed at least 3 sessions. Nearly 60% of families in the FFT group completed all five FFT phases of treatment; families completed an average of 11 FFT sessions. The FFT group received more MAU hours than the control group (18.1 vs 11.0) and more treatment hours in total than the control group (28.1 vs 11.0), even though controls were offered additional MAU. Fidelity to the FFT model was adequate or higher for 77% of cases ( $M=3.26$ ,  $SD=0.96$ ).

[Tables 2 and 3 about here]

### **Primary Outcome: Self-Reported Delinquency**

There was no significant difference *between* groups in the level of SRD at 6 months follow-up (standardized effect size ( $es$ ) = .13) or at 18 months follow-up ( $es$  = .12; Table 4; Figure 2). However, there was a large reduction in SRD between baseline and 18 months follow-up for *both groups* (Figure 2; estimated mean change=-7.23, 95% CI: -9.52, -4.94;  $t(df) = -6.22(164)$ ;  $p < 0.001$ ) but not between baseline and 6 months follow-up ( $es$  = .005).

[Figure 2 about here]

## Secondary Outcomes

There were no differences *between* groups in the proportion of youth who had an officially recorded offence at 6 months follow-up (Odds Ratio (OR) = 1.66), or at 18 months follow-up (OR = 0.88); see Table 4. The overall proportion of youth *in both groups* who had an officially recorded offence in the previous 6 months decreased from 54% at baseline to 24% at 6 month follow-up (OR = 0.133, 95% CI: 0.057, 0.314;  $z = -4.62$ ;  $p < 0.001$ ) and to 19% at 18 months follow-up (OR = 0.089, 95% CI: 0.034, 0.232;  $z = -4.95$ ;  $p < 0.001$ ).

Further, there were no significant differences *between* groups at 6 or 18 months follow-up in either CD symptoms ( $es = .22, .07$ ) or ODD symptoms ( $es = .05, .15$ ), or for diagnoses of ODD or CD (see Table 4). For *both groups* there was a significant overall reduction in CD symptoms between baseline and 6 months follow-up (mean change=-0.73, 95% CI: -1.09, -0.37;  $t(df) = -3.97(154)$ ;  $p < 0.001$ ) and 18 months follow-up (mean change=-1.30, 95% CI: -1.68, -0.92;  $t(df) = -6.74(158)$ ;  $p < 0.001$ ), and in ODD symptoms between baseline and 6 months follow-up (estimated mean change=-0.83, 95% CI: -1.23, -0.43;  $t(df) = -4.10(161)$ ;  $p < 0.001$ ) and 18 months follow-up (estimated mean change=-1.37, 95% CI: -1.79, -0.95;  $t(df) = -6.44(162)$ ;  $p < 0.001$ ). Similar patterns were found for diagnoses of CD and ODD (data available on request).

### *Parent-youth interactions and parenting behavior.*

Observed positive parenting appeared slightly higher at 6 months follow-up in the FFT group, but not statistically significantly so (Table 4; Figure 2;  $es = .36$ ;  $p = 0.11$ ). There were no differences *between* groups in observed positive parenting at 18

months follow-up (es = .17) and no differences *between* groups in negative parenting at either 6 months follow-up (es = .18) or 18 months follow-up (es = .18). There were also no differences *between* groups in poor parental supervision at either 6 months follow-up (es = .05) or 18 months follow-up (es = .18).

[Table 4 about here]

There was no significant difference *between* groups in directly observed youth positive behavior while interacting with their parent at 6 months follow-up (es = .30). However, there was a significant difference *between* groups at 18 months follow-up, but with higher youth positivity in the control group (Table 4;  $B=.43$ , 95% CI: 0.08, 0.78;  $t(df) = 2.41(114)$ ;  $p = .02$ ; es = 0.43). There were no significant differences in directly observed youth negative behavior at 6 months follow-up (es = .12). At 18 months youth negative behavior appeared to be slightly higher in the FFT group, but not statistically significantly so (Table 4; es = .42;  $p = 0.08$ ). For *both groups* over time, there were no overall significant changes in poor parental supervision, or in directly observed positive or negative parental or child behavior at either 6 or 18 months follow-up (statistical values available on request). There was no significant moderating effect of baseline severity on the relationship between treatment and SRD at 18 months ( $t(df) = -0.430(87)$ ;  $p = 0.669$ ).

