FAMILY PROCESS

The Effectiveness of Functional Family Therapy in Reducing Adolescent Mental Health Risk and Family Adjustment Difficulties in an Irish Context

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To evaluate the effectiveness of Functional Family Therapy (FFT) 42 cases were randomized to FFT and 55 to a waiting-list control group. Minimization procedures controlled the effects of potentially confounding baseline variables. Cases were treated by a team of five therapists who implemented FFT with a moderate degree of fidelity. Rates of clinical recovery were significantly higher in the FFT group than in the control group. Compared to the comparison group, parents in the FFT group reported significantly greater improvement in adolescent problems on the Strengths and Difficulties Questionnaire (SDQ) and both parents and adolescents reported improvements in family adjustment on the Systemic Clinical Outcomes and Routine Evaluation (SCORE). In addition, 93% of youth and families in the treatment condition completed FFT. Improvements shown immediately after treatment were sustained at 3-month follow-up. Results provide a current demonstration of FFT's effectiveness for youth with behavior problems in community-based settings, expand our understanding of the range of positive outcomes of FFT to include mental health risk and family-defined problem severity and impact, and suggests that it is an effective intervention when implemented in an Irish context.

Keywords: Functional Family Therapy; Systemic Clinical Outcomes and Routine Evaluation; Strengths and Difficulties Questionnaire

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Adolescent behavior problems have historically been viewed as one of the most difficult areas of practice for prevention and intervention specialists (Carr, 2014; Sexton, 2011). The problems experienced by adolescents are significant because of their prevalence and intractability. Youth and families are often viewed as treatment resistant, lacking motivation, and being untreatable by traditional prevention and intervention programs (Alexander, Sexton, & Robbins, 2002). International epidemiological studies suggest that between 17% and 22% of adolescents suffer from a significant developmental, emotional, or behavioral problem (Costello, Mustillo, Keeler, & Angold, 2004; Kazdin,

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2003; Merikangas, Nakamura, & Kessler, 2009). In Ireland, where the study described in this paper was conducted, two large community surveys have shown that up to 20% of adolescents have significant behavioral and mental health problems (Lynch, Mills, Daly, & Fitzpatrick, 2006; Martin, Carr, Burke, Carroll, & Byrne, 2006). High rates of mental health disorders also exist among youth involved in the juvenile justice system, the population for which FFT was originally developed, with an estimated 50–80% of delinquent adolescents meeting the criteria for a mental health problem such as conduct or substance-related disorders (Hogan, 2003; Kazdin, 2000; Lyons, Baerger, Quigley, Erlich, & Griffin, 2001; Teplin, Abram, McClelland, Dulcan, & Mericle, 2002).

Family therapy programs have shown particular promise in ameliorating adolescent behavioral problems, and Functional Family Therapy (FFT) has consistently been identified in authoritative international reviews as one such program (Baldwin, Christian, Berkeljon, Shadish, & Bean, 2012; Carr, 2014; Henggeler & Sheidow, 2012; Sexton & Datchi, 2014; Von Sydow, Retzlaff, Beher, Haun, & Schweitzer, 2013). FFT is an evidence-based treatment for adolescent behavioral problems, conduct disorder, substance misuse, and delinquency (Alexander & Parsons, 1982; Alexander, Waldron, Robbins, & Neeb, 2013; Sexton, 2011). FFT is based on an ecological multifactorial model of risk and protective factors involved in the development of conduct problems. The FFT clinical practice model has three distinct phases: engagement, behavior change, and generalization. Therapist goals and interventions appropriate to each phase are described in a treatment manual (Sexton & Alexander, 2004). Therapists meet regularly, usually on a weekly basis for about 3 or 4 months, with the adolescents and their families in conjoint sessions. Therapy duration is matched to family need and problem severity, but is short-term. During these sessions therapists develop a therapeutic alliance with family members; help families develop better parenting practices, communication, and problem-solving skills; and help families to use these skills independently to generalize progress made within therapy to home and community contexts.

A series of evaluation studies has shown that FFT is effective in reducing criminal activity by up to 60%, reducing treatment dropout from 50% to 20%, and early studies found improvements in family functioning in areas such as communication and problem-solving (Alexander et al., 2013; Baldwin et al., 2012; Henggeler & Sheidow, 2012; Sexton, 2011). Furthermore, there is evidence that treatment fidelity mediates outcome in FFT, with cases treated by therapists who adhere to the model having better outcomes than those treated by low-adherent therapists, especially in cases at high risk due to family disorganization or deviant peer group membership (Barnoski, 2002; Graham, Carr, Rooney, Sexton, & Wilson Satterfield, 2014; Sexton & Turner, 2010). For example, Graham et al. (2014), in an Irish study, found that therapy-completers treated by high-adherent therapists had a more favorable outcome than dropouts or those treated by low-adherent therapists. Almost 60% of cases treated by high-adherent therapists were clinically recovered after FFT. In contrast, the worst outcome occurred for dropouts, none of whom were recovered at follow-up. The outcome of cases treated by low-adherent therapists fell between these two extremes. Just under 20% of these were clinically recovered after treatment. This was also the first study of FFT in the Republic of Ireland. It had all the limitations associated with a retrospective archival study. The prospective randomized-controlled trial described in this paper was conducted to overcome the limitations of this initial study, and to further evaluate the effectiveness of FFT within an Irish context.

This study had two specific goals. The first was to assess the effectiveness of FFT in ameliorating adolescent psychological problems and family adjustment. Most early studies of FFT focused on recidivism as the primary measure of positive outcome; few evaluated outcomes of FFT in broader domains of youth behavior and mental health (For a review see Alexander et al., 2013, Chapter 3). In this study we included measures of youth behav-

ior, an index for mental health risk, and family functioning, and assessed these constructs from both adolescent and the parent perspectives. The second goal of this study was to evaluate the effectiveness of FFT in an Irish context and thus demonstrate the model's applicability in cultures other than the one in which it was developed. As such, this study had the potential to help us to better understand if evidence-based treatment interventions developed largely in a U.S. context are exportable to other cultures and treatment systems. This issue was important from an Irish perspective, as few evidence-based family therapy programs have been established to address adolescent behavioral problems in Ireland.

