An examination of the efficacy of problem solving skills training for adolescent substance abuse: Results of a pilot study

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AN EXAMINATION OF THE EFFICACY OF PROBLEM SOLVING SKILLS TRAINING FOR ADOLESCENT SUBSTANCE ABUSE: RESULTS OF A PILOT STUDY

by

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ABSTRACT

An Examination of the Efficacy of Problem Solving Skills Training For Adolescent Substance Abuse: Results of a Pilot Study

by

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The literature investigating adolescent substance abuse has identified both social skills deficits and parental conflict as variables which both predict and maintain substance abuse. Supported by these findings, the present study evaluates the efficacy of utilizing cognitive problem solving skills training with adolescent substance abusers and their primary care giver (Youth-Parent Cognitive Problem Solving Training - YPCPS). This treatment condition is an alteration of Individual Cognitive Problem Solving Training (ICPS, Azrin, Donohue, Teichner, Crum, Howell, and DeCato, 2000) which was developed as a treatment modality for individual adolescent substance abusers. The interventions instructed participants, through a brief 5 point strategy, how to objectively and systematically address problems and make decisions that maximize potential positive outcomes while minimizing negative consequences. This study compared the efficacy of these two formats by treating two parent-youth dyads in a multiple baseline design. YPCPS was associated with improvements in externalizing problem areas (i.e., substance abuse, delinquency), Parent-Youth relationship satisfaction and observed dyad
communication. ICPS was associated with enhanced social problem skills, improved internalized states, increased relationship satisfaction and dyad communication improvements, and an increase in externalized problems. These differences may be due to subject heterogeneity (i.e., socio-economic, gender, ethnicity) and time-effects (i.e., probation status) which made conclusion regarding treatment efficacy largely untenable.
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CHAPTER 1

INTRODUCTION

Adolescent Substance Abuse and its resulting ramifications are ubiquitous within American culture; yet substance type and diagnostic severity vary greatly among individuals. Nevertheless, substance use at any level can become problematic as the adolescent population is developing emotionally and physically. Once established, substance abuse disorders are often chronic. Therefore the potential exists for the social, physical, and emotional consequences of adolescent substance abuse or dependence to impact the individual and society throughout the life of the substance abuser. Intra-psychic problems such as depression, anxiety, and psychotic breaks can plague the individual in addition to the more commonly addressed social and biological consequences (e.g., violence, crime, familial discord, driving accidents, increased disease, and unplanned pregnancy; Tapart, Aarons, Sedler, & Brown, 2000; Segal & Stewart, 1996; Weinberg, Rahdert, Colliver, & Glantz, 1998).

The current DSM-IVR criterion of the Substance Abuse diagnosis focuses primarily on the social and occupational consequences of substance use. The diagnosis of Substance Dependence includes such changes in life-style while also indicating signs of emotional obsession centered on the substance as well as physical symptoms such as tolerance and withdrawal. Diagnostic committees developed the criterion for use with the adult population, thus applying them to an adolescent group is problematic.
Diagnosticians are developing and debating alternative criterion more specific to an adolescent population within the current literature (Bukstein & Kaminer, 1994; Deas, Riggs, Langenbucher, Goldman, & Brown, 2000; Harrison, Fulkerson, & Beebe, 1998; Segal & Stewart, 1996; Winters, Latimer, & Stinchfield, 1999). These alterations would include differences in legal consequences between adolescents and adults and developmentally appropriate indicators of social functioning (i.e., peers, academics, recreational activities). In addition, there are a number of reports on the prevalence rates of substance abuse disorders within the adolescent population with somewhat varied results. Such reports reflect the fact that a great number of adolescents have either put themselves “at risk” for or actually have developed a Substance Abuse Disorder (APA, 2000; Arrons, Brown, Hough, Garland, & Wood, 2001; Bukstein & Kaminer, 1994; Deas et al., 2000; Harrison et al., 1998). These prevalence rates are moderate in comparison to other findings and reiterate the magnitude of the problem: over half of adolescents have used substances in the past; among 12th grade students almost a quarter meet the criteria for substance abuse and over a tenth are dependent on a substance.

Adolescent substance abuse disorders are preceded and accompanied by a myriad of mediating variables and co-existing disorders. Disorders most commonly found in co-existence with adolescent substance abuse are: Major Depression, Anxiety Disorders, Conduct Disorder, Oppositional Defiant Disorder, and Attention Deficit Hyperactivity Disorder (Garland, 2001; Kennedy, 1993; Kaminer, 2001, Chap. 13, 300-301). Studies have found that co-morbid diagnosed individuals have poorer treatment outcomes, require more intensive treatment, and have fewer positive peer relationships than their counterparts with a substance related diagnosis alone (Sanford et al., 2001). In addition to
co-morbid disorders, other factors such as biological composition; polygenetic traits (i.e., traits resulting from the interaction of inherited genes particularly those associated with social deviance); intra-psychic distress; physical and emotional development; and social or cultural factors can all prevent or promote substance abuse (Rosenstein & Horowitz, 1996; Segal & Stewart, 1996; Su, Hoffman, Gerstein, & Johnson, 1997; Weinberg et al., 1998). In this study the most relevant of these predisposing factors are those most closely associated with families and social learning theory. These variables include a lack of family functioning, poor parental skills, parental substance abuse, as well as the decay of neighborhoods and other external supports. For instance, adolescents who experience a deficient or negative modeling of basic life coping skills by parental figures are more likely to turn to substances as a method of stress relief. It is clear that, in addition to reducing substance use, any intervention with this population should strive to address both the predisposing social factors and any symptoms of co-existing disorders.

The following literature review and study focus on current therapeutic techniques which use cognitive behavioral training and family intervention to address adolescent substance abuse. Specifically, this study examines the Individual Cognitive Problem-Solving (ICPS; Azrin et al., 2001) approach in two adolescent substance abusers. Unique to other studies, the current multiple-baseline evaluation compares two conceptually distinct approaches to problem-solving treatment in this population, i.e., ICPS with, and without, parental involvement. In this way, the potential additive benefits of parental participation in problem-solving for adolescent substance abusers can be ascertained. Assuming experimental control is maintained (i.e., extraneous variables are kept to a non-significant minimum), it is hypothesized that parental involvement will assist youth in
learning. Participant problem-solving skills and improving their conduct, as compared with the absence of parents, are predicted to experience other benefits including a decrease in the adolescent’s substance abuse, negative mood, and an increase in their social and academic functioning.
CHAPTER 2

LITERATURE REVIEW

Treatment Outcome Studies

Treatments for Adolescent Substance Abuse are widely studied: behavioral, cognitive behavioral, family systems, and multi-systemic oriented techniques have tentatively been found efficacious. Unfortunately, many studies in this domain fail to utilize validated outcome measures (Deas & Thomas, 2001). Williams and Chang (2000) express the view that better methodological procedures need to be implemented in outcome studies in this area. They further report that treatment, in any form evaluated, is more efficacious than no treatment, and family treatment is superior to individual outpatient treatment alone.

Family based interventions that are currently widely studied and utilized include:
Structural Strategic Family Therapy (Szapocznik, Perez-Vidal, & Brickman, 1988),
Parent Training (McGillicuddy, Rychtarik, Duquette, & Morsheimer, 2001),
Multisystemic Therapy (Henggeler, Schoenwald, Borduin, & Cunningham, 1998),
Solution Oriented Parenting Groups (Selekman, 1999), Multidimensional Family Therapy (Liddle, 1991), and Family Behavior Therapy (Azrin et al., 2001). There have been even fewer studies specifically addressing the efficacy of problem solving skills training in reducing substance use and improving youth-parent relationships. The following studies, taken from current meta-analysis of studies in the literature, contain designs that qualify
as controlled outcome studies (Deas & Thomas, 2001; Stanton & Shadish, 1997; Williams & Change, 2000).

Skills Training

McGillicuddy et al. (2001) created Parent Behavioral Skills Training Groups and compared the resulting treatment effects to a waitlist group. The participants were adolescents between the ages of 12 and 21 years (mean age treatment group, tx, 6.64 years, waitlist 15.88 years), predominantly male (tx group 71%, waitlist group 75%), and all were diagnosed with a substance abuse disorder as identified by the Alcohol Use Disorders Identification Test (Barbor, De la Fuente, Saunders & Grant, 1989). The study’s design was a between groups method utilizing an ANCOVA to remove pre-treatment scores as an effect. The treatment group measure of parent coping was significantly higher than the waitlist group ($p < .01$). Although the treatment group experienced improvements in parent psychological functioning, family functioning, and adolescent substance use were not significantly greater than the waitlist group scores. It is clear that there is some level of change occurring in most domains with this treatment. Nevertheless, further improvements could be made to increase its effect, particularly in the areas of family functioning and adolescent substance abuse. It would also be valuable to conduct a patient satisfaction survey in order to assess the individual reactions to this very structured format.
Family Interventions

Szapocznik, Kurtines, Foote, Perez-Vidal, and Hervis (1983, 1986) conducted two studies which evaluated two forms of the Brief Strategic Family Therapy (BSFT; Minuchin, 1974, 1976; Haley, 1976; Madanes, 1981). The first form of treatment, Conjoint Family Therapy (CFT), followed BSFT as multiple family members were enlisted; the second form of treatment, One-Person Family Therapy (OPFT), followed the procedures of BSFT with the youth alone. Szapocnik et al. (1983) utilized a between subjects design with random assignment to either the CFT or the OPFT conditions. Eighteen families were assigned to CFT and nineteen families were assigned to OPFT. Twenty-four of the families were available for follow-up assessments (6 to 12 months post treatment). Subjects in the studies were adolescents (12 to 20 years of age with a mean age of 17), predominantly male (78.3%), from Hispanic families (primarily Cuban American), and low SES. Clinical qualifications for study participation included: problematic substance use as diagnosed by the CODAP (Client Oriented Data Acquisition Process), no history of psychosis or mental hospitalization, and two cohabitating family members willing to participate in treatment (one from an older generation). Investigators conducted assessment pre-treatment, post-treatment, and 6 to 12 weeks after treatment completion. The investigation utilized a mixed design ANOVA using condition (CFT & OPFT, no control group) as the between-group independent variable and time (intake-termination-follow-up) as the repeated measures independent variable. The dependent variables utilized were the Psychiatric Status Schedule (PSS), the Behavior Problems Checklist (BPC), and the Structural Family Task Ratings (FTR). The subjects made significant gains in both treatment conditions from pre to post.
treatment in the aforementioned measures. In addition, the lack of treatment by time effects in this initial study indicated an absence of differences between the groups at the termination and among subjects at follow-up.