## **Discussion**

This trial was the first independent RCT outside of the US comparing FFT to any alternative intervention. It found no significant differences between FFT+MAU and MAU alone at either 6 or 18 month follow-up on any measure of ASB: self-report



delinquency, investigator-rated semi-structured interview with the parent of CD and ODD, directly observed child negativity or police records of offending. On one measure of youth antisocial behaviour, directly observed positive interaction with parent at 6 months, the MAU group fared better. There were no differences between groups on the proximal target of the intervention, parental family functioning, either in directly observed parental positive or negative behavior or in youth or parental reports of their supervision level. Baseline severity of SRD did not moderate the effect of treatment.

These results differ from some previous evaluations of FFT. There may be six possible explanations. First, especially since family functioning did not change, it could be that FFT was not delivered by therapists adequately skilled and sufficiently adherent to the model. Both features have predicted outcome (Barnoski, 2002; Graham et al., 2014; Sexton & Turner, 2010); indeed in Barnoski (2002), the half of therapists who were low-adherent got worse outcomes than MAU. However, the qualifications and experience of the FFT therapists in this study were high. All were trained to MSc level in Family Therapy and some had up to 10 years of subsequent experience as family therapists, as high a level of skill and experience as therapists in most FFT evaluations (e.g. Sexton & Turner, 2010). Fidelity to the model was measured by the program developer's team using their in-house instrument (Sexton et al., 2004). Over three-quarters of cases seen (77%) were given fidelity ratings equal to or above the level classed as 'high adherence' by Graham et al. (2014). Therefore, it appears unlikely that low FFT therapist skill or fidelity accounts for the lack of difference in outcomes between groups. Examination of the relationship between

fidelity and outcome was not possible as there was insufficient variability in fidelity levels.

Second, study design. In several studies, FFT alone has been compared to MAU. Here, the design was FFT + MAU vs MAU. This was because in England the law mandates some contact and monitoring, irrespective of extra interventions like FFT. This meant the FFT + MAU group received more hours of intervention, even though the control group was offered additional MAU to try to match intervention 'dose'. Could this have reduced the effectiveness of FFT? Theoretically, families may have found the number of contact hours excessive and given up trying. However, the mean contacts per week in the FFT + MAU group was only one ( $M=1.04$ ,  $SD=1.01$ ), and most youth had time on their hands as they were not in full time education or employed, so this seems an unlikely explanation; furthermore, no youth or family complained this was the case. Or MAU may theoretically have interfered with the effectiveness of FFT, since while FFT promotes a model of change involving family relations, most MAU attempted to change the youth at an individual level, through interventions such as counseling, with little family engagement. Could this have confused the youth and families? None reported this, and wider empirical evidence does not support the explanation that multilevel interventions are less effective. For example, Waldron et al. (2001) compared FFT+CBT ('combined') vs FFT vs MAU; as here, the combined group received more treatment sessions than the other two groups. Both the combined and the pure FFT groups had lower rates of substance use than MAU, but with no detriment to the combined group who at follow-up had lower rates than the pure FFT group; ASB did not differ between the FFT groups.

Third, did ASB improve so much over time in both groups that any intervention effects could not be detected? Certainly, all youth in this study reduced their rate of self-reported delinquency and official offending by the end of the trial. With offending, 54% had an official record of offending in the previous 6 months at enrolment, reducing to 24% at 6 months follow-up. These time trends are typical of the UK, where the overall re-offending rate (from a baseline of 100% offending) is 33% at one year (Ministry of Justice, 2016), so that the reoffending rate of 44% (24/54) amongst the offenders in this study does not indicate an unusually rapid rate of decline. There was thus still room to detect improvement on this outcome as well, youth had not reached a floor of offending, and the study was adequately powered to detect differences at the lower level. This point was proved in the English trial of MST, where with a similar decline in offending a significant effect was detected despite having a smaller sample (Butler et al., 2011). Recidivism rates amongst youth seen by usual US juvenile justice agencies are less clear, due to differences between states in measurement methods (Council of State Governments Justice Center, 2014).