METHOD

Design

This study was conducted at Archways Families First, a community-based counseling agency established in 2007 in Dublin Ireland. This center was set up to implement FFT and other evidence-based interventions to support socially disadvantaged families of children and adolescents with behavioral problems at risk for a range of mental health disorders. The study was a randomized-controlled trial (RCT) with FFT and waiting-list control group arms. Cases in FFT and control group arms were assessed at baseline (Time 1) and approximately 20 weeks later (Time 2). FFT group cases were also assessed at 3-month follow-up (Time 3). A randomization program was used to generate random allocation sequences and cases were allocated to groups by DH. Self-report assessment instruments completed at Time 1, 2 and 3 were administered by DH and other members of the research team who were not blind to whether participants were in the FFT or control group.

A CONSORT diagram illustrating the inclusion and randomization process is shown in Figure 1 (Schulz, Altman, & Moher, 2010). Cases were included if the adolescents obtained scores which were at or above the clinical cut-off of 17 on the total difficulties scale of the parent-completed version of the Strengths and Difficulties Questionnaire (SDQ, Goodman, 2001), if parents and adolescents consented to participate in the trial, and if there were no practical obstacles to participating in the study. Of 352 cases assessed for eligibility, 270 were excluded. One hundred and eighty-four did not meet the SDQ clinical cut-off criterion; 83 declined to participate; and 3 were excluded because practical obstacles prevented their participation in the trial. Initially, 82 cases were randomized with 27 assigned to the treatment group and 55 assigned to the waiting-list control group. Minimization procedures were used to reduce differences between treatment and control group cases on age, gender, family composition (one- or two-parent family), and SDQ subscale profile. Small groups of 3–6 cases were matched as closely as possible on these variables, and then randomly assigned to treatment and control groups at a ratio of 2:1.

Of the 55 control group cases, 11 dropped out and did not complete Time 2 assessment, resulting in 44 trial-completers in the control group. When these control-group cases completed Time 2 assessment they became eligible for random assignment to the FFT group. Thirty cases exiting the control group (having completed Time 2 assessments) who met the inclusion criteria were clustered into pairs of cases matched as closely as possible on age, gender, family composition, and SDQ subscale profile. From each of these closely matched pairs of cases, one was randomly assigned to the treatment group. Using this procedure, 15 cases were randomized to the FFT group giving a total of 42 cases in the FFT group. Eleven cases who exited the control group and who did not meet the inclusion criterion were excluded from this process. These cases did not score at or above 17 (the clinical cut-off score) on the total difficulties scale of the parent-completed version of the SDQ. A further three cases did not engage with the service and so were also excluded. Of the 42

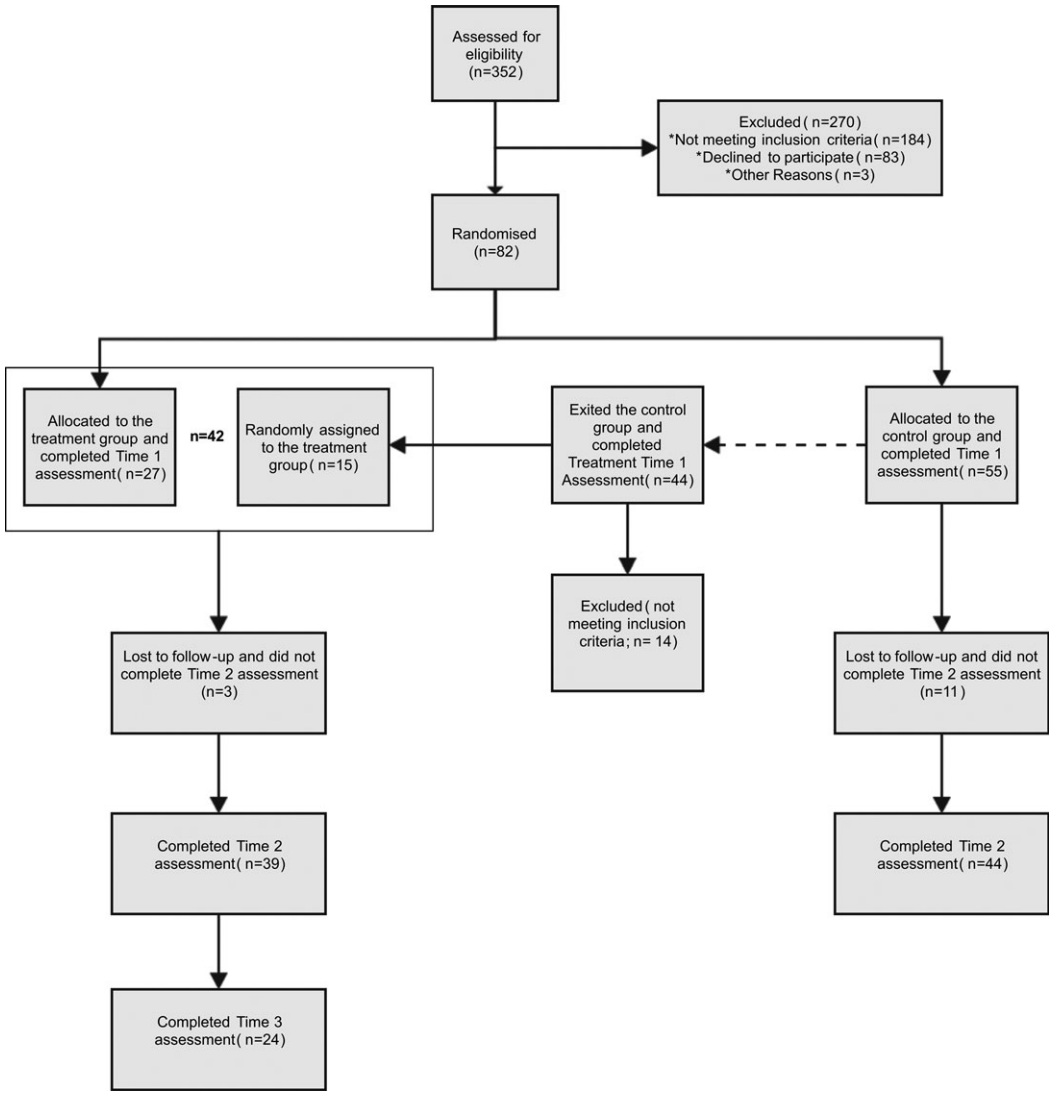

FIGURE 1. Flow of cases through the trial.

cases randomized to the FFT group, 39 were assessed at Time 2. Three cases dropped out before Time 2 assessment. Of the 39 who completed Time 2 assessment, 24 also completed assessments 3 months later at Time 3.