Szapocznik et al. (1986) replicated the previous study with an increase in the length of treatment duration (i.e., effect size) from 12 weeks in 1983 to 15 weeks in 1986. A second difference was a nominal reduction of the ratio of participants in the conditions to 17 families in the CFT condition and 18 families in the OPFT condition. Subjects were once again adolescents (12 to 20 years of age with a mean age of 17), predominantly male, from Hispanic families (primarily Cuban American), and low SES. Participants met the same clinical qualifications for participation stipulated in the initial study. In this investigation separate MANOVA’s were conducted for each set of dependent variables in addition to ANOVA comparisons as conducted in the first study. The follow-up also did not produce significant treatment by time effects at termination, which supported the previous findings of equality among the treatment groups. The follow-up assessment revealed that BPC, PSS, and FTR scale results were significantly different between the groups and indicated that the OPFT was more effective than CFT at sustaining family functioning and substance use improvements. Overall, these studies lend strong support to systemic forms of family treatment for this population. More specifically, they indicate that the use of systemic family treatment techniques can be effective with individual adolescents when the family involvement is not feasible or is limited. This finding adds support to addressing family functioning in general as a component in the treatment of the adolescent substance abusing population.
Friedman (1989) explored the comparative efficacy of Functional Family Therapy (FFT; Barton & Alexander, 1981) and Parent Effectiveness Training (PET; Gordon, 1977). There were 121 participants (60 PET, 61 FFT) who were predominantly male (86% PET, 92% FFT) between the ages of 14-21 with a mean age of 17.9 years (SD 1.84), and who had a significant score on the Drug Severity Index. The majority of participants lived in their parents' home (90% PET, 92% FFT) and nearly half of participant's parents were divorced (40% PET, 33% FFT). The study was a mixed design (i.e., PET vs. FFT; time = pretreatment vs. follow-up) utilizing random assignment. Friedman (1989) found at a nine month follow-up a 50% reduction in substance use and abuse, and a significant decrease in psychological and family problems, identified prior to treatment, in both groups. There were no significant differences between the two groups in follow-up scores with regard to any of the dependent variables (placed in a multiple regression equation as predictors). Despite a greater attrition rate in the parenting group condition, Friedman confirmed that both family therapy and parenting groups were equally effective. For the purposes of this discussion, however, the results of the present study point to the importance of including parents as a vital component of the treatment of adolescents.

Henggeler, Bordwin, Melton, and Smith (1991) reported on two governmental studies on adolescent substance abuse treatment and the efficacy of Multi-Systemic Therapy. The first study, the Missouri Delinquency Project, compared Multi-systemic Therapy (n = 88) and individual therapy for youth (n = 63). Participants were court-referred adolescents (mean age 14.4 years), with two past arrests. The group of participants in this study was described demographically as; 70% Caucasian, 30% African-American, 67%
male, 88% residing with their biological mother, and 65% having family incomes in the low socio-economic status range. The investigators designed the study as a between subjects design utilizing random assignment which compared the proportions ($\chi^2$) of arrests between the groups. A four year post treatment follow-up evaluation of participants found that youth engaged in Multi-systemic Family Therapy had experienced a significant decrease in drug related arrests ($p < .02$) than those in individual counseling and those refusing all treatment (3%, 15%, and 17%, respectively). A second study, the South Carolina’s Family and Neighborhood Services Project (FANSP) placed participants in a Multi-systemic Therapy ($n = 28$), or the usual juvenile justice services (i.e. probation) provided by Department of Youth Services-United States (DYS-US; $n = 19$). Participants were adolescents (mean age 15.1 years) referred by the DYS-US subsequent to a recent felony conviction. The study was a between group design which used an ANCOVA to compare the group means while removing pre-tests scores as a covariate. The majority of participants were African American (74%), male (72%), and lived with their biological parents (80% mother, 47% father). Compared to cohorts in the probation condition, youth participants in FANSP participating in the multi-systemic condition reported a significant decrease in soft drug use during the three months of treatment. Multi-systemic family therapy has been utilized in treating families presenting with problems that are overtly connected the interaction of the entire family. The results of these studies indicate that addressing the roles and expectations of all family members, including the adolescent, within that structure can impact the adolescent's substance abuse.
Joanning, Quinn, Thomas and Mullen (1992) compared Family Systems Therapy (FST) with Adolescent Group Therapy and Family Drug Education. The subjects were adolescents (11 to 20 years of age, mean age 15.4 years) whom a parent or school official reported using alcohol and one or more controlled substances and who exhibited “behavioral signs of drug use.” The majority of the sample was Caucasian (mother 68%, father 74%); with Mexican-American (mother 29%, father 23%) and African-Americans (mother 3%, father 2%) comprising the ethnicity of the remaining parents. Researchers used a $2 \times 2$ chi square in a mixed research design to compare group rates of pre and post test substance use. Joanning, Quinn, Thomas and Mullen (1992) found that FST decreased substance use significantly ($p < .005$) in comparison to the other groups. Additionally, all three treatment conditions improved adolescent’s perception of parent-adolescent communication significantly ($t = 2.89, p < .0001$). These results indicate that working directly with the family is more efficacious than addressing substance abuse related family issues with either the parent or adolescent in separate forums.

Lewis, Piercy, Sprenkle, and Trepper (1990) examined the Purdue Brief Family Therapy (PBFT; Lewis, Piercy, Sprenkle, & Trepper, 1989) and parental participation in Training in Parenting Skills (TIPS; Payne, 1985). The participants (PBFT, $n = 44$; TIPS, $n = 40$) were adolescents (12 to 22 years, mean age 16 years) and predominantly male (68 males, 16 females). Courts, other institutions, and advertisements were the sources of participant referrals. The design was a within subjects design which examined the difference subjects’ scores for substance abuse levels using t-tests. The Purdue Brief Family Therapy condition resulted in a greater number of participants reducing use (55%) when compared with TIPS (38%), however, the researchers did not examine the
statistical significance of this difference (between group differences). Approximately equal numbers of participants increased substance abuse in the two treatment conditions (32% and 35%). Lewis et al. (1990) established that, although both interventions demonstrated both a reduction and an increase in use for participants, a brief form of family therapy is somewhat more effective than parenting skills training. These findings are directly related to the present hypothesis as it utilizes skills training techniques while maintaining the benefits of a family intervention by involving both parent and adolescent.

Cognitive Behavioral Interventions

Kaminer, Burleson, Blitz, Sussman, and Rounsaville (1998) conducted a study comparing Cognitive-Behavioral Therapy (CBT) with Outpatient Interactional Therapy (IT). Participants were 32 dually diagnosed adolescents (13 to 18 years; mean age 15.4 years CBT, 16.3 years IT), primarily male (CBT 60%, IT 63%) and white (80% CBT, 100% IT). All participants met the DSM-III-R criteria for substance abuse disorders. The study was a between groups design using hierarchical multiple regression to determine whether or not differences at follow-up assessments could be determined by group membership and other variables. They found that the regression equations predicted: a) successful treatment for substance abuse, in general, from either treatment; b) those with externalizing disorders had a greater success in CBT than IT; c) conversely, internalizing disorders (without any co-existing externalizing disorder) responded better to IT than CBT. This study assisted in establishing the Cognitive Behavioral Techniques, including skills training, as an effective treatment for this population. This study serves to support the cognitive nature of the present studies primary treatment condition, particularly as the
Problem-Solving Skills Training will target the more externally oriented behaviors that have been disruptive to the adolescent and parent (e.g., aversive communication, dissimilar goals, risk taking behaviors).

Azrin, Donohue, Besalel, Kogan, and Acierno (1994) evaluated a nondirective, supportive counseling with a monthly day-long parent intervention (n = 11) against a family inclusive cognitive behavioral program (n = 15). The 26 participants were primarily male (77%) youths (13 to 18 years, mean age 16 years), of which 19% were from a minority group. The court system and family members referred the participants who had all used illegal drugs during the past month. A greater percentage of abstinent subjects occurred in the behavioral treatment (73%) as compared to the supportive counseling condition (9%). The study was a between groups design in which the proportions of substance use per month (percent of subjects and mean number of days per month) and subjects were randomly assigned. The behavioral intervention group’s substance use scores were significantly less than the supportive counseling group’s scores for the 2nd, 5th, and 6th months. T tests showed significantly greater improvements for the behavioral treatment compared to the nondirective, supportive counseling condition in academic performance, parent satisfaction, mood, and general conduct (p < .05). In short, Azrin et al. (1994) found success in combining a cognitive behavior/ skills training approach with a strong family component. These results point to adolescent substance abuse being most effectively viewed and approached as a combination of a skills deficit, inaccurate cognitive patterns, and problematic family interactions.

Azrin, et al. (2001) replicated the cognitive behavioral program used in the aforementioned study by Azrin et al. (1994). In this investigation, a cognitive behavioral
skills training with family involvement (Family Behavior Therapy; FBT; n = 29) was compared to an individual therapy focused on enhancing cognitive problem solving abilities (Individual Cognitive Problem Solving; ICPS, n = 27). Participants were adolescents between 12 and 17 years of age (mean age 15.4 years), predominantly male (82%), primarily Caucasian (79%), and all were diagnosed with a DSM-IV diagnosis of Conduct Disorder or Oppositional Defiant Disorder and either Substance Abuse or Substance Dependence. In this study, the investigators implemented a mixed design assessing differences of time within subjects and treatment modality between groups. Participant drug use was significantly reduced across time ($p < .05$); however, there was no significant treatment by time interaction indicating both treatments were equally effective. Participants, their parents, and external sources (i.e. courts, school reports) also reported statistically significant improvements ($p < .05$) across time in conduct, school performance, and mood. The authors suggest that, as both treatments are equally effective, ICPS be used based on its ease in training, versatility in addressing problems, and its ability to avoid the necessity of family involvement that FBT entails. This study replicates the use of ICPS; however, it does engage a parent in the adolescent’s treatment in hopes that this will increase the treatment benefits while maintaining the versatility of the treatment design.

Multi-intervention Comparison

Waldron, Slesnick, Brody, Turner, and Peterson (2001) investigated Individual Cognitive Behavioral Therapy (CBT; Hester & Miller, 1989; Kadden et al., 1995; Millar & Rollnick, 1991; Monti, Abrams, Kadden, & Cooney, 1989; Wilkinson & LeBreton,
Functional Family Therapy (FFT; Alexander & Parsons, 1982), a combination of the aforementioned family and individual treatments, Joint and Group interventions. Subjects were 120 adolescents between 14 and 18 years of age (96 boys, 24 girls), predominantly Caucasian and Hispanic, who were using substances over 50% of the time, and were referred for treatment by parents or court mandate. The study design utilized a mixed design treatment (FFT, CBT, Joint, and Group) by time (pre-treatment, 4 month follow-up, 7 month follow-up) with random assignment. The results of main effects revealed statistically significant differences among the means across time ($p < .001$) between groups, and time by treatment ($p < .011$) with regard to marijuana use. Subsequent tests revealed that while marijuana use in Joint and FFT conditions decreased significantly, the CBT and Group conditions did not significantly reduce their marijuana use. In short, the Joint Individual-Family Condition proved to be the most effective treatment for both initial outcome and treatment gains maintenance. This study confirms the findings of Azrin et al., 1994 and 2001, and lends further support for a family component when intervening with adolescent substance abusers.