Fourth, although this trial was adequately powered to detect change, were the population somehow atypical or inappropriate? As noted in the above paragraph, the initial severity was as great as typical UK offenders, especially younger ones - the mean age here was 15 years, an appropriate target when trying to intervene early to redirect offenders' life course. The ethnic mix was also typical of the UK population, 9% and 11% minority status respectively in intervention and controls, compared to the UK rate of 11%.

Fifth, this trial may differ from previous ones, because it was more rigorous, having a pre-specified analysis protocol, more objective measures such as direct observation and self-report and official records rather than parent report, statistical methods that correct for missingness, longer follow-up, and was conducted independent of the program developers. The other RCT of FFT amongst offenders was published in 1973 by the program developers.

Finally, in England FFT + MAU may not have outperformed MAU alone because MAU may be more effective in England than in the US. MAU in England involves substantial involvement of youth justice agencies in the community and many youth were at risk of incarceration if they breached their orders by reoffending. Some were mandated to wear tracking tags, which indicate breaks of curfews. These measures, plus the involvement of sympathetic staff doing individual work may have reduced reoffending. Such an explanation also raises the possibility that adolescents are less influenced by their parents than younger children. It is an age when individuals are striking out in increasingly independent way, spending more time out of the home and taking less account of parental disapproval. This is supported, for example, by recent studies of attachment, where amongst 15-year-olds the environmental contribution was far less than in infancy (Fearon, Shmueli-Goetz, Viding, Fonagy, & Plomin, 2014). These influences are particularly likely to obtain amongst a young offending population. It could be argued that interventions targeting processes within the offending individual may have a greater chance of success than family-based ones.

#### *Strengths and Limitations*

This study had several strengths. It was the first RCT of FFT for offending and ASB conducted outside the US independently of the program developers. It had a

reasonable sample size and high rates of retention, and used high quality, multi-method, multi-informant assessment methods that measured youth ASB in several different ways, including ‘gold standard’ methods of direct observation and official police records. Additionally, it measured the proximal target and proposed mediator of intervention, family functioning. It used experienced family therapists, trained by the program developer and supervised weekly by his team from the USA.

There were a number of limitations. First, whilst fidelity was adequate to high across the great majority of cases, it was lower than recommended in 23% of cases seen, although this was as high or higher than in most other trials of FFT; e.g. Barnoski, 2002. The episodes of lower fidelity occurred at the outset of the trial when therapists, although well versed in general family therapy, were still honing their FFT skills, having seen only a few cases prior to the trial; the number of cases they saw over the course of the study was also relatively low. Against this, the trial was designed to test real-life effectiveness of FFT in England and wider replication would be unlikely to involve better skill levels than seen here.

Second, theoretically, a larger sample size may have detected small differences between groups. However, the effect sizes were very small (e.g.  $d=0.12$  for self-reported delinquency) and a larger sample would not have raised the level to the minimal clinically important difference. Third, of those eligible for the trial, only 23% took part. Possibly they were the types of families that were already more likely to make changes to stop their adolescent children offending. Given that key features of Engagement and Motivation phases are integral to the model, it may be that the effects of FFT may have been underestimated because families were already motivated. However, family demographic characteristics were similar to typical

families of offenders in England; direct observation showed no change in functioning in either the FFT or the MAU group; and the improvement rate in either group was no better than the average for all UK young offenders, so this seems an unlikely explanation for the lack of effectiveness of FFT.

### *Conclusion*

This study failed to show greater reductions in offending and antisocial behavior in the group allocated FFT. Future studies should perhaps evaluate more intensively delivered FFT, so that there is objectively measured change in parent-youth relationship, the proposed mediator of change. There should be more intense scrutiny of MAU and more research on individual-level interventions for young offenders.

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### *Key points:*

- Adolescent offending and ASB is costly and is predictive of negative long-term outcomes, including poor adult mental and physical health.
- There are few reliably effective and inexpensive interventions. Functional Family Therapy (FFT) is an evidence-based intervention but is little tested outside the US: this study was the first UK RCT.

