Relational Reframes and Interpretations as Predictors of Change Among Substance-Abusing Adolescents and Their Parents

DISSERTATION

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By

Denitza S. Bantchevska

Graduate Program in Human Ecology

The Ohio State University

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Dissertation Committee:

Dr. Natasha Slesnick, Advisor

Dr. Xin Feng

Dr. Michael Glassman
Abstract

Research consistently documents the effectiveness of family systems therapy for families in distress. Prior research has suggested that particular interactional dynamics (e.g. criticism, blame, and defensiveness) are more likely to occur in distressed compared to non-distressed families, and it is hypothesized that successful interventions can modify negative interaction patterns. However, little is known about the specific aspects of the therapeutic process that may contribute to successful treatment. The present study examined how two commonly-used family therapy techniques, relational interpretations and reframes impact in-session communication and whether the use of these techniques impact changes in individual and family functioning post-treatment.

The in-session communication behaviors among a sample of 22 substance abusing runaway adolescents (ages 12 to 17) and their parents were analyzed. All families received up to 12 sessions of a family systems intervention (Ecologically-Based Family Therapy). Sequential analysis was used to assess the relationship between therapist and client verbal behaviors. It was hypothesized that clients’ would be more likely to respond positively (versus negatively or neutral) following therapist’s relational reframes and interpretations, compared to all other therapist’s speech. Furthermore, it was expected that the probability of clients' positive verbalizations would decrease over the course of therapy. In terms of post-treatment outcomes, it was hypothesized that therapist’s use of
reframes and interpretations would predict improved adolescent substance use, depressive symptoms, and family conflict-resolution tactics. Hierarchical Linear Modeling was utilized to examine clients’ responses to therapist’s reframes and interpretations as a predictor of change in these outcomes at 3, 6, 9, 12, 18 and 24 months post-baseline.

Overall, the findings supported the initial hypotheses. Therapists’ relational reframes and interpretations were more likely to elicit a positive (versus negative or neutral) immediate response from clients, compared to all other therapist’s verbalizations. Furthermore, the probability of clients’ positive responses to occur following therapist’s reframes and interpretations predicted change in adolescent reported conflict resolution tactics post-treatment. These results support the effectiveness of relational reframes and interpretations techniques for initiating change in family members’ communication in-session, as well as improving family conflict resolution tactics after the completion of treatment. Given the dearth of research on the effectiveness of systemic treatment techniques and the lack of treatment process research overall, including among runaways and their families, the findings from this study can be used to guide treatment development efforts and aid providers working with this vulnerable population.
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Vita

March 3, 1975 ........................................Born - Sofia, Bulgaria

1993............................................................High School Diploma, Sofia Bulgaria

2004............................................................B.S. Business Administration, Franklin University, Columbus, Ohio.

2007............................................................M.S. Human Development and Family Science, The Ohio State University.


2007-2009.................................................Research Assistant, “Treatment Outcome with Runaway Adolescents II” and “Evaluation of Treatments for Homeless Youth” projects, Department of Human Development and Family Science, The Ohio State University.

2007-2010 ..................................................Therapist, Ohio State Couples and Family Therapy Clinic, Human Development and Family Science, The Ohio State University.
2009………………………………………Graduate Teaching Associate, Human Development and Family Science, The Ohio State University.

2009-2010.................................Therapist, “Evaluation of Treatments for Homeless Youth” project, The Ohio State University.

2009 – present……………………..Program Coordinator, “Adolescent Involvement in Parental Substance Abuse Treatment: Evaluation of Ecologically Based Family Therapy” project, Department of Human Development and Family Science, The Ohio State University.

2009 – present……………………..Program Coordinator, “Treatment Development with Homeless Mothers and their 2-6 Year Old Children” project, The Ohio State University.

2010………………………………….Frank Elam Parker Memorial Merit Scholarship Award.

2010………………………………….Hulda Ungericht Wells Scholarship Fund Award.

2011 ..................................................Best Student Abstract Award, The International Family Therapy Association.

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Publications


Fields of Study

Major Field: Human Ecology

Specialization: Human Development and Family Science, Couple and Family Therapy
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Chapter 1: Introduction

Research consistently documents the effectiveness of family systems therapy for families in distress (e.g., Hogue & Liddle, 2009). Prior research has suggested that particular interactional dynamics are more likely to occur in distressed compared to non-distressed families, and it is hypothesized that successful interventions can modify negative interaction patterns (e.g., Birmaher et al., 2000). However, little is known about specific aspects of the therapeutic process that contribute to treatment success. The goal of the present study is to examine therapist’s interventions, including relational interpretations and reframes as predictors of change in family interactions in session during treatment, as well as change in client’s symptomology post-treatment. The expectation that change in family interactions will predict change in family problems is guided by Bateson’s family systems theory, which postulates that the undesirable symptom is maintained by destructive communication patterns among family members (Bateson, 1972).

Prior studies found that negative interpersonal interactions are associated with negative outcomes among family members. More specifically, research on parent-child interactions suggests that the presence of negative parenting behaviors such as harsh discipline, criticism, and rejection is linked to the development of child’s behavioral problems (e.g., Patterson, 2002). Similarly, among marital couples, negative interactions, such as negative affect, hostility, criticism, defensiveness, and verbal aggression are associated with marital discourse, substance use and depression among family members
(e.g. Gottman, 1993; Fals-Stewart & Birchler, 1998; Johnson & Jacob, 2000). Thus, it is expected that a therapeutic intervention that reduces the negative interactions is likely to be successful at reducing client’s symptomology as well.

Relational interpretations and reframes are therapeutic techniques commonly used in couples and family therapy. Reframes are defined as therapists’ verbal responses to clients’ negative statements that change the meaning of the statements through non-blaming re-attributions (Robbins, Alexander, Newell, & Turner, 1996). Relational interpretations are therapist’s verbal response that addresses interpersonal themes and makes important relational links which go beyond what the client has overtly recognized (Crits-Christoph, & Gibbons, 2001). Interpretations may include establishing connections between statements or events; pointing out themes, patterns, or relationships in the patient's behavior or personality; or giving alternative meanings for old behaviors or issues. The use of these techniques can help clients understand the presented problem in systemic terms, rather than attribute it to the individual’s deficiency. Such change in clients’ understanding of the problem can lead to lasting, positive changes in the way family members relate and interact with each other.

Unfortunately, research on client’s response to therapeutic techniques and particularly techniques specific to systemic interventions is limited. However, the existing studies suggest that relational reframes are more likely to elicit positive vs. negative immediate response from clients compared to other therapeutic techniques (e.g. reflections, elicit-structure interventions, and organizational statements) used by therapists in session (Diamond, Siqueland, and Diamond, 2003; Robbins, Alexander, Newell, and Turner, 1996; Robbins, Alexander, and Turner, 2000). However, it remains
unknown if client’s positive response to reframes in session impacts family interactions and related symptomology outside of treatment. Furthermore, no studies to date have documented clients’ response to relational interpretations. Given that relational interpretations, similarly to relational reframes are thought to reduce clients’ negativity through the provision of alternative, systemic understanding of existing problems (Crits-Christoph, & Gibbons, 2001), the use of relational interpretations may reduce clients’ negativity in session. Possibly, change in clients’ understanding of the problem will impact not only client’s immediate response in session but also reduce family conflict and child symptomology post-treatment.

In prior studies, researchers have examined client’s response to therapist’s interventions utilizing a sequential analysis (e.g. Robbins, Alexander, & Turner, 2000). This analysis is a type of research methodology that offers an empirical examination of the processes and mechanisms of psychotherapy in an effort to improve treatment outcomes for clients. The rationale is that by increasing the understanding of human change processes, greater control can be obtained in the effective design and delivery of therapeutic interventions.

Runaway adolescents and their families are distressed, reporting a multitude of problems, such as highly conflictual interactions, adolescent risk behaviors as well as externalizing and internalizing problems (e.g. Toro & Goldstein, 2000). Prior studies have identified Ecologically Based Family Therapy (EBFT) as an effective intervention for these families (Slesnick & Prestopnik, 2005; Slesnick & Prestopnik, 2009). Given that runaways have been described as a difficult to treat population (e.g. Morrissette, 1992;
Smart & Ogborne, 1994), identifying the effective therapeutic techniques within this EBFT approach may be useful to treatment providers.

In sum, this study will examine clients’ response after therapist’s relational interpretations and reframes. Specifically, it is expected that clients’ will be more likely to respond positively (vs. negatively or neutral) after therapist’s relational reframes and interpretations in comparison to all other therapist’s speech. Furthermore, the conditional probability of clients’ responses to be positive after therapist’s reframes and interpretations will be examined as predictors of change in runaway adolescents’ substance use, depressive symptoms, and family conflict tactics at 3, 6, 9, 12, 18, and 24 months post treatment as reported by the adolescents and the parents. It is hypothesized that clients who respond positively after therapist’s relational interpretations and reframes will report greater reduction in substance use, depressive symptoms, and family conflict. Given the dearth of research on the effectiveness of systemic treatment techniques and the lack of treatment process research with runaways and their families, the findings from this study are needed to guide treatment developers and providers working with this difficult to treat population.
Chapter 2: Literature Review

Existing empirical evidence suggests that family therapy is effective for reducing mental health and behavioral problems, especially among youth (e.g. Hogue & Liddle, 2009). However, the existing interventions can be improved. Identified factors associated with therapeutic process, which contribute to the effectiveness of family therapy can be utilized to design studies of family change that promote the development of more effective techniques. Unfortunately, few researchers have documented aspects of the treatment process as predictors of therapeutic change. This study will address this gap in the literature by examining family therapy techniques as predictors of change in parent-adolescent interaction during sessions, as well as their relationship to post-treatment change. Treatment outcome, or post-treatment change, was conceptualized as adolescent’s depressive symptoms and substance use, and family conflict tactics among a sample of run-away adolescents and their parents.

Consistent with the goal of the study, the following literature review examines the relationship between family interactions and family and youth problems, as well as therapeutic techniques that can impact change in outcomes. First, a summary will be presented of Bateson’s theoretical conceptualization (Bateson, 1972), guiding the expectation that family communication is related to problems, such as dysfunctional family conflict tactics, youth depressive symptoms and substance use. Findings from observational studies on interactions among distressed families provide support for this theoretical conceptualization (e.g. Pettit et al., 1997; Patterson et al., 1992; 1994;
Patterson, 2002), and also outline the specific interactional patterns targeted for change (e.g. negative interactions such as blame and hostility). Indeed, a review of the findings from therapy process research shows that change in clients’ communication in session from negative to positive is associated with a variety of positive outcomes including clients’ engagement in therapy, adolescent’s problem behaviors (Diamond and Liddle, 1996), marital satisfaction (Cordova, Jacobson, and Christensen, 1998), and increased adaptive behaviors among a sample of autistic children and their parents (Solomon, Ono, Timmer, & Goodlin, 2008). Moreover, therapy process research studies outline specific therapeutic techniques, such as relational reframes that have been identified as effective for altering client’s dysfunctional interactional patterns (Robins, Alexander, & Turner, 2000). Other techniques, such as relational interpretations have been theorized to also impact clients’ dysfunctional interactions (e.g. relational interpretations) but they have not been tested to date. In addition, because the existing therapy process research is based on sequential analysis, which will be also utilized in the current study, a review of that approach and how it has been applied by researchers in the past will follow.

Given that this study focuses on documenting how particular therapeutic techniques contribute to change in parent-adolescent interactions, conducting the analysis with parent and child pairs in family therapy treatment is needed. Inclusion of runaway adolescents and their parents is particularly appropriate because these youth consistently report a multitude of symptoms such as depressive symptoms, substance use and high levels of family conflict. Moreover, the results of this study will contribute to the limited literature on treatment interventions for this understudied and underserved population. Therefore, the literature review will include a description of runaway adolescents and
their families, as well as a review of the existing interventions developed for them. Finally, potential moderating variables including demographic characteristics and total number of sessions attended by the family will be reviewed as well.

**Theoretical Conceptualization**

Since the publication of Bateson’s colleagues’ seminal work *Pragmatics of Human Communication* (Watzlawick, Bavelas, and Jackson, 1967), scientists have looked at family interactions as a primary determinant of individual’s psychological and physiological well-being. Consistent with cybernetics and general systems theory, individual problems are conceptualized as symptoms of the family system, rather than stemming from individual deficiencies (Bateson, 1972). Specifically, all problems are understood in the context of the family interactions, where destructive communicational patterns maintain the undesirable symptoms. Therefore, successful therapeutic interventions involve change in the family interactions. Moreover, change in dysfunctional interactional patterns in the family is associated with alleviation of the symptom, regardless of the symptom’s nature (e.g. depressive symptoms, substance use, behavioral problems, relationship dissolution), and regardless of the family role of the symptom’s carrier (e.g. partner, parent or child). Thus, in the present study, therapeutic techniques impacting clients’ interactions in session will be examined as predictors of post-treatment change.

Consistent with Bateson’s theory, several decades of observational research have outlined specific interactional patterns as related to family distress (e.g. Gottman, 1994). These studies have documented similarities of interactions among families presenting a variety of problems. Given that few studies have focused on interactions as related
specifically to depressive symptoms, substance use and conflict tactics, the review will be expanded to include interactions among families with other symptoms of distress, such as marital dissolution and child’s delinquency.

**Parent-Child Interactions**

Although interaction research is dominated by studies on couples' relationships, published observations of parent-child interactions have increased in the past 16 years. A number of studies have pointed to specific parental-child interactions that predict children problem behaviors, as well as some forms of psychopathology. For example, the presence of negative parenting behaviors (such as harsh discipline and rejection) is a strong predictor of high levels of problem behaviors in young children, particularly boys (e.g. Pettit et al., 1997; Dodge et al., 1994; Patterson, 2002).

Similarly, parental expression of warmth and control during parent-child interactions seem related to child’s symptoms of anxiety. A number of studies have reported that during parent-child interactions, parents of anxious children were more controlling than parents of other children (e.g. Barrett, Fox, & Farell, 2005; Hudson & Rapee, 2001; Hummel & Gross, 2001). Findings regarding the relationship between child’s anxiety and parental warmth are less consistent. While some researchers reported that parents of anxious compared to parents of normative children were less warm towards their children (e.g. Hudson & Rapee, 2001; Hummel & Gross, 2001), others have found no significant differences in warmth (e.g. Rubin et al., 2001).

Furthermore, research suggests that children of parents who demonstrate positive (e.g. support, sensitivity and responsiveness), as well as negative (e.g. criticism and rejection) parent to child behaviors, are less likely to develop behavioral problems,
compared to children of parents who demonstrate primarily negative parent to child behaviors (Davenport, Hegland & Melby, 2008). Similarly, Webster-Stratton, (1985) found that parents of children with externalizing problems used a great deal of criticism when interacting with their children and very little praise. Although, parents’ negativity towards their child appears to have a more significant impact on younger compared to older children (e.g., Pettit & Bates, 1989; Patterson, 2002), the prevalence of positive vs. negative behaviors seems to soften the unfavorable impact of the negative behaviors across age groups.

Parents’ negative interactions with their children are also thought to be associated with the development of serious psychological disorders, such as schizophrenia spectrum disorders among the children. Specifically, two family communication patterns – expressed emotion and communication deviance have been identified among schizophrenic patients and their parents (Kymalainen & Mamani, 2008). Expressed emotion refers to critical, hostile, and emotionally over-involved attitude (Kavanagh, 1992). A number of studies have found that high levels of expressed emotion are associated with a poor course of illness and higher relapse rates (Butzlaff & Hooley, 1998; Weisman, 2005). Expressed emotion is currently one of the most robust predictors of schizophrenia (Kymalainen & Mamani, 2008; Miklowitz, 1994), providing additional support for the detrimental impact of negativity in parent-child interactions as related to child’s mental health problems.

