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CHANGES IN FAMILY RELATIONSHIPS AMONG SUBSTANCE ABUSING RUNAWAY ADOLESCENTS: A COMPARISON BETWEEN FAMILY AND INDIVIDUAL THERAPIES

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Eligible adolescents (12–17 years old) were recruited from a short-term crisis shelter for runaway adolescents in a large Midwestern city. Adolescents (N = 179) were randomly assigned to Ecologically-Based Family Therapy (EBFT, n = 61), the Community Reinforcement Approach (CRA, n = 57), or brief Motivational Enhancement Therapy (MET, n = 61) with the primary focus on substance abuse. A significant increase in perceived family cohesion and a significant reduction in perceived family conflict were found among all treatment conditions from baseline to the 24-month follow-up. Adolescents who received EBFT demonstrated more improvement in family cohesion after treatment than those who received CRA or MET, and more reduction in family conflict during treatment than those who received MET.

Abbreviations

EBFT: Ecologically-Based Family Therapy

CRA: the Community Reinforcement Approach

MET: Motivational Enhancement Therapy

Runaway adolescents have a higher prevalence, earlier age of first use, and higher severity of alcohol, marijuana, and other illicit drug use compared to their non-runaway counterparts (Substance Abuse & Mental Health Services Administration, 2004; Tucker, Edelen, Ellickson, & Klein, 2010). It is estimated that approximately two-thirds of runaway adolescents meet lifetime criteria for an alcohol or illicit drug use disorder, and nearly one half meet 12-month criteria for at least one substance use disorder (Johnson, Whitbeck, & Hoyt, 2005). In addition, the comorbid diagnoses of substance use disorder and mental health disorder are high among runaway and homeless youth (Johnson et al., 2005; Unger, Kipke, Simon, Montgomery, & Johnson, 1997). High levels of family conflict and low levels of family cohesion are also commonly reported among adolescents residing in runaway shelters (e.g., Safer, Thompson, Maccio, Zittel-Palamara, & Forehand, 2004). The need for identifying effective interventions with this vulnerable population is especially relevant given that runaway shelters reportedly serve 42,096 runaway adolescents and families annually at a cost of \$52.9 million (National Alliance to End Homelessness, 2012). The current study seeks to reduce the gap in empirically supported treatments by testing three promising interventions for substance use disordered runaway adolescents: Ecologically-Based Family Therapy (EBFT; Slesnick, 2000), a behavioral intervention, the Community Reinforcement Approach (CRA; Meyers & Smith, 1995), and brief Motivational Enhancement Therapy (MET; Miller & Rollnick,

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2002). Of interest in the current study was whether family therapy is more effective at influencing family cohesion and conflict than the two individual therapies, CRA and MET.

Family Relationships and Family Therapy

Family relationships and functioning have been linked with adolescents' prosocial behaviors (e.g., Renzaho & Karantzas, 2010), internalizing and externalizing behaviors (e.g., Leve, Kim, & Pears, 2005), and risky sexual behaviors prospectively (e.g., Lyerly & Huber, 2013). General family functioning during adolescence has been found to predict a range of problem behaviors in young adulthood with the effects sustained in the early 30s (Bailey, Hill, Meacham, Young, & Hawkins, 2011; Epstein, Hill, Bailey, & Hawkins, 2013). Family relationships have been found to moderate the genetic influence on adolescent externalizing disorders, and that moderating influence of family relationships was specific to the period of adolescence (Samek et al., 2015). Many studies have shown a reciprocal association between family relationships and substance abuse (Rowe, 2012). Specifically, higher family cohesion and management is associated with lower risk of substance use (e.g., Kopak, Chen, Hass, & Gillmore, 2012), whereas higher family conflict is consistently related to elevated substance use and comorbid mental health problems (e.g., Herrenkohl, Lee, Kosterman, & Hawkins, 2011). In addition, reduction in substance use is found to be related to improvement in family relationships later (Stewart & Brown, 1993). According to Rowe's (2012) review, on the one hand, family factors, along with the individual, peer/social, and neighborhood/community systems, have been considered to initiate and maintain substance abuse interactively. On the other hand, family member's substance use can compromise family functioning, which may lead to a vicious cycle of substance abuse and problem behaviors. Therefore, family therapies seem to be promising approaches for treating adolescent substance abuse, as they generally address problematic family relationships and communication patterns that influence an individual's substance use (Rowe, 2012).

In fact, family therapies on adolescent substance abuse have been tested using methodologically rigorous designs (Rowe, 2012). In their meta-analysis of outpatient treatment for adolescent substance abuse, Tanner-Smith, Wilson, and Lipsey (2013) found that family therapy and mixed group counseling yielded the greatest pretest–posttest improvements over time, followed by cognitive-behavioral therapy, psychoeducational therapy, motivational enhancement therapy, etc. Hogue, Henderson, Ozechowski, and Robbins (2014) drew a similar conclusion. After reviewing 19 comparative studies on outpatient behavioral treatments for adolescent substance use, they concluded that ecological family-based treatment was deemed well established (i.e., Functional Family Therapy, Multidimensional Family Therapy) or probably efficacious (i.e., Brief Strategic Family Therapy, Ecologically-Based Family Therapy, Multisystemic Therapy).

Although not the sole factor, many studies indicate that adolescents usually enter a runaway shelter because of high levels of family conflict and low levels of family support or cohesion (Ferguson, 2009; Tyler, 2006). Thompson, Cochran, and Barczyk (2012) found that poor family relationships indirectly affected runaway adolescents' posttraumatic stress symptoms through direct effects on their depression, anxiety, and dissociation. Stein, Milburn, Zane, and Rotheram-Borus (2009) found that positive paternal relationships predicted less substance use and criminal behavior, whereas positive maternal relationships predicted less survival sex behavior among runaway and homeless youth. Given the interdependent relationship between family relationships and substance abuse, and the role that family relationships and functioning play on runaway adolescents' mental health and problem behaviors, family therapy may be a promising treatment for this subpopulation of at-risk youth. In addition, as the primary goal of basic center programs (runaway shelters) is to reintegrate the adolescent back into the home (Runaway & Homeless Youth Act/Title III, 1974), these family-level variables are therefore important targets of intervention efforts which may be addressed in family therapy simultaneously.

Differential Effects between Family Therapy and Individual-based Intervention Modalities

Generally speaking, family therapies differ from individual-based interventions in terms of the theories of change and therapeutic approaches. Family therapists seek to improve family members' problem solving, communication, trust, and perspective taking skills so that the problematic interaction patterns reinforcing the individual problem behaviors can be resolved, which will in turn

lead to the dissipation of individual problem behaviors (e.g., Slesnick, 2000). In the individual-based treatment, therapists focus on the individual's cognition (e.g., Kolko, Brent, Baugher, Bridge, & Birmaher, 2000), coping skills (e.g., Meyers & Smith, 1995), or motivation (e.g., Miller & Rollnick, 2002), rather than family-level or relationship factors. Therefore, family therapy is expected to have differential treatment effects than individual therapy, especially on relational and family-level outcomes.