There were no data on the 83 cases who refused to participate in the study, so it is not clear how these differed from those who consented. No specific demographic or clinical variables were associated with dropout. To identify baseline variables associated with dropout, the statistical significance of differences between treatment group completers (N = 39), treatment group drop-outs (N = 3), control group completers (N = 44), and control group dropouts (N = 11) was evaluated with one-way ANOVAs with post hoc comparisons for continuous variables and chi-square tests for categorical variables. The false discovery rate to control for type 1 error associated with conducting multiple statistical tests was used in these analyses (Benjamini & Hochberg, 1995). Dropouts and completers did not differ significantly on age, gender, family structure (one- or two-parent

households), unemployment, educational level, and all subscales of the adolescent and parent versions of the SDQ and SCORE.

Sample size, power analysis

With 42 FFT cases and 55 control group cases the design was adequately powered. A power analysis with C*power showed that a total sample size of 26 would be required to detect an effect size of $d = 0.7$, with a one-tailed α error probability (p value) of .01, and a power ($1 - \beta$ error probability) of 0.99. The effect size of $d = 0.7$ used in this power analysis was based on that found in a recent meta-analysis of trials of evidence-based approaches to family therapy for adolescent behavioral problems in which the outcome from family therapy was compared with that from control groups (Baldwin et al., 2012).

Participants

Participating families were referred to the trial from the Irish public health service (36.6%), state-funded schools (30.5%), community agencies (17.10%), the government's Department of Education behavioral support service (7.3%), the Irish Youth Justice Service (3.7%), and other sources (4.9%). Demographic and clinical characteristics of FFT and control group cases are given in Table 1. The average age of referred adolescents was about 14 years. There were slightly more girls than boys. Just under half of participating families were living in two-parent households, with the remainder living in one-parent households or alternative family forms. Most families were Irish and only three were non-nationals. In just under half of the participating families, parents were unemployed, and the remainder were predominantly from lower socioeconomic groups (O'Hare, Whelan, & Commins, 1991). The adolescents in these families had very significant behavioral problems, placing them at high risk for mental health disorders. Their mean score on the total difficulties scale of the parent-completed version of the SDQ exceeded the clinical cut-off score of 17 (http://www.sdqinfo.com/). These families also had very significant adjustment problems, as indicated by the fact that the mean total score on the parent-completed version of the SCORE family assessment measure (Systemic Clinical Outcomes and Routine Evaluation – SCORE) exceeded the clinical cut-off score of 2.86 (Fay et al., 2013). There were no significant differences between the FFT and control groups on any demographic or clinical variables at Time 1. Thus, differences between FFT and control groups at Time 2 described below in the results section were not due to group differences at Time 1 on variables listed in Table 1.

Therapists

There were five therapists in the study. Four were female and one was male. All had primary degrees or postgraduate qualifications in mental health professions. Therapists varied in their experience of FFT, which ranged from 2 to 7 years. All had completed the systematic FFT Clinical Training Program (Sexton, 2011). Each therapist demonstrated moderate model adherence with cases in the study as measured by the Therapist Adherence Measure (TAM; Sexton, Alexander, & Gilman, 2004). All had mean ratings of 3 or 4 on the 7-point TAM. These mean ratings were based on 7–27 unique adherence ratings made by the FFT expert supervisor during the time of the study, demonstrating that in this trial FFT was implemented with a moderate degree of fidelity. This degree of fidelity was previously found to be sufficient to have a significant impact on the FFT outcome. Graham et al. (2014) found that the outcome for cases treated by therapists with TAM scores of three or greater were significantly better than those scoring lower than three on

TABLE 1

Demographic and Clinical Characteristics of FFT and Control Groups at Time 1

	FFT Group (N = 42)	Control Group (N = 55)
Age (continuous)		
M	14.22	14.39
SD	1.45	1.55
Gender		
Male		
f	27	33
%	64.30	60.00
Female		
f	15	22
%	35.70	40.00
Family structure		
Living with both biological parents		
f	18	27
%	42.90	49.10
Living with one parent		
f	19	23
%	45.20	41.80
Living with one parent and step-parent		
f	4	4
%	9.50	7.30
Living in substitutive care		
f	1	1
%	2.40	1.80
SES		
Unemployed		
f	18	27
%	42.90	49.10
Unskilled manual		
f	5	15
%	11.90	27.30
Semi-skilled manual		
f	3	0
%	7.10	0.00
Skilled manual		
f	5	3
%	11.90	5.50
Other nonmanual		
f	8	4
%	19.00	7.30
Lower professional/managerial		
f	2	3
%	4.80	5.50
Higher professional/managerial		
f	1	3
%	2.40	5.50
Adolescent's Educational level		
No exams		
f	12	9
%	28.60	16.10
Junior school final examination		
f	16	20
%	38.10	36.40
Junior high school certificate		
f	14	24
%	33.3	43.60

TABLE 1
(Continued)

	FFT Group (N = 42)	Control Group (N = 55)
Leaving high school certificate		
f	0	2
%	0.00	3.60
Adolescent Behavior Problems		
SDQ-P-Total difficulties		
M	23.07	23.05
SD	3.80	3.70
SDQ-A-Total difficulties		
M	16.81	16.67
SD	5.47	3.84
Family Adjustment		
SCORE-P-Family adjustment		
M	3.35	3.33
SD	0.71	0.71
SCORE-A-Family adjustment		
M	3.45	3.14
SD	0.95	0.86

Notes. M = Mean; SD = Standard deviation; *f* = frequency; SES = socioeconomic status; SDQ = Strengths and Difficulties Questionnaire; SCORE = Systemic Clinical Outcomes and Routine Evaluation; COM = Client Outcome Measure.

the TAM. In the current trial, therapists completed FFT with between 5 and 13 cases for the trial.