In sum, two major conclusions seem to immerge from the literature on parent-child interactions. First, parental negativity (such as hostility, criticism, and rejection) seems to be associated with child’s symptomology. Second, the presence of positive
interactional behaviors (such as expression of warmth, sensitivity and supportiveness) may be able to defuse the detrimental effects of the negative interactions. These findings suggest that interventions aiming at reduction of negative interactions and stimulating positive parent-child interactions may be effective for children with emotional and behavioral problems.

**Partner Interactions**

The majority of the research on interactional patterns in the family comes from studies on partner interactions as related to a presented symptom. These studies focus on a variety of problems, including relationship dissolution, domestic violence, depressive symptoms, substance use, and child’s symptoms. Even though this is a relatively recent line of research, these studies outline dysfunctional family interactions that can be targeted for change.

**Relationship dissolution.** Similar to other family symptoms, such as depression and substance use, divorce, is a serious family problem. Families at risk for dissolution are considered to be in significant distress, given the increased risk for mental and physical health problems of children and spouses. Such problems may include psychopathology, physical illness, and violence (Bloom, Asher, & White, 1978; Burman & Margolin, 1992). Also, there is convincing evidence to suggest that marital distress, conflict and disruption are associated with a wide range of negative effects on children, including mental health problems and conduct-related difficulties (e.g. Hipke, Wolchik, Sandler, & Braver, 2002; Lindsey & Mize, 2001; Peris & Emery, 2004). Therefore, documented differences in interactions between families at risk for dissolution and their
non-distressed counterparts provide rich data on dysfunctional family interactional patterns.

While all couples experience conflict, there is a fundamental difference in communication conflict strategies that differentiate distressed from non-distressed couples (Gottman, 1994). For example, data suggest that there are four strategies typically employed by couples in distress. These strategies include defensiveness (attempting to defend oneself from a criticism or complaint), criticism (complaining about partner’s global characteristics), contempt (demeaning or sarcastic behavior intended to subordinate the other spouse), and stonewalling (lack of interaction as if there were a wall between the two partners). Non-distressed couples use these conflict tactics significantly less frequently then distressed couples. Gottman’s findings were replicated by researchers in other studies (e.g. Gottman, 1993; Heyman, 2001; Pasch & Bradbury, 1998).

Another fundamental difference between distressed and non-distressed couples is the overall pattern of negativity. While the prevalence of negative affect alone did not predict distress, it was found that the ratio between negativity and positivity differentiated distressed from non-distressed couples (Gottman, 1994). It was documented that the ratio of positive to negative interactional codes during the conflict discussion was about 5.0 for the non-distressed couples, while it was 0.8 for the distressed couples. This finding is similar to other researchers’ findings. For example, Julien, Markman, and Lindahl’s (1989) concluded that relative to non-distressed couples, distressed couples generally display increased levels of negativity and decreased levels of positivity in their everyday interactions as well as in problem solving attempts. Although positive affect alone seems
less predictive of family distress compared to negative affect, overall positive affect during conflict is related to high levels of marital satisfaction when accompanied by low levels of negative affect (e.g. Bradbury & Karney, 2004; Fincham & Beach, 1999; Gottman, Coan, Carrere & Swanson 1998).

Another negative interactional pattern involves partner negative reciprocity. Margolin and Wampold (1981) showed that, compared with those of non-distressed couples, the interactions of distressed couples were characterized by an increased likelihood of negative behavior following the negative behavior by the partner. Moreover, they found that distressed couples’ communication is characterized by higher levels of negative reactivity (suppression of positive behaviors below base rates following negative behavior by the partner). These findings were further replicated by other researchers, suggesting that the propensity to respond to negativity with equal or escalating negativity is a dysfunctional pattern (Cordova, Jacobson, Gottman and Levenson, 1992; Gottman & Rushe, 1993; Lindahl, Clements & Markamn, 1998; Paley et al., 2005).

Additional indirect support of the unfavorable effect of partners’ negativity during conflict comes from studies combining observational data with physiological measures. For example, Ewart et al. (1991) investigated marital conflict and high blood pressure. They reported that among women, supportive or neutral messages were not associated with change in blood pressure, but hostile interactions were related to an increase in blood pressure. Among men, blood pressure was related only to their speech rate. Although responses to different aspects of the negative interactions varied by gender,
these findings suggest that the detrimental impact of negativity is also confirmed by partners’ physiological responses during conflict.

Further, an interactional pattern known as the demand-withdraw pattern has been identified as a characteristic of distressed marriages by a number of researchers (e.g. Gottman & Levenson, 1988; Heavy, Layne, & Christensen, 1993; Heavey et al., 1995). The demand-withdraw pattern involves one partner demanding a change and the other partner withdrawing or avoiding the issue. However, the significant association between the demand-withdraw pattern and marital distress is not robust. Some researchers have suggested that the pattern is also, to some degree, a characteristic of non-distressed marriages (Caughlin & Huston, 2002; Christensen & Heavey 1990).

Partners’ violence. Marital dissolution is only one of many sources of family distress; domestic violence is another symptom of distress. Researchers have compared interactions between non-distressed and violent couples to identify patterns which discriminate violent from non-violent couples. For example, Holtzworth-Munroe et al. (1997) found that, compared to nonviolent husbands, violent husbands were more belligerent/domineering, more contemptuous/disgusted, showed more anger and tension, and were more upset by their wife's communication. In addition, violent husbands offered less social support than nonviolent husbands. Several studies documented that interactions of violent couples were characterized by reciprocity of hostile affect and by rigid, highly contingent behavior patterns that were stronger and longer lasting than those of other couples (Burman and Margolin, 1993; Cordova et al., 1993; Urquiza & Timmer, 2002). Babcock et al. (1993) reported that violent couples were more likely than nonviolent (distressed and non-distressed) couples to engage in the husband demand/wife
withdraw pattern. These findings suggest that partners’ interactions among distressed violent and distressed non-violent couples are characterized by similar interactional patterns (hostility, verbal aggression, contempt, and belligerence) but with different intensity. Violent couples seem to engage in more frequent and higher severity dysfunctional patterns.

Furthermore, Jacobson et al. (1996) identified predictors of divorce among violent couples. They found that a high frequency of husband's contempt, less husband humor, less husband neutral affect, more wife defensiveness, less wife humor, and partners’ psychological reactivity predicted divorce in their sample. Possibly, the use of humor among these couples was an attempt to decrease the overall level of negativity. Partners’ psychological reactivity can be seen as a proxy measure of their negative causal attributions. For example, partners who tend to locate the cause of negative events in their spouse may be more likely to experience a strong psychological reactivity in the communication with them. In sum, a similar set of variables seem to characterize distress and predict divorce among violent and non-violent couples.

Depression. Although, most of the existing observational research compared interactions among partners who suffer marital discord, a growing body of literature has considered other sources of family distress, such as depression. Similar to marital distress, depression has been related to various aspects of interpersonal communication (Tse & Bond, 2004). Numerous studies have found a relationship between marital distress and depression, as well as depression and marital communication. For example, several studies have found that couples with a depressed member exhibit an increased level of destructive communication patterns (Hautzinger, Linden, & Hoffman, 1982; Sher
& Baucom, 1993; Sher, Baucom, & Larus, 1990; Johnson & Jacob, 2000; Johnson & Jacob, 1997). Specifically, couples with a depressed partner have been found to interact more negatively and less positively with each other than other couples. Depressed couples were found to exhibit more aggressiveness (Biglan, Hops, Sherman, Friedman, Arthur, & Osteen, 1985) and demonstrate fewer problem-solving behaviors (Basco, Prager, Pita, Tamir, & Stephens, 1992; Christian, O’Leary, & Vivian, 1994) than distressed couples without a depressed partner.

While the majority of studies that have examined the interaction patterns of distressed depressed couples have found differences in communication that are attributable to depression, there are a smaller number of studies that have failed to find such differences. For example, Schmaling and Jacobson (1990) and Nelson and Beach (1990) replicated the full design of the Biglan et al. (1985) but added a comparison group. They did not find interactional patterns that were unique to depression and determined that within group differences were due to marital distress rather than depression. Furthermore, a number of researchers have found that behaviors in depressed couples do not differ from other distressed couples (Baucom et al., 2007; Weiss & Heyman, 1997). Byrne, Carr, and Clark (2004) aimed to examine the relative contributions of relationship distress and depression to self-reported demand/withdraw communication and also failed to find a unique effect for depression. In conclusion, research findings suggest that depression and marital distress may be characterized by similar interactional patterns, namely negativity.

**Substance use.** Little observational data with substance abusing couples has been published. Among the few studies is Jacob and Leonard’s (1992) analysis of these
couples’ marital interactions. The analysis included couples with 1) alcoholic husbands, 2) clinically depressed husbands, and 3) normal controls. They found that couples with a depressed husband were different from the other two groups; couples with an alcoholic husband and normal controls were characterized by similar interaction patterns, including high negative reciprocity. Another investigation, conducted by Fals-Stewart and Birchler (1998) compared marital conflict interactions of couples with drug-abusing husbands, in comparison to a control group of non-substance abusing, but distressed couples. The results revealed that the couples with the substance-abusing husband interacted significantly differently than the distressed couples with no substance abusing members - these couples were more verbally abusive, demonstrated lower problem-solving skills, and more negative attributions than the distressed, nondrug-abusing couples. In addition, they found that these results were related to the husband's percentage of days drug use, suggesting that frequent drug use is associated with negative interactions. In sum, substance abuse was associated with interactional patterns including negative reciprocity, verbal abuse, and negative attributions to partner’s behaviors.

**Child outcomes.** Research in this past decade firmly established that partners’ interaction is also strongly associated with a broad range of outcomes for other family members. For example, research suggests that children witnessing anger, even if it is not directed towards them are at risk for the development of social and emotional problems (Lemerise & Dodge, 1993) and tend to use negative behaviors such as physical aggression to cope (Cummings, Zahn-Waxler, & Radke-Yarrow, 1984). Similarly, Rogers and Holmbeck (1997) reported that more frequent and intense inter-parental aggression was associated with greater adjustment problems for children. Katz and
Gottman (1993) found that hostile interactions among parents were correlated with child externalizing behavior. Additionally, a father’s angry and withdrawn pattern correlated with child internalizing disorders.

Links have been noted between the couple relationship and child sibling relationships (Gottman, Katz, & Hooven, 1996). For example, Erel, Margolin, and John (1998) reported a significant positive association between the mother’s negative reports of her marital relationship, the mother-child relationship, and the siblings' observed negative interaction. In contrast, Volling and colleagues (Volling, McElwain, & Miller, 2002) found that a positive marital relationship was associated with sibling’s ability to regulate jealousy in sibling-mother interactions.

Marital distress also affects parent-child interactions. For example, Brody, Arias, and Fincham (1996) reported a link between negative marital attributions and ineffective parent-child communication, to the child's attributions for negative parental behavior. Margolin, Christensen, and John (1996) reported that distressed compared to non-distressed couples show greater continuance of negative tensions that transfers to parent-child interactions. On the contrary, Mahoney, Boggio, and Jouriles (1996) found that mothers were more empathic toward their child after an episode of marital conflict. In sum, the existing empirical evidence suggests that marital distress and associated interactional patterns between parents significantly impact various aspects of child development. These findings suggest that negative interactions have detrimental effect on all family members including children, even if the children are not directly involved in the interaction.
Conclusion. Over three decades of observational research have outlined interactional patterns among family members in distressed families. Despite the diverse findings from various aspects of these interactions, a general pattern seems to occur. Research findings consistently point to the following interactional patterns as characteristics of distressed families: 1) presence of particular forms of negativity, including hostility, verbal aggression, criticism, contempt, defensiveness, and stonewalling; 2) greater amount of negative than positive behaviors; 3) negative affect reciprocity; and 4) the demand-withdraw pattern. This association remains relatively stable, regardless of the nature of the distress (e.g. marital discord and individual’s psychological symptoms, such as depression and substance use). Moreover, it occurs in the communication among family members in distress regardless of their roles in the family (intimate partners or parent-child relationships). Possibly, interrupting these interactions can lead to better outcomes for all family members.

Relational Reframe and Relational Interpretation Techniques

Given that negative interactions among family members were found to be associated with family problems (e.g. Gottman, 1993; Fals-Stewart & Birchler, 1998; Johnson & Jacob, 2000), therapeutic techniques aiming to improve negative interactions may be particularly important elements of therapy, contributing to the effectiveness of the intervention. An example of such a technique is relational reframing (Robbins, Alexander, Newell, & Turner, 1996). The term reframe refers to a therapeutic technique which has origins in family systems therapy and the work of family therapy pioneers such as G. Bateson (1954), and M. Erickson (Ericson & Rossi, 1989). It is a communication technique used by the clinician to reveal an understanding of a behavior or situation from
another point of view (frame) so that a client is enabled to solve an existing problem. The premise is that the meaning of a particular behavior is derived based on the context or the frame in which it is perceived (Edwards, 1997). Reframing the context or changing the frame of reference by looking at the same situation from a different point of view, has the potential to change the meaning of the behavior, and thus the person’s response to it. In treatment, the therapist’s goal is to offer an alternative frame (reframe) of an existing behavior in context with the goal of changing the clients’ undesired behaviors. Relational reframes are a sub-set of reframes, which are used by family therapists for pointing to a systemic (not individual) frame or context. In other words, the therapist reveals how the problem is maintained by the system (e.g. all members of the family), rather than caused by a single individual. Such systemic understanding of the problem is thought to reduce negative interactions throughout the reduction of interpersonal blame and defensiveness (Robbins, Alexander, Newell, & Turner, 1996). An example of this technique is reframing parent’s overinvolvement as caring and worry for their child.

Another technique frequently utilized by therapists for changing clients’ understanding of an existing problem or behavior is relational interpretation. Originally, therapeutic interpretations were developed by psychodynamic therapists to address aspects of the client-therapist relationship (Freud, 1905). More recently scholars have relied on broader definitions of this technique. Specifically, interpretations were defined as interventions that bring material to consciousness that was previously out of awareness. This may be accomplished by pointing out themes, patterns or causal relationships in the client’s behavior or personality, making important links (e.g., between themes with significant others and themes with the therapist), and explaining or
drawing conclusions (e.g. Hill, 1978, Stiles, 1979). Relational interpretations are a sub-set of interpretations, referring to interventions that address interpersonal themes (Crits-Christoph, & Gibbons, 2001). For example, in some families, the child's symptomology (e.g. problems in school) may distract parents from facing their marital problems and thus reduce the couple's conflict. Pointing out how the child's manifested problems may maintain family togetherness is an example of a relational interpretation. Similar to relational reframes, relational interpretations provide a systemic, non-blaming attribution of the problem, which is thought to reduce negative interactions. In addition, these techniques provide an alternative view of the situation, which allows clients to develop new solutions to existing problems. Although both relational reframes and interpretations are commonly used by family therapists, few researchers have provided empirical evidence for their effectiveness in therapy. The following literature review discusses this line of research.

**Therapy Process Research**

As observational studies of interactions in distressed families outline dysfunctional interactional patterns, therapy process research examines how change in such interactions relate to change in treatment outcomes. Therapy process research refers to the study of the interaction between the clients and therapist with the goal of identifying the therapeutic change process (Bradley & Johnson, 2005). It provides a micro-analytic study of in-session interactions among participants, documents change in these interactions in relation to therapist interventions, as well as change in treatment outcomes.
**Clients’ response in session.** A series of studies have examined aspects of in-session interactions as predictors of clients’ engagement and treatment outcomes. For example, Diamond and Liddle (1996) examined core change processes with the goal to identify specific interventions for resolving highly negative, escalating in-session arguments between parents and their substance-abusing adolescents, participating in Multidimensional Family Therapy (MDFT). Task analysis, an intensive discovery oriented approach, was utilized to analyze in-session interactional sequences. The approach was used to specify problematic family interactions (i.e., blame, defensiveness) and intervention strategies, as well as discriminate successful from unsuccessful interventions. Successful shift was defined as redirecting the discussion from content (i.e., daily routines and behaviors) to interpersonal process (i.e., interpersonal problems and feelings). The descriptive analyses of five successful and five unsuccessful interventions were used to develop a sequential performance model of therapists’ and family members’ behaviors leading to improvement of the problematic interactions. The model suggested that adolescents became more cooperative, and engaged in treatment when parents shifted from trying to control them to trying to understand them. These findings support the hypothesis that treatment impasses thwart the therapeutic process and suggest that interventions that offer alternative meaning to old behaviors or issues are likely to be successful through stimulating deeper understanding and connection with other members of the family.