Among studies investigating whether family therapy differs from other intervention modalities (e.g., individual therapy, group intervention) in terms of treatment effects, the results remain inconsistent. Some researchers have reported that family therapy and individual or group treatment produce equivalent effects on substance use (e.g., Dennis et al., 2004). However, some researchers report that family therapy performs better than individual or group treatment in terms of impacting outcomes including substance use, depressive symptoms, and family functioning. (e.g., Diamond et al., 2010; Liddle, Rowe, Dakof, Henderson, & Greenbaum, 2009; Liddle et al., 2001; Rigter et al., 2013).

Among the studies that identified a differential effect between family therapy and individual/group treatment, some evidence suggests that family therapy may have a more prominent immediate effect on family functioning during treatment. For example, Liddle et al. (2001, 2009) found that Multidimensional Family Therapy exhibited better effects than individual therapy and group treatment in terms of improving family interaction from intake to the end of treatment. Similar patterns have also been found with outcomes other than family functioning, such as depressive symptoms (e.g., Garoff, Heinoen, Pesonen, & Almqvist, 2012) and suicidal ideation (e.g., Diamond et al., 2010).

Intervention Studies for Runaway Adolescents

Although runaway adolescents have been widely acknowledged as a vulnerable population who may be in need of treatment, the number of treatment studies testing treatments targeting this population is limited (Slesnick, Dashora, Letcher, Erdem, & Serovich, 2009). Rotheram-Borus, Koopman, Haignere, and Davies (1991) tested the efficacy of an intensive HIV/AIDS prevention intervention (20 group sessions rotated in a 3-week sequence). They found that higher intervention attendance was associated with increased consistent condom use and decreased risky sexual behaviors. Rotheram-Borus et al. (2003) found that female runaway youth who received Street Smart, a 10-session skill-focused HIV intervention program, reported significant more reductions in unprotected sexual acts as well as alcohol and marijuana use than their counterparts in the control condition. Male adolescents who received the HIV intervention program showed significant reductions in marijuana use compared to control youth, but no significant change in sexual risk. Slesnick and Prestopnick (2005, 2009) found that a family systems therapy yielded better outcomes in substance use than service as usual among runaway adolescents, and equivalent outcomes in other problem areas such as psychological and family functioning.

Current Study

The current study sought to compare the impact of a family systems therapy (EBFT) to brief Motivational Enhancement Therapy (MET) and a behavioral treatment (CRA) on perceived family cohesion and conflict among a sample of substance use disordered runaway adolescents. Although MET is a brief intervention with only 2 sessions, previous studies have found it to produce comparable outcomes in substance use and related behaviors to other high-intensity interventions (Lundahl & Burke, 2009; Stephens, Roffman, & Curtin, 2000). It should be noted that substance use was the primary outcome of these three treatment modalities, and substance use outcomes of the current clinical trial have been published elsewhere (Slesnick, Erdem, Bartle-Haring, & Brigham, 2013). It was found that the three treatments yielded similar outcomes in substance use among these runaway adolescents. Family functioning, represented by cohesion and conflict in the family environment, was conceptualized as a secondary outcome of the current clinical trial. Other secondary outcome variables included adolescents' internalizing and externalizing behaviors, coping skills, risky sexual behaviors and condom use, and primary caregivers' depressive symptoms. Results showed that youth in the MET group exhibited faster reductions in internalizing and externalizing behaviors at first, but this was followed by a greater increase in these problem

behaviors toward the end of the follow-up period compared to youth in the EBFT group (Slesnick, Guo, & Feng, 2013). In addition, EBFT was the only treatment modality that observed significant reductions in depressive symptoms among these adolescents' mothers (Guo, Slesnick, & Feng, 2014). Previous clinical trials on adolescent substance abuse also investigated treatment effects on secondary outcomes including family interaction and functioning, internalizing and externalizing behaviors, peer delinquency, and school functioning (e.g., Liddle et al., 2009; Rigter et al., 2010). In the current study, it was hypothesized that adolescents would report significant improvements in family cohesion and reductions in family conflict over time. Given that EBFT is the only treatment modality that targets family interaction while the comparison treatments do not, runaway adolescents receiving EBFT were expected to report more improvements in family cohesion and conflict than those who received CRA and MET, especially during treatment.

METHOD

Participants

Adolescent participants ($N = 179$) were recruited from a short-term crisis shelter for runaway adolescents in a large Midwestern city between 2005 and 2007. Eligible adolescents were between 12 to 17 years old, had the legal option of returning home, had at least one parent/primary caretaker (PC) willing to participate to the study, and met DSM-IV (American Psychiatric Association, 2000) criteria for alcohol or drug abuse or dependence. Demographic characteristics of the current sample are presented in Table 1. The mean age of the adolescents was 15.4 ($SD = 1.2$). Approximately half of the adolescents were male ($n = 85, 47.5%$). The majority of adolescents were African American ($n = 118, 65.9%$). At the baseline assessment, the adolescents reported an average of 3.2 (range 0–50) lifetime runaway episodes and approximately 28 (31.6%) days of substance use in the last 3 months. The majority of youth were enrolled in school at baseline ($n = 146, 81.6%$). The average number of sex partners youth had during the last 3 months before baseline assessment was 1.58 ($SD = 2.48$).

Table 1
Demographic Characteristics of the Current Sample

	Runaway youth		Primary caretakers	
	<i>n</i> (%)	Mean (<i>SD</i>)	<i>n</i> (%)	Mean (<i>SD</i>)
Gender				
Female	94 (52.5%)		156 (87.2%)	
Male	85 (47.5%)		23 (12.8%)	
Ethnicity				
African American	118 (65.9%)		117 (65.4%)	
White, non-Hispanic	46 (25.7%)		51 (28.5%)	
Hispanic	3 (1.7%)		1 (.6%)	
Native American	2 (1.1%)		3 (1.7%)	
Asian/Asian American	1 (.6)		0	
Other	9 (5%)		7 (3.9%)	
Age		15.4 (1.2)		41.2 (8.4)
Currently enrolled in school	146 (81.6%)			
Number of sex partners during the last 3 months before baseline		1.58 (2.48)		
Number of runs lifetime at baseline		3.22 (5.32)		
Percent days of substance use at baseline		31.58 (29.16)		

Procedure

A research assistant (RA) engaged adolescents at the runaway shelter within 24 hr of their stay and screened them to determine eligibility and interest. Once the adolescent's permission was obtained, RAs contacted the adolescent's parent or legal guardian. If the parent/PC agreed to participate and provided written consent, assent was obtained from the adolescent and the baseline assessment for the adolescent was scheduled within 24 hr when possible. During the baseline assessment, the RA administered the Computerized Diagnostic Interview Schedule for Children (CDISC; Shaffer, 1992) to determine formal eligibility. Adolescents not meeting eligibility criteria continued with treatment as usual through the runaway shelter. Average length of stay at the runaway shelter is 3 days. Treatment as usual includes crisis intervention as needed, and a family meeting prior to the adolescent returning home. Adolescents ($N = 179$) were assigned to one of the three treatment interventions by randomization, with treatment conditions balanced on age, gender, and ethnicity. The three treatment conditions were as follows: (a) Motivational Enhancement Therapy (MET) ($n = 61$), (b) the Community Reinforcement Approach (CRA) ($n = 61$), or (c) Ecologically-Based Family Therapy (EBFT) ($n = 57$). Adolescents completed follow-up assessments at 3, 6, 9, 12, 18, and 24 months and received a \$40 gift card for completing the assessment interview. All the assessments were administered by RAs in the participant's home. Study design and flow of participants are presented in Figure 1, which were also presented in the primary outcome article (Slesnick, Erdem, et al., 2013). All procedures were approved by the Institutional Review Board of The Ohio State University.