- Over time there were large reductions in youth CD, ODD, ASB and offending but *no* significant differences between groups. There were no changes in the parent-child relationship.
- FFT + usual services did not result in better outcomes compared to usual services alone. This may have been due to better usual services than in some previous studies.

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Table 1

*Baseline Participant Characteristics*

<i>Participant Characteristics</i>	Value (SD or %)		
	FFT (n=65 <sup>a</sup> )	Control (n=46 <sup>a</sup> )	National Norms <sup>b</sup>
Age	15.0 (1.77)	15.1 (1.42)	-
Child male	46 (71%)	33 (72%)	51%
Child non-White British	5 (9%)	5 (11%)	11%
Child IQ	83.6 (13.88)	85.6 (11.64)	99.2 (15.0)
Parent single	36 (55%)	25 (54%)	32%
Parent no education after 16 years	42 (65%)	25 (57%)	18%
Parent unemployed	39 (60%)	24 (52%)	12%
<i>Youth behavior and history</i>			Unaffected sample <sup>c</sup>
Self-Reported Delinquency	13.9 (11.75)	11.2 (8.62)	2.6 (3.69)
Offended in previous 6 months	37 (57%)	23 (50%)	-
Conduct Disorder symptoms	2.8 (2.30)	2.5 (2.02)	0.38 (0.60)
Oppositional Defiant Disorder symptoms	4.1 (2.33)	3.6 (2.32)	0.50 (0.76)
Conduct Disorder diagnosis	29 (45%)	20 (43%)	0 (0%)
Oppositional Defiant Disorder diagnosis	37 (57%)	22 (48%)	0 (0%)
Early onset conduct problems	36 (55%)	19 (41%)	0 (0%)
Observed negative behavior score	3.0 (1.25)	2.8 (1.15)	1.9 (0.92)
Observed positive behavior score	2.3 (0.81)	2.2 (0.78)	3.2 (0.73)
<i>Parental behavior</i>			
Observed positive parenting score	3.4 (0.77)	3.5 (0.73)	4.1 (0.68)
Observed negative parenting score	2.5 (1.14)	2.5 (1.09)	1.5 (0.74)
Parental poor monitoring	5.8 (3.02)	6.3 (2.61)	2.0 (2.01)
Father antisocial history score	12.0 (8.74)	10.4 (8.15)	3.5 (4.49)

a Numbers vary for behavioral measures (89% to 100% for FFT group, 93% to 100% for control)

b National norms from *Social Trends* (Office of National Statistics, 2009)

c Unaffected sample values from normal control group in SAIL study (Joseph et al, 2014)

Table 2

*Outcomes per group by time point*

	Value (SD or %)					
	Baseline		6 month follow-up		18 month follow-up	
	FFT	Controls	FFT	Controls	FFT	Controls
<i>Youth behavior and history</i>						
Self-Reported Delinquency	13.9 (11.75)	11.2 (8.61)	14.4 (17.35)	10.3 (14.19)	6.3 (7.98)	3.4 (5.47)
Offended in previous 6 months	37 (57%)	23 (50%)	19 (29%)	8 (17%)	13 (20%)	8 (17%)
Conduct Disorder symptoms	2.8 (2.30)	2.5 (2.02)	2.2 (2.34)	1.4 (1.57)	1.5 (1.79)	1.1 (1.47)
Oppositional Defiant Disorder symptoms	4.1 (2.33)	3.6 (2.32)	3.3 (2.35)	2.7 (2.50)	3.1 (2.43)	1.9 (1.95)
Conduct Disorder diagnosis	29 (45%)	20 (43%)	19 (29%)	6 (13%)	13 (21%)	4 (9%)
Oppositional Defiant Disorder diagnosis	37 (57%)	22 (48%)	24 (37%)	15 (33%)	20 (31%)	8 (17%)
Observed negative behavior score	3.0 (1.25)	2.8 (1.15)	2.7 (1.25)	2.7 (1.31)	2.8 (1.40)	2.5 (0.97)
Observed positive behavior score	2.3 (0.81)	2.2 (0.78)	2.2 (0.71)	2.3 (0.64)	2.1 (0.82)	2.5 (0.61)
<i>Parental behavior</i>						
Observed positive parenting score	3.4 (0.77)	3.5 (0.73)	3.5 (0.82)	3.4 (0.71)	3.2 (0.78)	3.6 (0.58)
Observed negative parenting score	2.5 (1.14)	2.5 (1.09)	2.3 (1.14)	2.5 (1.08)	2.5 (1.28)	2.5 (1.08)
Parental poor monitoring	5.8 (3.0)	6.3 (2.61)	5.2 (2.7)	5.5 (2.55)	4.7 (2.6)	5.5 (2.09)