In a subsequent study, Diamond and Liddle (1999) documented the moment-to-moment process underlying parents’ and adolescents’ resolution of their impasses with special attention to therapist skills needed for a successful resolution of the impasse.
Impasse was defined as the unwillingness or inability of a parent and adolescent to have a constructive conversation regarding the parent's expectations about daily household routines. Therapists attempted to interrupt interactions that involved such themes through redirecting the conversation towards a discussion of the relationship and addressing underlying attachment issues. Results suggest that helping family members identify unaddressed interpersonal conflicts reduced unproductive, negative affect, led to more potent therapeutic content, and engaged family members in the therapy.

**Post-treatment outcomes.** Given that negative interactional patterns are associated with negative outcomes, it is expected that improving family interactions may help alleviate family symptomology. A limited number of studies suggests that interrupting clients’ negative interactional patterns are associated with better treatment outcomes. For example, Cordova, Jacobson, and Christensen (1998) examined change in couples’ communication in session over the course of treatment among 12 maritally distressed couples. These couples were randomly assigned to either Integrative Behavioral Couple Therapy (IBCT) or Traditional Behavioral Couple Therapy (TBCT) for 20 to 25 sessions from a total of five therapists. The aim of the study was to identify couples’ communication patterns specific to IBCT. Two early, two middle and two late sessions were coded on four 5-point scales, designed to measure soft expression (e.g., shame, loneliness, tenderness), detachment (engagement in non-blaming discussions of a mutual problem), hard expression (e.g., anger, hostility), and engaging in destructive interactions (e.g. arguing, or demand-withdraw). The results of the study suggested that those receiving IBCT showed a greater decrease in frequency of engaging in destructive interactions, as well as an increase in expression of soft emotions. Interestingly, treatment
outcomes were equivalent for both groups based on clients’ report on their marital satisfaction at the end of therapy. These results suggest that reduction of hostility and increase in expression of soft emotions are essential for the success of some therapeutic interventions but not others.

Another study on parent-child interactions examined shared positive affect among families of children on the autism spectrum as predictor of post-treatment outcomes (Solomon, Ono, Timmer, & Goodlin, 2008). Shared positive affect refers to moments where both child and parent are engaged in happiness, laughter, smiling, or affectionate touch. Outcomes were examined in terms of parent’s report on their own stress level, as well as children’s behavioral problems and adaptive functioning. Nineteen boys (age 5 to 12) and one of their parents were engaged to participate in Parent-Child Interaction Therapy, which included 10 family sessions and two meetings with the parent individually. For each participant, three 5-min segments (early, middle, and late treatment) were coded in 15-s increments for parent-child shared affect. The treatment was effective in reducing parent perceptions of the severity of child problem behaviors, and in improving their perceptions of child adaptive functioning. Shared positive affect increased between the initial and final phase of therapy, supporting the notion that an increase in positive interactions between parent and child is essential for successful treatment outcomes. Overall, findings from the studies examining in-session interactions suggest that interrupting clients’ negative interactional patterns (e.g. blaming, defensiveness, and hostility) is essential for successful treatment outcomes.

**Therapeutic techniques.** Studies on therapeutic techniques as part of the family therapy process are limited to families with adolescents with behavioral problems. For
example, Robbins, Alexander, Newell, and Turner (1996) compared the change in the valence of client’s response (ranging from very positive to very negative) as a function of therapists’ use of therapeutic techniques among 35 two-parent families with delinquent adolescents (ages 12 to 17) during the first Functional Family Therapy session. The coded techniques included in the analysis were reframes (non-blaming re-attributions), frames (reflections of the family members’ attributions about each other), and organizational statements (attempts to explain, structure, and direct family members’ interactions in the session). The interaction flow was segmented into speech acts: that is therapist and family members’ statements bound on both sides by another’s comment within the session. The sequence of therapist’s speech and clients’ responses was analyzed. Results indicated that mothers, fathers, and adolescents responded differently to therapist’s interventions. Specifically, organizational statements elicited the most positive responses from mothers, whereas adolescents’ responses were more negative. Adolescents’ average response was in the non-negative range only following a therapist’s reframe, but not following other statements. The findings from this study support the use of reframe for interrupting negativity among delinquent adolescents.

In a subsequent study, Robbins, Alexander, and Turner (2000) compared the effectiveness of therapist’s interventions for reducing family members’ defensive communications. The studied interventions included relational reframing, frame (reflections of the family members’ attributions about each other), acknowledgement statements, prompt (therapist’s attempt to elicit word-for-word reiteration of the client defensive speech that immediately proceeded the therapist’s statement), and organizational statements (interventions eliciting structure). Defensive statements
included criticism, blame, or disagreement with other family members. Family member’s responses were segmented into speech acts and coded as supportive and defensive, regardless of who made them. Sequences of behaviors following clients’ defensive communication were analyzed to determine which therapist’s intervention was most successful at interrupting the defensive family interaction. As expected, results indicated that reframing was followed by a significantly lower proportion of defensive behaviors compared to all other interventions.

The use of reframes for interrupting family members’ negative interactions was supported by the findings of another research team. Specifically, Diamond, Siqueland, and Diamond (2003) examined the effect of therapist’s reframes on clients’ attributions (intrapersonal versus interpersonal) among 16 adolescents and their parents in the context of Attachment Based Family Therapy treatment for adolescent depression. They found that after therapist’s use of reframes, parents were likely to shift the problem attribution from individual problem focus (which is theorized to be associated with intrapersonal blame and criticism) to a more relational view of the problem (reducing blame and criticism). The authors speculated that the reframes facilitate and maintain a cognitive shift in clients’ problem construction (from intrapersonal to interpersonal), which is an essential step in the healing process.

The findings from all three studies support the use of reframes in treatment with adolescents and their families. Significant change in clients’ interactions before and after therapist’s reframes was documented during the session. Although these are important findings, they are based on a limited number of studies including small sample sizes. Thus, replication of findings is needed to examine the generalizability of the existing
findings across other settings, clients, and treatment modalities. Moreover, the relationship between in-session interactions and post-treatment outcomes remains unknown, calling for further examination. In addition, more research is needed to examine and compare the utility of other family therapy techniques for interrupting negative interactional patterns.

The relational reframing technique is theorized to work by the therapist suggesting an alternative understanding of the existing problems and behaviors in the family. Therapist’s use of the relational reframe may impact client’s interactions by altering the causal attributions that they assign to existing problems and behaviors. Other techniques, such as relational interpretations are also thought to alter client’s perception of the presenting problem or situation from an individual to systemic understanding (Crits-Christoph, & Gibbons, 2001). Thus, therapist’s use of relational interpretations is also likely to be effective at reducing client’s negativity and ultimately improving communication and outcomes. Unfortunately, no research to date has examined client’s responses to this technique in session.

**Gaps in the Literature**

Although therapy process research is on the rise, the number of studies is very limited and more research is needed to address the gaps in the literature. First, very few therapeutic techniques used by therapists to initiate change in clients’ interactions were identified. Other techniques, such as relational interpretations should be examined as well given their potential for impacting family interactions. Second, most studies have documented changes in client’s interactions as a response to the therapist’s intervention during the session but it is unknown if these in-session changes are related to changes in
the targeted outcome variables, such as substance use, depressive symptoms, and conflict tactics. Third, possibly, relational reframes are effective only in the context of certain treatment modalities or populations but not in others. Thus, documenting the impact of in-session treatment techniques on client behavior must be done across a variety of treatment modalities and populations, and its relationship to targeted outcome behaviors needs to be examined.

**Runaways**

Findings from process research focused on effectiveness of therapeutic techniques can be used to improve treatment effectiveness and thus, such research is particularly important for treatments intended for populations that are hard to treat, such as runaways and their parents. These families have been described as difficult to engage and maintain in treatment (Morrissette, 1992; Smart & Ogborne, 1994) and have been considered “difficult to work with” (Kufeldt & Nimmo, 1987). In addition, research suggests that running away from home is associated with a multitude of other problems such as mental health problems including depression (Stewart et al., 2004), substance use (Elkington, Bauermeister, & Zimmerman, 2010), behavioral problems, elevated risk of sexually transmitted diseases and pregnancy, family conflict (e.g. Toro & Goldstein, 2000), victimization (Tyler et al., 2001), and engaging in delinquent or illegal activities, including stealing, prostitution, and dealing drugs (Elkington, Bauermeister, & Zimmerman, 2010). Thus, identifying effective aspects of the treatment process with these families is an essential step towards improving services for these vulnerable youth.

Runaway adolescents are defined as minors who have spent at least one night away from home without parental permission (Hammer, Finkelhor, and Sedlack 2002).
Unlike street living adolescents, runaway adolescents rarely spend a night on the streets; they stay with friends, relatives, or in runaway shelters. Those utilizing the shelters are typically returned home within few days or may be placed in an alternative housing situation (e.g. foster family) if reunification with the family is not possible. According to the Second National Incidence Studies of Missing, Abducted, Runaway, and Thrownaway Children (NISMART-2), approximately 1.7 million adolescents ran away from home in 1999 (Hammer, Finkelhor, and Sedlack 2002). This translates into approximately 6.9 percent of adolescents ages 12 to 17 at that time. These numbers are alarming considering the high rates of risks associated with running away from home.

The runaway adolescent population consists of slightly more females than males and the majority are age 13 or older (e.g., Heinze, Toro, & Urberg, 2004). There have been contradictory findings with respect to race and ethnicity. Some studies indicate that racial and ethnic minority adolescents are over-represented (McCaskill, Toro, & Wolfe, 1998). Compared to heterosexual homeless adolescents, gay, lesbian, bisexual, and transgender adolescents run away from home more frequently (Cochran et al., 2002). In addition, runaway adolescents often have a history of academic and school behavior problems, as well as high drop-out rates (Toro & Goldstein, 2000). The families of runaway adolescents, compared to those of their housed peers, seem to live in low-income communities, characterized by frequent patterns of residential instability (Toro & Goldstein, 2000).

Research suggests that most runaways are not running to some place, but rather, they are running from a negative family situation. Adolescents consistently report significantly higher levels of family conflict compared to housed adolescents, and
identify conflict as the primary reason for leaving home (Toro & Goldstein, 2000). Such conflicts seem to reflect longstanding patterns rather than problems that arise just before adolescents leave home (Smollar, 1999). These findings suggest that family interventions aiming to improve dysfunctional family interactions may be effective at decreasing the likelihood of further runaway episodes among these adolescents.

**Treatment Interventions for Runaway Adolescents**

Despite the challenges presented to treatment providers by runaways and their parents, researchers have identified a family therapy treatment for these families. Based on two clinical trials, Slesnick and Prestopnik (2005; 2009) have documented the effectiveness of Ecologically Based Family Therapy (EBFT). Treatment outcomes were reported with runaway adolescents between the ages of 12 to 17 with a primary psychoactive substance use diagnosis and their primary caregivers. EBFT is a comprehensive substance use and mental health treatment intervention for youth temporary residing at a runaway shelter. It is the only family therapy approach that has been empirically tested in randomized clinical trials with this population, and relational reframes and interpretations are an integral part of the model. Given that the present study focuses on the effectiveness of these techniques during family therapy, the inclusion of the EBFT is particularly appropriate.

In 2005 Slesnick and Prestopnik published the findings of the first study evaluating the effectiveness of the EBFT approach. Runaway adolescents (n = 124) were randomly assigned to EBFT (N = 59) or Treatment as Usual (TAU; N = 65). TAU included crisis intervention counseling and/or case management provided through the shelter. Both adolescents and their primary parent completed an intake, post-treatment, 6
and 12 month follow-up assessment. Adolescents assigned to EBFT reported greater reductions in overall substance abuse compared to adolescents assigned to TAU while other problem areas improved in both conditions.

In another study, 119 adolescents and their primary caretakers were recruited from two runaway shelters and assigned to either: 1) home-based EBFT, 2) office-based Functional Family Therapy (FFT), or 3) TAU through the shelter (Slesnick & Prestopnik, 2009). Findings showed that both home-based EBFT and office-based FFT significantly reduced alcohol and drug use compared to TAU at 15-months post-baseline. All three conditions showed improvements across areas of family functioning (verbal aggression, family cohesion and conflict), and psychological functioning (psychiatric diagnoses, externalizing problems, delinquent behaviors, and days living at home). However, significant differences among the home and office-based intervention were found for treatment engagement. Significantly lower treatment refusal and higher engagement and treatment retention rates were found for those in home-based EBFT as compared to office-based FFT. The authors concluded that family therapy has a strong impact on reducing days of alcohol and drug use compared to individual interventions, and support the utilization of home-based interventions with this population. Furthermore, EBFT appears to be an efficacious intervention for this relatively severe population of adolescents. These findings are essential steps towards identifying effective treatments for this underserved population but more research is needed. For example, therapy process research can be employed to identify essential components of EBFT, which can be used to optimize the existing intervention and direct future interventions. That is
identifying essential factors associated with change can be useful when working with these families regardless of the specific family therapy model.

**Current Study**

The aim of the present study is to examine the effect of family therapy techniques, namely relational reframes and interpretations, on clients’ attitude (positive versus negative) among a sample of substance abusing runaway adolescents and their parents. Although, no research has documented the interactional patterns in these families, knowledge from the existing studies on marital and parent-child interactional patterns was used to develop specific hypotheses regarding the interactional patterns among the runaway adolescents, and their parents.

The first specific goal of the study is to examine client’s response to therapist’s reframes and interpretations during sessions, and also how it varies over the course of treatment. Although no research has examined the use of relational interpretations in therapy, it is expected that similar to therapist’s use of reframes (e.g. Robbins, Alexander, & Turner, 2000), the use of relational interpretations by the therapist will serve to decrease family members’ negative interactions, given that both techniques aim to redirect client’s attributions from individual deficiency towards a non-blaming systemic understanding of the presenting problem. **Thus, the first hypothesis is that the probability of positive (versus negative or neutral) adolescent and parent verbalizations following therapist’s relational reframes and interpretations will be significantly higher than the base rate (probability of occurrence of a particular code, such as positive verbalization, given the frequency of occurrence of all other**
codes) of clients positive verbalizations occurring after therapist’s interventions
within any given session.

As previous research suggests, negative interactions, such as hostility and rejection of the other person’s view are associated with maladaptive causal attributions (e.g. Bakeman & Gottman, 1997). Given that relational interpretations and reframes are therapeutic techniques aiming to offer new meaning of an existing problem or situation (Crits-Christoph, & Gibbons, 2001; Robbins, Alexander, Newell, & Turner, 1996), therapist’s continuous use of these techniques is expected to shift client’s attributions from interpersonal blame towards a systemic understanding of the problem. Therefore, client’s negative verbalizations are expected to decrease and positive verbalizations to increase over time, assuming that the therapist utilizes relational reframes and interpretations in therapy. Given that the conditional probabilities of clients’ responding positively (versus negatively or neutral) after therapist’s reframes and interpretations are estimated based on the base rates of clients’ positive responses, the value of the conditional probabilities will decrease with the increase of the base rates. Specifically the conditional probabilities refer to the frequency of the clients’ positive verbalizations given, the therapist’s reframe and interpretation divided by the base rate (probability of occurrence given the frequency of occurrence of all other codes) of the clients’ positive verbalizations. Thus, the second hypothesis of this study is that the probability of clients’ positive verbalizations following therapist’s reframes and relational interpretations will decrease over the course of therapy (from session 1 to 12).