Treatment Interventions

The 12-session EBFT (Slesnick, 2000) is a family systems intervention which also includes concepts from Bronfenbrenner's theory (Bronfenbrenner, 1979). The EBFT therapist works with the adolescent, family, and others significant to the family to target specific dysfunctional interactions which correspond to the development and continuation of problem behaviors. Thus, the intervention focuses on improving social interactions, emotional connectedness, trust, and skills among all family members, which is expected to positively impact social interactions across systems and reduce problem behaviors among individual family members. The training manual is enclosed as a Appendix S1.

The 12-session CRA (Meyers & Smith, 1995) integrates operant conditioning with skills training to teach adolescents new methods for addressing life problems without using alcohol or drugs. CRA helps the client identify reinforcers (social, personal, financial, etc.) in their environment and helps the client see that drug use is incompatible with their identified reinforcers. Therapists also teach communication, problem solving, social, and life skills, including specific sessions on coping skills focusing on anger management and affect regulation, self-talk and self-guidance, relaxation and stress management, and assertiveness training. Two parent-involved sessions were also available to families. The main difference between the CRA approach utilized in the current study and the Adolescent Community Reinforcement Approach (A-CRA, Dennis et al., 2004) was that the latter includes three types of sessions: individuals alone, parent/caregivers alone, and individuals and parent/caregivers together, whereas in the current study, CRA was mainly comprised of individual sessions, and the parent-involved sessions were not required.

Motivational Enhancement Therapy (Miller & Rollnick, 2002) was offered in two sessions, and the therapist's task was to create a set of conditions that enhanced the client's intrinsic motivation for and commitment to change their alcohol and drug use. MET is based on the principles of expressing empathy, developing discrepancies between actual behavior and desired behavior, rolling with resistance, and supporting the client's self-efficacy (Miller & Rollnick, 2002). Two HIV prevention sessions, based upon Becoming a Responsible Teen (BART; St. Lawrence, Jefferson, O'Bannon, & Shirley, 1995), were offered in each treatment condition. More details about each treatment and the rationale of comparing these three treatments have been presented in the primary outcome article (Slesnick, Erdem, et al., 2013).

Three therapists provided EBFT, two provided CRA, and three provided MET. Each therapist was trained in the respective intervention by that intervention's clinical supervisor. Therapist training included manual review, didactic training, and extensive role play over a period of 2 days,

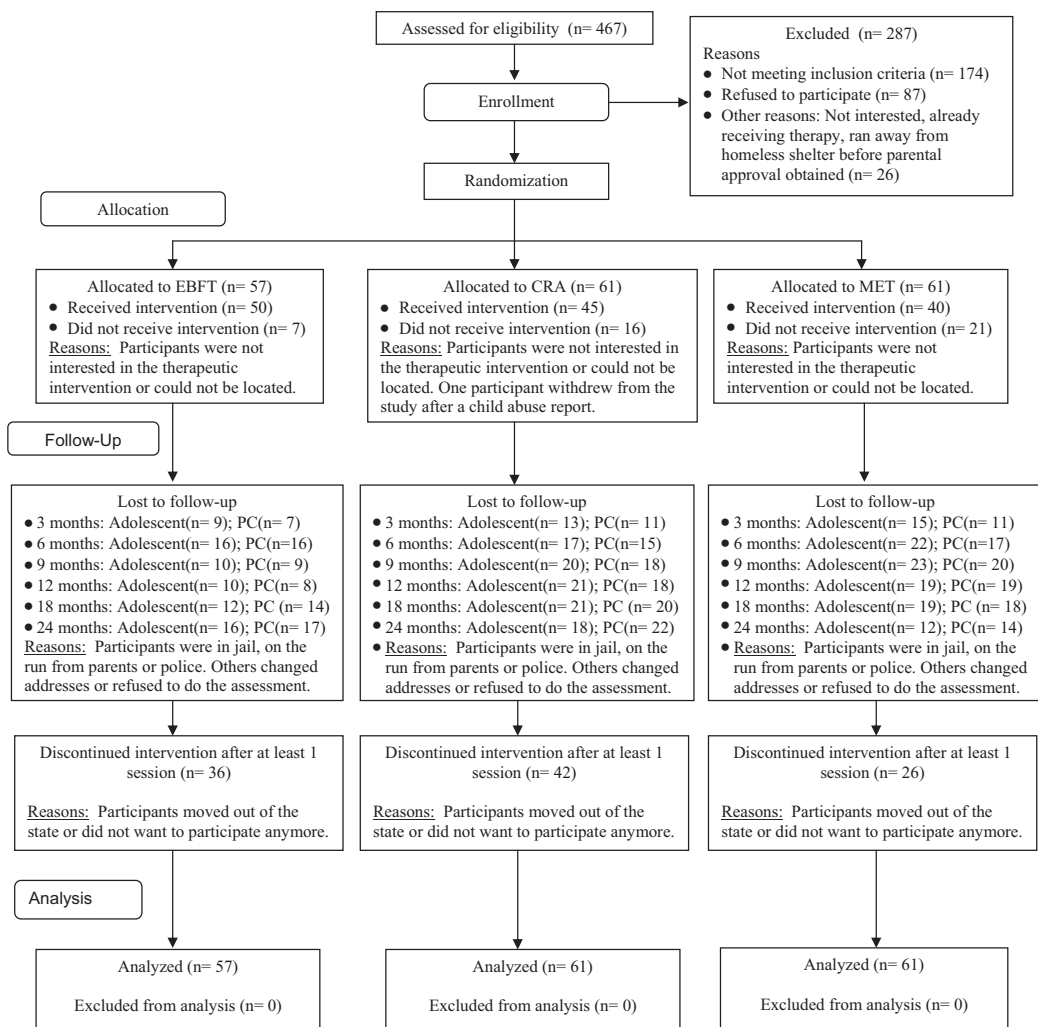


Figure 1. The CONSORT E-flowchart.

as well as weekly supervision with audiotape review with the intervention supervisor. Therapists (one male, seven female) included master's-level independent counselors or social workers ($n = 4$) and graduate or postdoctoral students in couple and family therapy ($n = 4$). Treatment adherence and competence was examined using codes developed from the standard treatment manuals and protocols of each treatment condition (Meyers & Smith, 1995; Miller & Rollnick, 2002; Slesnick, 2000). Adherence was operationalized as the occurrence (yes/no) of the procedures during the session. Competence was operationalized as how well each procedure was done by the therapist (rated on a 7-point Likert scale). More details about the coding schemes and the procedures examined in each treatment condition can be found elsewhere (Slesnick, Erdem, et al., 2013). Audio recordings of sessions were independently coded by supervisors and six graduate student coders (two in each condition). For CRA and EBFT, the first two sessions and a randomized selection of 20% of the remaining sessions were coded for each case. For MI, each session was coded. For all conditions, 10% of the coded session recordings were double-coded by the second rater to ensure interrater reliability of 80%. Treatment adherence and competence was found to be good among all three treatment conditions (Slesnick, Erdem, et al., 2013).