Instruments

Adolescent behavior problems and risk of mental health disorder were evaluated with parent and adolescent versions of the SDQ (Goodman, 2001). Family functioning was assessed with the 28-item version of the SCORE (Cahill, O'Reilly, Carr, Dooley, & Stratton, 2010). Therapist adherence to the FFT model was assessed with the TAM (Sexton et al., 2004).

Strengths and Difficulties Questionnaire

The SDQ is a 25-item behavioral screening instrument for assessing children and adolescents' risk for mental health disorders (Goodman, 2001). In the present study the total difficulties scale was used as an index of behavioral and emotional problems and risk of mental health disorders. The total difficulty score of the SDQ (range 0–40) is a fully dimensional measure, with each one-point increase in the total difficulty score corresponding to an increase in the risk of mental health disorder. The total difficulties scale contains 20 items with 5 from each of the following domains: conduct problems, hyperactivity, emotional symptoms, and peer problems. Three point response formats are used for all items (0 = not true, 1 = somewhat true, 2 = certainly true). Both parent- and adolescent-completed versions of the SDQ were used in our study. Both have good psychometric properties (Goodman, 2001). The SDQ correlates substantially with similar instruments and has been found to differentiate youth with and without psychopathology, serving as a valid and reliable screening tool for mental health disorders in community samples (Vostanis, 2006). Clinical cut-off scores of 17 and above for the parent-report version, and 20 and above for the adolescent-report version, indicate the presence of clinically significant adolescent behavior problems (http://www.sdqinfo.com/). The total difficulties scale of the par-

ent-completed version of the SDQ was the primary outcome measure in the current study. The cut-off score of 17 on this scale was used to classify cases as having shown clinical recovery.

Systemic Clinical Outcomes and Routine Evaluation

The SCORE, which assesses family adjustment, includes 28 Likert scale items and three questions about the nature, severity, and impact of the main family problem with which clients require help (Cahill et al., 2010; Fay et al., 2013). Responses to 28 statements about family life are given on 6-point Likert scales which range from 1 = describes my family extremely well, to 6 = describes my family not at all. Responses to the question about the family's main problem are given as a written statement, and ratings of the severity and impact of this problem are marked on 10-point scales. In the present study the SCORE total family adjustment scale (which is based on all 28 Likert scale items), and the main problem severity and impact ratings were analyzed. SCORE psychometric properties and norms have been described in a series of Irish and UK studies involving normal and clinical families of children with a range of problems (Cahill et al., 2010; Fay et al., 2013; Hamilton, Carr, Cahill, Cassells, & Hartnett, 2015).

Therapist Adherence Measure

The TAM is a supervisor-rated measure of FFT treatment fidelity (Sexton et al., 2004). Following a supervision session both general adherence and phase-specific adherence rating are completed by the clinical supervisors using a 7-point Likert scale ranging from 0 = low adherence, through 3 = moderate adherence, to 6 = high adherence. Across the study these individual case measures of adherence were averaged to give an overall TAM rating. General adherence is the degree to which supervisors perceive therapists to be following the FFT clinical model in the specific case presented during that clinical supervision discussion. Phase-specific adherence is the degree to which supervisors perceive therapists to be focusing treatment on the goals of the specific phase of the FFT clinical model in which the therapy is currently occurring. The TAM supervisor rating scale has been adapted from videotape adherence rating systems which have shown high inter-rater reliability (Gilman, 2008; Sydnor, 2006). Barnoski (2002) and Sexton and Turner (2010) found that TAM scores predicted lower recidivism in juvenile delinquents treated with FFT. Graham et al. (2014) found that high TAM scores were associated with improvement improved SDQ posttreatment scores. In the current study the TAM was used to make sure that all therapists met the criteria for model adherence. TAM ratings were made by the FFT supervisor based on impressions of the supervisor following a recounting of sessions in supervision by therapists.

Procedure

Participants referred to the trial were screened for suitability with the SDQ during home-visits or at the Archways Families First Center. Those scoring at or above the clinical cut-off of 17 on the total difficulties scale of the parent-completed version of the SDQ were randomized to FFT or control groups, and completed the Time 1 assessment protocol. Cases in both the FFT and control groups were assessed again at Time 2, about 20 weeks after Time 1, which for FFT cases was after completing treatment. Cases in the FFT group completed Time 3 assessments about 3 months after Time 2.

Each case in the FFT group was treated by a single therapist over about 20 sessions spanning 4–6 months, with initial sessions being offered weekly and later sessions being offered less frequently, for example, fortnightly. FFT sessions were convened in clients' homes or at the center, depending on client preferences and practical considerations.

Where possible, whole family sessions were held with all members of the adolescents' households attending. When this was not possible or appropriate, sessions with some family or household members were convened. Where appropriate, nonresident parents were included in some FFT sessions. Treatment progressed from engagement, through behavior change, to generalization phases as described in the introduction.

RESULTS

An intent-to-treat analysis was conducted with last-observation carried forward where data were missing at Time 2 or 3. There were three components in this analysis. First, to determine if FFT led to statistically significant improvement on parent and adolescent-completed measures of adolescent mental health and family adjustment, improvement in mean scores of FFT and control groups from Time 1 to 2 were compared. Second, to assess the durability of FFT treatment effects, improvement in mean scores of the FFT group from Time 1 through Time 2 to Time 3 was evaluated. Summary scales from parent- and adolescent-completed SDQ and SCORE instruments were the dependent variables in these analyses. Third, to evaluate the extent to which FFT led to clinically significant improvement, clinical recovery rates of FFT and control groups on the primary outcome measure (the parent-completed SDQ total difficulties scale) were compared.