This group of articles, although small in number, met the criteria necessary to be considered controlled treatment outcome studies and point to specific conclusions. First, it appears that at least a minimal level of parental or guardian involvement in treatment is a vital component of treatment with the adolescent substance abusing population. Second, and most salient to this study, is the comparison between individual CBT in Waldron et al. (2001), which did not result in change, and other CBT models (Kaminer et al., 1998; Azrin et al., 1994; Azrin et al., 2001) that created significant positive change in substance abuse and other domains. Perhaps, even when limited as with ICPS, the parent interaction
in such instances proved essential. Nevertheless, other factors could have impacted Waldron’s outcome for the preponderance of evidence confirms the efficacy of CBT techniques with this population. Thus, the literature reveals that both the family and cognitive behavioral components of the present study’s primary intervention are well supported.
CHAPTER 3

METHODS

Setting and Length of Treatment

Westcare is a non-profit, multi-state agency specializing in Substance Abuse Disorders prevention and treatment for all populations (e.g., adolescents, adults, males, females, minorities) from Las Vegas, Nevada and the surrounding communities. Their primary form of treatment is supportive group treatment combined with an additional psycho-educational curriculum. The supportive group intervention centers on discussing ongoing events and changes in the lives of the clients with an emphasis on substance use avoidance. The psycho-educational component entails providing information about the physiological impact of each substance, motivational strategies, and the various support groups within the recovery community. The treatments and assessments of this study occurred during the Westcare outpatient program in an available individual therapy room and lasted 60 to 90 minutes. Westcare conducts the urine screenings as part of treatment; the primary investigator obtained the results of these screenings from Westcare subsequent to obtaining an appropriate release of information (signed by youth and parent participants). Participants received screenings at the same rate (approximately once weekly) and manner as their outpatient peers as they would have experienced if they were not participating in this study.

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Random Assignment to Experimental Conditions

Investigators used a block random assignment process to select adolescents for participation from the outpatient population. The researchers chose the youth and parent participants from those adolescents who were: in their first month of outpatient treatment, were willing to remain in the study after Westcare treatment termination, and had parents appropriate for study participation. The primary investigator matched potential participants for similarity in substance use, age, and academic level. The chosen participants were then randomly assigned to one of the two experimental treatment conditions.

Apparatus

The assessment team administered a battery of assessments to both the parent and adolescent during each assessment period. The youth’s assessment obtained information about their substance abuse, social and academic adjustment, and quality of their relationship with their parent(s). The parent’s assessment utilized a similar measure to assess the youth’s substance use, peer interactions, and the parent-adolescent relationship. In addition to the aforementioned assessments, the parent and adolescent participated in a role-play which was subsequently independently rated for problem solving efficacy. The following sections outline the adolescent measures, parental measures, and role-play procedures that were utilized.
Youth Measures

Baseline Session Diagnostic Measures

Wide Range Achievement Test: Third Edition. The Wide Range Achievement Test - Third Edition (WRAT3; Wilkinson, 1993) is a measure of achievement levels in reading, spelling, and arithmetic controlling for comprehension. The three subtests each contain 55 items. Items in all three categories begin at a very basic level and incrementally increase in difficulty. The raw scores yield two T scores and two grade estimations: one based on the entire norm group and a second specific to gender. Wilkinson (1993) reports reliability scores for individual items, subtests and age groups, however, the overall reliability for the WRAT 3 ranging from .92 to .95 across all such variables. Wilkinson (1993) compared the WRAT 3 with the WAIS-R, WISC, and the SAT. He found moderate correlations with the related Wechsler sub-scales and high correlations with the comparable SAT sub-sections.

Structured Clinical Interview for Axis I Disorders: Section E. The Structured Clinical Interview for Axis I Disorders, Version 2, Section E Substance Use Disorders (SCID; First, Spitzer, Gibbon, & Williams, 1994) is a carefully constructed, structured interview covering diagnostic criteria for several behavioral disorders. This section focus is comprised of 24 pages the focus of which is substance use criteria. The items are separated into two sections: alcohol use and non-alcohol substance disorders. These sections are written in a decision-tree format allowing for a succinct and accurate diagnosis without irrelevant queries. The items have excellent structural validity as they are based directly on the DSM-IV-TR criteria for these disorders.
Assessment Period Measures

Illicit Drug Time-line Follow Back. The Illicit Drug Time-Line Follow Back- Youth (TLFB; Sobell & Sobell, 1996) utilizes a calendar to chart substance use, which occurred during the two weeks prior to assessment. This measure is repeated every four weeks during subsequent assessments. This instrument is frequently used in the current substance abuse disorder and treatment literature (with both adolescent and adult populations) in conjunction with urine analysis to track substance use. Independent reviewers have evaluated the interview and, which was found to be highly correlated with substance use information from agency client records (Breslin, Borsol, Cunningham, & Koski-Jaennes, 2001) and to remain valid and reliable across cultures (Sobell, et al., 2001). The interview utilizes prominent dates (e.g., holidays, birthdays, and weekends) and time specific questions to trigger the adolescent’s memory of recent episodes of substance use and the related consequences. The present study used this information as a component of monitoring the adolescent’s substance use and associated conduct (e.g., arrests, risk taking behaviors, academic failings, and school absences).

Beck Depression Inventory. The Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996) contains 21 items assessing level of depression in graduated response format from asymptomatic (0) to highly symptomatic (3). The BDI is a widely utilized tool for the assessment of different components of depression (e.g., low mood, fatigue, low interest in activities). Higher scores indicate severe depressive symptoms. The BDI is one of the most widely utilized psychological instruments in treatment and research today. Its reliability is reported between .73 and .92 (Beck, Steer, & Garbin, 1988), however, test-retest reliability ranges from .48 to .86 due to memory factors (Beck et al.,
1961). Richter, Werner, Heerlein, Kraus, & Sauer (1998) found that the BDI distinguishes depressed from non-depressed individuals with regularity. Similarly, Growth and Mamat (1990) state that the BDI provides an accurate measure of adjustment in a sample of 7th graders.

Social Problem Solving Inventory Revised. The complete Social Problem Solving Inventory Revised (SPSI-R; D’Zurilla, Nezu, Maydeu-Olivares, 2002) was another measure administered during assessment periods. The SPSI-R is a 25 item self-assessment of an individual’s skills in constructive problem resolution. Studies investigated the concurrent validity of the SPSI-R through a comparison with the Problem Solving Inventory (Heppner, 1988) and found significant correlations on all comparable scales. The following scales are constructed from item responses: positive problem orientation, negative problem orientation, rational problem solving, impulsivity/carelessness style, and avoidance style. The SPSI-R Positive and Negative Problem Solving Orientation subscales are dichotomous scales which detect strengths or barriers to effective problem solving within the individuals thought processes such as: perceiving the problem as threatening vs. as an opportunity, self-doubt vs. self efficacy, and low frustration tolerance vs. persistence. The Rational Problem Solving Scale measures a specific skill set necessary for productive problem solving: defining the problem, solution generation, following the decision, and confirmation of outcome. The Impulsivity/Carelessness Style Scale assesses the behaviors related to inattentive, poorly regulated behaviors (e.g., impulsiveness, lack of care, failure to complete tasks). The Avoidance Style Scale appraises the level of apathetic and inert behavior around problem solving (e.g., procrastinating, depending on others, ignoring the problem). The Total
scale was not utilized as the information was not as relevant to the discussion and is the least meaningful scale in terms of specific skill assessment (D'Zurilla et al., p. 30). The Negative Problem Orientation, Impulsivity/Carelessness, and Avoidance subscales are considered "dysfunctional scales." These subscales have the same mean and standard deviation as the other subscales although they differ from them in directionality, as higher scores are indicative of pathology. D'Zurilla et al., (2002) report that the SPSI-R has a high test-retest reliability for the young adult norm group, Pearson's r = .87.

**Urine screening.** Urine screening entailed monthly administered broad screen urine assays, which assessed the presence or absence of various substances according to the standard cut-off scores. These substances included alcohol, marijuana, cocaine, barbiturates, amphetamines, PCP, heroin, and meth-amphetamine.

**Youth Happiness with Parent Report.** Youth Happiness with Parent Report (YHP; Donohue, DeCato, Azrin, & Teichner, 2001) is a 13 item youth report which rates youth satisfaction with their current parental interactions on a scale from 0 to 100%. The items of this measure focus on interactions in domains that are common sources of conflict in parent-adolescent relationships (e.g., substance use, curfew, chores, and school performance). The measure has excellent face validity as the items do relate directly to parent-child communication. DeCato, Donohue, Azrin, and Teichner (2001) found that high levels of youths' satisfaction with parental interactions were negatively correlated with externalized behavior problems, but not internalized problems. They also found that youth satisfaction ratings did not vary across parent or youth demographic domains (age, ethnic minority status, or gender). This measure is a part of determining the efficacy of the problem solving skills training as the youth's satisfaction with the parent was
predicted to increase with intervention. The scores of all areas listed in the YHP scale were averaged to assess the overall rating of the youth’s happiness with their relationship with their parents.

**Parent Measures**

**Assessment Period Measures**

*Illicit Substance Time-line Follow Back.* The Illicit Substance Time-Line Follow Back (ISTLFB; Sobell & Sobell, 1996) interview was conducted with parents during assessment sessions. The primary investigator asked parents about any details regarding the adolescent’s substance abuse and related problems they could recall within the last six months. As stated previously, various researchers have used the ISTLFB widely in the literature and which was found to be valid and reliable in reporting substance abuse levels (Breslin et al., 2001; Sobell et al., 2001). This study used this data as a source of information about the adolescent’s substance abuse history. Furthermore, when compared to the adolescent responses on the ISTLFB and urine analysis, it will also serve as an indicator of parent-adolescent functioning. Higher correlations in responses would indicate both adequate parental monitoring and positive communication between parent and adolescent. These reports may be more highly correlated after Problem Solving Skills Training as parents and adolescents may communicate with increased openness when they are both working towards the same goals.

*Child Behavior Checklist.* The Child Behavior Checklist - parent report version (CBCL-P; Achenbach, 1983) is a 113 item comprehensive parent-report questionnaire describing child's behavior, interests, and problems within various domains (e.g., introversion vs. extroversion, medical status, academic performance, and behavioral
problems) and settings (e.g., home, school). Scores between 65 and 70 on this scale are considered to be approaching the clinical range and scores at, or greater than, 70 are within the clinical range which indicate potential pathology. The literature reports that the CBCL-P has high validity, the test re-test reliability is reported between .84 and .97, with an inter-parent agreement of .76 (Achenbach, Howell, McConaughy, & Stanger, 1995; Achenbach & Howell, 1993; McConaughy, 1994). This measure is very specific and concrete. In this study it serves as a further measure of adolescent functioning.