Materials

Adolescents completed a demographic questionnaire assessing age, gender, ethnicity, and run-away experiences. The Family Environment Scale (Moos & Moos, 1986) was used to assess adoles-

cents' perception of the social and environmental characteristics of the families. For the current study, two subscales, Cohesion and Conflict, were used to measure the family functioning at each assessment. Each of the subscales consists of nine true/false items with higher scores indicating higher levels of cohesion or conflict in the family. The Cohesion and Conflict subscales were found to have adequate internal consistencies and good convergent validity (e.g., Sanford, Bingham, & Zucker, 1999). In the current study, the reliabilities of the Cohesion subscale ranged from 0.62 to 0.75 across the seven assessment points, while the reliabilities of the Conflict subscale ranged from 0.53 to 0.71.

Analytic Strategies

Descriptive analyses were run to obtain information on the means and standard deviations of all variables as well as their distributions. An independent-sample *t* test was used to examine whether there were significant baseline differences between gender (coded with 0 as female and 1 as male) and ethnic groups (0 as Anglo and 1 as minority) among all variables. Those variables associated with significant baseline differences were used as the predictors of intercepts in the multilevel modeling analysis.

Latent growth curve analysis, conducted with Mplus 7 (Muthén & Muthén, 1998–2012), was used to analyze the trajectories of family cohesion and conflict over time. A piecewise growth model with two distinct phases of growth representing in-treatment (baseline, 3 and 6 m postbaseline) and posttreatment (6, 9, 12, 18, and 24 m postbaseline) change was used. First, an unconditional model was run without any predictors to describe the overall trajectory in the sample. Then, the two slope parameters were regressed on treatment conditions (EBFT was used as the reference group) to detect differential treatment effects. Covariates, including adolescent age, gender, ethnicity, and treatment attendance (percentage of sessions attended divided by the maximum number of possible sessions), were added into the model as predictors of slope parameters in the model-building process. Only the covariates that demonstrated statistical significance would be kept in the final model to obtain the most parsimonious result. Model fit indices were used to determine how well the model fits the current data (Hu & Bentler, 1999). A model with a comparative fit index (CFI) larger than 0.95, a root mean square error of approximation (RMSEA) smaller than 0.05, and 90% confidence interval (CI) not including 0 was considered to be a good fit. Acceptable model fit was defined by the following criteria: CFI > 0.90, RMSEA < 0.08, and its 90% CI not including 0 (Little, 2013; McDonald & Ho, 2002). The sandwich variance estimator available in Mplus was used to control for therapist nesting effects. The missing data analyses using the same dataset (Slesnick, Erdem, et al., 2013) demonstrated a pattern of missing at random; therefore, the full-information maximum-likelihood estimation was used (Little & Rubin, 1987). Effect sizes (Cohen's *d*) were calculated for the significant differential treatment effects only. Based on Cohen (1988) definition, 0.2, 0.5, and 0.8 were used as the cutoff point for a small, medium, and large effect, respectively.

RESULTS

Descriptive Analysis

Means and standard deviations of adolescents' report of family cohesion and conflict are presented in Table 2. All variables had a skewness <1, indicating no violation of normality. Independent-sample *t* test showed that at baseline, male adolescents reported significantly higher levels of family cohesion ($t[168] = -2.83, p < .01$) and lower levels of conflict compared to female adolescents ($t[170] = 3.40, p < .01$). In addition, there was no treatment group difference among any outcome variables at baseline ($ps > .05$). Therefore, gender was included as a predictor of the intercept in the following latent growth curve analysis.

Latent Growth Curve Analysis

Family cohesion. Analyses of the unconditional model revealed a significant in-treatment (0–6 months) slope ($b = 0.55, SE = 0.10, \text{pseudo-}z = 5.46, p < .001$) and a significant posttreatment slope ($b = 0.07, SE = 0.03, \text{pseudo-}z = 2.77, p < .01$); that is, as a whole, the current sample exhibited significant increases in family cohesion during treatment. In addition, family cohesion continued to improve after treatment ended, although the rate of increase was smaller.

Table 2
Means and Standard Deviations of Outcome Variables

	EBFT		CRA		MET	
	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>
FES Cohesion						
Baseline	4.29 (2.09)	55	4.43 (2.25)	56	3.69 (2.55)	59
3-m FU	5.02 (1.78)	45	4.96 (1.91)	46	4.80 (2.08)	45
6-m FU	4.76 (2.33)	38	5.46 (2.35)	41	4.92 (2.73)	38
9-m FU	5.13 (2.39)	45	4.98 (2.35)	41	5.32 (2.92)	38
12-m FU	5.44 (2.14)	45	5.63 (2.17)	40	5.56 (2.54)	41
18-m FU	5.71 (2.30)	45	5.55 (2.21)	42	5.24 (2.55)	42
24-m FU	5.38 (2.17)	39	5.62 (2.21)	42	5.24 (2.55)	42
FES Conflict						
Baseline	5.42 (2.19)	55	5.44 (1.90)	57	5.67 (1.90)	60
3-m FU	3.85 (1.70)	46	4.28 (1.66)	46	4.62 (1.47)	45
6-m FU	4.05 (2.26)	37	4.38 (2.04)	42	5.47 (2.18)	36
9-m FU	4.36 (1.88)	45	4.43 (2.26)	40	4.82 (2.82)	39
12-m FU	4.13 (2.19)	45	4.03 (2.02)	40	4.85 (2.39)	41
18-m FU	4.27 (2.38)	45	4.31 (2.15)	42	4.90 (2.20)	42
24-m FU	3.92 (2.25)	39	4.19 (2.30)	42	4.69 (2.20)	48

Note. FES Cohesion = Family Environment Scale – Cohesion subscale; FES Conflict = Family Environment Scale – Conflict subscale.

When all the covariates were entered into the model, adolescents' ethnicity and treatment attendance did not show a significant association with either of the two slopes and therefore were excluded from the final model. The model fit of the final model was good (CFI = 0.96; RMSEA = 0.049, 90% CI = [0.01, 0.08]). None of the covariates was significantly associated with the in-treatment slope (all p s > .05). Adolescents that received MET exhibited a significantly smaller posttreatment slope than those who received EBFT ($b = -0.14$, $SE = 0.04$, pseudo- $z = -3.51$, $p < .001$), whereas adolescents that received CRA exhibited a marginally significantly smaller posttreatment slope ($b = -0.09$, $SE = 0.05$, pseudo- $z = -1.80$, $p = .07$). In other words, those who received CRA and MET reported less increase in family cohesion than EBFT during the follow-up period, after treatment ended. Male adolescents exhibited marginally less improvement in family cohesion during the posttreatment period than female adolescents ($b = -0.14$, $SE = 0.08$, pseudo- $z = -1.79$, $p = .07$). EBFT demonstrated a small-to-medium effect ($d = 0.43$) over CRA and a small effect ($d = 0.33$) over MET in terms of the posttreatment change in family cohesion. In addition, there was a significant association between adolescents' age and the degree of increase in family cohesion during the posttreatment period ($b = 0.06$, $SE = 0.02$, pseudo- $z = 3.38$, $p < .001$); that is, older adolescents reported a greater increase in family cohesion than younger adolescents.