The second specific goal of the study is to examine how the use of therapeutic techniques in session influences change in family functioning after the completion of
treatment. The conditional probabilities of clients’ responding positively (vs. negatively or neutrally) following therapists reframes and interpretation during the last session will be used to predict post treatment outcomes. The rationale is that clients’ response to therapist’s reframes and interpretations in the last session ultimately reflects clients’ progress in therapy in terms of ability to adopt systemic, non-blaming attributions to other person’s behaviors. Therefore, the third hypothesis is that higher probabilities of adolescent’s and parent’s positive verbalizations following therapist’s reframes and interpretations in the last session will predict change in the parent-adolescent conflict strategies, adolescent’s substance use and depressive symptoms at 3, 6, 9, 12, 18 and 24 months post-baseline. Specifically, it is expected that clients’ positive verbalizations after therapist’s reframes or interpretations will be associated with less severe depressive symptoms, as well as less adolescent alcohol and drug use and improved parent-child conflict tactics. These expectations are consistent with Bateson’s theoretical premises, suggesting that family communication interactions are the primary determinant of individual’s psychological and physiological well-being (1972).

This study will contribute to the existing literature in several ways. First, it will employ a sequential analysis for examining the effectiveness of therapeutic techniques, which provides a unique understanding of the therapeutic process that cannot be documented with non-process oriented approaches. Despite the suitability of the sequential analysis for studying the therapeutic process (Bakeman & Gottman, 1997), it has been infrequently utilized for examining the effectiveness of therapeutic techniques in systemic interventions because it is time and resource consuming. Next, this will be the first study to examine clients’ response to therapist’s relational interpretations.
Furthermore, this will be the first study to examine the utility of relational reframes and interpretations for reducing family conflict, adolescent’s substance use, and depressive symptoms post treatment. Given the lack of empirical evidence for the effectiveness of these commonly used techniques, such research is much needed to support their utility. Finally, this study will contribute to the limited number of studies employing runaways and their families. The findings can be utilized to inform treatment developers and service providers working with such difficult to treat population.
Chapter 3: Methodology

Participants

Participants (n = 30 families) were recruited as part of a larger clinical trial comparing adolescent substance abuse interventions with runaway adolescents and their families (n = 180 families). Adolescent participants for the larger study were between the ages of 12-17 years (M = 15.5, SD = 1.2), were temporarily residing at a local runaway shelter, had the legal option of returning home, had at least one parent or legal guardian willing to participate, and met DSM-IV (American Psychiatric Association, 2000) criteria for substance abuse or dependence.

Materials

Demographics. The research assistant administered a demographic questionnaire to characterize the sample. These demographic items included parents’ and adolescents’ age, gender, ethnicity, history of arrests, and education. In addition, parents also reported their relationship to the adolescent, current employment status, total annual income, and current marital/relationship status. Adolescents reported number of runaway episodes, history of sexual abuse, number of arrests, and school enrollment status. Means and standard deviations for each variable are reported in the results section.

Depressive symptoms. The Beck Depression Inventory (BDI; Beck et al., 1961) was utilized to identify symptoms of depression. The BDI is most frequently used self-report instrument for assessment of mood, cognitive and somatic aspects of depression.
The instrument includes 21 self-reported items for measuring depressive symptoms in adults and adolescents age 13 and above. The items are scored using a four-point Likert scale describing different degrees of intensity of feelings (e.g., 0 = I do not feel sad; 3 = I feel so sad that I can’t stand it). The BDI has been used with homeless youth (Maxwell, 1992; Miner, 1991), and has shown good psychometric properties. Beck et al. (1996) reported a test–retest correlation of .93. Estimates of internal consistency and test-retest reliability are high and the measure appears sensitive to depression severity across community and clinical populations (Norman et al., 1983; Rush et al., 1986). The BDI is copyrighted, thus the instrument cannot be appended.

**Substance use.** The Form-90 (Miller, 1996) was used to assess frequency of adolescent’s alcohol and drug use 90 days prior to the last day of substance use before the baseline assessment. At follow up interviews adolescents reported on their alcohol and drug use for the period of time between the previous assessment and the current assessment date. The Form-90 (Miller, 1996) is a semi-structured timeline follow-back interview, which uses a calendar method developed to evaluate daily patterns and frequency of substance use (Sobell & Sobell, 1992). It yields a daily reconstruction of all drug classes and provides a percentage for days of all drug and alcohol use (in the prior 90 days). The instrument has shown excellent test–retest reliability for indices of substance use in major categories (Tonigan, Miller, & Brown, 1997; Westerberg, Miller, & Tonigan, 1999) with Cohen kappa’s for different drug classes ranging from .74 to 1.0. The Form-90 baseline as well as follow-up interview questionnaires can be found in Appendix A.
**Conflict Tactics Scale.** The Conflict Tactics Scale (CTS; Straus, 1979) is a structured, behavioral measure designed to assess the occurrence of various methods of conflict resolution in close relationships. In the current study, the scale total score will be utilized to assess the conflict resolution tactics which were used to resolve conflict between adolescents and their parent. Adolescents reported how often during the past 3 months they used each of the strategies with their parent, and how often their parent used the strategies with them, using a 7-point Likert-type scale ranging from 0 (never) to 6 (more than 20 times). Likewise, parents rated how often they used each strategy with adolescents, and how often adolescents used the strategies with parents. The list of behaviors includes non-aggressive resolution (e.g., “discuss the issue calmly”), verbal aggression (e.g., insulted or swore at the other”), and physical aggression (e.g., “pushed, grabbed or shoved the other”). Reliability coefficients (Cronbach’s alpha) from a large national probability sample ranged from .69 to .78 (Straus, 1979). The form has been previously used with other samples of high risk adolescents (e.g. Tyler, Johnson, & Brownridge, 2008). Given the high level of conflict among runaway adolescent families, this instrument provides relevant information regarding the resolution of family conflict. Both parent and adolescent scores were used in the present study. The questionnaires for both the youth and parents can be found in Appendix A.

**Procedure**

Collecting the data for this study was approved by The Ohio State University Institutional Review Board. A research assistant engaged adolescents who were staying at the runaway shelter. After an initial screening to determine eligibility and interest, the adolescent’s consent to contact their parents was obtained, and the research assistant
contacted the adolescent’s parent or legal guardian. If the parent agreed to participate and provided written consent, initial assessments for both parent and adolescent were scheduled within 24 hours when possible. During the initial assessment interview, written assent was obtained from the adolescent and the research assistant administered the Computerized Diagnostic Interview Schedule for Children (CDISC; Shaffer, 1992), sections on drugs, alcohol, and psychosis to determine formal eligibility. Adolescents not meeting eligibility criteria continued with treatment as usual through the runaway shelter. Upon completion of the baseline assessment, adolescents were randomly assigned to one of three treatment conditions: 1) Motivational Enhancement Therapy (MET, two sessions), 2) the Community Reinforcement Approach (CRA, 12 sessions), or 3) Ecologically-Based Family Therapy (EBFT, 12 sessions). Clients in all treatment condition were offered two HIV prevention sessions as well. Therapy sessions were offered during the first 6 month post-baseline. For the purposes of the present study, only participants who were assigned to EBFT treatment were included.

A research assistant administered the assessment interviews to both adolescents and the parent at baseline, mid-treatment (three months), and post-treatment (6, 12, 18, and 24 months). Given that of interest are clients’ outcomes after the completion of treatment, mid-treatment data will not be included in the analysis. The assessment interviews required approximately 2.5 hours for the adolescents and 1.5 hours for the parent to complete. All participants were compensated for their participation accordingly; adolescents were offered a $40 giftcard and parents were offered $25.

Treatment
Ecologically Based Family Therapy (EBFT) is a family systems intervention, based largely on family systems conceptualizations of family processes and change combined with concepts from Bronfenbrenner’s theory of social ecology (1979). It posits that problems can be maintained by problematic interactions within any given system or between some combination of systems, including the intrapersonal system of the individual, the family system and friends, as well as extrapersonal systems such as the legal system, schools, and community. The EBFT therapist pays special attention to the interactional cycle among the various subsystems that constitute the larger system in which the presented problem is embedded and helps the clients see the problem in terms of dysfunctional interactional cycle rather than individual’s deficiency. Recognition of the interpersonal nature of the presented issue is facilitated by the therapist’s use of relational interpretations and reframes of clients’ negative attributions (e.g. blame of self or others). The primary goal is to create a corrective emotional foundation and set of skills for use in social interactions within and across systems. To this aim, the presence of all members of the pertinent systems is recommended but not imperative; EBFT may include sessions held conjointly with all family members living in the home, but also includes individual sessions with the adolescents or parent(s). The intervention was home-based and was to be completed within 6 months post baseline assessment interview. EBFT has shown efficacy for reducing substance use and improving psychological and family functioning in prior clinical trials (Slesnick & Prestopnik, 2005; Slesnick & Prestopnic, 2009).

Treatment was provided by three therapists. Therapists included one male and two females, all of which had prior formal training in couples and family therapy. To ensure
that therapists were reliably providing therapy consistent with the EBFT model, adherence to the model was rated over the course of the treatment and used for supervision purposes.

All therapy sessions were recorded for research and supervision purposes with clients’ consent. Exceptions were made in cases of malfunctioning equipment. Clients who participated in EBFT treatment (n = 59) completed 6.8 sessions on average (SD = 5.66). The current study only examined data from families that completed at least three sessions (n = 33). Although therapist’s interventions are expected to impact client’s immediate response even during the first session, less than three sessions may not be sufficient to impact significantly clients’ interactions over time. Thus, similar to Clark et al. (1994) families that attended two or fewer sessions were considered dropouts and were not included in the analysis.

In the interest of time and labor efficiency, only a sample of all session tapes was transcribed and coded for each family. In order to examine therapist’s use of reframes and relational interpretations, and clients’ response to them over the course of treatment, sessions from three treatment points were utilized. For clients who completed the entire course of treatment (n=33), these points include beginning of treatment (first session), mid treatment (session seven or eight), and end of treatment (last session). For clients who did not complete the all possible EBFT sessions, the last recorded session was included in the analysis as the end of treatment point. In cases of missing audio recording data, the next session before or after the designated tape was transcribed and coded.

**Observational Analysis and Coding System**
All therapy sessions that were included in the analysis were transcribed verbatim and coded. Speech turn was the unit of analysis for all verbal behaviors. First, all therapist speech turns were identified and coded. Although, all client’s verbalizations (either adolescent’s or parent’s) were coded, only the verbalizations occurring after the therapist’s speech act were used to document a continuous record of how therapist’s speech and different verbalizations were sequenced in the conversation.

Adolescent’s and parent’s speech turns were coded using the LIFE (Living in Familial Environments) coding system (Arthur, Hops, & Biglan, 1982). This coding system has been used in prior research to code parent-child communication behaviors in samples of families with at risk adolescents (e.g. Sheeber, Davis, Leve, Hops, & Tildesley, 2007; Pineda, Cole, & Bruce, 2007; Yap, Schwartz, Byrne, Simmons, & Allen, 2010). Support for the construct validity of LIFE comes from the research of Biglan and his colleagues (Biglan, et al., 1985).

The LIFE coding system contains 15 content codes referring to verbal behaviors, grouped conceptually into nine different code categories depending upon the effect of the verbal expression represented by the code (see Appendix B). These categories are: 1) facilitative (includes facilitative and solicitous codes), 2) distancing (includes compliant, oppositional, and negative substance thoughts codes), 3) directive (includes command, command unaccountable, help me, help me unaccountable, comply, and noncomply codes), 4) self (includes self-positive, self-compliant, and pain verbal codes), 5) conversation tactics (includes conversation tactics codes), 6) problem solving (includes problem statement and propose solution codes), 7) guidance (teach), 8) second order (includes attend and talk codes), and 9) non-behaviors (includes inaudible and dummy
Given that the main focus of the study was on client’s negative verbalizations, all codes of clients’ verbalizations were collapsed into two codes, negative or others (positive and neutral). A negative code included any of the following: complaint, oppositional, command unaccountable, or self-complaint. A positive or neutral code included any of the remaining codes.

A coding system was developed to code the therapist’s speech, given that no coding system that includes codes for relational reframes and interpretations has been published to date. This coding system was developed following as closely as possible Bakeman and Gottman (1997) recommendations. It included three mutually exclusive and exhaustive codes: 1) relational reframe, 2) relational interpretation, and 3) all other therapist’s speech that does not meet criteria as reframes or relational interpretations, including inaudible speech. The coding schema was developed based on the adopted definitions of relational reframes and interpretations as used in previous research (Crits-Christoph, & Gibbons, 2001; Robbins, Alexander, Newell, & Turner, 1996). A manual was produced and continuously refined until the independent coders of therapist speech reached a sufficient level of agreement. Examples of relational reframes and interpretations can be found in Appendix C.

**Coder Training**

Observer reliability refers to the likelihood that all observers will produce identical codes, given that they observed the same stream of behavior. A major concern for observational studies is to ensure that the data collected do not vary as a function of the observer (Bakeman & Gottman, 1997). This means that all observers need to be calibrated with each other, and against some standard. In addition, individual coder
reliability needs to be consistent over time. Failure to establish appropriate observer reliability may compromise the reliability and limit the statistical power of the coded data (Bakeman & Gottman, 1997).

Coder training was done by the author. Two advanced undergraduate students were trained to code with the LIFE coding system according to the LIFE coding book. In addition, a graduate student was trained to code therapist speech for relational interpretations and reframes. Given that the primary coder is the study investigator, 51% of the transcripts were coded by the secondary coder to reduce the chances of contaminating the data by personal biases. All coders (with the exception of the author) were compensated for the time they have spent coding. During the training, the codebooks were reviewed and each code’s meaning was discussed and clarified. Coders practiced on mock transcripts provided in the coding manual. Each coder was given the same mock transcript to code, and when coders obtained an inter-rater reliability of 80% with each other and the graduate student, coding of actual transcripts began.

Coders overall agreement with each other and the trainer was estimated using Cohen’s kappa (Cohen, 1988) statistics. Cohen’s kappa coefficient was chosen because it demonstrates point-by-point agreement and also accounts for chance agreement (removes chance from the numerator and denominator of the percentage agreement ratio) (Bakeman & Gottman, 1997). In order to receive a transcript to code, the coder had to agree at a rate of 70% with each other. Similar to Urquiza and Timmer (2002), Cohen’s Kappa was determined based on a randomly selected sample including 20% of the transcripts, which were coded by both coders. If they fail to receive an inter-rater reliability of .70, the codes were reviewed and the transcript recoded.
Overview of the Analysis

**Preliminary analysis.** Exploratory data analysis was conducted to assess assumptions on which statistical inference were based, such as the normality of the data distribution (Field, 2005). Descriptive statistics were used to describe the main features of the data, such as means and standard deviations for all variables (Field, 2005). In addition, the frequency and rates (per session) of therapist’s reframes and interpretations were calculated (Bakeman & Gottman, 1997).

**Sequential analysis.** In the present study, a sequential analysis was applied according to Bakeman and Quera’s (2011) recommendations using The Generalized Sequential Querier program (Version 5.1.10). Coded data were used to compute two types of variables: unconditional probabilities and conditional probabilities to describe aspects of the sequential observational data. The unconditional probability (P) of a given behavior is its base rate. For example, the unconditional probability of adolescent’s positive verbalization (Ap) is the total number of positive verbalizations divided by the total number of all verbalizations for the adolescent (Atot) in a given session. Thus, the formula in this example is:

\[
P (Ap) = \frac{Ap}{Atot}
\]

The conditional probability is the likelihood of a particular behavior occurring after another behavior. For example, the conditional probability of an adolescent’s positive verbalization (Ap) occurring after the therapist’s reframe (Ap|Tr) is the frequency of the adolescent’s positive verbalizations following, or given, the therapist’s reframe (Tr → Ap) divided by the base rate of the adolescent’s positive verbalization. The formula for this conditional probability is:
\[ P(\text{Ap|Tr}) = \frac{\text{Ap|Tr}}{\text{Ap}} \]

All probabilities were calculated for adolescent and parent separately. Unconditional probabilities or base rates were calculated for clients’ total positive verbalizations. Four conditional probabilities were calculated including: 1) parent’s positive verbalization after therapist’s reframe, 2) parent’s positive verbalization after therapist’s relational interpretations, 3) adolescent’s positive verbalization after therapist’s reframe, and 4) adolescent’s positive verbalization after therapist’s relational interpretations. Conditional probabilities reflect target behavior frequencies but they are not comparable over sessions. For this reason, the conditional probabilities were converted into z-scores (adjusted residuals) in order to compare differences across sessions and clients (Bakeman & Quera, 2011). The z-score is a criterion for statistical significance; it provides a normalized measure of the difference between the conditional verbalization of a client to the therapist’s intervention (reframe or relational interpretation) in comparison with the client’s base rate, while correcting for sample size. It is positive if the observed is greater than chance and negative if the observed is less than chance (Bakeman & Quera, 2011).