The Effectiveness of FFT

To determine whether FFT led to statistically significant improvement in adolescent mental health and family functioning from Time 1 to Time 2, a 2 × 2, Group × Time multivariate analysis of variance (MANOVA) was conducted. In this analysis eight variables listed in Table 2 from the parent and adolescent-completed versions of the SDQ and SCORE were included. This MANOVA yielded a significant multivariate Group × Time interaction with Wilks' $\lambda = 0.691$, $F(8, 88) = 4.912$, $p < .001$, partial $\eta^2 = .389$. Power to detect the effect was 0.997. To determine the specific variables on which the FFT group improved significantly more than the control group, a series of 2 × 2, Group × Time ANOVAs was conducted. The false discovery rate to control for type 1 error associated with conducting multiple statistical tests was used in these analyses (Benjamini & Hochberg, 1995). Effect sizes comparing the FFT and control group means at Time 2 were also computed. Table 2 includes a summary of this analysis.

From Table 2 it may be seen that significant Group × Time interactions occurred on all dependent variables except the adolescent-completed SDQ total difficulties scale. These interactions are graphed in Figure 2 (along with data on the durability of treatment effects at Time 3 mentioned in the next section). The graph of mean scores on the total difficulties scale of the parent-completed SDQ illustrates that from the perspective of parents who engaged in FFT, significantly fewer behavioral problems were noted pre- to posttreatment as compared to the control group, indicating a significant decrease in risk for mental health disorders. Graphs of parent- and adolescent-completed SCORE total family adjustment and problem severity and impact scales illustrate that from youth and parent perspectives, FFT led to significant decreases in family problems from Time 1 to 2. In contrast, from Time 1 to 2 no significant change occurred in the adjustment of families in the control group.

Effect sizes expressing the degree to which adolescents and families in the FFT group were better adjusted than those in the control group at Time 2 ranged from $d = 0.27$ to 1.19. Using Cohen's (1988) criteria where effect sizes of $d = 0.2$ are considered small, $d = 0.5$ medium, and $d = 0.8$ large, the following conclusions may be drawn about effect sizes expressing the extent of the difference between the FFT group and control group at

TABLE 2

Mean Scores of FFT Group at Time 1, 2, and 3 and Control Group at Times 1 and 2 on SDQ and SCORE Scales, Group × Time Interaction From Group × Time ANOVA, Time Effect From Repeated Measures ANOVA on FFT Group Time 1, 2, and 3 data, t-Test Results and Effect Sizes

	FFT group (N = 42)			**Control Group (N = 55)**		**Group × Time ANOVA for FFT Group and Control group F G × T Interaction**	**Effect sizes d (95% CI) FFT G-CG Time 2**	**Repeated measures T1, T2, T3 ANOVA for FFT group F Time effect**	***t*-Tests for FFT group**		**Effect sizes d (95% CI) for FFT group**	
	Time 1	**Time 2**	**Time 3**	**Time 1**	**Time 2**				**T1–T2**	**T1–T3**	**T1–T2**	**T1–T3**
SDQ-P-Behavior problems												
Total difficulties												
M	23.07	16.47	17.60	23.05	20.35	11.30**	0.68 (−0.38, 1.74)	18.22**	6.11**	5.24**	1.22	1.07
SD	3.80	6.72	6.27	3.70	4.98						(0.07, 2.38)	(−0.03, 2.16)
SDQ-A-Behavior problems												
Total difficulties												
M	16.81	13.81	14.05	16.67	16.03	4.21	0.37 (−0.79, −1.54)	5.06*	3.12**	2.98**	0.51	0.48
SD	5.47	6.32	6.20	3.84	5.62						(−0.73, 1.76)	(−0.76, 1.71)
SCORE-P-Family functioning												
Family adjustment												
M	3.35	2.74	2.85	3.33	3.21	13.91**	0.64 (0.50, 0.79)	13.29**	5.21**	4.35**	0.92	0.76
SD	0.71	0.63	0.62	0.71	0.80						(0.77, −1.06)	(0.62, 0.90)
Problem severity												
M	7.87	3.81	4.62	7.97	6.64	23.84**	1.19 (0.71, 1.66)	33.26**	8.22**	6.59**	1.73	1.45
SD	1.87	2.78	2.62	1.97	2.07						(1.23, 2.23)	(0.96, 1.93)
Problem impact												
M	7.59	4.09	4.79	7.68	6.26	11.96**	0.82 (0.29, 1.34)	20.75**	6.52**	5.43**	1.33	1.16
SD	2.19	3.05	2.67	1.98	2.35						(0.77, 1.89)	(0.65, 1.68)
SCORE-A-Family functioning												
Family adjustment												
M	3.45	2.86	2.90	3.14	3.12	11.51**	0.27 (0.09, 0.34)	10.454**	4.17**	4.12**	0.60	0.58
SD	0.95	1.02	0.96	0.86	0.89						(0.39, 0.81)	(0.38, 0.79)

TABLE 2
(Continued)

	FFT group (N = 42)			Control Group (N = 55)		Group × Time ANOVA for FFT Group and Control group F G × T Interaction	Effect sizes d (95% CI) FFT G-CG Time 2	Repeated measures T1, T2, T3 ANOVA for FFT group F Time effect	t-Tests for FFT group		Effect sizes d (95% CI) for FFT group	
	Time 1	Time 2	Time 3	Time 1	Time 2				T1–T2	T1–T3	T1–T2	T1–T3
Problem severity												
M	6.85	4.04	4.62	6.35	5.72	14.83**	0.64 (0.13, 1.16)	15.63**	5.65**	4.49**	0.99	0.86
SD	2.15	2.92	2.81	2.14	2.36						(0.15, 1.82)	(0.33, 1.40)
Problem impact												
M	6.34	3.77	4.17	5.76	5.52	18.59**	0.73 (0.26, 1.21)	21.76**	6.65**	21.76**	1.00	0.86
SD	1.99	2.63	3.00	2.44	2.20						(0.25, 1.76)	(0.33, 1.40)

Notes. M = Mean; SD = Standard deviation; SDQ = Strengths and Difficulties Questionnaire; SCORE = Systemic Clinical Outcomes and Routine Evaluation; P = Parent-completed instrument; A = Adolescent-completed instrument; T = Time. G × T = Group × Time; d = Cohen's d effect sizes.