Family conflict. Analyses of the unconditional model revealed a significant in-treatment slope ($b = -0.50$, $SE = 0.09$, pseudo- $z = -5.51$, $p < .001$), but the posttreatment slope was not significant ($b = -0.05$, $SE = 0.04$, pseudo- $z = -1.35$, $p > .05$); that is, as a whole, the current sample exhibited significant reductions in family conflict during treatment. There was no significant change in family conflict once treatment ended.

In the conditional model, adolescents' gender, age, ethnicity, and treatment attendance were not statistically significant; thus, they were not kept in the final model. The final model with adolescent gender as the predictor of the intercept, and treatment condition as the predictor of the two slopes yielded an acceptable model fit (CFI = 0.93; RMSEA = 0.066, 90% CI = [0.038, 0.092]). There was a significant difference between those who received EBFT and those who

received MET in the slope of the in-treatment period [$b = 0.43$, $SE = 0.11$, pseudo- $z = 3.90$, $p < .001$]; that is, adolescents who received MET exhibited significantly less reduction in family conflict than those who received EBFT during the treatment. The difference between CRA and EBFT during the in-treatment period was not significant. In addition, there was no differential treatment effect during the posttreatment period (all $ps > .05$). EBFT demonstrated a medium effect size ($d = 0.51$) over MET in terms of the change in family conflict during treatment (baseline to the 6 month postbaseline).

DISCUSSION

Disruptive family relationships are consistently identified as precursors of running away from home (e.g., Edidin, Ganim, Hunter, & Kamik, 2012; Ferguson, 2009; Tyler, 2006). As the goal of basic center programs, or runaway shelters, is to reunite adolescents with their families when such placement is appropriate, shelters report that 60–80% of adolescents return to their families of origin (Thompson, Safyer, & Pollio, 2001). Given the role of the family in precipitating the adolescent's stay in the runaway shelter, it follows that interventions addressing family systems functioning should be offered to families when they enter a shelter. However, studies comparing family therapy with individual therapies have not been conducted with runaway adolescents. Therefore, it is unknown whether family therapy is associated with better family-level outcomes compared to individual therapies. The current study addressed this gap in the literature by comparing the impact of family systems therapy (EBFT), a behavioral intervention (CRA), and brief Motivational Enhancement Therapy (MET) on adolescent perceived family conflict and cohesion. Change in perceptions of family conflict and cohesion was examined during treatment (0–6 months) and upon treatment completion (6–24 months).

As hypothesized, significant improvements in adolescent's perceptions of family cohesion and conflict were observed in both the individual therapies and the family systems therapy. Several studies report that individual treatments exert a positive impact on family-level variables (e.g., Keeton et al., 2013; Kolko et al., 2000). Furthermore, several studies have shown little difference between individual and family therapies on these family-level outcomes over time (e.g., Sique-land, Rynn, & Diamond, 2005). Conceptually, this finding is consistent with a family systems theoretical understanding of change; when change occurs within a member of a family system, changes across the entire family system, including transactional change, should be observed (Bowen, 1978). Therefore, improved adolescent functioning and behavior could be expected to result in reduced family-level conflict and greater cohesion. Even so, recent studies have shown that change on family-level variables differs between individual and family therapies during the period of treatment, but that this difference dissipates posttreatment (Garoff et al., 2012; Liddle et al., 2009). Although this study did not test mediators of change, it is possible that improved adolescent behavior reduces stress and defensives and increases trust among family members, thereby increasing the sense of closeness and family members' willingness and motivation to reduce conflictual interactions. Given that improved conflict and cohesion were observed among families assigned to MET, where communication skills and family interaction were not a focus, it suggests that family members already possess some skills, but that these interventions increase family members' openness and willingness to implement them.

In this study, it was hypothesized that those receiving EBFT would show more significant improvement in perceived family conflict and cohesion during the treatment period (0–6 months) than the individual treatments. Findings for family conflict partially supported this hypothesis; adolescents who received EBFT showed a greater reduction in perceived family conflict than those who received MET during the treatment period. No additional reductions in conflict were observed posttreatment, from 6 to 18 months, with adolescents maintaining the reductions in conflict over time across all three treatments. The greater change in conflict observed in EBFT during treatment supports the findings of Liddle et al. (2009) and Garoff et al. (2012) and likely reflects the goal of family systems therapy on addressing emotional relationships among family members; that is, family therapy may result in a more rapid reduction in conflict among family members as this is a direct focus of the family therapy sessions. The difference between EBFT and CRA in family conflict was not significant. Although CRA did not directly address family interaction patterns

in the sessions, it helped adolescents improve their coping and problem-solving skills, which might in turn lead to reductions in their perceptions of conflict in the family. In addition, MET was less time-intensive than CRA and EBFT and less emotionally intense compared to EBFT, perhaps leading to the greater observed difference in family conflict between EBFT and MET.

Contrary to expectations, the findings regarding the trajectory of family cohesion showed that those adolescents who received EBFT reported more improvement in cohesion than those that received CRA or MET during the posttreatment period. Possibly, a direct focus on unresolved conflict, emotional pain, and lost trust must be resolved prior to maximizing adolescents' report of family closeness and support. Given that youth receiving EBFT reported more improvement in family conflict during the in-treatment period and more improvement in family cohesion during the after-treatment period, future research examining the process of change over time will need to determine whether direct resolution of family conflict precedes greater increases in family cohesion for family therapy in particular. Research notes that reductions in conflict are not automatically associated with increases in positive relationship factors and that increases in closeness or cohesion (but not conflict) are causally linked with decreases in other problem behaviors among adolescents including substance use (Slesnick, Bartle-Haring, & Gangamma, 2006). The presence of cohesion versus the absence of conflict is also associated with better overall relationship satisfaction and marital outcomes among married couples (Gottman, Coan, Carrere, & Swanson, 1998).

During the in-treatment period, all three modalities yielded similar improvements in family cohesion, which might be explained by the very low baseline levels of reported family cohesion among these families; that is, the family environment of runaway adolescents is characterized by much lower cohesion when compared with normal adolescent samples (Wolfe, Toro, & McCaskill, 1999). With a low baseline level of cohesion, individual therapies might indirectly improve the youth's perception on family cohesion by improving their coping skills and motivation to change. However, as individual therapies did not directly address family members' interaction patterns and emotional responses, further improvement in family cohesion once treatments ended was not observed. In summary, even though all treatments were associated with significant improvements in reported conflict and cohesion during the in-treatment period, an examination of the trajectories of change suggests that family therapy impacts family-level variables differently than individual therapies. These findings are similar to Liddle et al. (2009) study, which showed that Multidimensional Family Therapy yielded more improvement in positive and negative family interaction than a peer group intervention.

Finally, adolescents who were female or older exhibited a greater increase in family cohesion during the posttreatment follow-up. A number of studies indicate that female adolescents are more likely to tolerate emotional and relationship discussions than boys (Burlinson, 2003; Hsieh & Hollister, 2004; Impett & Peplau, 2006) and to have better treatment outcomes, overall (see review, Williams & Chang, 2000). The reasons for older adolescents to report greater increases in cohesion are unclear, however, especially because these differences were not observed in family conflict. If increases in family cohesion are linked cognitively to reductions in perceived conflict, and/or perhaps cognitive flexibility, such change in perception may be associated with the higher cognitive processing skills among older adolescents (Mcrae et al., 2012).