Table 3

*Treatment Characteristics by Group*

	FFT (n=65) <i>M</i> (SD) or %	Control (n=46) <i>M</i> (SD) or %
Accepted FFT	62 (95%)	-
<sup>a</sup> Engaged in FFT	54 (83.1%)	-
<sup>b</sup> Completed all FFT phases	38 (59%)	-
<sup>c</sup> FFT fidelity adequate or above	38 (77%)	-
FFT mean fidelity rating	3.3 (0.96)	-
Total FFT hours	11.2 (8.0)	-
Total MAU hours*	18.1 (23.4)	11.0 (12.0)
Total treatment hours***	28.2 (26.0)	11.0 (12.0)

<sup>a</sup>Attended three or more sessions; <sup>b</sup>Completed at least one session from each phase; <sup>c</sup>Score of 3 or above; \* $p < .05$  \*\*  $p < .01$  \*\*\*  $p < 0.001$



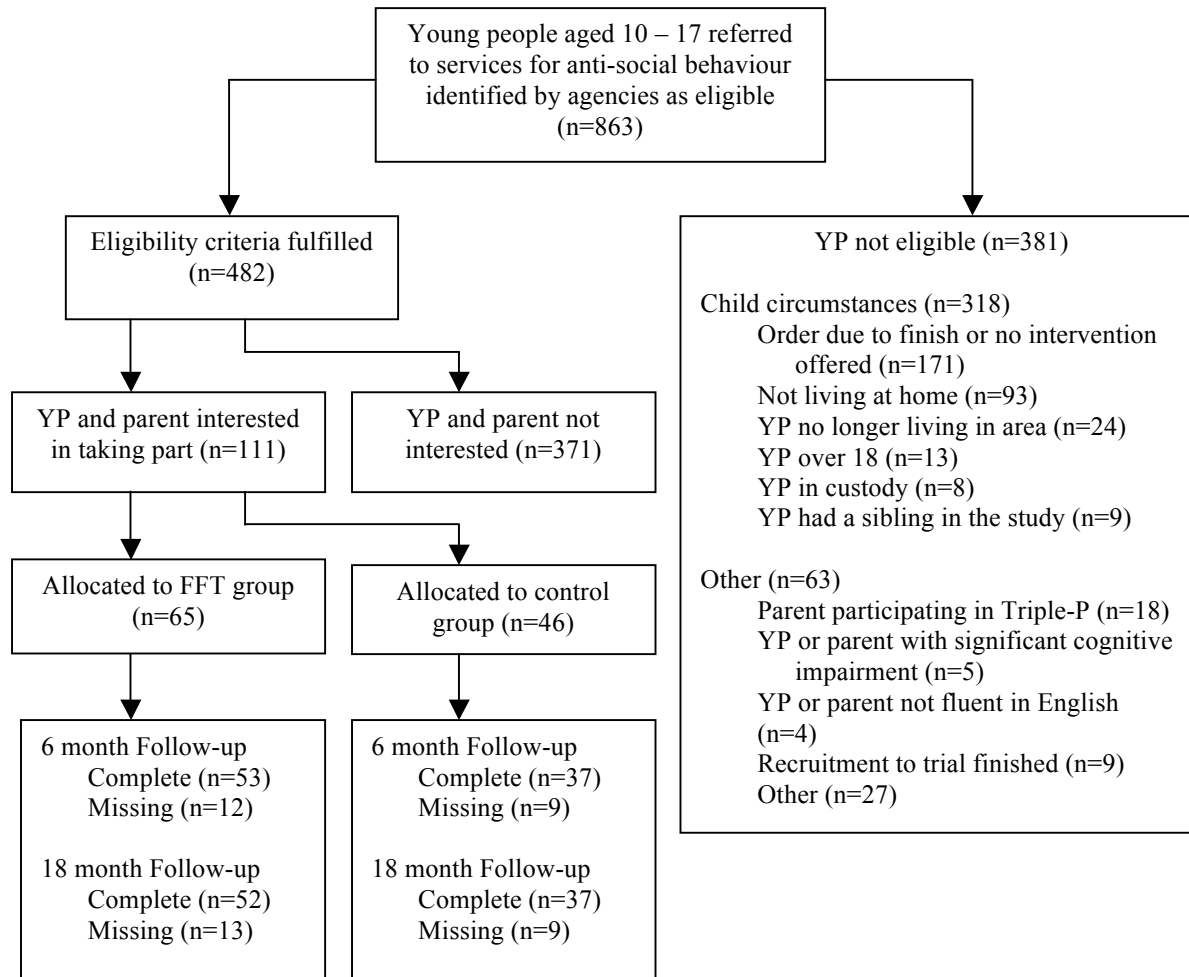
Table 4

*Differences Between Treatment Groups in Primary and Secondary Outcomes at 6 months and 18 months follow-up*

	6 months <sup>a</sup>				18 months <sup>a</sup>			
	Estimated Mean Difference or Odds Ratio (95% CI) <sup>b</sup>	<i>t</i> ( <i>df</i> ) <i>or z</i>	<i>p</i>	Standardized effect size	Estimated Mean Difference or Odds Ratio (95% CI) <sup>b</sup>	<i>t</i> ( <i>df</i> ) <i>or z</i>	<i>p</i>	Standardized effect size
Self-Reported Delinquency	-1.62 (-6.59-3.34)	-.65 (156)	.52	.13	-.69 (-5.71-4.34)	-.27 (156)	.79	.12
Officially Recorded Offence	OR=1.67 (0.39-7.05)	0.7	.49		OR=0.88 (0.20-3.82)	-0.17	.86	
CD <sup>c</sup> Symptoms	-.63 (-1.42-.16)	-1.56 (144)	.12	.22	-.20 (-1.02-.62)	-.49 (148)	.63	.07