*Parent Satisfaction with Youth Report.* Parent Satisfaction with Youth Report (PHY; Donohue et al., 2001) is a 13-item parent report form which corresponds with the Youth Happiness with Parent Report and produces a rating of parent satisfaction with the adolescent relationship on a scale from 0 to 100%. This questionnaire measures parental satisfaction based of youth-parent interactions in domains commonly found to be problematic by parents of youth (e.g., substance use, curfew, chores, and school performance). The measure has excellent face validity as the items directly address parent-child communication. DeCato et al. (2001) report no variation in satisfaction with youth-parent interaction occurred across parent or youth demographic domains (age, ethnic minority status or gender) in their evaluation of the PHY. In the current study, this measure serves to monitor any improvements in the adolescent-parent relationship. Furthermore, as it is a confidential solicitation of both individual’s perceptions, the measure revealed differences in how the relationship is viewed (e.g., parent viewing the relationship in a more positive manner than adolescent, or vice versa). This information was not only helpful in determining problem solving skills training, but was also a valuable tool for collection of information for treatment. As with the YHP items, the
PHY scale scores across all items were averaged to yield an overall satisfaction rating with regards to parents’ interactions with their youth.

Parent and Adolescent Measure

Problem Solving Role Plays. The Problem Solving Role Plays involved having adolescents and parents participate in videotaped role-plays as a method of determining treatment efficacy. Assessment assistants administered two relevant, but hypothetical, scenarios for resolution per assessment session to parent and adolescent dyads (see Appendix I). The role-plays are based on nonspecific youth-parent conflicts commonly reported by outpatient adolescents in group therapy. Independent raters chose six scenarios from the initial twelve scenarios based on rankings along two domains: relevance and level of difficulty (Appendix I). The raters assessed each scenario for relevance to adolescent substance abusers (1-7; 1 - Completely irrelevant, 4 - neither relevant or irrelevant, 7 - Extremely relevant) and level of difficulty (1-7; 1 - extremely easy, 4 - neither easy or difficult, 7 - extremely difficult). Assessors consistently presented the scenario rated most relevant to adolescent substance abusers at every assessment session. Assistants presented one of the five problems rated closest to one another in difficulty individually over the course of the five assessment periods. The assessment team determined the order of the presentation of the five problems through a random selection. Assessors requested that the adolescents and parents not discuss the scenarios with other participants.

Trained independent raters reviewed and rated the interaction based on criteria for specific problem solving abilities and effective communication (Appendix II). The
problem solving items directly follow the steps of the problem solving procedure in order to determine to what extent to which the youth-parent dyad is capable of following the process independently. The communication items address aspects of communication typically associated with productive interactions. The primary investigator trained raters in the scenario review procedure until a .80 inter-rater agreement was reached. Raters were instructed to avoid all discussion of the tapes until the conclusion of the study.

Subjects

*Participant Selection*

Participants in this study were adolescents diagnosed with a substance abuse disorder who were engaged in outpatient treatment at a local outpatient clinic, which is affiliated with one of the largest provider of substance abuse treatment in the Western United States. The youth participated in this study with their custodial parents. Parent-youth dyads were informed of the study and invited to participate over the 14 week duration of the study. These individuals were approached as relatively new members of the existing group (n = 8) or at their first group session (n = 9). First and foremost, the primary investigator asked the participant’s parents how often they had taken their youth to treatment and how available they were for participation in treatment and assessment in order to assess availability. The IRB assent and consent forms were reviewed and the dyads were informed of the potential benefits, and risks. As a component of this disclosure participants were informed that their participation could occur during treatment hours as an adjunct to current outpatient treatment. Thus, participation would
not increase the time they presently spent in treatment. Only two of the 17 parents approached were available and interested in participating.

Male Participant

Demographics and Mental Status

The first participant was a 17-year-old Caucasian male who lived in a predominantly upper-middle class suburb of Las Vegas. He presented for treatment at Westcare after substance abuse related driving violations. The participant was oriented to person, place, and time and presented as average or above average in intelligence at the initial assessment and throughout treatment. His affect was moderately broad and stable. His social interactions with other group members were positive and pro-social in nature. He was open about his past use and his perceptions around it during this assessment and in groups. He acknowledged a previous substance abuse problem but not at the point of referral and viewed alcohol use as normal and desirable.

Presenting Problem

The participant denied any substance use at the time of assessment and during the three months of treatment in the outpatient program. He met criteria for poly-substance dependence based on his previous behavior as determined by the Structured Clinical Interview for Axis I Disorders - Version 2 - Section E Substance Use Disorders (SCID-E). He met this criterion based on the frequency and duration of his use of multiple substances and the problems arising from this use. In the past year the participant’s alcohol and marijuana use was maintained at approximately three days weekly (Thursday through Sunday). He reported that his use of alcohol and marijuana did result in increased tolerance but he did not experience related withdrawal symptoms. He began sporadic
alcohol use at 15 years of age and marijuana at 16 years. He reported sporadic and indiscriminant use of other substances, when available, which included opiates (Vicodin, Percocet, Lortab), barbiturates and benzodiazepines (Xanax, Valium), and amphetamines. He reportedly consumed at least 3 alcohol units, and between 1 and 2 “joints” of marijuana with varied frequency (i.e., three to four days a week at the most problematic period). As his use of the other substances was irregular he could not report a specific amount but stated he used approximately twice monthly for 1 to 2 days. He reported that he did experience the single withdrawal symptom of fatigue and extended periods of sleep. The academic and social symptoms presented at the time of his referral were reconfirmed during this assessment. He reported that he had attempted to reduce his use over the past five months; however this attempt was unsuccessful as he had experienced several brief relapses.

Problems associated with this use were in three domains: academic, health, and social. His substance use led to a decrease in academic performance and attendance. He reported consistently receiving above average grades and rarely missing class until his junior year during which his grades declined into the average and below average range and he missed approximately two weeks of coursework each semester due to use. The participant and his mother expressed concerns about college admissions due to this decline. The participant also reported that he experienced brief and transient health related problems due to use including: irregular sleep patterns, loss of energy, decreased appetite, and memory loss. Socially, the participant reported experiencing the following with increased use; increased substance abuse centered social activities, loss of a
significant other, and increase in risk-taking behavior (driving while intoxicated and
physical confrontations with peers).

History

*Family.* The participant lived with his biological mother, step-father, and two males
siblings (ages 15 and 19 respectively). He is in regular contact with his biological father
who has lived in Germany for seven years subsequent to the divorce from the
participant’s mother. The participant described his relationship with his mother as
cooperative and warm at the time of entrance into the study. Nevertheless, his
relationship with his step-father was conflicted as he was a strict disciplinarian (e.g., in
comparison to the participant’s mother) and the participant reported feeling that as a step-
parent he lacked the authority to sanction the participant’s behavior. He reported positive
relationships with his brothers but felt his older brother received preferential treatment
and fewer expectations from his mother and step-father in comparison to those placed
upon him. In addition to these family members, the participant has several extended
family members, including maternal grandparents, in the Las Vegas area who had been a
source of support through the changes inherent in divorce and remarriage. The
participant’s mother reported a family history of substance abuse as she had experienced
a period of alcohol dependence in her early thirties and her father had also been through
periods of alcohol dependence in binge patterns.

*Occupational/academic functioning.* The participant was in his senior year during his
participation in the study. He had a decrease in his academic functioning, from the above
average (B) range to the below average range (C/D) during his junior year which he
attributed to substance abuse. He reported that with cessation of use this academic year
his grades in all classes had improved with the exception of one, which he attributed to conflict with the instructor and a lack of interest in the subject area (US history). In addition, the participant was seeking employment in the retail industry and was modeling part-time through a local talent agency.

**Social functioning.** The participant reported having a small but stable group of male friends. He reported that these friends used substances but were supportive of his treatment. He had a female significant other and she and her friends had not used substances outside of isolated incidents of alcohol use. She and her cohorts have been very supportive of his cessation of substance use.

**Assessment**

*Illicit Drug Time-line Follow Back-Youth.* The youth confirmed that he had not used any substances since entering treatment, which corresponded with his mother’s report and treatment records. In addition, he has not missed school, engaged in physical conflicts with peers, or had any further legal issues (e.g., DUI, possession).

*Structured Clinical Interview for Axis I Disorders - Version 2 - Section E (SCID-E).* The participant met criteria for Poly-Substance Abuse as detailed in the above presenting problem section.

*Wide Range Achievement Test - Third Edition* (WRAT3, Wilkinson, 1993). The participant scored in the 11th grade range in the spelling subscale and the 12th grade range in the reading subscale of the WRAT.

**Female Participant**

*Demographics and Mental Status*
The second participant was a 17-year-old Caucasian-Hispanic female who lived in a densely populated, economically depressed area of Las Vegas. She presented for treatment after being charged with possession of crystal meth-amphetamine. The participant was oriented to person, place, and time and presented as average in intelligence at the initial assessment and throughout treatment. Her affect was broad and presentation affable. Her social interactions with the group were open and she both exhibited an interest in other group members and self-disclosed about her past use and its consequences freely. Although she was referred to treatment through the legal system she reported the consequences of her use were significant and that she had a strong resolve to end her substance use.

Presenting Problem

The participant denied substance use during the three months of treatment in the Westcare outpatient program. She met criteria for amphetamine dependence based on her symptoms prior to entering treatment at the clinic as determined by the Structured Clinical Interview for Axis I Disorders - Version 2 – Section E Substance Use Disorders (SCID-E). As a result of her substance use she had acquired academic, health, and social problems. Her substance use and familial instability led to poor school attendance and she withdrew from the Clark County School System without a degree at the age of 16. The participant had no further occupational training or plans upon entering this study. The participant reported health symptoms corresponding to regular amphetamine use included: irregular sleep patterns, decreased appetite with weight loss, increased pulse rate, and significant periods of memory loss. The participant’s drug use significantly impacted her social functioning after her withdrawal from school by limiting her social

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interactions to individuals over the age of 18 who used illicit substances. In addition, the participant had been involved in minor criminal activities with these adult individuals to support her habit between state support checks.

History

Family. The participant currently resides with her maternal aunt, an uncle, and three male cousins (ages 9, 12, and 15 years). Her biological father has a history of substance abuse and has been diagnosed with schizophrenia and was unable to provide any stability during her childhood; however, he has been supportive between episodes of severe mental illness and they were in contact during the past eighteen months. Her mother was also poly-substance abusing and passed away four years ago due to an opiate overdose. Since her mother’s death the participant had been supported by state and federal agencies. She had also cycled through periods of indigence alternating with periods during which she had rented her own apartment. These arrangements exacerbated and facilitated her substance abuse, however, this pattern ended following her last arrest five months prior to the entering the study at which time she moved in with her aunt. She and her aunt reported an increase in functioning for the participant and an overall positive environment. The participant described having an open and honest relationship with her aunt and her aunt who has taken on the role of parent; her relationships with her uncle and cousins have been conflict free and warm.