It should be noted that the maximum number of possible sessions were fewer in MET ($n = 2$) than the other two modalities (both are 12). MET has been compared with other long-term treatments such as cognitive-behavioral coping skills therapy and 12-step facilitation therapy in Project MATCH and other studies and has been deemed equally effective (see Lundahl and Burke (2009) for a review). Therefore, although MET is not as time-intensive as CRA and EBFT, it is considered to be a viable comparison group. In fact, the necessary dosage of treatment to facilitate change is unknown. Snell, Mallinckrodt, Hill, and Lambert (2001) found that those clients who attended only one session achieved and maintained clinically significant change through the 10-month follow-up at a higher rate than those who complete 2–7 sessions. Barkham et al. (2006) found that the majority of clients who were offered up to 12 psychotherapy sessions actually attended between two and six sessions. In addition, those who attended fewer sessions showed more clinically significant change than those who attended more sessions. Thus, the relationship between dose and treatment effects is not necessarily linear.

Limitations

Several study limitations should be considered when interpreting the findings. Data came from a convenience sample of youth recruited through a local runaway shelter, and the findings might not generalize to substance abusing runaway adolescents recruited from other parts of the country. The current sample size may have low statistical power to detect a relationship when the effect size is small. In the current study, it is unclear whether the improvement in family functioning was related to the extent to which other family members were involved in the family therapy. Families who agreed to come together in the EBFT condition might be different from those families with members who refused to participate; that is, they may have had different levels of motivation or willingness to support other family members, which in turn might be related to the change in family relationships over time. However, the current study cannot test this possibility.

The reliabilities of the FES were relatively low in general, though comparable to other studies that have utilized this measure (e.g., Boyd, Gullone, Needleman, & Burt, 1997; Gage-Bochard, Devine, & Heckler, 2013). No observation of family interaction was used in the current study, which might provide a more objective measure of family functioning than self-report. In addition, other factors that are common to most treatment modalities, such as therapist alliance and self-efficacy, were not assessed and should be assessed in future studies to help document underlying reasons for change. The study is also associated with significant strengths including an intent to treat and randomized design, use of manualized, empirically supported treatments, and long-term follow-up to 2 years. Furthermore, the study utilized standardized assessment measures, and state-of-the-art statistical analyses, accounting for the nested nature of the data.

CONCLUSION AND FUTURE DIRECTIONS

In the current study, EBFT demonstrated better short-term effects on family conflict and better long-term effects on family cohesion than individual therapies. Future research with a fully powered sample should investigate whether the involvement of family members in the family therapy is associated with improvement in family functioning by utilizing observational ratings to assess family interaction, and/or assessing multiple perspectives on family relationships. Family systems therapy may be preferable to individual therapies when working with substance use disordered runaway adolescents with family environments characterized by high levels of conflict and low levels of cohesion. In addition, while MET could be considered a time- and cost-efficient intervention for substance use among these youth, compared to EBFT and CRA (Slesnick, Erdem, et al., 2013), family systems therapy appears to have a stronger and longer lasting effect on family interaction, including observed reductions in parent-child discrepant perceptions (Guo & Slesnick, 2013), impact on other family member's mental health (Guo et al., 2014), as well as reduced adolescent problem behaviors, not observed among the individual therapies (Slesnick, Guo, et al., 2013). The greater impact of family therapy on family outcomes suggests that family systems therapies should be offered to families who seek services through runaway shelters. While family systems therapies are more difficult to implement within community settings compared to individual therapies (Copello, Templeton, & Velleman, 2006), attention toward overcoming implementation barriers will likely result in better long-term individual and family outcomes among these families.

REFERENCES

- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). (Text Revision). Arlington, VA: American Psychiatric Association.
- Bailey, J. A., Hill, K. G., Meacham, M. C., Young, S. E., & Hawkins, J. D. (2011). Strategies for characterizing complex phenotypes and environments: General and specific family environmental predictors of young adult tobacco dependence, alcohol use disorder and co-occurring problems. *Drug and Alcohol Dependence, 118*, 444–451. doi:10.1016/j.drugalcdep.2011.05.002.
- Barkham, M., Connell, J., Stiles, W. B., Miles, J. N., Margison, F., Evans, C., & Mellow-Clark, J. (2006). Dose-effect relations and responsive regulation of treatment duration: The good enough level. *Journal of Consulting and Clinical Psychology, 74*, 160–167. doi:10.1037/0022-006X.74.1.160.
- Bowen, M. (1978). *Family therapy in clinical practice*. New York: Jason Aronson.