*$p < .05$; **$p < .01$.

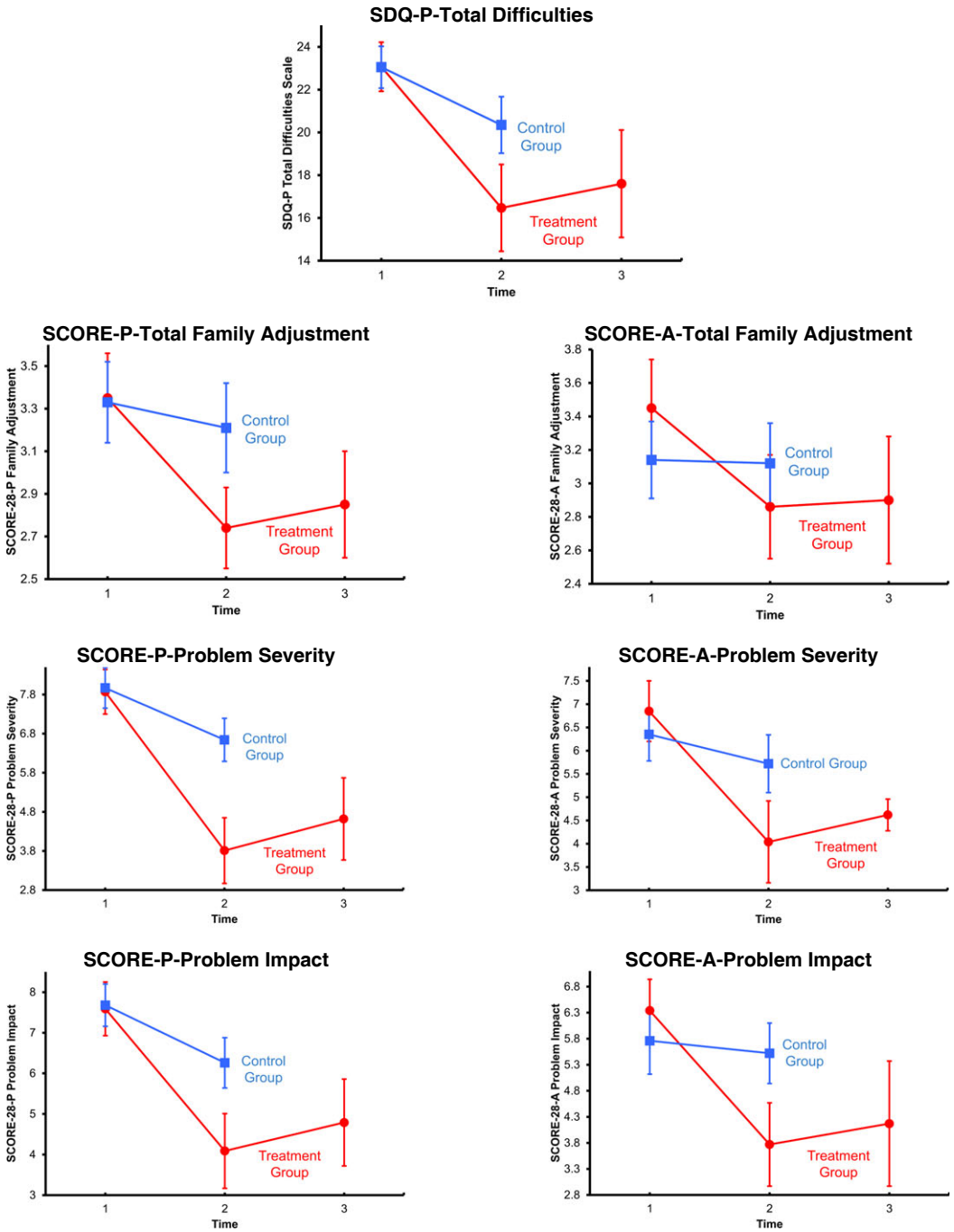

FIGURE 2. Significant improvements in means of the SDQ and SCORE.
Note. SDQ = Strengths and Difficulties Questionnaire; SCORE = Systemic Clinical Outcomes and Routine Evaluation; P = parent-completed instrument; A = Adolescent-completed instrument.

Time 2. Effect sizes on parent-completed instruments were medium to large and ranged from $d = 0.64$ to 1.19. In contrast, effect sizes on adolescent-completed instruments were small to medium and ranged from $d = 0.27$ to 0.73. Effect sizes for SCORE single-item

scales assessing main problem severity and impact were medium to large and ranged from $d = 0.64$ to 1.19. In contrast, those for SDQ and SCORE multi-item scales were small to medium and ranged from $d = 0.27$ to 0.68. In summary, these analyses of changes in mean scores from Time 1 to 2 showed that greater improvement occurred for the FFT group compared with the control group on a range of variables assessing adolescent and family adjustment, but most importantly on the total difficulties scale of the parent-completed version of the SDQ, which was the primary outcome measure. There was a trend for parents to report larger improvements than adolescents, and improvements in the main problems with which families wanted help were greater than improvements on broader indices of child and family adjustment.

Durability of improvements: FFT group at follow-up

In order to evaluate the durability of the effects of FFT, mean scores of the FFT group on all dependent variables before and after treatment and at the 3-month follow-up were analyzed. A one-way repeated measures MANOVA with three levels (Times, 1, 2, and 3) was conducted on all eight variables listed in Table 2. This MANOVA yielded a significant multivariate Time effect with Wilks' $\lambda = 0.212$, $F(16, 26) = 6.050$, $p < .001$, partial $\eta^2 = 0.788$. Power to detect the effect was 1.00, indicating a significant group difference on multiple outcome measures. To determine the specific variables on which the FFT group improved significantly, and whether significant improvement occurred from Time 1 to 2 and from Time 1 to 3, a series of one-way repeated measures ANOVAs followed by dependent *t*-tests with false discovery rate corrections to control for type 1 error was conducted. Effect sizes comparing means at Time 1 and 2 and at Time 1 and 3 were also computed.