Occupational/academic functioning. As stated previously, the participant withdrew from the public school system at 16 years of age and never returned. Although, substance abuse and lack of supervision contributed to this decision, she reported that academically she consistently had issues with attention and motivation and performed below her grade
level prior to the substance abuse. The participant began preparing for the General Education Development (GED) exam upon entering treatment at Westcare. She was still contemplating what her skills were and what occupation she would enter.

Social functioning. The participant began establishing relationships with individuals in her age cohort upon entering her aunt's household. This goal was greatly facilitated when she entered Westcare’s outpatient treatment groups and was exposed to a variety of other adolescents engaged in more age appropriate tasks. During the assessment she expressed that some of her primary concerns in this area were dating and finding a significant other.

Assessment

Illicit Drug Time-Line Follow Back- Youth. The youth confirmed that no use or related problems had occurred since entering treatment, which corresponded with her aunt’s report and treatment record.

Structured Clinical Interview for Axis I Disorders - Version 2 - Section E Substance Use Disorders (SCID-E). The participant met the diagnostic criteria for amphetamine dependence based on the SCID-E.

Wide Range Achievement Test - Third Edition (WRAT3, Wilkinson, 1993). The participant scored in the 7th grade range in the spelling subscale and the 8th grade range in the reading subscale of the WRAT. While these results show a delay in academic performance for the participant’s age they are well within the abilities necessary for the treatment conditions.
Therapist and Evaluators

The primary investigator performed the role as therapist for the two subjects. She is a fourth year doctoral candidate at the University of Nevada at Las Vegas (UNLV) and had three years of experience in conducting therapy at the time of the study. Undergraduate volunteer research assistants (UNLV students who were juniors and seniors majoring in psychology and/or UNLV Honors College Students) conducted the assessments and rated the video role plays. There were five individuals trained in administering the assessments allowing two assistants to be present at each assessment session. The research assistants were trained in assessment procedures in seven ninety minute training meetings over six weeks. These trainings were entailed familiarization with paper and pencil measures and related instructions, camera equipment, scenario scripts (see appendix I). The assistants were instructed in the direction of all scales contained in the paper and pencil measures and how to defer questions to the primary investigator should they arise. The rehearsals of the scenarios were taped and later utilized to standardize the rating process and inter-rater reliability for evaluating the video-taped assessments. At the completion of the study two raters reviewed these training tapes until an inter-rater agreement of .8 was attained and then reviewed the scenarios of the youth and parents out of chronological order (i.e., scenario segments remained unassociated with any particular point of treatment).

Assessment Sessions

The assessment periods were completed approximately 60 to 70 minutes in length during which all components of the battery were completed. The youth and parent

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members of both dyads attended each assessment session with the exception of the male participant’s mother during the 16 week assessment point and this omission was due to serious illness. The research assistants administered the paper and pencil measures at the beginning of the assessment followed by the video taped scenarios. This format allowed one assistant would remain available to answer questions regarding the paper and pencil measures and the second assistant to prepare the video equipment. The paper and pencil measures were completed in approximately 35 to 40 minutes and the video tape role scenarios were completed in approximate 15 minutes. The primary investigator was on the premises responded to any unforeseeable concerns and collected the urine samples at the end of the assessment period.

Protocol Adherence

Protocol adherence was addressed prior to the intervention through rehearsal of the intervention prior to implementation and the use of protocol checklist for both YPCPS (see appendix II) and ICPS (see appendix III). The intervention sessions were evaluated for protocol adherence by research assistants subsequent to a two hour review of the treatment components and protocol checklists. Four sessions (e.g., two sessions from each participant) were reviewed. Two steps were reported by one of the reviewers as not complete during the first youth and parent session for the female participant. These omitted steps occurred during the introduction of the parent into the female participant’s treatment and may be attributed to the input of the youth which would have made these steps repetitious. These results indicate a 97% compliance rate and an inter-rater reliability of $\tau = .9937$ (Kendall’s Tau). This high level of protocol adherence can be
attributed to two factors: first, the use of protocol checklists during treatment and, second, the participant attenuation to the protocol steps. The primary investigator explained to the participants at the outset of treatment that she would refer to a list to ensure treatment quality and subsequently referred to the checklists at the completion of each step. The participants became aware of the steps and developed an expectation of treatment that corresponded to the protocol list facilitating protocol adherence.

Treatment Conditions

Baseline Assessment

The participants experienced a four-week baseline period during the first weeks of the study. The primary investigator reviewed the study requirements and procedures with, and obtained consent from, both youth and parent for participation and video-taped recording (see attached informed consent forms) prior to baseline. As stated above, the assessment team conducted the assessment battery. In addition, the primary investigator addressed the issues outlined in the treatment manual with each parent and youth dyad. These procedures took place during the initial session after the subjects sign the consent forms. This information was used to monitor progress over time and address the client’s problems directly in later sessions.

Individual Cognitive Problem Solving Training (ICPS)

This intervention revolved around teaching, and assisting the client to master a five step problem solving procedure. The five steps as presented to the client(s) were:

1) “Focus in”
2) “State the problem”
3) “What are all of my choices?”
4) "If I were to carry out this choice, what are the possible good or bad things that could happen?"
5) "O.K. I've thought about it and I think that this one is best."

The first step referred to the process of disengaging from arguments, secondary issues, and past problems. The therapist encouraged the client to place aside any other concerns in order to create an environment free of distractions. The second step, stating the problem, further focused on and specifies, in an objective manner, the precise issue at hand. The clinician then asked the adolescent to briefly and succinctly describe the problem that needed to be resolved. The third step entailed a brainstorming task in which the client and therapist listed every possible solution or action. The therapist encouraged the adolescent to be as creative and uninhibited as possible in creating this list. The fourth step was to have the client or therapist objectively rate each potential solution on the list for the possible outcomes. The ratings of both negative and positive outcomes were generated using a 0 to 100 graduated scale and they were subsequently used to create an overall score for each option (See Appendix D). The fifth step was to use the scores to decide what course of action to take by first throwing out all options with negative scores (negatives outweigh positives) and then selecting the highest rated solution from among the remaining options. The therapist outlined the course of action chosen and the plans needed to accomplish it. The client then proceeded to implement the selected plan if the client-generated problem was an actual problem rather than a role-play or scenario. The client and therapist evaluated the outcome and made resulting alterations to the plan during the next session.

Azrin et al., (1994, 2001) designed this intervention such that the client masters these steps in an incremental manner and progresses from neutral scenarios to the actual
problems the adolescent and parent repeatedly face. In the first session, the therapist introduced the youth to the goal of the intervention as enhancing their ability to solve problems. The problems that the youth experience during the baseline period were reviewed and connected to learning how to implement different tactics for approaching problems. The therapist presented the process of utilizing hypothetical scenarios to master the process of problem solving prior to addressing the participant's current problems. Subsequent to this introduction, the steps were applied to neutral problems that could confront any individual: e.g., a lost dog, inability to pay bills, a broken television. The therapist then solved the first problem and, subsequently, the therapist and client alternate in solving hypothetical problems.

The following sessions continued in this pattern until the therapist's ratings of the youth problem resolution were 50% or more correct. The therapist noted if the youth could consistently state and perform each of the five steps correctly for each scenario during each scenario (three or more successfully completed steps per scenario is considered 50%). Prompts from a cue card with the aforementioned step descriptions were allowed at any point, and if the youth was silent for over five seconds the therapist directed the youth to look at the cue card. Once the youth achieved this goal the therapist could introduce scenarios derived from the client's past experiences. The clinician then contacted the parent when they were either transporting the adolescent to session or on the phone, and asked them to briefly remind the youth that they could use these skills if problems arose between sessions. Nevertheless, the parent was not formally exposed to, or trained in, the components of the intervention.

*Problem Solving Skills Training - Parent and Youth (YPCPS)*

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YPCPS contained the same five steps as presented to the youth client in the preceding intervention. There were slight differences in the process when training the youth and parent in tandem. The first step continued to entail placing aside distractions and secondary concerns; additionally, it required that the participants eliminate any current interpersonal conflict between the youth and parent. During the second step, stating the problem, the parent and adolescent were instructed on how to agree on the goal that they targeted in a non-judgmental and specific language. The third step, a brainstorming task, involved the therapist encouraging the parent and adolescent to create the aforementioned list of solutions without censure from either dyad member. The parent and adolescent used the same rating system, which was detailed in the individual format (See Appendix III). The parent and adolescent were subsequently asked to rate each solution independently for the negative and positive columns. The average of the two numbers was then utilized as the final rating. The fifth step was identical, as the highest positive score was still the solution chosen. The parent and adolescent then discussed the chosen course of action further and specific delegation of action was made between them. If the problem was an actual problem, rather than a role-play or scenario, the youth and parent implemented the plan and re-evaluated it in the next session.

The intervention proceeded from neutral scenarios to situations around which adolescent and parent repeatedly experienced conflict. In the first session, the clients were introduced to the goal of problem solving as enhancing their ability to solve problems together. The therapist presented the process of utilizing hypothetical scenarios to master the process of problem solving prior to addressing the adolescent and parents’ current problems. Subsequent to this introduction, the steps were applied to neutral
problems that could confront any individual: e.g., a lost dog, inability to pay bills, a broken television. The therapist resolved the first problem and then alternated with the youth-parent pair in solving scenarios.

The following sessions continued in this pattern until the therapist ratings of the parent and youth problem resolution was 50% or more correct. The therapist noted if the parent and youth stated and performed each of the five steps correctly for each scenario (three or more successfully completed steps per scenario is considered 50%). The clinician allowed the parent and adolescent to use prompts from a cue card with the aforementioned step descriptions at any point, and if the youth and parent were silent for over 5 seconds the therapist directed them to look at the cue card. The therapist, once competence was achieved, introduced scenarios derived from the client’s past experiences. As with the youth only treatment procedures, the therapist directed the parents to briefly remind the adolescent to consider using this process if confronted with a problem. As the parent is now included in the treatment, if a problem arose between sessions, the parent and adolescent they utilized the problem solving procedure together

Participant Schedule

This study compared conditions between subjects as well as changes over time within subjects utilizing a multiple-baseline design across subjects. Shown as figure one below the schedule for comparisons between two subjects and their parents. This study compared Problem-Solving Skills Training with Youth alone with Problem-Solving Skills Training with Parent during the first four weeks of treatment. Subsequently, both
dyads experienced the parent-youth intervention during the final four weeks of treatment (weeks 8-11). In this manner, multiple baseline design accounts for extraneous variables that may occur due to the passage of time.