- Boyd, C. P., Gullone, E., Needleman, G. L., & Burt, T. (1997). The family environment scale: Reliability and normative data for an adolescent sample. *Family Process, 36*, 369–373. doi:10.1111/j.1545-5300.1997.00369.x.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Burleson, B. R. (2003). The experience and effects of emotional support: What the study of cultural and gender differences can tell us about close relationships, emotion and interpersonal communication. *Personal Relationships, 10*, 1–23. doi:10.1111/1475-6811.00033.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Copello, A. G., Templeton, L., & Velleman, R. (2006). Family interventions for drug and alcohol misuse: Is there a best practice? *Current Opinion in Psychiatry, 19*, 271–276. doi:10.1097/01.yco.0000218597.31184.41.
- Dennis, M., Godley, S. H., Diamond, G., Tims, F. M., Babor, T., Donaldson, J., et al. (2004). The Cannabis Youth Treatment (CYT) study: Main findings from two randomized trials. *Journal of Substance Abuse Treatment, 27*, 197–213. doi:10.1016/j.jsat.2003.09.005.
- Diamond, G. S., Wintersteen, M. B., Brown, G. K., Diamond, G. M., Gallop, R., Shelef, K., et al. (2010). Attachment-based family therapy for adolescents with suicidal ideation: A randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 49*, 122–131. doi:10.1016/j.jaac.2009.11.002.
- Edidin, J. P., Ganim, Z., Hunter, S. J., & Kamik, N. S. (2012). The mental and physical health of homeless youth: A literature review. *Child Psychiatry and Human Development, 43*, 354–375.
- Epstein, M., Hill, K. G., Bailey, J. A., & Hawkins, J. D. (2013). The effect of general and drug-specific family environments on comorbid and drug-specific problem behavior: A longitudinal examination. *Developmental Psychology, 49*, 1151–1164. doi:10.1037/a0029309.
- Ferguson, K. M. (2009). Exploring family environment characteristics and multiple abuse experiences among homeless youth. *Journal of Interpersonal Violence, 24*, 1875–1891. doi:10.1177/0886260508325490.
- Gage-Bochard, E. A., Devine, K. A., & Heckler, C. E. (2013). The relationship between socio-demographic characteristics, family environment, and caregiver coping in families of children with cancer. *Journal of Clinical Psychology in Medical Settings, 20*, 478–487. doi:10.1007/s10880-013-9362-3.
- Garoff, F. F., Heinoen, K., Pesonen, A. K., & Almqvist, F. (2012). Depressed youth: Treatment outcome and changes in family functioning in individual and family therapy. *Journal of Family Therapy, 34*, 4–23. doi:10.1111/j.1467-6427.2011.00541.x.
- Gottman, J. M., Coan, J., Carrere, S., & Swanson, C. (1998). Predicting marital happiness and stability from newlywed interactions. *Journal of Marriage and Family, 60*, 5–22. doi:10.2307/353438.
- Guo, X., & Slesnick, N. (2013). Family versus individual therapy: Impact on discrepancies between parents' and adolescents' perceptions over time. *Journal of Marital and Family Therapy, 39*(2), 182–194. doi:10.1111/j.1752-0606.2012.00301.x.
- Guo, X., Slesnick, N., & Feng, X. (2014). Reductions in depressive symptoms among substance-abusing runaway adolescents and their primary caretakers: A randomized clinical trial. *Journal of Family Psychology, 28*, 98–105. doi:10.1037/a0035380.
- Herrenkohl, T. I., Lee, J. O., Kosterman, R., & Hawkins, J. D. (2011). Family influences related to adult substance use and mental health problems: A developmental analysis of child and adolescent predictors. *Journal of Adolescent Health, 51*, 129–135. doi:10.1016/j.jadohealth.2011.11.003.
- Hogue, A., Henderson, C. E., Ozechowski, T. J., & Robbins, M. S. (2014). Evidence base on outpatient behavioral treatments for adolescent substance use: Updates and recommendations 2007–2013. *Journal of Clinical Child and Adolescent Psychology, 43*, 695–720. doi:10.1080/15374416.2014.915550.
- Hsieh, S., & Hollister, C. D. (2004). Examining gender differences in adolescent substance abuse behavior: Comparisons and implications for treatment. *Journal of Child & Adolescent Substance Abuse, 13*, 53–70. doi:10.1300/J029v13n03_03.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55. doi:10.1080/10705519909540118.
- Impett, E. A., & Peplau, L. A. (2006). “His and “her” relationships? A review of the empirical evidence. In A. L. Vangelisti & D. Perlman (Eds.), *The Cambridge handbook of personal relationships* (pp. 273–291). New York: Cambridge University Press.
- Johnson, K. D., Whitbeck, L. B., & Hoyt, D. R. (2005). Substance abuse disorders among homeless and runaway adolescents. *Journal of Drug Issues, 35*, 799–816.
- Keeton, C. P., Ginsburg, G. S., Drake, K. L., Sakolsky, D., Kendall, P. C., Birmaher, B., et al. (2013). Benefits of child-focused anxiety treatments for parents and family functioning. *Depression and Anxiety, 30*, 865–872. doi:10.1002/da.22055.
- Kolko, D. J., Brent, D. A., Baugher, M., Bridge, J., & Birmaher, B. (2000). Cognitive and family therapies for adolescent depression: Treatment specificity, mediation, and moderation. *Journal of Consulting and Clinical Psychology, 68*, 603–614. doi:10.1037//0022-006X.68.4.603.

- Kopak, A. M., Chen, A. C., Hass, S. A., & Gillmore, M. R. (2012). The importance of family factors to protect against substance use related problems among Mexican heritage and White youth. *Drug and Alcohol Dependence, 124*, 34–41. doi:10.1016/j.drugalcdep.2011.12.004.
- Leve, L. D., Kim, H. K., & Pears, K. C. (2005). Childhood temperament and family environment as predictors of internalizing and externalizing trajectories from ages 5 to 17. *Journal of Abnormal Child Psychology, 33*, 505–520. doi:10.1007/s10802-005-6734-7.
- Liddle, H. A., Dakof, G. A., Parker, K., Diamond, G. S., Barrett, K., & Tejada, M. (2001). Multidimensional family therapy for adolescent drug abuse: Results of a randomized clinical trial. *American Journal of Drug and Alcohol Abuse, 27*, 651–688. doi:10.1081/ADA-100107661.
- Liddle, H. A., Rowe, C. L., Dakof, G. A., Henderson, C. E., & Greenbaum, P. E. (2009). Multidimensional family therapy for young adolescent substance abuse: Twelve-month outcomes of a randomized controlled trial. *Journal of Consulting and Clinical Psychology, 77*, 12–25. doi:10.1037/a0014160.
- Little, T. D. (2013). *Longitudinal structural equation modeling*. New York: Guilford.
- Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data*. New York: Wiley.
- Lundahl, B., & Burke, B. L. (2009). The effectiveness and applicability of motivational interviewing: A practice-friendly review of four meta-analyses. *Journal of Clinical Psychology, 65*, 1232–1245. doi:10.1002/jclp.20638.
- Lyerly, J. E., & Huber, L. R. B. (2013). The role of family conflict on risky sexual behavior in adolescents aged 15 to 21. *Annals of Epidemiology, 23*, 233–235. doi:10.1016/j.annepidem.2013.01.005.
- McDonald, R. P., & Ho, M. H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods, 7*, 64–82. doi:10.1037//1082-989X.7.1.64.
- Mcrae, K., Gross, J. J., Weber, J., Robertson, E. R., Sokol-Hessner, P., Ray, R. D., et al. (2012). The development of emotion regulation: An fMRI study of cognitive reappraisal in children, adolescents and young adults. *Social Cognitive and Affective Neuroscience, 7*, 11–22. doi:10.1093/scan/nsr093.
- Meyers, R. J., & Smith, J. E. (1995). *Clinical guide to alcohol treatment: The community reinforcement approach*. New York: Guilford Press.
- Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change* (2nd ed.). New York: Guilford Press.
- Moos, R. H., & Moos, B. S. (1986). *Family environment scale manual*. Palo Alto, CA: Consulting Psychologists Press.
- Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.
- National Alliance to End Homelessness (2012). *Cost of Homelessness*. Retrieved October 6, 2012, from http://www.endhomelessness.org/pages/cost_of_homelessness
- Renzaho, A. M. N., & Karantzas, G. (2010). Effects of parental perception of neighbourhood deprivation and family environment characteristics on pro-social behaviors among 4-12 year old children. *Australian and New Zealand Journal of Public Health, 34*, 405–411. doi:10.1111/j.1753-6405.2010.00574.x.
- Rigter, H., Henderson, C. E., Pelc, I., Tossmann, P., Phan, O., Hendriks, V., et al. (2013). Multidimensional family therapy lowers the rate of cannabis dependence in adolescents: A randomized controlled trial in Western European outpatient settings. *Drug and Alcohol Dependence, 130*, 85–93. doi:10.1016/j.drugalcdep.2012.10.013.
- Rigter, H., Pelc, I., Tossmann, P., Phan, O., Grichting, E., Hendriks, V., et al. (2010). INCANT: A transnational randomized trial of Multidimensional Family Therapy versus treatment as usual for adolescents with cannabis use disorder. *BMC Psychiatry, 10*, 28. doi:10.1186/1471-244X-10-28.
- Rotheram-Borus, M. J., Koopman, C., Haignere, C., & Davies, M. (1991). Reducing HIV sexual risk behaviors among runaway adolescents. *Journal of the American Medical Association, 266*, 1237–1241. doi:10.1001/jama.266.9.1237.
- Rotheram-Borus, M. J., Song, J., Gwadz, M., Lee, M., Van Rossem, R., & Koopman, C. (2003). Reductions in HIV risk among runaway youth. *Prevention Science, 4*, 173–187. doi:10.1023/A:1024697706033.
- Runaway and Homeless Youth Act/Title III (1974). *Juvenile justice and delinquency prevention and runaway youth Act, P.L. 93-415*. Washington, DC: U.S. Government Printing Office.
- Rowe, C. L. (2012). Family therapy for drug abuse: Review and updates 2003–2010. *Journal of Marital and Family Therapy, 38*, 59–81. doi:10.1111/j.1752-0606.2011.00280.x.
- Safer, A. W., Thompson, S. J., Maccio, E. M., Zittel-Palamara, K. M., & Forehand, G. (2004). Adolescents' and parents' perceptions of runaway behavior: Problems and solutions. *Child and Adolescent Social Work Journal, 21*, 495–512. doi:10.1023/B:CASW.0000043361.35679.73.
- Samek, D. R., Hicks, B. M., Keyes, M. A., Bailey, J., McGue, M., & Iacono, W. G. (2015). Gene-environment interplay between parent-child relationship problems and externalizing disorders in adolescence and young adulthood. *Psychological Medicine, 45*, 333–344. doi:10.1017/S0033291714001445.
- Sanford, K., Bingham, C. R., & Zucker, R. A. (1999). Validity issues with the Family Environment Scale: Psychometric resolution and research application with alcoholic families. *Psychological Assessment, 11*, 315–325.
- Shaffer, D. (1992). *The diagnostic interview schedule for children – 2.3 version*. New York: Columbia University.