**Multi-level analysis.** Multi-level analysis or Hierarchical Linear Modeling (HLM) was utilized for analyzing clients’ post-treatment outcomes. As an advanced form of simple linear regression and multiple linear regression, it allows variance in outcome variables to be analyzed at multiple hierarchical levels (Kenny, Kashy and Cook, 2006). It is suitable for analyzing non-independent, nested data. For repeated measures analysis, time was considered as another level which occurs within participants.
Hierarchical Linear Modeling with two levels was utilized to examine change over time in post-treatment outcomes, as predicted by probabilities of client’s positive verbalizations following therapist’s reframes or interpretations. As proposed by Kenny, Kashy and Cook (2006), the dependent variables (frequency of drug and alcohol use, depressive symptoms, and conflict tactics scale scores) were entered at level one which includes data from all assessment points (baseline, 3, 6, 9, 12, 18 and 24 months). A separate model was run for each measure (dependent variable), including CTS, depressive symptoms, and frequency of alcohol and drug use. The conditional probabilities of parent’s and adolescent’s positive verbalization following the therapist’s reframe/relational interpretation in the final session attended were entered at level two. The results showed how the variance in the independent variables at level two impacts change in the variables at level one (dependent variables) over time. In other words, family therapy process variables were used to predict change over time in adolescent’s substance use, adolescent’s depressive symptoms, and conflict tactics used by parent and adolescent.
Chapter 4: Results

Preliminary Analysis

Therapy sessions. The 33 families who completed three or more sessions yielded 84 recorded sessions that fit the inclusion criteria. However, not all transcripts included relational reframes and interpretations. Only 22 families received treatment that included the interventions of interest, thus, 11 families were excluded from the analysis. A total of 58 sessions was analyzed, out of which 22 were beginning of treatment sessions, 21 were mid-treatment sessions (or end of treatment for families who dropped out) and 15 were end of treatment sessions for treatment completers. The average number of EBFT sessions completed by the families was 10.45 ($SD = 2.41$; range = 5–12).

Adolescent and parent characteristics. Table 1 presents participant characteristics. Of the 22 adolescents, 45.5% ($n = 10$) were male, while only 22.7% of the parents were male ($n = 5$). The average age was 15.50 ($SD = 1.10$) years for adolescents and 42.14 ($SD = 5.91$) years for parents. More than half of the families included African-American or other minority members. Specifically, 16 (72.7%) adolescents and 17 (77.3%) parents identified themselves as non-White. The majority of the parents ($n = 19$, 86.4%) were single and all but one was the adolescent’s biological parent. In this case, adolescent’s aunt was the primary caregiver. Many of the adolescents ($n = 12$, 55%) reported more than one runaway episode ($M = 2.86$; $SD = 2.56$) and almost half ($n = 10$, 45.5%) reported a history of sexual abuse. An equal number of
Table 1. Variable means and standard deviations at baseline (n = 22 dyads).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adolescents</th>
<th>Parent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)/n (%)</td>
<td>M (SD)/n (%)</td>
</tr>
<tr>
<td>Gender (Female)</td>
<td>12 (54.5)</td>
<td>17 (77.3)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>6 (27.3)</td>
<td>5 (22.7)</td>
</tr>
<tr>
<td>African-American or other minority</td>
<td>16 (72.7)</td>
<td>17 (77.3)</td>
</tr>
<tr>
<td>Age</td>
<td>15.50 (1.10)</td>
<td>42.14 (5.91)</td>
</tr>
<tr>
<td></td>
<td>range 13-17</td>
<td>range 30-53</td>
</tr>
<tr>
<td>Education (Years)</td>
<td>9.10 (1.21)</td>
<td>12.31 (2.03)</td>
</tr>
<tr>
<td>Currently In School/Employed</td>
<td>15 (68.2)</td>
<td>18 (81.8)</td>
</tr>
<tr>
<td># of Single-parent Families</td>
<td>19 (86.4)</td>
<td></td>
</tr>
<tr>
<td># of Runaway Episodes</td>
<td>2.86 (2.56)</td>
<td></td>
</tr>
<tr>
<td># Ever Arrested</td>
<td>8 (36.4)</td>
<td>8 (36.4)</td>
</tr>
<tr>
<td># with History of Sexual Abuse</td>
<td>10 (45.5)</td>
<td></td>
</tr>
<tr>
<td>BDI Total Score</td>
<td>16.18 (13.42)*</td>
<td></td>
</tr>
<tr>
<td>Freq. of Alcohol and Sub. Use (% days)</td>
<td>29.96 (32.81)*</td>
<td></td>
</tr>
<tr>
<td>CTS Total Score (Adolescent Report)</td>
<td>25.71 (13.38)*</td>
<td>25.86 (17.05)*</td>
</tr>
<tr>
<td>CTS Total Score (Parent Report)</td>
<td>27.83 (16.10)</td>
<td>27.23 (19.20)</td>
</tr>
<tr>
<td># of Sessions Completed</td>
<td>10.38 (2.44)</td>
<td></td>
</tr>
<tr>
<td>Conditional probability of clients’ positive verbalizations given therapist’s reframes and interpretations (z-score)</td>
<td>1.80 (2.23)*</td>
<td></td>
</tr>
</tbody>
</table>

* Variable is log-transformed
parents and adolescents ($n = 8; 36.4\%$) reported a history of prior arrests. Most of the adolescents were currently enrolled in school ($n = 15; 68.2\%$) and had completed 9.10 years of education on average ($SD = 1.21$). Most of the parents were employed at the time of the assessment ($n = 18; 81.8\%$), and had completed 12.31 years of education ($SD = 2.03$). The most commonly reported annual income ranged from $5,001 to $15,000 ($n = 6; .27\%$). Few families reported an annual income of less than $5,000 ($n = 2; .09\%$) or more than $45,001 ($n = 3; .13\%$).

**Sequential Analysis**

The sequential analysis for this study was conducted using The Generalized Sequential Querier (Version 5.1.10; Bakeman & Quera, 2011), which analyzes sequential observational data. First, the base rates (proportions) of the parents’ and adolescents’ positive, negative and neutral verbalizations, as well as the therapists’ relational reframes and interpretations were computed. The results are reported in Table 2. Second, the conditional probabilities of clients’ positive verbalizations following therapists’ relational reframes or interpretations were computed. Adolescents were more likely to respond positively following the therapist’s relational interpretations ($P (Ap|Ti) = .09; Zij = 3.60; p < .01$) and reframes ($P (Ap|Tr) = .10; Zij = 4.10; p < .01$) compared to all other verbalizations. Similarly, their parents were significantly more likely to respond positively following the therapist’s relational interpretations ($P (Pp|Ti) = .20; Zij = 5.14; p < .01$) and reframes ($P (Pp|Tr) = .422; Zij = 4.22; p < .01$) compared to all other verbalizations.
Table 2. Base rates of parent, adolescent, and therapist speech (mean scores).

<table>
<thead>
<tr>
<th>Speech Act</th>
<th>All sessions (n = 58)</th>
<th>Beg. of Tx (n = 22)</th>
<th>Mid Tx (n = 21)</th>
<th>End of Tx (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Therapist Ref.</td>
<td>143</td>
<td>63</td>
<td>65</td>
<td>15</td>
</tr>
<tr>
<td># of Therapist Interp.</td>
<td>129</td>
<td>48</td>
<td>73</td>
<td>8</td>
</tr>
<tr>
<td># of Therapist Interp./Ref.</td>
<td>272</td>
<td>111</td>
<td>138</td>
<td>23</td>
</tr>
<tr>
<td># of All Other Therapist Speech</td>
<td>10,979</td>
<td>4,121</td>
<td>4,137</td>
<td>2,701</td>
</tr>
<tr>
<td># of Parent Pos. Verb.</td>
<td>1,026</td>
<td>341</td>
<td>458</td>
<td>224</td>
</tr>
<tr>
<td># of Parent Neg. Verb.</td>
<td>1,764</td>
<td>550</td>
<td>787</td>
<td>427</td>
</tr>
<tr>
<td># of Parent Neu. Verb.</td>
<td>6,298</td>
<td>2,374</td>
<td>2,386</td>
<td>1,531</td>
</tr>
<tr>
<td># of Adolescent Pos. Verb.</td>
<td>510</td>
<td>228</td>
<td>125</td>
<td>156</td>
</tr>
<tr>
<td># of Adolescent Neg. Verb.</td>
<td>3,824</td>
<td>387</td>
<td>497</td>
<td>354</td>
</tr>
<tr>
<td># of Adolescent Neu. Verb.</td>
<td>3,824</td>
<td>1,544</td>
<td>1,187</td>
<td>1,080</td>
</tr>
<tr>
<td># of Family Pos. Verb.</td>
<td>1536</td>
<td>569</td>
<td>583</td>
<td>380</td>
</tr>
<tr>
<td># of All Other Family Verb.</td>
<td>13127</td>
<td>4855</td>
<td>4857</td>
<td>3392</td>
</tr>
<tr>
<td>Total Number of Verbalizations</td>
<td>25,914</td>
<td>9,656</td>
<td>9,715</td>
<td>6,496</td>
</tr>
</tbody>
</table>

Next, group z scores were calculated in order to determine the significance of the association between the client’s positive verbalizations and the therapist’s interventions. Groups were formed based on: 1) client’s role in the family (adolescent vs. parent), 2) treatment point (beginning, middle, and end of treatment), and 3) type of therapist’s targeted intervention (relational reframes vs. interpretations). Results indicated that both parent’s (Zij = 7.63; p < .01) and adolescent’s (Zij = 4.75; p < .01) responses were
significantly more likely to be positive versus negative or neutral after therapist’s reframes/interpretations. Furthermore, the association between therapist’s intervention and client’s positive verbalizations was significant at the beginning ($Z_{ij} = 5.47; p < .01$) and middle ($Z_{ij} = 6.92; p < .01$), but not at the end of treatment ($Z_{ij} = 1.44; p > .05$).

Finally, clients were likely to respond positively after therapist’s reframes ($Z_{ij} = 5.96; p < .01$) as well as after therapist’s interpretations ($Z_{ij} = 6.45; p < .01$).

Table 3. Conditional probabilities and $z$ – statistics.

<table>
<thead>
<tr>
<th>Conditional Probabilities (P)</th>
<th>Target: Clients’ Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive and Neutral</td>
</tr>
<tr>
<td>Beg of Tx</td>
<td>$X^2 (2) = 32.41$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .01$</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid Tx</td>
<td>$X^2 (2) = 24.01$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .01$</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>End of Tx</td>
<td>$X^2 (2) = 7.36$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .05$</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>All sessions</td>
<td>$X^2 (2) = 85.78$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .01$</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Finally, a $z$ score for each family was estimated based on the conditional probabilities of clients’ positive verbalizations following therapist’s reframes and
interpretations versus all other speech in the final session completed (Table 3). For clients whose final session did not include relational reframes or interpretations, a z score was estimated based on their middle treatment session. Two of the 22 families were excluded from the analysis because their mid-treatment as well as end of treatment sessions did not include any therapist reframes or interpretations.

**Multilevel Analysis**

In order to examine predictors of post-treatment change, HLM (Raudenbush & Bryk, 2002) using the HLM7 (Raudenbush, Bryk, Cheong, & Congdon, 2011) software program was used. A separate model was estimated for each dependent variable: 1) adolescent’s depressive symptoms, 2) adolescent’s substance use, 3) parent’s report on adolescent’s conflict tactics, 4) parent’s report on their own conflict tactics 5) adolescent’s report on their conflict tactics, and 6) adolescent’s report on parent’s conflict tactics. First, the variability in change over time among the individuals in the sample was examined. Once this variability was established, the z scores for the conditional probabilities of family members’ positive verbalizations following the therapist’s reframe/relational interpretation was added to the model at level two in order to predict or explain the variability in the dependent variable. The mean scores and standard deviations for all variables are presented in Table 1 and the mean scores for all time points by dependant variable are illustrated in Figure 1.

The first model tested was the unconditional model (or the unrestricted model) examining the variability in adolescents’ depressive symptoms. The results indicated that the average depressive symptoms score across all participants did not change.
Figure 1. Mean scores for all time points by dependent variable.

...significantly across the time points ($\chi^2 (18) = 12.13; p > .05$). In the second model, the dependent variable was frequency of adolescents’ alcohol and substance use. There was sufficient variability in the dependent variable ($\chi^2 (18) = 29.56; p < .05$) indicating that the frequency of adolescents’ alcohol and substance use decreased significantly over time. However, the $z$ scores for the conditional probabilities of family members’ positive verbalizations following the therapist’s reframe/relational interpretation did not explain the variability. Similarly, the following two models indicated that the slopes for both parents’ and adolescents’ CTS scores as reported by the parents were significantly different from zero, but the conditional probabilities of family members’ positive verbalizations following the therapist’s reframes/interpretations was not a significant predictor of the change in these slopes. In other words, while adolescents’ frequency of
substance use, as well as parents’ and adolescents’ CTS scores (as reported by the parents) decreased significantly over time, the conditional probabilities of family members’ positive verbalizations following the therapist’s reframe/interpretations were not significant predictors of this change. Tables 4 and 5 provide summaries of the results from all multilevel models that were estimated.