From Table 2 it may be seen that there were significant Time effects on all dependent variables. Paired *t*-tests showed that differences between means at Time 1 and 2 and Time 1 and 3 were statistically significant, indicating that gains made from Time 1 to 2 were maintained at Time 3, 3 months after FFT. These means are graphed in Figure 2 for all of these variables except the adolescent-completed SDQ, as no significant interaction occurred on this in the Groups × Time ANOVAs described in the previous section. Effect sizes expressing the extent to which means of dependent variables improved from Time 1 to 2 and Time 1 to 3 were medium to large and ranged from $d = 0.48$ to 1.73. In summary, analyses of changes in mean scores of the FFT group from Time 1 through Time 2 to Time 3, showed that improvements made from Time 1 to 2 were sustained at Time 3, 3 months after the end of therapy.

Clinical Significance

Clinical recovery refers to the extent to which treatment led to a clinically meaningful improvement in a client's life. Clinical recovery rates of FFT and control groups based on the primary outcome measure—the parent-report SDQ total difficulties scale—were determined in two ways: (1) the percentage of cases who scored below the clinical cut-off point of 17 at Time 2, and (2) the percentage of cases with reliable change indices (RCI) from Time 1 to 2 greater than 1.96. The RCI is an index of clinical recovery which takes account of the psychometric properties of the scale used to assess improvement (Jacobson & Truax, 1991). Normative data from Meltzer et al. (2000) and reliability data from Goodman (2001) were used to calculate RCIs. Clinical recovery rates defined in terms of scoring below the clinical cut-off score on the total difficulties scale of the parent-completed version of the SDQ at Time 2 were 50% (21/42) for the FFT group and 18.2% (10/55) for the control group, $\chi^2(df = 1, N = 97) = 11.09$, $p < .01$. Clinical recovery rates (defined in terms of RCIs > 1.96) were 38.10% (16/42) for the FFT group and 12.7% (7/55) for the control group, $\chi^2(df = 1, N = 97) = 8.47$, $p < .01$.

To identify client and therapy variables associated with outcome, correlations were computed between the primary outcome variable used to determine clinically significant improvement (SDQ-P total difficulties scale at Time 2 and 3), client baseline variables (age, gender, ethnicity, socioeconomic status, parental separation, SDQ-P Time 1 total difficulties, SDQ-A Time 1 total difficulties, SCORE-P-Time 1 total family adjustment, SCORE-A-Time 1 total family adjustment), and TAM scores. The false discovery rate to control for type 1 error associated with conducting multiple statistical tests was used in these analyses (Benjamini & Hochberg, 1995). There were no significant correlations between the TAM scores or client baseline demographic clinical scores on the one hand and outcome at Time 2 and 3 on total difficulties scale of the SDQ-P.

DISCUSSION

The goals of this study were (1) to evaluate the effectiveness of FFT focusing specifically on the change in youth mental health risk and improvements in family functioning, and (2) to evaluate the effectiveness of FFT in an Irish context. Most previous FFT studies evaluated its impact on recidivism (Alexander et al., 2013). Although not returning to the juvenile justice systems has significant benefits for youth and families, it is important to know if FFT reduces mental health risks and improves family adjustment. These issues provided the impetus for the present study.

Initial screening with the SDQ confirmed that adolescent participants were at high risk of significant mental health problems, and thus appropriate targets for an effectiveness study. Youth in the FFT condition showed both statistically and clinically significant improvement compared with the control group. From Time 1 to 2, 50% of youth in the FFT condition moved from the clinical or high-risk to the nonclinical or low-risk range on the SDQ, compared with only 18.2% in the control group. Using the more conservative RCI criterion, the clinical recovery rates were 38.1% for the FFT group and 12.7% for the control group. Thus, after treatment between just over a third and half of cases treated with FFT were clinically recovered, depending on the criterion used. Based on parent-reported changes on the SDQ there was a statistically significant reduction in risk of significant mental health problems. The effect size on the total difficulties scale of the parent-completed version of the SDQ was $d = 0.68$. This is very similar in magnitude to the effect size of $d = 0.7$ found in a meta-analysis of FFT and other evidence-based approaches to family therapy (Baldwin et al., 2012) and greater than those found in a meta-analysis of adolescent-targeted interventions such as mental health and behavioral programs for low-income urban youth (Farahmand et al., 2012; $d = 0.25$). Finally, one of the critical variables in successful treatment of adolescent problems is the ability to engage youth and families so that treatment can take place. In this study, 93% of families and youth who began FFT completed treatment. In each of these ways, the findings of this study suggest that FFT is effective when implemented in community-based settings and, more specifically, in an Irish context. This study also demonstrated the durability of the effects of FFT. Effects at post treatment were maintained at a 3-month follow-up.

Significant treatment-related changes in mental health risk occurred on the parent-report, but not the adolescent self-report version of the SDQ. This discrepancy deserves comment. From Table 2 it is apparent that mean scores of the FFT group on the total difficulties scale of the adolescent-completed SDQ decreased from Time 1 to 2, to a greater extent than those of the control group, although this Group × Time interaction was not statistically significant. A similar pattern of results occurred for mean total difficulties scores of the parent-completed version of the SDQ, although this Group × Time interaction was statistically significant. The following is a possible explanation for this result. From Table 2 it may be seen that mean Time 1 total difficulties scores on the

adolescent-completed version of the SDQ in both conditions fell below the clinical cut-off score of 20. (The means of FFT and control groups were approximately 16.) Thus, there may have been a 'floor effect' with little room for self-reported, treatment-related improvement, because adolescents did not perceive themselves to have clinically significant problems. In contrast, parents identified adolescents' behavior as problematic prior to treatment. From Table 2 it may be seen that at Time 1 mean scores on the total difficulties scales of the parent-completed version of the SDQ fell above the clinical cut-off score of 17. (The means of FFT and control groups were approximately 23.) From a parental perspective, there was a lot of room for treatment-related improvement. This finding of discrepancies between the parents' and adolescents' ratings of behavior problems, and of the adolescents' underestimation of the extent of their behavior problems, has been found in many previous studies (De Los Reyes & Kazdin, 2005).