The male participant, following four weeks of baseline assessment (weeks 1-4), received eight weeks of Youth-Parent Cognitive Problem Solving (YPCPS) with his mother. During the eight weeks of treatment there were assessment periods after treatment at week 4 and after the final session at week 12. The female participant also experienced a four-week baseline assessment (weeks 1-4), and then experienced four weeks (4-8) of Individual Cognitive Problem Solving (ICPS), followed by four weeks (9-12) of Youth-Parent Cognitive Problem Solving (YPCPS) with her aunt. Research assistants reassessed the two participant dyads one month post-treatment (week 16) to determine maintenance of treatment gains.
CHAPTER 4

RESULTS

The research collected data in the following domains: youth substance use, behavior and mood stability, and problem solving abilities. Results are presented in figures utilizing scales representing these domains. The changes for each participant (or dyad) are discussed below with an outline of relative differences between participants during each experimental phase.

Youth Substance Use

The participants’ urine analyses were consistent with the parent and youth reports of substance abuse. These measures indicated that the male participant did not resume substance use at any point during the study. Conversely, the female participant resumed use of THC during the last two weeks of the second treatment session (youth and parent intervention) and continued this use through the follow-up period. The research team detected this use through parent and youth report, as well as low levels of THC present in the urine screening results. The screening had negative (no presence) readings for all other substances. A Nevada State probation official removed the female participant from legal probation the week before resuming THC use. The ITLF results also revealed that no other delinquent behaviors were reported in the academic, occupational, or legal areas that would indicate use (no truancies, missed work, arrests).
Figure 2. Adolescent Substance Use

Nevertheless, neither participant returned to substance abuse during the treatment comparison period allowing the treatments to be examined during this period. The second four weeks were conversely confounded by the THC use and, thus, it is difficult to draw conclusions regarding drug use treatment effects resulting from problem solving interventions from this data.
Internalized Behavior

*CBCL Internalizing Scale*

Overall the male participant exhibited a positive response to treatment in the domain of overall mood stability as measured by the CBCL Internalizing Scale (see Figure 3).

![Male Participant Graph]

![Female Participant Graph]

Figure 3. Child Behavior Checklist (CBCL) Internalizing Scales
The baseline assessment scores are close to the clinical cutoff for this scale. His scores subsequently improved during the first four weeks of youth and parent problem solving intervention, and these gains were then maintained during the second four weeks of the youth-parent intervention. These results indicate that the male participant was not experiencing significant overall internal distress (i.e. anxiety, depression, atypical thought patterns) when entering the study but the intervention but did improve his functioning.

The female participant’s CBCL Internalizing Scores (Figure 3) were also close to the clinical range during baseline. Although the magnitude of effect was minimal, her internalizing behavior appeared to marginally improve after four weeks of individual problem solving. The assessment score returned to the clinical cut-off, and was maintained at follow-up after four weeks of the parent-youth intervention. This pattern supports the benefits of the youth only intervention and points to a potential detrimental impact of either parental involvement for this student (e.g., probation ending, family support).

The results in this domain, when comparing both participants, are difficult to interpret. Indeed, the male participant’s scores continued to decrease with the addition of the parent in therapy, whereas the female participant’s internalizing scores appeared to revert back to pre-morbid levels. Interestingly, it appears that the female participant’s relapse to drug use during the parent phase of her treatment may have influenced increased internalizing scores.
Depression was isolated as an internalizing problem through the self-report of youth participants on the Beck Depression Inventory (see Figure 4). The male participant's scores in this domain were very low from baseline to the follow-up (< 7). The two baseline points were relatively level. Subsequently, his scores elevated slightly after four
weeks of youth-parent intervention. The scores maintained at “0” at follow-up after four more weeks of youth-parent intervention. Therefore, unless self-report of depression was denied, the male participant either did not experience significant levels of depression at any point during the study. Thus, the only conclusion that can be made regarding treatment effects on depression for this participant is that the youth oriented problem-solving intervention was associated with an insignificant elevation in depression, and that the parent oriented problem solving intervention resulted in a non-significant decrease in depression that was maintained at follow-up assessment.

The female participant experienced a descending baseline regarding her depression scores. Her first baseline score was in the moderate range and the second baseline assessment was in the minimum range. This decline continued to occur after the youth problem-solving skills training intervention was complete (week eight). She subsequently reported a slight increase in depression at the end of youth-parent treatment (week twelve; mild range). This pattern indicates that this participant experienced periods of moderate to low levels of depression, and that the youth-only condition, relative to the parent-youth condition was associated with decreased depression. However, this conclusion must be viewed in light of the changes that occurred during the second treatment period (probation ended), as well as associated drug use relapse.

Study conclusions are, again, difficult to draw when comparing the male and female BDI scores. For instance, the male youth demonstrated little or no depression throughout the study, and the male participant had lower and more stable responses than the female participant prior to intervention.
Externalizing Behaviors

CBCL Externalizing Scale

Figure 5. Child Behavior Checklist (CBCL) Externalizing Scales

The CBCL externalizing scale was administered to measure negative observable behaviors (e.g. delinquency vs. compliance, positive vs. negative peer interactions). The
male participant’s initial baseline score bordered on clinical significance, which then decreased into the normal range at the second baseline assessment point. He continued to make improvements in this area at both treatment assessment points, prior to leveling out at follow-up. This pattern indicates that the male participant was experiencing a non-significant level of externalizing behavior problems upon entering the study, and the descending baseline obfuscates definitive findings. It should be mentioned, however, that both interventions were not associated with increased externalizing problems.

The female participant’s CBCL Externalizing scales were relatively constant throughout all experimental phases, although the youth only treatment appeared to be associated with a decrease in externalizing problems. As previously mentioned, the youth also experienced changes during the youth-parent intervention (probation ending) that may have accounted for variance, particularly in this domain.

The aforementioned treatment comparison period (i.e., weeks four through eight) revealed that both intervention conditions resulted in small, but continued reductions in externalizing problems. However, descending baselines confound the interpretation of these results. Also obfuscating interpretation of results, there was an increase in the female participant’s externalizing behavioral problems following the implementation of the parent and youth intervention. However, her return to THC use after the termination of legal probation may have again confounded interpretation of results.
Social Problem Solving Skills

SPSI-R Positive Problem Solving Orientation

Figure 6. Social Problem Solving Inventory -Revised (SPSI-R) Positive Problem Orientation

*Probation ended week 10

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The male participant’s SPSI-R Positive Problem Orientation Scale (i.e., optimism and self-efficacy with regard to problem solving) remained above or near the average scores as compared with his age cohort (Figure 6). His initial baseline assessment point approached one standard deviation above the mean and the second baseline point was well above one standard deviation from the mean. This pattern of scores indicates that prior to the parent-youth intervention the adolescent viewed his approach to solving problems as positive and effective. His scores after four weeks of parent-youth problem solving decreased to just below the mean. His scores subsequent to the second four weeks of the youth-parent intervention improved slightly above the mean and remained there at the follow-up assessment. The youth-parent condition appears to have reduced the participant’s positive self-evaluation in approaching problems. However, his scores were maintained in the average range post-intervention.

The female participant’s SPSI-R Positive Problem Orientation scores indicated an overall improvement with treatment. Her initial baseline score was well below the mean by one standard deviation, followed by the second baseline at just one standard deviation below the mean. Subsequently, her scores improved further, reaching the mean after four weeks of youth-only treatment. At the end of four weeks of youth-parent intervention a plateau occurred (scaled score 100) and then resumed an incline at the post four-week follow-up (scaled score 112). These results indicate that the youth only intervention may have assisted her positive self-evaluation, although these results were confounded by an ascending baseline. Thus, ascending and descending baseline scores, again, confound definitiveness of the interpretation of treatment effects regarding positive problem-solving orientation.
The male participant’s SPSI-R Negative Problem Orientation Scale (lower scores indicate pessimism and low self-efficacy when solving problems) scores moved from the
low level, higher functioning scores to an Average level within the population norm scale (Figure 7). His baseline scores, both first and second, in this dimension were one standard deviation from the mean in the adaptive direction. Nevertheless, these scores were followed by improvements after the first youth-parent treatment period which reached the mean at the second treatment period. His scores moved into the moderately adaptive range again at the follow-up assessment. This pattern of scores suggests that the youth-parent intervention may have decreased pessimism and improved self-efficacy for this youth when solving his problems.

The female participant’s SPSI-R Negative Problem Solving Orientation scores moved from a significantly maladaptive level to a moderately functional level after the youth problem solving intervention. Her initial baseline score was one standard deviation above the maladaptive range, while the second baseline assessment score was just above the mean. Her scores moved one standard deviation in the desired direction after four weeks of youth-only treatment and she maintained these gains after four weeks of youth-parent treatment. This pattern indicates the second participant actually had fewer negative cognitive experiences relevant to problem solving during the youth only treatment, which were maintained during parent-youth treatment and follow-up. However, interpretation of results is confounded with her descending baseline.

A comparison of the participant’s results during the treatment comparison period (i.e., weeks four through eight) evinced that the youth only treatment condition had positive impact on the female participant’s appraisal of negative behaviors around problem solving. Conversely, the parent-youth intervention appeared to have a deleterious effect.
on the male participant. These conclusions are limited as the participants had extreme
differences in their baseline scores.

SPSI-R Rational Problem Solving Scale

![Male Participant Graph]

![Female Participant Graph]

Figure 8. Social Problem Solving Inventory -Revised (SPSI-R)
Rational Problem Solving

The male participant’s ratings in the SPSI-R Rational Problem Solving Scale (i.e.,
logic and planning) appear to be negatively impacted by treatment (Figure 8). His initial
baseline point approached one standard deviation point into the skilled range and
decreased to the moderately skilled level at the second baseline point. His score subsequent to four weeks of youth-parent treatment regressed to the mean. His scores improved slightly after the second four weeks (i.e., eight through twelve) under the same condition, but then returned to the mean as his perception of this skill set declined with treatment. Once again, however, his baseline was declining and a natural movement toward the mean could have accounted for an amount of the observed variance in scores.

The female participant's SPSI-R Rational Problem Solving Scores were improving prior to the study and were further enhanced with treatment. The initial baseline point was one standard deviation below the mean in the skill deficit direction and improved slightly at the second baseline assessment point. Her post-treatment scores following four weeks of the youth-only treatment were just above average. The scores after the youth-parent treatment period declined slightly to the average and remained there at the follow-up treatment assessment. This pattern of scores indicates that, although improvement was occurring, the youth-only condition was beneficial and the youth-parent condition was neither beneficial nor detrimental.