- Siqueland, L., Rynn, M., & Diamond, G. S. (2005). Cognitive behavioral and attachment based family therapy for anxious adolescents: Phase I and II studies. *Anxiety Disorders, 19*, 361–381. doi:10.1016/j.janxdis.2004.04.006.
- Slesnick, N. (2000). *Treatment manual:Ecologically-Based Family Therapy for substance abusing runaway youth*. Unpublished manuscript.
- Slesnick, N., Bartle-Haring, S., & Gangamma, R. (2006). Predictors of substance use and family therapy outcome among physically and sexually abused runaway adolescents. *Journal of Marital and Family Therapy, 32*, 261–281. doi:10.1111/j.1752-0606.2006.tb01606.x.
- Slesnick, N., Dashora, P., Letcher, A., Erdem, G., & Serovich, J. M. (2009). A review of interventions for runaway and homeless youth: Moving forward. *Children and Youth Services Review, 31*, 732–742. doi:10.1111/j.1752-0606.2006.tb01606.x.
- Slesnick, N., Erdem, G., Bartle-Haring, S., & Brigham, G. (2013). Intervention with substance abusing runaway adolescents and their families: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 81*(4), 600–614. PMID 23895088. doi: 10.1037/a0033463
- Slesnick, N., Guo, X., & Feng, X. (2013). Change in parent- and child-reported internalizing and externalizing behaviors among substance abusing runaways: The effects of family and individual treatments. *Journal of Youth and Adolescence, 42*, 980–993. doi:10.1007/s10964-012-9826-z.
- Slesnick, N., & Prestopnick, J. L. (2005). Ecologically-based family therapy outcome with substance abusing runaway adolescents. *Journal of Adolescence, 28*, 277–298. doi:10.1016/j.adolescence.2005.02.008.
- Slesnick, N., & Prestopnick, J. (2009). Comparison of family therapy outcome with alcohol abusing, runaway adolescents. *Journal of Marital and Family Therapy, 35*, 255–277. doi:10.1111/j.1752-0606.2009.00121.x.
- Snell, M. N., Mallinckrodt, B., Hill, R. D., & Lambert, M. J. (2001). Predicting counseling center clients' response to counseling: A 1-year follow-up. *Journal of Counseling Psychology, 48*, 463–473. doi:10.1037//0022-0167.48.4.463.
- St. Lawrence, J. S., Jefferson, K. W., O'Bannon, R. E., & Shirley, A. (1995). Cognitive-behavioral intervention to reduce African American adolescents' risk for HIV infection. *Journal of Consulting and Clinical Psychology, 63*, 221–237. doi: 10.1037//0022-006X.63.2.221
- Stein, J. A., Milburn, N. G., Zane, J. I., & Rotheram-Borus, M. J. (2009). Paternal and maternal influences on problem behaviors among homeless and runaway youth. *American Journal of Orthopsychiatry, 79*, 39–50. doi:10.1037/a0015411.
- Stephens, R. S., Roffman, R. A., & Curtin, L. (2000). Comparison of extended versus brief treatments for marijuana use. *Journal of Consulting and Clinical Psychology, 68*, 898–908. doi:10.1037//0022-006X.68.5.898.
- Stewart, M. A., & Brown, S. A. (1993). Family functioning following adolescent substance abuse treatment. *Journal of Substance Abuse, 5*, 327–339. doi:10.1016/0899-3289(93)90002-S.
- Substance Abuse and Mental Health Services Administration. (2004). *Substance use among youths who had run away from home* (The NSDUH Report). Rockville, MD: Office of Applied Studies.
- Tanner-Smith, E. E., Wilson, S. J., & Lipsey, M. W. (2013). The comparative effectiveness of outpatient treatment for adolescent substance abuse: A meta analysis. *Journal of Substance Abuse Treatment, 44*, 145–158. doi:10.1016/j.jsat.2012.05.006.
- Thompson, S. J., Cochran, G., & Barczyk, A. N. (2012). Family functioning and mental health in runaway youth: Association with posttraumatic stress symptoms. *Journal of Traumatic Stress, 25*, 598–601. doi:10.1002/jts.21744.
- Thompson, S. J., Safyer, A. W., & Pollio, D. E. (2001). Differences and predictors of family reunification among subgroups of runaway youths using shelter services. *Social Work Research, 25*, 163–172.
- Tucker, J. S., Edelen, M. O., Ellickson, P. L., & Klein, D. J. (2010). Running away from home: A longitudinal study of adolescent risk factors and young adult outcomes. *Journal of Youth and Adolescence, 40*, 507–518. doi:10.1007/s10964-010-9571-0.
- Tyler, K. A. (2006). A qualitative study of early family histories and transitions of homeless youth. *Journal of Interpersonal Violence, 21*, 1385–1393. doi:10.1177/0886260506291650.
- Unger, J. B., Kipke, M. D., Simon, T. R., Montgomery, S. B., & Johnson, C. J. (1997). Homeless youths and young adults in Los Angeles: Prevalence of mental health and substance abuse disorders. *American Journal of Community Psychology, 25*, 371–394.
- Williams, R. J., & Chang, S. Y. (2000). A comprehensive and comparative review of adolescent substance abuse treatment outcome. *Clinical Psychology Science and Practice, 7*, 138–166. doi:10.1093/clipsy/7.2.138.
- Wolfe, S. M., Toro, P. A., & McCaskill, P. A. (1999). A comparison of homeless and matched house adolescents on family environment variables. *Journal of Research on Adolescence, 9*, 53–66. doi:10.1207/s15327795jra0901_3.