As expected, we found that FFT led to significant changes in family functioning. The ecological model which underpins FFT proposes that adolescent behavior problems become problems for the entire family. One of the primary objectives of FFT is to help change the negative family climate which prevents effective communication, problem-solving, parenting, and adolescent development. On both the parent- and adolescent-completed versions of the SCORE, FFT led to significant improvements in overall family adjustment compared with the control group. FFT also led to significant reductions in parent and adolescent-reported severity and impact of the main target problems for which families sought treatment. The effect sizes for these decreases, based on the mean scores of the FFT group at Time 1 and 2, were large, ranging from $d = 0.99$ to 1.73. These large effects at posttreatment were maintained at a 3-month follow-up. Effect sizes for problem severity and impact, based on mean scores of the FFT group at Time 1 and 3, ranged from $d = 0.86$ to 1.45. As noted by Sexton (2011), reduction in the impact and severity of family problems during FFT may play an important role in helping families successfully manage future problems.

This study expands the evidence base concerning the range of youth behavioral outcomes which FFT may impact. Most previous studies of FFT (reviewed in Alexander et al., 2013, Chapter 3) have focused on reducing recidivism. Although important, recidivism may not be specific enough to guide the use of FFT in practice settings in which justice involvement is not the key indicator. The current study is the first FFT randomized controlled trial to use a comprehensive measure of youth mental health risk and a well validated measure of family adjustment as outcome indicators. The finding that FFT has a significant positive effect on measures of adolescent mental health risk and family adjustment in an already clinically disturbed population suggests that FFT is appropriate for use in mental health settings.

This study also demonstrates the cross-cultural reach of FFT as a treatment model. FFT was implemented in an Irish mental health context in a community setting delivered by Irish FFT therapists to Irish youth and families. The ecological model, relational focus, treatment phases, and mechanisms of change central to FFT were all applicable to an Irish context, despite the difference in cultural norms and practices from those upon which the model was developed (Christiansen & Teahan, 1987; McGoldrick, 1996). Disadvantaged Irish adolescents and families are reluctant to become involved with mental health services. Our clinical impression was that Irish families and therapists required a longer engagement phase than would be typical in a U.S. context for the establishment of a strong enough therapeutic alliance to permit progression to the behavior change phase of FFT. The current study is one of the first published randomized trials of FFT to be conducted outside the United States. Only two published international trials of FFT could be identified, both of which were conducted in Sweden (Hansson, Cederblad, & Hook, 2000; Hansson, Johansson, Drott-Englen, & Benderix, 2004).

This study also adds to our understanding of the FFT implementation process, and in particular of the importance of training and supervision in producing good outcomes. The therapists in this study were community-based practitioners. As such, they did not receive the support typically provided to therapists when RCTs are conducted in laboratory settings. Yet, the outcomes in the current trial were on a par with those of previous studies conducted in less 'real world' settings. Effect sizes of the current and previous studies of FFT were similar (Baldwin et al., 2012). The implication is that there are methods that can be used in community settings to create the same level of support as that found in laboratory studies. In this study, the Irish FFT therapists developed FFT skills in a systematic training program used around the world. Current FFT implementation models, and the model used in this study, achieve adherence through a process of intensive training and supervision described in training manuals (Sexton, 2011; Sexton & Alexander, 2004; Sexton et al., 2004). Therapist adherence to the FFT model is a vital aspect of implementation because adherence is directly related to successful outcomes (Graham et al., 2014; Sexton & Turner, 2010). Through supervision with an expert FFT supervisor, therapists' adherence to the FFT model in community-based sites is assessed regularly with the TAM (Sexton et al., 2004). Client progress in community-based sites is tracked from session to session using brief self-report measures integrated into an online quality improvement system (FFT-Clinical Feedback System; Sexton & Fisher, 2015). In this study, the training and supervision procedures were successful in producing a moderate degree of adherence to the FFT model.

The study had a number of limitations. At Time 2 and 3 research staff that conducted assessments were not blind to participants' group membership and this may have biased results. Outcome was assessed with parent and adolescent self-report instruments only. It would have been preferable to complement these subjective measures with more objective indices of treatment outcome such as arrest rates or mental health service usage. It would also have been preferable to compare the effectiveness of FFT to a treatment-as-usual control group rather than a waiting-list control group. For ethical reasons, the waiting list control group was not assessed at Time 3, so it was not possible to determine if posttreatment differences between FFT and control groups were maintained at 3-months follow-up. It would not have been ethical to require cases in the waiting-list control group to wait an additional 3 months, having already waited 20 weeks, before being offered FFT. In psychotherapy studies a distinction may be made between treatment and therapist effects. This study investigated the former but not the latter. It would have been informative to investigate the effects of each therapist on outcome. However, with 5 therapists and 42 treated cases, the study was not adequately powered to permit such an analysis. It would also have been preferable if therapists had shown high rather than moderate levels of treatment adherence on the TAM, as this would have provided a test of FFT offered in a pure and potent form. Having said that, this was an effectiveness, and not an efficacy study, which showed that in a routine community setting, regular therapists may be trained to a moderate degree of FFT adherence, and that this level of adherence is sufficient for FFT to have a statistically and clinically significant effect. The study could have been strengthened by the inclusion of measures to assess important therapy process variables such as the therapeutic alliance. The generalizability of results from the study was limited by selecting cases with particularly severe clinical problems (using the SDQ clinical cut-off criterion). Our findings are not generalizable to all clients typically referred to Archways Families First. This is a further limitation of the study. Our intention in limiting this study to cases scoring above the SDQ clinical cut-off score was to demonstrate the effectiveness of FFT in treating adolescents with severe problems. However, a previous study has shown that FFT offered within an Irish context has a positive impact on cases with a wide range of scores above and below the SDQ cut-off score (Graham et al., 2014).

Despite these limitations, the study had a number of important strengths. Stringent inclusion criteria were used to insure that participants had severe behavioral and emotional problems and were at high risk for developing mental health problems. Cases were randomized to treatment and control conditions, assessed with instruments that had strong psychometric properties, engaged in treatment with a low dropout rate, and were treated by therapists who implemented FFT with a moderate degree of fidelity. These strengths allow considerable confidence to be placed in the results of this trial.

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