The last models to be tested included adolescent’s report on their own, as well as their parent’s conflict resolution tactics (CTS). The results from the unconditional models indicated that the average CTS scores (as reported by the adolescents) changed significantly over time. The coefficient of the unconditional model was $\chi^2 (16) = 35.78; p < .01$ for the adolescents’ and $\chi^2 (16) = 34.42; p < .01$ for the parents’ conflict behaviors. Next, the random coefficients models were tested. The coefficient for the slope due to the conditional probabilities of family members’ positive verbalizations following the therapist’s reframe/interpretations was $1.30 (t = 2.43, p < .05)$ for the adolescents’, and $0.08 (t = 2.13, p < .05)$ for the parents’ behaviors. Therefore, the independent variable was a significant predictor of the change in the adolescents’ report on their own, as well as their parents’ CTS scores.
Table 4. Linear model of growth for the multi-level unconditional models.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>BDI Fixed Effect</th>
<th>Coef (se)</th>
<th>t ratio</th>
<th>Substance Use Fixed Effect</th>
<th>Coef (se)</th>
<th>t ratio</th>
<th>P CTS (P report) Fixed Effect</th>
<th>Coef (se)</th>
<th>t ratio</th>
<th>A CTS (P report) Fixed Effect</th>
<th>Coef (se)</th>
<th>t ratio</th>
<th>P CTS (A report) Fixed Effect</th>
<th>Coef (se)</th>
<th>t ratio</th>
<th>A CTS (A report) Fixed Effect</th>
<th>Coef (se)</th>
<th>t ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>M initial status</td>
<td></td>
<td>.94 (.09)</td>
<td>10.22**</td>
<td>1.08 (.12)</td>
<td>9.39*</td>
<td></td>
<td>17.78 (3.87)</td>
<td>4.60**</td>
<td></td>
<td>16.80 (3.83)</td>
<td>4.39**</td>
<td></td>
<td>21.02 (2.90)</td>
<td>7.26**</td>
<td></td>
<td>21.64 (2.95)</td>
<td>7.33**</td>
<td></td>
</tr>
<tr>
<td>M growth rate</td>
<td></td>
<td>-.05 (.02)</td>
<td>-3.26*</td>
<td>-.05 (.03)</td>
<td>-1.93</td>
<td></td>
<td>-2.01 (.74)</td>
<td>-2.71*</td>
<td></td>
<td>-1.84 (.69)</td>
<td>-2.69*</td>
<td></td>
<td>-2.34 (.54)</td>
<td>-4.36**</td>
<td></td>
<td>-2.84 (.47)</td>
<td>-5.99**</td>
<td></td>
</tr>
<tr>
<td>Initial status</td>
<td>Var. Comp (df)</td>
<td>.11 (18)</td>
<td>40.06*</td>
<td>.17 (18)</td>
<td>44.85**</td>
<td></td>
<td>193.41 (15)</td>
<td>91.46**</td>
<td></td>
<td>201.40 (14)</td>
<td>91.63**</td>
<td></td>
<td>123.74 (16)</td>
<td>75.03**</td>
<td></td>
<td>144.74 (16)</td>
<td>109.86**</td>
<td></td>
</tr>
<tr>
<td>Growth rate</td>
<td>Var. Comp (df)</td>
<td>.01 (18)</td>
<td>12.13</td>
<td>.01 (18)</td>
<td>29.56*</td>
<td></td>
<td>5.46 (15)</td>
<td>43.82**</td>
<td></td>
<td>5.48 (14)</td>
<td>39.40**</td>
<td></td>
<td>2.86 (16)</td>
<td>34.41*</td>
<td></td>
<td>2.77 (16)</td>
<td>35.78**</td>
<td></td>
</tr>
<tr>
<td>Level-1 error</td>
<td>var. Comp (df)</td>
<td>.14</td>
<td></td>
<td>.20</td>
<td></td>
<td></td>
<td>66.65</td>
<td></td>
<td></td>
<td>55.45</td>
<td></td>
<td></td>
<td>58.63</td>
<td></td>
<td></td>
<td>38.94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reliability Coefficient Estimate

<table>
<thead>
<tr>
<th></th>
<th>Initial status</th>
<th>.60</th>
<th>.61</th>
<th>0.76</th>
<th>0.79</th>
<th>0.74</th>
<th>0.81</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth rate</td>
<td>.01</td>
<td>.39</td>
<td>.56</td>
<td>0.59</td>
<td>0.50</td>
<td>0.57</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05, ** p < .01
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Substance use</th>
<th>P CTS (P report)</th>
<th>A CTS (P report)</th>
<th>P CTS (A report)</th>
<th>A CTS (A report)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Effect</strong></td>
<td>Coefficient (se)</td>
<td>t ratio</td>
<td>Coefficient (se)</td>
<td>t ratio</td>
<td>Coefficient (se)</td>
</tr>
<tr>
<td>Mean value</td>
<td>1.09 (.12)</td>
<td>9.37**</td>
<td>17.77 (3.73)</td>
<td>4.77**</td>
<td>16.83 (3.83)</td>
</tr>
<tr>
<td>M growth rate</td>
<td>-.08 (.09)</td>
<td>-1.47</td>
<td>-1.52 (.74)</td>
<td>-2.05</td>
<td>-1.79 (.78)</td>
</tr>
<tr>
<td>z-scores effect</td>
<td>.04 (.09)</td>
<td>.47</td>
<td>-.97 (.79)</td>
<td>-1.24</td>
<td>-.10 (.72)</td>
</tr>
<tr>
<td><strong>Random Effect</strong></td>
<td>Variance Comp (df)</td>
<td>$X^2$</td>
<td>Variance Comp (df)</td>
<td>$X^2$</td>
<td>Variance Comp (df)</td>
</tr>
<tr>
<td>Status</td>
<td>.17 (18)</td>
<td>44.93**</td>
<td>192.18 (15)</td>
<td>91.35**</td>
<td>200.51 (14)</td>
</tr>
<tr>
<td>Growth rate</td>
<td>.007 (17)</td>
<td>29.41*</td>
<td>5.57 (14)</td>
<td>43.60**</td>
<td>5.38 (13)</td>
</tr>
<tr>
<td>Level-1 error</td>
<td>.20</td>
<td>66.74</td>
<td>56.34</td>
<td>.08</td>
<td>37.72</td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .01$
Chapter 5: Discussion

In order for family systems therapy to be used effectively to treat difficult social and interpersonal issues, it is important to know how and why treatment works. This study sought to examine how relational interpretations and reframes, therapeutic techniques used by family systems therapists, impact in-session communication and whether these techniques impact clients’ post-treatment outcomes. Results showed that client’s verbalizations were more positive (versus negative or neutral) after the therapist used relational reframes and interpretations, compared to all other forms of therapist speech. Furthermore, the use of these techniques during sessions influenced change in the adolescent’s and parent’s use of conflict-resolution strategies measured after the completion of treatment. Although relational reframe and interpretation techniques are considered essential components of manualized family systems therapies (e.g. Alexander & Parsons, 1982), such techniques have largely been accepted on the basis of face validity. Research is needed to confirm that the proposed techniques indeed positively impact client behavior. This study is one of the first studies of such efforts in the family therapy field. The present findings strengthen the empirical underpinnings of therapy approaches that use relational reframe and interpretation techniques. The following discussion addresses each study hypothesis consecutively, followed by clinical implications and suggestions for future research in this area.
Hypothesis 1: Therapist’s use of relational reframes and interpretations will increase the probability of a client’s positive verbalization (versus negative or neutral verbalizations).

The first hypothesis was supported by the data. Parents and adolescents were more likely to respond positively (rather than negatively or neutrally) following therapist’s use of relational reframes. Similarly, two other studies have indicated that adolescents and parents respond more positively to therapists’ use of relational reframes than to other therapist’s techniques, such as frames, acknowledgement statements, prompts, and organizational statements (Robbins et al., 2000; Robbins et al., 1996).

In addition to relational reframes, this study showed that client verbalizations were also more positive (versus negative or neutral) following therapist’s use of relational interpretations. Although the use of relational interpretations has been recommended as a way to reduce negativity in family systems therapy (e.g. Crits-Christoph, & Gibbons, 2001), claims made for its effectiveness in addressing negativity have been based solely on clinical experience rather than empirical considerations. The current study attempted to address this gap in the literature by providing initial support for the effectiveness of the relational interpretation technique.

The finding that clients’ verbalizations are more positive (then negative or neutral) following therapist’s relational reframes and interpretations can potentially be explained by a shift in clients’ causal attributions. In the clinical literature, attributions refer to how individuals explain causes of behaviors and events (Morris, Alexander, & Turner, 1991). Scholars suggest that relational interpretations, as well as relational reframes, belong to a class of re-attribution techniques. Through the use of these techniques, the therapist offers
a benevolent perspective on “negative” behaviors or motives described by family members. In using refraimes and interpretations, the therapist encourages the client to consider an alternative meaning of a behavior from a non-blaming perspective. Therefore, if this strategy is successful, it follows that re-attribution techniques affect clients’ responses through reducing interpersonal negativity, such as blame and defensiveness. Given that this study did not measure attributions, research querying clients’ perceptions of family members after the therapists’ use of relational refraimes and interpretations can provide support for this hypothesized mechanism of action.

**Hypothesis 2: The probability of client positive verbalizations following therapist’s refraimes and interpretations will decrease over the course of therapy.**

The second hypothesis was generally supported. The probability of positive verbalizations following therapists’ refraimes and interpretations increased during the beginning (first or second session) and middle of treatment (fifth, sixth or seventh session). However, client response to therapists’ refraimes and interpretations at the end of treatment (11th or 12th session) was equally likely to be a positive or other verbalization (i.e., negative or neutral verbalization). Using the same interpretation as discussed earlier, therapist’s use of these techniques may have shifted client’s attributions from a malicious to a non-blaming understanding of the problem behaviors. Therefore, clients’ negative interactions may have decreased over the course of treatment, hence decreasing the conditional probability of positive (versus negative or neutral) verbalizations to occur following therapists’ relational refraimes and interpretations.

The finding that client’s responses following therapist’s refraimes and interpretations were more positive during the beginning and middle treatment compared
to end of treatment can be interpreted in other ways. It is possible that the impact of therapists’ reframes and interpretations on family’s responses decreases over time. According to the Homebuilders’ Model (Kinney et al., 1991), families are more open to change, and perhaps more responsive to treatment, when they are in crisis. For the families in this study, the adolescents’ runaway episode was a crisis which preceded the beginning of treatment. Following the crisis and towards the end of treatment families’ perceived need for change may have decreased, and thus their overtly positive response to the therapists’ interventions may have decreased as well. Alternatively, the likelihood of client’s positive (versus negative and neutral) verbalizations following therapist’s relational reframes and interpretations during the beginning and middle (but not during the end) of treatment may be a reflection of the change in the client’s level of comfort. At the beginning and middle (compared to the end) of treatment, clients may be more likely to express agreement with the therapist. As trust and comfort increased between the therapist and clients, and among the clients themselves, overt expressions of positively may simply become less frequent.

**Hypothesis 3: Higher probability of client positive verbalizations following therapist’s reframes and interpretations in the last session will be associated with decreased adolescent depressive symptoms, substance use, and parent-child conflict post-treatment.**

The data provided partial support for the study hypothesis. Links between in-session verbal behaviors and some of the post-treatment outcomes were identified. Findings associated with each outcome variable (adolescent depressive symptoms score, frequency of adolescent substance use, parent, as well as adolescent scores on the conflict
tactics scale) will be reviewed below, and explained in the context of existing theoretical and clinical conceptualizations.

**Adolescent depressive symptoms and frequency of substance use:**

Adolescent’s depressive symptoms scores did not change significantly over time. However, while adolescents’ percent days of substance use decreased significantly over time, the probability of clients’ responding positively (versus negatively and neutral) following therapist’s relational reframes and interpretations was not a significant predictor of that change. The small sample size possibly limited statistical power to detect anything other than large effects. Further investigations using a larger sample size should re-examine the possible association between clients’ responses to therapist’s interventions and adolescent’s symptomology in terms of substance use and depression.

**Conflict Tactic Scale scores.** All CTS scores, both adolescent and parent improved significantly over time, as expected. However, the probability of clients’ positive (versus negative and neutral) verbalizations following therapist’s reframes and interpretations predicted change in the CTS scores as reported only by the adolescent but not by the parent. According to the adolescent’s report, parents and adolescents who were more likely to respond positively following therapist’s relational reframes and interpretations self-reported greater improvement in conflict resolution tactics after treatment completion. In other words, the data suggested that the positive effect of therapist’s relational reframes and interpretations during treatment influenced adolescent’s perception of family members’ interactions outside of therapy as well. Consistent with the philosophy of EBFT as well as other family therapy models (e.g. Alexander et al., 1983; Haley, 196; Minuchin, 1974), this finding suggests that the use of
relational reframes and interpretations contributes to changes in family interactional dynamics. Possibly, improvement in post-treatment outcomes is caused by a shift in clients’ understanding of the meaning or the context in which problematic behaviors occur, thus allowing family members’ to construct new, more effective solutions to existing problems. Unfortunately, cognition was not measured, so this hypothesis cannot be tested.

The finding that there was no relationship between the conditional probabilities of clients’ positive verbalizations following therapists’ reframes and interpretations in session and parents’ report on conflict tactics strategies was unexpected. This null finding may be due to the low sample size to assess quantitative outcomes. Another possibility is that the improvement in parents’ self-reported conflict resolution tactics was due to factors other than the therapist’s reframes and interpretations. An example of such a factor is change in the adolescent’s behavior. In other words, a systemic theorist would suggest that conflict is interactional, thus change in one person’s behaviors is likely to trigger change in the other person’s behavior. In this study, the therapist’s relational reframes and interpretations may have initiated change in the adolescent, which influenced his or her interactions with the parent, which changed parent’s interactions (e.g., conflict resolution strategies) with the adolescent.

Limitations

Several limitations should be considered when interpreting the findings. This study is based upon a sample of convenience and may not represent runaway youth in other parts of the country that have different ethnic and racial compositions, and perhaps different environmental/social influences. However, this study provided preliminary
evidence for the effectiveness of the relational reframes and interpretations for increasing the number of clients’ positive verbalizations in session and improving perceived conflict resolution strategies after treatment completion. Another limitation is the relatively low frequency of the therapist’s use of relational reframes and interpretations ($M = 4.69$ per session). More frequent utilization of these techniques was needed in order to: 1) test differences between parent and child responses, 2) compare clients’ responses across treatment points (beginning, middle and end of treatment), and 3) test differences in client’s verbalizations based on the technique used by the therapist (relational reframes versus interpretations). Furthermore, twenty families is a small sample to examine quantitative outcomes (substance use, BDI, conflict tactics scores) using multilevel analysis, and also does not allow examination of moderators of change such as gender or ethnicity. Power to detect even small effect sizes was limited (.33) suggesting that the lack of significant associations may be due to type 1 error. Nevertheless, several important associations between variables (described above) were identified.

**Strengths**

In spite of these limitations, the present study contributes to our understanding of the treatment process among families in distress. A significant body of research suggests that negative verbalizations during treatment sessions are associated with poor therapy outcomes (Birmaher et al., 2000). Successful techniques that interrupt negative behaviors among clients in-session can be critical for improving family interaction, communication and other post-treatment outcomes. Despite that relational reframe and interpretation techniques are frequently recommended for reducing clients’ negativity in treatment (e.g. Alexander et al., 1983; Haley, 196; Minuchin, 1974), a limited number of studies to date
have documented clients’ positive responses to relational interpretations (as opposite to reframes; e.g. Robbins, Alexander, Newell, & Turner, 1996), and essentially no empirical evidence has examined relational interpretations as part of the treatment process. The findings of the present study provide evidence that relational interpretations and reframes are effective strategies to initiate change in family communication within session.

Furthermore, there is a growing number of clinical trials research documenting the effectiveness of manualized treatment approaches for families in distress. The active ingredients of these manualized approaches are often therapeutic techniques, such as relational reframes and interpretations (e.g. Alexander & Parsons, 1982). Therefore, research examining the relationship between the use of relational techniques and post-treatment outcomes is needed to confirm the effectiveness of these techniques on treatment outcomes.

In summary, the current study provides preliminary evidence for the effectiveness of relational reframes and interpretations for reducing severity of family conflict post-treatment. These findings are particularly informative, given that no empirical evidence has documented the association of either therapeutic technique to post-therapy family interaction or individual outcomes. In addition, this study focused on an under-studied population, substance-abusing runaway adolescents and their families, which is also considered difficult to treat (e.g. Morrissette, 1992; Smart & Ogborne, 1994). Identifying the effectiveness of the “essential ingredients” including therapeutic techniques that contribute to the effectiveness of the treatment process is useful information that can be used for improving services targeted toward vulnerable populations. The current study may be considered a step in that direction.
Future Directions

If family therapists are to use relational reframes and interpretations, it would be important to know when and to whom to apply these techniques successfully. For example, future studies may find that relational reframes and interpretations are more effective with older (compared to younger adolescents), given the change in cognitive abilities associated with age during adolescence. As logical reasoning and abstracting thinking develop, adolescent’s ability to understand relational reframes and interpretations may increase as well. Another direction for further investigation includes identifying those post-treatment outcomes impacted by relational reframes and interpretations that were not measured here, such as family cohesion, conflict, and other psychosocial outcomes such as school performance or risk behaviors. Also, in this study, the therapeutic techniques were found to influence the relational (conflict tactics) but not the individual (depressive symptoms, substance use) outcomes, suggesting that relational reframes and interpretations may be more powerful for influencing relational outcomes. It would be important for future research to tease out how effective relational reframes and interpretations are for individual versus relational outcomes. Furthermore, although a relationship between adolescent’s substance use and clients’ positive responses to therapist’s reframes and interpretations in this investigation was not found, replication of the analysis is warranted, given the limited statistical power in this study.