ODD <sup>d</sup> Symptoms	-.15 (-1.02-.72)	-.34 (152)	.73	.05	-.51 (-1.40-.38)	-1.12 (153)	.26	.15
CD <sup>c</sup> diagnosis	OR=2.98 (0.86-10.33)	1.72	.08		OR=2.93 (0.74-11.60)	1.53	.12	
ODD <sup>d</sup> diagnosis	OR=1.00 (0.33-3.05)	0.00	.99		OR=2.04 (0.59-7.07)	1.13	.26	
Poor Parental Supervision	.14 (-.92-1.21)	.26 (148)	.79	.05	.49 (-.58-1.56)	.90 (150)	.37	.18
Observed Positive Parent Behaviour	-.27 (-.61-.06)	-1.63 (97)	.11	.36	.13 (-.21-.47)	.78 (100)	.44	.17
Observed Negative Parent Behaviour	.21 (-.32-.75)	.79 (112)	.43	.18	-.21 (-.75-.34)	-.74 (115)	.46	.18
Observed Positive Child Behaviour	.24 (-.10-.58)	1.39 (111)	.17	.30	.43 (.08-.78)	2.41 (114)	.02	.43
Observed Negative Child Behaviour	-.15 (-.72-.43)	-.51 (115)	.61	.12	-.52 (-1.11-.06)	-1.77 (118)	.08	.42

<sup>a</sup>Numbers vary (6 months (observed behavior-SRD): 65-81%; 18 months: 59-79%) <sup>b</sup>Mean difference is control - FFT group, such that negative values indicate higher scores for FFT group; for odds ratios the reference group is the control group <sup>c</sup>Conduct Disorder <sup>d</sup>Oppositional Defiant Disorder

**Figure 1**  
**Participant flow diagram**



**Key:** YP = Young person, FFT = Functional Family Therapy

Figure 2.  
Estimated mean scores and confidence intervals of Self-reported delinquency and directly observed parental positivity by treatment group and time (months)