The results of the treatment comparison period in this domain indicate the youth only condition was once again efficacious while the parent-youth condition resulted in a decrease in functioning in this domain. Nevertheless, as with the aforementioned SPSI-R scales, the alterations in scores for both participants moved towards the mean and pathology was thus not indicated for either participant. Furthermore, the participants' scores remained near the mean in subsequent assessment points indicating a continued non-pathological self-perception for both participants with regards to reasoning abilities related to problem solving.
**SPSI-R Impulsivity/Carelessness Scale**

**Male Participant**

![Graph showing impulsivity/carelessness scale for a male participant.](image)

**Female Participant**

![Graph showing impulsivity/carelessness scale for a female participant.](image)

*Probation ended at week 10*

Figure 9. Social Problem Solving Inventory -Revised (SPSI-R) Impulsiveness/Carelessness Style
The male participant’s SPSI-R Impulsivity/Carelessness Scale scores (higher scores indicate pathology: i.e., poor executive functioning) began slightly above average in this domain and declined in functioning with treatment scores (Figure 10). His first baseline assessment point was moderately below the norm group average and the second baseline assessment reveals a slight reduction in this area. His performance decreased further until it reached the mean at the assessment point subsequent to the initial treatment phase. His performance in this domain rose to slightly above the mean by the end of the second treatment phase. His score then returned to the mean at the follow-up assessment point. This pattern of scores indicates that the youth-parent condition decreased the male participant’s evaluation of his self-regulation in the area of problem solving. The ascending baseline marked a pre-existing decline in this domain, which combined with the overall quantitatively minor changes, weaken this conclusion.

The female participant’s SPSI-R Impulsivity/Carelessness Style Scale scores improved significantly with treatment. Her initial baseline score was over two standard deviations above the mean and the second baseline point was just above one standard deviation from the mean. These baseline points indicate the participant’s report of her self-regulation around problem solving was severely impaired in relation to the corresponding age norm group. The participant’s score improved significantly after a four-week period of youth-only treatment, moving below the mean to a moderately functioning level in this domain. These gains were maintained at the same level after the youth-parent treatment period and the follow-up assessment point. This trend indicates that, despite the unstable baseline, the youth-only treatment facilitated marked improvements within this area. The scores indicate that the youth-parent intervention
acted more as a stabilizing agent. Nevertheless, the prior improvements were so great that this may be a present cap on possible improvements in self-regulation due to developmental or environmental constraints.

The treatment comparison period (weeks 4 through 8), once again, revealed opposite response patterns for the two participants, with the female experiencing gains and the male experiencing a slight reduction in functioning in this domain. This pattern indicates that the youth only treatment decreased self-reports of decision-making processes that are impulsive or careless. The score changes for the male participant are too minor to be conclusive, but they indicated an increase in these same impulse-based problem-solving behaviors. Furthermore, the subsequent assessment periods reveal that both participants were relatively stable within this domain with continued exposure to the intervention in a parent-youth format. Additionally, neither participant experienced a clinically significant level of distress within this domain.

**SPSI-R Avoidance Scale**

The male participant’s SPSI-R Avoidance Scale (higher scales indicate pathology; i.e., procrastination, submissiveness) results were varied but point to an increase in these problematic behaviors and cognitions with treatment (Figure 10). His initial baseline score was relatively near the mean and then improved to one standard deviation below the mean. He subsequently experienced a return to the mean and at the end of four weeks of youth-parent intervention. His score subsequent to the second youth-parent treatment period showed a further decrease in functioning, which indicated a deficit in this area. The participant’s follow-up score sat at the mean, indicating an improvement in functioning. These results are fairly conclusive as his baseline revealed a trend towards
improvement in this domain, which emphasize the reversal at treatment assessment points. Similarly, the deterioration in this construct occurred at both treatment points and improvements were re-established at the follow-up assessment after the removal of the effects of treatment.

Figure 10. Social Problem Solving Inventory -Revised (SPSI-R) Avoidance Style
The Female Participant’s SPSI-R Avoidance Scale scores showed consistent improvement in this domain from baseline to the end of treatment. Her initial baseline assessment score was just above two standard deviations from the mean and had improved by the second baseline to just below one standard deviation above the mean. Her scores continued to improve with both the youth-only and youth-parent interventions. The follow-up score revealed a modest reversal back towards the mean. This pattern suggests that both interventions enhanced her abilities in this area. Nonetheless, support for this conclusion is mixed. The baseline was instable in a descending direction indicating pre-existing trend towards improvement. Conversely, the follow-up showed a reversal of gains with the removal of treatment indicating that treatment conditions were accounting for at significant portion of the changes in scores.

The treatment comparison interval (weeks 4 through 8) in this domain continued the same pattern as the previous SPSI-R scales; whereas the female’s scores once again indicated improvement in functioning while the male’s scores exhibited the reverse. This pattern indicates that the youth only condition resulted in a decrease in reported non-assertive and procrastination based problem solving behaviors, which indicated improved functioning in this domain, while the parent youth format resulted in decreased functioning. Unlike the previous SPSI-R scales, the subsequent assessment points revealed a continuance of these declines for the male participant and a leveling of gains for the female participant which confirms the greater efficacy of youth only treatment in encouraging these behaviors.

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The male participant and his mother made modest gains in their overall performance in resolving novel problem solving scenarios. Their mutual abilities in problem solving improved prior to treatment from the first to the second baseline assessment points. The score increased slightly again after four weeks of youth-parent treatment and then
remained stable at the second treatment assessment point. This indicates that there may have been positive treatment effects with the introduction to treatment but then such returns diminish with continued training (i.e., they reach a peak level for their current developmental and environmental situations). This conclusion is uncertain as the baseline revealed a pre-existing pattern of improvement.

The female participant dyad appeared to make gains with both treatments; however, the conclusions are also limited by an instable baseline. The baseline scores pointed to declines in the quality of interactions prior to treatment. Their scores improved to the moderate level (equal to the first baseline score) after the four weeks of youth-only treatment and then rose to the highest available score after the four-week segment of youth-parent treatment. It would appear that while both treatments were productive the youth-parent intervention was stronger. While the aforementioned instability does limit these conclusions, the fact that it was a decreasing trend and that the stronger gains occurred with parental involvement supports such an inference.

The two dyads both experienced improvements during the treatment comparison period. This pattern of results indicates that both forms of the treatment did enhanced observable problem solving skills in parent and youth interactions. This conclusion is supported by the continued increase in gains by the female participant dyad and the maintenance of gains by the male participant dyad during subsequent periods. The only caveat to this conclusion would be the unstable performance during baselines, which could indicate that other natural sources of variance regularly impact such behavior.
The male youth reported increased levels of parental satisfaction during the course of treatment on the Youth Happiness with Parent scale (YHP). He consistently expressed
concern in the following areas: household rules, methods of discipline, household in satisfaction prior to treatment. His baseline scores remained level from the first to second assessment points. His scores at the end of the fourth week of youth-parent revealed a significant decrease in satisfaction with the introduction of treatment and addressing conflict with his mother. This score at the second treatment point (youth-parent) elevated significantly and elevated even further at the follow-up assessment. His scores indicate that continued parental involvement in treatment did positively impact this participant’s level of satisfaction with his parent.

The female participant expressed consistent concerns in the following areas: curfew, reaction to my friends and related social activities, and methods of discipline. Her initial baseline score was stable and her second baseline score was moderately elevated. Her scores remained stable after four weeks of youth-only treatment; however, they increased after the youth-parent intervention and showed a slight increase at the four-week follow-up. Although the participant began treatment with an overall satisfaction with her aunt, parental inclusion in treatment enhanced this state.

The treatment evaluation period revealed that both conditions maintained the youth satisfaction ratings at a relatively stable level, i.e. both experienced a minor drop. These self reports indicate that there is no difference in the efficacy of the two forms of the intervention in improving the youth’s satisfaction with parental relationships. As previously indicated, both participants reported improvements in evaluations subsequent to this period, signifying that a larger effect size may be necessary to produce positive outcomes in this domain.
Parent Relationship Satisfaction Levels

The parent of the male participant expressed consistent concern regarding the youth’s: reaction to discipline, communication, household chores and responsibilities. Her self-report measure yielded consistent levels of concern during the baseline period that and these scores were within the moderately satisfied range. Her scores then increased after four sessions of youth parent treatment to a high level of satisfaction. The second treatment period assessment scores resulted in further improvement to a nearly

Figure 13. Parent Happiness with Youth Scale Means
complete level of satisfaction (follow-up unavailable). These results indicate that the
treatment improved this parent's satisfaction with their relationship in several domains.
Effect size, once again, appears to be related to the continued improvements in
relationship satisfaction.

The parent of the female participant expressed consistent concerns in the following
areas: youth's use of drugs and alcohol, curfew, youth's academic performance, and
reaction to rewards (entitlement). The baseline period began with a moderate level of
satisfaction at the initial assessment and increased to a moderately high level of
satisfaction. This satisfaction level remained stable after the youth-only treatment period.
Subsequent to participating in the youth-parent intervention satisfaction ratings increased
to high level of satisfaction which was maintained at the four-week follow-up. These
results indicate that the youth-parent intervention assisted in increasing this parent's
satisfaction with the youth.

The treatment comparison period revealed opposite outcomes for the two conditions.
The male participant's parent reported a slight increase in relationship satisfaction while
the female participant's parent reported a slight decline in satisfaction during the same
period. These results may indicate that the parent-youth condition produces better
outcomes in this treatment area than the youth only condition; however, this conclusion is
tentative as the decline in the youth only condition was nominal. Nevertheless, the
parents of both participants reported improvements in relationships satisfaction with
continued exposure to the parent-youth treatment format. This outcome supports its
overall effectiveness in meeting this treatment in this domain.
CHAPTER 5

DISCUSSION

The present study attempted to evaluate the efficacy of a cognitive problem solving skills training program aimed at decreasing substance use, and other problem of conduct in adolescents. This intervention was developed to include both the adolescent and a parent of the adolescent. Indeed, the primary caregiver of an adolescent substance abuser is often the individual that experiences the most conflict with the adolescent. Parents are also often responsible for assisting the adolescent in coping with conflict and problems outside the home (e.g. school, juvenile court). Therefore, it is imperative that the adolescent and parent are capable of working in tandem when addressing problems. Unfortunately, parents in this population are often overwhelmed when addressing their adolescents’ substance abuse and its ramifications and co-existing disorders. Thus, while any parent-youth relationship may benefit from enhanced communication skills, parents and adolescents who may be struggling with substance abuse disorders in the future may have the most to gain. Furthermore, organizations currently providing therapy are supportive of brief therapy due to financial constraints thus making parents, not clinicians, the most effective source of support on a long-term basis. Due to these initial observations, as a primary goal, this study sought to identify an optimal intervention to enhance the overall quality of the parent-adolescent relationship.