Clinical Implications

Family problems, such as adolescent’s running away and related problems continue to be a major public health concern (Sedlak et al. 2002). As such, there is a continued need to refine existing interventions or develop new, efficient and effective
treatment models for working with these families. This study focused on the impact of therapist interventions on clinically relevant family processes that is client’s verbal behaviors in the treatment session. By focusing on in-session processes and linking it to positive post-treatment outcomes such as family conflict resolution tactics, this study provides guidance to treatment developers and providers who work with high risk populations such as runaway youth. Although future research is needed to replicate the present findings across different populations and family contexts, these data provided empirical support for a link between in session interventions and response patterns from family members which are associated with positive post-treatment outcomes.

**Conclusion**

This is a unique study in that it combined an observational coding methodology in-session with quantitative outcomes up to two years following treatment completion. While the study had some success in showing that in session therapist behaviors are effective at changing immediate client behavior, the small sample size limited the power to detect relationships between in-session behavior and some behavioral outcomes post-treatment. As the field of family and individual therapy continues to evolve, one of the calls in the field is to identify essential elements, or “active ingredients” among therapies that are necessary or potent, as measured by their relationship to behavioral change. The research methods that are used to identify active ingredients are often studied within ‘dismantling studies’ in which components of treatments are separated and compared to one another. The current study, although not a dismantling enterprise, indicated that the systems based theoretical interventions used by family therapists do indeed impact client behavior during and after treatment.
References


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Appendix A: Questionnaires

Form 90-DI
DRUG USE ASSESSMENT (Intake)

1. For period from _____/ _____/ _____through _____/ _____/

2. Number of days in this assessment period: _____/ _____/

3. This is: (0) Pretreatment

4. ___(1) Male ___(2) Female

5. Current body weight in pounds: ____/ ____/

6. Weight was obtained by: ___(1) weighing or ___(2) self-report

7. This interview was conducted:

   ___(1) on site   ___(2) by telephone
   ___(3) home visit ___(4) other location

8. Presenting drug

"I'd like to begin by reminding you that whatever you say here is confidential. In this first interview, I am going to be asking you some specific questions about your drug use in the 90 days before your last use. I'll be asking about drugs that were prescribed for you as well as others that you have used during this period. [Place calendar in front of client.] Here is a calendar to help you remember this period of time. First of all, when was the last time that you used any drug? [Drug is as defined above; count back 89 days and cross out with Xs the days preceding this period.] So the period I'm going to be asking you about is from [beginning date,] up through [end date]."

"I realize that this is a long period of time to remember things that happened, so we will use this calendar to help you identify events that occurred during this period. Notice that a few events are already printed on the calendar. [Point out some specific events already printed on the calendar.] Were there any particularly memorable things that happened during this time - any birthdays, illnesses or accidents,
anniversaries, parties, hospitalizations, vacations, changes in your work or at home, things like that?” [Record on calendar.]

"Now the rest of the questions that I will ask you are also about this time period from up through __________. I'll be asking you about your drug use in a few minutes, but first I'd like to know about a few other things. Feel free to take your time in answering, since it is important for you to remember as accurately as you can. Let me know if you're not sure what I am asking, or what I mean by a particular question. OK?"

**TREATMENT / INCARCERATION / LIVING EXPERIENCES**

"During this period, how many days did you spend in a hospital or treatment program where you stayed overnight?" [Mark days on calendar]

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hm</td>
<td>total number of hospital days for medical problems</td>
<td>9. ___</td>
</tr>
<tr>
<td>Htox</td>
<td>total number of hospital days for detoxification</td>
<td>10. ___</td>
</tr>
<tr>
<td>Rtox</td>
<td>total number of non-hospital residential detox days:</td>
<td>11. ___</td>
</tr>
<tr>
<td></td>
<td>total number of ambulatory detox treatment days:</td>
<td>12. ___</td>
</tr>
<tr>
<td>Rd</td>
<td>total number of residential days for other drug problems</td>
<td>13. ___</td>
</tr>
<tr>
<td>Ra</td>
<td>total number of residential days alcohol treatment</td>
<td>14. ___</td>
</tr>
<tr>
<td>Rp</td>
<td>total residential days for emotional / psych problems</td>
<td>15. ___</td>
</tr>
</tbody>
</table>

Total days in residential treatment during this period:
[Sum of 9 + 10 + 11 + 13 + 14 + 15. Do not include 12]
16. ___

"During this period, did you spend any time in jail or prison?"
[Mark days on calendar]

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>In</td>
<td>total days incarcerated during period</td>
<td>17. ___</td>
</tr>
</tbody>
</table>

Total day in institutions [add 16 + 17] 18. ___

"During this period, where did you live? How many days did you live in?" [Do not record on calendar unless useful
as memory aids.]

Total number of days in own house, apartment, room: 19. _____

Total number of days living with others (no rent): 20. _____

Total number of days living in halfway house: 21. _____

Total number of days homeless (shelters, etc.): 22. _____

Lines 18 + 19 + 20 + 21 + 22 must equal Line 2  _____

"During this period, how many days were there [not including hospital or detox days] when you saw a doctor, nurse, nurse-practitioner, or physician's assistant for any kind of medical care?"
[Do not record on calendar unless useful as memory aids.]

Total days seen for medical care 23. _____

"During this period, on how many days did you have a session with a counselor or therapist?" [Do not record on calendar unless useful as memory aids.]

total number of days for drug problems (EXCEPT alcohol) write down the drug or drugs 24. _____

If treatment was received, describe briefly:

total number of days for alcohol problems 25. _____

If treatment was received, describe briefly:
total days for emotional / psychological problems 26. _____

If treatment was received, describe briefly:

"During this period, on how many days did you attend a Twelve-Step meeting like NA, CA, or AA?: [Do not record on calendar unless useful as memory aids.]

  total number of days attending 12-step meetings: 27. _____
  [enter 0 if none]

OTHER ACTIVITIES

[Do not enter activity days on the calendar unless they appear to be of value for recalling drinking.]

WORK: "How many days have you been paid for working during this period?"

WORK days 28. _____

EDUCATION: "How many days have you been in school or training during this period?"

EDUCATION day 29. _____

RELIGIOUS ATTENDANCE: "On how many days during this time did you attend a worship service or other religious celebration?"

RELIGIOUS ATTENDANCE days 30. _____

MEDICATIONS

"During this period, on how many days did you take any medications
prescribed by a physician?” [Do not enter medication days on the calendar unless they appear to be of memory value.]

to treat a medical problem 31. ______
specify:

to prevent you from drinking (Antabuse only) 32. ______

to help you detoxify / come off drugs or alcohol 33. ______
specify:

to help you stabilize or change your use of drugs 34. ______
specify:
maintaining / stabilizing drugs (e.g., methadone)
serotonin uptake inhibitors (make sure not for depression)

to help you keep from using drugs 35. ______
specify:
drug antagonists / blockers

for psychological or emotional problems 36. ______
specify:

DRUG ASSESSMENT

Card Sort

"Now I am going to show you this set of cards. Each card names a kind of drug that people sometimes use. I'd like you to sort them into two piles for me. In one pile here [indicate position and use marker card] I'd like you to place those cards that name a kind of drug that you have tried at least once in your life. In the other pile [indicate position and use marker card], place the cards that name the types of drugs that you have never used at all."

[Give cards to client IN NUMERICAL ORDER - with Alcohol on top, Tobacco next, Marijuana next, and so on. When the sorting has been completed, take the pile on the right, and check all these categories a "NO" in the LIFETIME USE column below. For convenience, record here the client's CURRENT AGE:
Then continue with the "Yes" pile:

"Now for each of these types of drugs, I'd like you to give me an estimate of how long you have used them in your lifetime. What I will want to know is: about how many weeks during your lifetime have you used each type of drug at least once. Let's start with [Use first YES card from numerical sequence]. How many weeks, during your lifetime, would you say that you used [ ] at least once?"
Periods of Abstinence

"Now I'd like to ask you about your drug use during this same period we were discussing before. The things already recorded on the calendar here may help you to remember better. I'm not asking here about drugs that were prescribed for you for medical problems, like antibiotics, stomach or blood pressure medicine. I'm asking about drugs not prescribed for you, although I do want to know about any medication prescribed for pain, or to help you relax or sleep. I will also ask you about your use of alcohol. First of all, were there any periods of days during this time when you used no drugs (including alcohol) at all?"

[Mark all abstinent days with a capital "A" on calendar.]

37. Date of first drug use during period: _____/_____/_____  
Drug:  

38. Date of last drug use during period: _____/_____/_____  
Drug:  

Give back the YES pile and say:

Now I'd like you to sort these cards again, to say which kinds of drugs you have used at least once during the period we've been talking about on this calendar, from _________ up through _______. If you used the drug at least once during this time, put it in a pile on the left here, and if you never used it at all during this period, put it on the right."  [Alternatively, if there are few cards, simply ask: "Which of these have you used at least once during this period we've been talking about?"]

For each NO card in this sort, print a zero (0) under "Total Days Use in Period" on the USE PATTERN CHART on Page 7. For the remainder, proceed with the CALENDAR instructions on Page 8.
### USE PATTERN CHART

<table>
<thead>
<tr>
<th>Drug Classes</th>
<th>Used in this period?</th>
<th>Total Days</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Oral Ingest</th>
<th>Smoke</th>
<th>Nasal Inhal</th>
<th>Needle</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>al</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td>to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marijuana/Cannabis</td>
<td>ma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tranquilizer</td>
<td>tr</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sedatives/Downers</td>
<td>do</td>
<td></td>
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<tr>
<td>Steroids</td>
<td>sd</td>
<td></td>
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<td></td>
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<tr>
<td>Stimulants/Uppers</td>
<td>up</td>
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<tr>
<td>Cocaine</td>
<td>co</td>
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<tr>
<td>Hallucinogens</td>
<td>ha</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Opiates</td>
<td>op</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalants</td>
<td>in</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Drugs</td>
<td>xx</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use Categories:

1 = Single use  
2 = Several uses  
3 = Steady or heavier use

Enter days of each type of use. 1 + 2 + 3 must equal Total Days of use.

Enter days of each route of administration (use rules from manual). These must total at least to the number of days of use, but total may be higher if multiple routes of administration were used on the same day.

If OTHER route of administration, specify drug(s) and route here:

"Now I'd like to ask you about each of the drugs that you have used during this period. I'd want to get an idea of what your pattern of use was during this period of time for each of these drugs. We'll use this calendar to make it easier. Let's start with ____________. When were you using during this period?

Proceed drug by drug, entering drug codes for each day of use. For a day on which alcohol, marijuana, and cocaine were used, for example three codes would be entered into the box for that day: al, ma, co. Using different colored pencils for different drugs can be helpful.

Using the calendar, carefully count the total number of days of use during the assessment period for each drug class, and put this information on the USE PATTERN CHART (Page 5).

"Now I'm going to go back through these drugs once again and ask you two more questions about each. For each one, I will tell you the total number of days that you said you used this drug during this period, and I will want to know how many of those days you think fell into each of these three categories." [Show use categories]

"According to the calendar we did, you used ____________ on a total of days during this period. Help me divide those days up among these three categories. On how many of those _____ days would you say that you used only once? How many of those days did your use fall in between? And that would mean that on _____ days your use of _______ fell in this third category – does that seem right? And how did you give yourself (take) _______ during
this period of time we have been talking about? Any other way? If more than one route of administration for a drug class, ask:

"According to the calendar we did, you used ____________ on a total of days during this period. On how many of those _____ days would you say that you gave yourself ___ [drug]__ by ___ [route]___?

Repeat for each drug class. Be sure you have accounted for all days of use. The total across routes of administration should be at least the same as the number of days of use, although the total may be higher if multiple routes are used on the same day.

Fill in the information on the Use Pattern Chart. Be sure 1+2+3 totals to the number of days of use.

When you have completed the calendar for all drug classes used, show the subject the CONFIDENCE SCALE and ask:

"Now I'd like you to tell me, using the line, how confident you feel about the information you've given me about your drug use. How accurate do you think you have been in estimating your drug use on this calendar? I'm not asking if you got each drug on the exact days you used it. But overall, how accurate is this calendar in showing how much you used drugs during this period?

Circle the subject's response below.

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Accurate</td>
<td>Fairly Accurate</td>
<td>Not at all Accurate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CATEGORIES FOR DAYS OF USE

(1) Single use. On this day you used the drug only once.

Examples: One alcoholic drink
One cigarette
One dose

(2) Medium use. On this day you used the drug more than once, but not steadily or heavily.

Examples: 2-4 drinks
2-9 cigarettes
Two doses of other drugs

(3) Heavier use. On this day you used the drug more heavily than the "medium" category.

Examples: 5 or more drinks
10 or more cigarettes (half a pack or more)
Three or more doses of other drugs

WAYS OF TAKING DRUGS

Orally Eating, drinking, swallowing, placing the drug under the tongue, chewing, dipping

Smoking Lighting and smoking the drug

Inhaling Snorting, breathing in the drug (but not smoking)

Injecting Taking a drug by needle; injecting under the skin or into a vein

CONFIDENCE SCALE

<table>
<thead>
<tr>
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<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Fairly Accurate</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Form 90-DF

DRUG USE ASSESSMENT (Follow-Up)

1. For period from _____/_____/_____ through _____/_____/_____.

2. Number of days in this assessment period: _____/_____/_____.

3. This is: (0) Pretreatment

4. ___(1) Male  ___(2) Female

5. Current body weight in pounds: _____/_____/_____.

6. Weight was obtained by: ___(1) weighing or ___(2) self-report

7. This interview was conducted:
   ___(1) on site  ___(2) by telephone
   ___(3) home visit  ___(4) other location

"I'd like to begin by reminding you that whatever you say here is confidential. In this first interview, I am going to be asking you some specific questions about your drug use in the 90 days before your last use. I'll be asking about drugs that were prescribed for you as well as others that you have used during this period. [Place calendar in front of client.] Here is a calendar to help you remember this period of time. First of all, when was the last time that you used any drug? [Drug is as defined above; count back 89 days and cross out with Xs the days preceding this period.] So the period I'm going to be asking you about is from [beginning date,] up through [end date]."

"I realize that this is a long period of time to remember things that happened, so we will use this calendar to help you identify events that occurred during this period. Notice that a few events are already printed on the calendar. [Point out some specific events already printed on the calendar.] Were there any particularly memorable things that happened during this time - any birthdays, illnesses or accidents, anniversaries, parties, hospitalizations, vacations, changes in your work or at home, things like that?" [Record on calendar.]
"Now the rest of the questions that I will ask you are also about this time period from up through __________. I’ll be asking you about your drug use in a few minutes, but first I’d like to know about a few other things. Feel free to take your time in answering, since it is important for you to remember as accurately as you can. Let me know if you’re not sure what I am asking, or what I mean by a particular question. OK?"

### TREATMENT / INCARCERATION / LIVING EXPERIENCES

"During this period, how many days did you spend in a hospital or treatment program where you stayed overnight?" [Mark days on calendar]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hm</td>
<td>total number of hospital days for medical problems</td>
<td>8. ______</td>
</tr>
<tr>
<td>Htox</td>
<td>total number of hospital days for detoxification</td>
<td>9. ______</td>
</tr>
<tr>
<td>Rtox</td>
<td>total number of non-hospital residential detox days:</td>
<td>10. ______</td>
</tr>
<tr>
<td></td>
<td>total number of ambulatory detox treatment days:</td>
<td>11. ______</td>
</tr>
<tr>
<td>Rd</td>
<td>total number of residential days for other drug problems</td>
<td>12. ______</td>
</tr>
<tr>
<td>Ra</td>
<td>total number of residential days alcohol treatment</td>
<td>13. ______</td>
</tr>
<tr>
<td>Rp</td>
<td>total residential days for emotional / psych problems</td>
<td>14. ______</td>
</tr>
<tr>
<td></td>
<td>Total days in residential treatment during this period: [Sum of 8 + 9 + 10 + 12 + 13 + 14. Do not include 11]</td>
<td>15. ______</td>
</tr>
</tbody>
</table>

"During this period, did you spend any time in jail or prison?" [Mark days on calendar]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>In</td>
<td>total days incarcerated during period</td>
<td>16. ______</td>
</tr>
<tr>
<td></td>
<td>Total day in institutions [add 15 + 16]</td>
<td>17. ______</td>
</tr>
</tbody>
</table>

"During this period, where did you live? How many days did you live in:" [Do not record on calendar unless useful}
Total number of days in own house, apartment, room: 18. _____

Total number of days living with others (no rent): 19. _____

Total number of days living in halfway house: 20. _____

Total number of days homeless (shelters, etc.): 21. _____

Lines 17 + 18 + 19 + 20 + 21 must equal Line 2  ______

"During this period, how many days were there [not including hospital or detox days] when you saw a doctor, nurse, nurse-practitioner, or physician's assistant for any kind of medical care?"  
[Do not record on calendar unless useful as memory aids.]

Total days seen for medical care

"During this period, on how many days did you have a session with a counselor or therapist?" [Do not record on calendar unless useful as memory aids.]

total number of days for drug problems (EXCEPT alcohol) write down the drug or drugs 23. _____

If treatment was received, describe briefly:

total number of days for alcohol problems 24. _____

If treatment was received, describe briefly:
total days for emotional / psychological problems 25. _____
If treatment was received, describe briefly:

"During this period, on how many days did you attend a Twelve-Step meeting like NA, CA, or AA?: Either for you or to support someone else [Do not record on calendar unless useful as memory aids.]

total number of days attending 12-step meetings (enter 0 if none) 26a. _____
Number of AA (Alcoholics Anonymous) Meetings: 26b. ______
Number of NA (Narcotics Anonymous) Meetings: 26c. ______
Number of CA (Cocaine Anonymous) Meetings: 26d. ______
Number of Ala-teen Meetings: 26e. ______

OTHER ACTIVITIES

[Do not enter activity days on the calendar unless they appear to be of value for recalling drinking.]

WORK: "How many days have you been paid for working during this period?"
WORK days 27. _____

EDUCATION: "How many days have you been in school or training during this period?"
EDUCATION days 28. _____

RELIGIOUS ATTENDANCE: "On how many days during this time did you attend a worship service or other religious celebration?"
RELIGIOUS ATTENDANCE days 29. _____
MEDICATIONS

"During this period, on how many days did you take any medications prescribed by a physician?" [Do not enter medication days on the calendar unless they appear to be of memory value.]

30. ______ to treat a medical problem
   specify:

31. ______ to prevent you from drinking (Antabuse only)

32. ______ to help you detoxify / come off drugs or alcohol
   specify:

33. ______ to help you stabilize or change your use of drugs
   specify:
   maintaining / stabilizing drugs (e.g., methadone)
   serotonin uptake inhibitors (make sure not for depression)

34. ______ to help you keep from using drugs
   specify:
   drug antagonists / blockers

35. ______ for psychological or emotional problems
   specify:

Periods of Abstinence

"Now I'd like to ask you about your drug use during this same period we were discussing before. The things already recorded on the calendar here may help you to remember better. I'm not asking here about drugs that were prescribed for you for medical problems, like antibiotics, stomach or blood pressure medicine. I'm asking about drugs not prescribed for you, although I do want to know about any medication prescribed for pain, or to help you relax or sleep. I will also ask you about your use of alcohol. First
of all, were there any periods of days during this time when you used no drugs (including alcohol) at all?"

[Mark all abstinent days with a capital "A" on calendar.]

36. Date of first drug use during period: _____/_____/_____  
   Drug:

37. Date of last drug use during period: _____/_____/_____  
   Drug:

**Card Sort**

*Now I'd like you to sort these cards again, to say which kinds of drugs you have used at least once during the period we've been talking about on this calendar, from ________ up through ________. If you used the drug at least once during this time, put it in a pile on the left here, and if you never used it at all during this period, put it on the right." [Alternatively, if there are few cards, simply ask: "Which of these have you used at least once during this period we've been talking about?"]

For each NO card in this sort, print a zero (0) under "Total Days Use in Period" on the USE PATTERN CHART on Page 6. For the remainder, proceed with the CALENDAR instructions on Page 7.
### USE PATTERN CHART

<table>
<thead>
<tr>
<th>Drug Classes</th>
<th>Used in this period?</th>
<th>Total Days</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Oral Ingest</th>
<th>Smoke</th>
<th>Nasal Inhale</th>
<th>Needle</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>al</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Tobacco</td>
<td>to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Marijuana/ Cannabis</td>
<td>ma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Tranquilizer</td>
<td>tr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
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<td>------</td>
</tr>
<tr>
<td>Sedatives/ Downers</td>
<td>do</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Steroids</td>
<td>sd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Stimulants/ Uppers</td>
<td>up</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Cocaine</td>
<td>co</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Hallucinogens</td>
<td>ha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Opiates</td>
<td>op</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Inhalants</td>
<td>in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Other Drugs</td>
<td>xx</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>------</td>
<td></td>
<td>------</td>
<td>------</td>
</tr>
</tbody>
</table>
Use Categories:
1 = Single use
2 = Several uses
3 = Steady or heavier use

Enter days of each type of use. 1 + 2 + 3 must equal Total Days of use.
Enter days of each route of administration (use rules from manual). These must
total at least to the number of days of use, but total may be higher if multiple routes
of administration were used on the same day.

If OTHER route of administration, specify drug(s) and route here: "Now I'd like to
ask you about each of the drugs that you have used during this period. I'd
want to get an idea of what your pattern of use was during this period of time
for each of these drugs. We'll use this calendar to make it easier.

Let's start with _______________. When were you using
during this period?

Proceed drug by drug, entering drug codes for each day of use. For a day on
which alcohol, marijuana, and cocaine were used, for example three codes
would be entered into the box for that day: al, ma, co. Using different colored
pencils for different drugs can be helpful.

Using the calendar, carefully count the total number of days of use during the
assessment period for each drug class, and put this information on the USE
PATTERN CHART (Page 5).

"Now I'm going to go back through these drugs once again and ask you
two more questions about each. For each one, I will tell you the total number
of days that you said you used this drug during this period, and I will want to
know how many of those days you think fell into each of these three
categories." [Show use categories]

"According to the calendar we did, you used ___________ on a total of
days during this period. Help me divide those days up among these three
categories. On how many of those _____ days would you say that you used
only once? How many of those days did your use fall in between? And that
would mean that on _____ days your use of _______ fell in this third category
– does that seem right? And how did you give yourself (take) _______ during
this period of time we have been talking about? Any other way? If more than
one route of administration for a drug class, ask:

"According to the calendar we did, you used ___________ on a total of
days during this period. On how many of those _____ days would you say that
you gave yourself ___[drug]__ by ___[route]___?
Repeat for each drug class. Be sure you have accounted for all days of use. The total across routes of administration should be at least the same as the number of days of use, although the total may be higher if multiple routes are used on the same day.

Fill in the information on the Use Pattern Chart. Be sure 1+2+3 totals to the number of days of use.

When you have completed the calendar for all drug classes used, show the subject the CONFIDENCE SCALE and ask:

"Now I'd like you to tell me, using the line, how confident you feel about the information you've given me about your drug use. How accurate do you think you have been in estimating your drug use on this calendar? I'm not asking if you got each drug on the exact days you used it. But overall, how accurate is this calendar in showing how much you used drugs during this period?

Circle the subject's response below.

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Accurate</td>
<td>Fairly Accurate</td>
<td>Not at all Accurate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CATEGORIES FOR DAYS OF USE

(1) Single use. On this day you used the drug only once.

Examples: One alcoholic drink
           One cigarette
           One dose

(2) Medium use. On this day you used the drug more than once, but not steadily or heavily.

Examples: 2-4 drinks
           2-9 cigarettes
           Two doses of other drugs

(3) Heavier use. On this day you used the drug more heavily than the "medium" category.
Examples: 5 or more drinks
10 or more cigarettes (half a pack or more)
Three or more doses of other drugs

WAYS OF TAKING DRUGS
Orally Eating, drinking, swallowing, placing the drug under the tongue, chewing, dipping

Smoking Lighting and smoking the drug

Inhaling Snorting, breathing in the drug (but not smoking)

Injecting Taking a drug by needle; injecting under the skin or into a vein

CONFIDENCE SCALE

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
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<th>2</th>
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<tr>
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<td>Accurate</td>
</tr>
<tr>
<td>Accurate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conflict Tactics Scale  
Pre-treatment (Child)  

No matter how well youth and parents get along, there are times when they disagree on major decisions, get annoyed about something the other person does, or just have disagreements or fights. They also may use many different ways of trying to settle their differences. I'm going to list some things that you and a parent /guardian may have done when you had a dispute. First, I'd like you to tell me if you or your parent/ guardian have EVER done any of these things. Second, I'd like to know how many times you and your parent /guardian have done these things in the past year.

<table>
<thead>
<tr>
<th>You or parent /guardian - ever happened?</th>
<th>You- in the past 12 months?</th>
<th>Parent /guardian- in the past 12 months?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>Never</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>a. Discussed the issue calmly</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>b. Got information to back up your side of things</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>c. Brought in or tried to bring in someone to help settle things</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>d. Insulted or swore at the other person</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>e. Sulked and/or refused to talk about it</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>f. Stomped out of the room or house</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>g. Cried</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>h. Did or said something to spite the other person</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>You or parent /guardian - ever happened?</td>
<td>You - in the past 12 months?</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>i.</td>
<td>Threatened to hit or throw something at the other person</td>
<td>0 1</td>
</tr>
<tr>
<td>j.</td>
<td>Threw, smashed, hit or kicked something</td>
<td>0 1</td>
</tr>
<tr>
<td>k.</td>
<td>Threw something at the other person</td>
<td>0 1</td>
</tr>
<tr>
<td>l.</td>
<td>Pushed, grabbed, or shoved the other person</td>
<td>0 1</td>
</tr>
<tr>
<td>m.</td>
<td>Slapped the other person</td>
<td>0 1</td>
</tr>
<tr>
<td>n.</td>
<td>Kicked, bit or hit with a fist</td>
<td>0 1</td>
</tr>
<tr>
<td>o.</td>
<td>Hit or tried to hit with something</td>
<td>0 1</td>
</tr>
<tr>
<td>p.</td>
<td>Beat up the other person</td>
<td>0 1</td>
</tr>
<tr>
<td>q.</td>
<td>Threatened with a knife or gun</td>
<td>0 1</td>
</tr>
<tr>
<td>r.</td>
<td>Used a knife or a gun</td>
<td>0 1</td>
</tr>
<tr>
<td>s.</td>
<td>Other (Probe):</td>
<td>0 1</td>
</tr>
</tbody>
</table>
Conflict Tactics Scale
Pre-treatment (Parent)

No matter how well youth and parents get along, there are times when they disagree on major decisions, get annoyed about something the other person does, or just have disagreements or fights. They also may use many different ways of trying to settle their differences. I'm going to list some things that you and a parent/guardian may have done when you had a dispute. **First, I'd like you to tell me if you or your child have EVER done any of these things.** Second, I'd like to know **how many times** you and your parent/guardian have done these things **in the past year**.

<table>
<thead>
<tr>
<th>You or your child ever happened?</th>
<th>You- in the past 12 months?</th>
<th>Child- in the past 12 months?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>a. Discussed the issue calmly</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>b. Got information to back up your side of things</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>c. Brought in or tried to bring in someone to help settle things</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>d. Insulted or swore at the other person</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>e. Sulked and/or refused to talk about it</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>f. Stomped out of the room or house</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>g. Cried</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>h. Did or said something to spite the other person</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

104
<table>
<thead>
<tr>
<th></th>
<th>You or your child—ever happened?</th>
<th>You— in the past 12 months?</th>
<th>Child—in the past 12 months?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No  Yes</td>
<td>Never Once Twice 3-5 Times 6-10 Times 11-20 Times More than 20 Times Never Once Twice 3-5 Times 6-10 Times 11-20 Times More than 20 Times</td>
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</table>
Conflict Tactics Scale
Follow-Up (Child)

No matter how well youth and parents get along, there are times when they disagree on major decisions, get annoyed about something the other person does, or just have disagreements or fights. They also may use many different ways of trying to settle their differences. I'm going to list some things that you and a child may have done when you had a dispute. First, I'd like you to tell me if you or your child has EVER done any of these things. Second, I'd like to know how many times you and your child have done these things in the past 3/6 months.

<table>
<thead>
<tr>
<th>You or Parent /guardian - ever happened?</th>
<th>You- in the past 3/6 months?</th>
<th>Parent/guardian- in the past 3/6 months?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>Never</td>
</tr>
<tr>
<td>----</td>
<td>-----</td>
<td>--------</td>
</tr>
<tr>
<td>a. Discussed the issue calmly</td>
<td>0 1</td>
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<tr>
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<tr>
<td>e. Sulked and/or refused to talk about it</td>
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</tr>
<tr>
<td>f. Stomped out of the room or house</td>
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Conflict Tactics Scale
Follow-Up (Parent)

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Appendix B: LIFE Coding Manual Content Codes

Positive Content

1. Facilitative - agreement, empathy, apologies, positive statements to others, such as expression of warmth, agreements, compliments, empathy, apologies, accepting responsibility, paraphrasing, and humor.

Example: *You are so nice, thank you!*

2. Solicitous - statement that takes responsibility off of other person, such as completing a task which the other person refuses to do.

Example: *Ok, I will take care of her this time, since you are afraid.*

3. Self Positive - positive or neutral statement about aspects of self, including personality characteristics, feeling state, achievements, behaviors, preferences, and facts.

Example: *I have been doing well in school lately.*


Example: *We verbally attack each other.*

5. Proposed Solution - statement proposing future action or change in attempt to resolve an existing problem pertaining to the people in the room.

Example: *Let's call your father and ask him for help.*

Negative Content

6. Complaint - Negative statements, such as displeasure, or anger about objects, situations or other people (not the recipient).

Example: *He left me when I was pregnant with my first child.*
7. Oppositional-Disapproval - statements including interruption of speaker, disinterest towards the recipient, disapproval, disproportion, humiliation, name calling, insults, threats, refusal, and defiant answers.

Example: You are too lazy to do that!

8. Command Unaccountable - ambiguous commands, cannot be done in the therapy room, or someone requesting permission to do something.

Example: I want you to stop seeing this girl.

9. Self Complaint - negative self-worth statements referring to past, present of future psychological conditions or self-degrading statements.

Example: No one likes me.

Neutral Content

10. Negative Substance - any negative statement about a drug or alcohol.

Example: Prescription pills cause serious addiction.

11. Command-direct - specific request for immediate change.

Example: Give me the phone!

12. Pain Verbal Statements - statement of physical pain or functional limitation in the past, present or future.

Example: I have such a headache today that I cannot focus on anything.

13. Conversation tactics, such as questions, uh huhs, responses that keep the conversation going.

Example: What did the teacher say about your homework?

14. Teach – statements including technical information about skills and academic, rules (including social, moral or family rules).

Example: When you finish your homework, you can watch TV.
15. Talk - greetings, statements of general information, or rambling.

Example: *Good-bue.*

16. Inaudible - coder could not hear what was being said.
Appendix C: Coding Examples

Example of a relational reframe:

Parent: He (child) needs me only when he is in trouble. When I ask him for help, when I am stressed out, he is trying to camp out. Instead of helping me, he brings a therapist.

Therapist: Hmmm, I think that maybe as a men he thinks that it is not very appropriate to express care and love and say “mom, I am worried about you”, “mom, I love you”, so he just brought somebody who can talk to you.

Example of a relational interpretation:

Parent: My son left the house after the argument, and she (Adolescent) went somewhere and next thing I know she is at the drop-in shelter. (Adolescent) said she did not want to be here and ahh, basically a lot of words were exchanged…

Therapist: (To parent) So it seems that you started to solve some problems with your son and for (Adolescent) it was very hard to stay in this emotional situation, she did not feel comfortable. (To Adolescent) Probably you felt torn apart trying to protect your brother and your mom, and you do not want to see them fighting. It seems like you love both of them and it is painful to see how they fight.