The multiple-baseline design has been found to be an excellent design for preliminary
treatment outcome studies. Texts in the area of psychological research cover this study design in their discussion of comparison and single, or limited, subject designs (Elmes, Kantowitz, & Roediger III, 1999; Gold, 1984; Heiman, 1999; Johnston & Pennypacker, 1993;). These text reviews state that the strength of the design lies in the systematic staggering of treatment timing from one subject to another, which accounts for carryover-effects. Elmes et al. (1999, p. 268) states that this process allows the design to act as “the small-n equivalent of the between subjects design.” Thus this is an appropriate research design for an initial investigation of this magnitude.

The male participant received four weeks baseline, eight weeks parent-youth PST, and a reassessment one month after the termination of treatment. The male participant did not return to use at any point during the study, which was confirmed via urine analysis, ATLF, and behavioral indicators (school and home functioning). His overall internalized distress was not significantly elevated during the baseline period and he made further gains with treatment (CBCL). Similarly, his depression levels were not elevated prior to treatment and remained at a minimal level throughout treatment. His external behavioral problems were reported to be within the normal range prior to treatment and remained at a minimal level throughout treatment. His external behavioral problems were reported to be within the normal range prior to treatment (i.e. baseline) and he made small, steady improvements with treatment. His social problem solving skills (i.e. SPSI-R scales; Positive Problem Orientation, Negative Problem Orientation, Rational Problem Solving, Impulsivity/Carelessness Scale, Avoidance Scale) were self-reported at a high level of functioning during the baseline period and deteriorated with intervention, however, avoidance related behaviors was the only domain found to have decrease to a maladaptive level. This pattern of scores indicates that his initial scores were either an anomaly or over-estimation of his own abilities due to an initial skills
deficit and a subsequent decrease in self-appraisal would be expected. His satisfaction with his relationship with his parent was in the moderate range at the baseline assessment periods and remained relatively unchanged after four weeks of treatment. However, the reports then improved both at the end of treatment and one month subsequent to treatment. Similarly, his mother reported increases in relationship satisfaction with the progression of treatment and upon exiting the study reported a high level of relationship satisfaction. The participant made significant gains in the majority of measured domains, with the exclusion of problem solving skills, and thus appeared to have responded well to treatment overall.

Subsequent to a baseline period, the female participant received four weeks youth-only PST, four weeks of parent-youth Problem Solving Training, and a one-month follow-up assessment. She was able to refrain from all substances during the baseline period and the first four weeks of treatment, however, she subsequently resumed marijuana use. The measures of her overall internal distress revealed only modest changes throughout the study (i.e., CBCL); however, the frequency and intensity of depression symptoms (BDI) were greatly reduced with treatment. The severity of her negative external behaviors decreased during the baseline period and youth-only treatment then increased significantly during the parent-youth intervention; however, this change occurred subsequent to her resumption of substance use. She reported gains across all measures of problem solving (i.e. SPSI-R scales; Positive Problem Orientation, Negative Problem Orientation, Rational Problem Solving, Impulsivity/Carelessness Scale, Avoidance Scale) during the youth only treatment condition followed by a slight continuance or plateau in gains during the parent-youth treatment. As a dyad, the participant and her aunt made
observable improvements in their problem solving abilities through out the study. She and her aunt reported relatively high levels of satisfaction with their relationship prior to the interventions and they subsequently reported further improvements. The female participant’s gains in problem solving skills and depressive symptoms were incongruent with her unresolved symptoms (return to substance use and related youth-parent conflicts). This conflict led to difficulties in drawing any conclusions regarding treatment efficacy.

The male participant received the parent-youth intervention during the same period that the female participant received the corresponding youth version (i.e., weeks four through eight) allowing a valid comparison of the two conditions. Neither participant returned to substance use during this period making conclusions regarding treatment efficacy in other domains more tenable. The occurrence of internalized problem behaviors (i.e., anxiety, obsessions depression) and externally expressed behaviors (i.e., aggression, non-compliance, delinquency) declined during this time under both conditions. However, the parent-youth format (i.e., male participant) resulted in a very minor increase in the severity of depression. The youth-only intervention was followed by self-reported enhancements in all areas of social problem solving while the youth-parent format resulted in a reported decline in performance; however, both conditions led to improvements in observed parent-youth problem solving abilities. The only significant alteration in relationship satisfaction, for both youth and parents in both conditions, during this period occurred for the parent in the parent-youth condition who experienced an increase in her satisfaction with their relationship. This comparison thus indicates that both versions of the treatment produce similar outcomes. Nonetheless, there may be
advantages in the youth-only format in enhancing self-efficacy in social problem solving and advantages in parental involvement in increasing relationship satisfaction.

Relationship satisfaction and self-efficacy are both important constructs in maintaining gains as parents are vital sources of support while self-efficacy is the source of adaptive, independent decision making. Once again, these are very tentative, non-definitive observations which may or may not be supported by further investigations.

The inconclusive nature of the results of the present study can, to an extent, be directly related to pivotal limitations as a result of the progression of time, a clinical lack of problems evidenced in the dependent measures upon entering the study, and pre-morbid differences between the subjects. Moreover, the initial number of desired participants began at three youth-parent dyads. This objective was altered as only two parents consented to participation after eleven weeks of introducing the study to all eligible participants and their parents. Parents reported declining participation due to overextended schedules and a belief that the youth’s behavior should be addressed by the youth in treatment individually (i.e., “it’s their problem not mine”). The inclusion of a third dyad would have allowed a control condition to clarify comparisons between the treatment formats; additionally, a third trial of the parent-youth condition to clarify its efficacy and necessary effect size for the desired outcomes. A second unforeseeable complication was the serious illness of the male participant’s mother during the follow-up period, which precluded gathering parent-report based follow-up data regarding the male participant. This data would have provided information regarding the maintenance of treatment gains over time. In addition, the vast majority of the baseline assessment points resulted in significantly ascending or descending lines for both participants across the
majority of dependent measures. This is problematic as it indicates volatility in functioning in these domains and further adds ambiguity to conclusions drawn regarding treatment efficacy. Secondly, legal and familial differences between subjects also created difficulties in drawing conclusions regarding treatment efficacy.

As previously mentioned the female participant experienced a probation cessation, which led to resumption of THC and made treatment efficacy in all domains more difficult to accurately assess. In addition, the male participant has significant parental expectations regarding academic achievement, daily structure, and abstinence from all substances. Conversely, the female participant experienced less parental control in these areas as they have fewer resources (i.e., finances and time) and use alcohol and THC regularly. These differences, once again, make evaluating treatment efficacy difficult as the male participant’s familial expectations would be aligned with enhanced treatment outcomes in externalized behaviors (i.e., substance use, delinquency) but may account for other domains which decreased in functioning with parent involvement (i.e., depression, social problem solving). Finally, due to the limited number of participants, the variance created by the aforementioned issues of subject heterogeneity and unstable baselines cannot be removed to facilitate greater clarity in evaluating treatment outcomes.

Azrin, et al. (2001) conducted the initial investigation of Individual Cognitive Problem Solving (ICPS) and the findings of that study could be neither be supported or detracted from by the present study. Azrin et al. (2001) found that this format of social skills training result in positive changes in substance abuse, oppositional behavior, mood, and academic performance. The female participant’s continued abstinence from substance use during this period of treatment was consistent with the positive effects
demonstrated in the Azrin et al., 2001 study. Improvements that occurred in the videotaped role plays for the female participant and the female participant’s problem solving skills rating were also consistent with Azrin et al. (2001), and, in fact, additionally supported behavioral improvements when solving problems with her parent. Unfortunately these improvements can not be clearly attributed to the implementation of ICPS in the present study due to several confounding, external variables (i.e., changes in legal status and participant heterogeneity). Thus, overall in some domains ICPS may have been validated as a treatment for youth with conduct and substance use related disorders but would be undetectable with any certainty in the present study.

This body of literature supports cognitive behaviorally based skills training in general as found in the Family Behavior Therapy (Azrin, Donohue, Besalel, Kogan, & Aciero, 1994) and traditional Cognitive Behavioral Therapy (Kaminer, Burleson, Blitz, Sussman, & Rounsaville, 1998). The utilization of family members as a component of treatment or parent centered interventions have been found to be beneficial in previous studies. However, the results of present study were generally inconclusive in this area.

Previous studies (Szapocznik, Kurtines, Foote, Perez-Vidal, & Hervis, 1983, 1986; Friedman, 1989; Henggeler, Bordwin, Melton, & Smith, 1991; Joanning, Quinn, Thomas & Mullen, 1992; Lewis, Piercy, Sprenkle, & Trepper, 1990) have addressed family conflict, including the youth’s behavior, through facilitating family functioning with the identified youth and their parent(s) or the entire family. These treatments have been associated with a reduction in substance use and conduct related problems and to a greater degree than control conditions involving psycho-education or supportive group therapy. Indeed, even variations in which the youth received the family related
treatment individually (Szapocznik, et al., 1983, 1986) or parents received training (Friedman, 1989; McGillicuddy et al. 2001)) were found to be efficacious. These findings point to the importance of family communication and involvement. It was this emphasis in the literature which led to the present study's exploration of the importance of family inclusion and the assumption that such involvement may perhaps enhance treatment efficacy. This study can not assist in further establishing the importance of family involvement for the clinical symptoms associated with conduct, substance abuse, or mood related disorders due to the aforementioned conflicted result pattern. The improvements in relationship satisfaction for both participant dyads at the twelve and sixteen week assessment points support the secondary treatment target of improving the family support for the youth. If supported by further studies these improvements would be in line with the conceptual framework and goals of family based treatments.

Investigations in this area have shown a marked reduction in distress for individuals and families coping with these issues. Although this investigation was unable to conclusively contribute support to the efficacy of treatments which incorporate family participation or otherwise address such issue the literature as a whole supports such interventions. Further studies should address the facilitation of family communication and overall social skills as a long-term source of support for the youth in addressing a variety of issues including substance use and conduct disorders. Additionally, while the treatment segments did not result in a uniform improvement in social problem solving skills the deficits observed during baseline in either the video-taped observations or the youth self-reported social skills indicate a need for intervention. This confirms literature and points to an area in which continued validation and refinement of such interventions
are warranted.

As aforementioned, the results of this investigation proved to be inconclusive with regards to treatment efficacy, however, these findings are undoubtedly a result of the unavoidable limitations of the study and future replications may yield more definitive findings. Differences may indeed exist, particularly with regards to youth-parent relationship satisfaction and communication, which may have been undetectable through the research design utilized in this study when faced with participant heterogeneity and the removal of a third dyad. Replication of this study with a third dyad and more participant homogeneity or utilizing a larger between group comparison designs would lead to uncovering such differences should they occur. Finally, regardless of the outcome of any single study, these and other treatments have been found to re-establish youth-parent relationships and establish mutually reinforcing patterns of interacting should be investigated and disseminated.
APPENDIX I

VIDEO TAPED ROLE PLAY

Initial instructions to participants:

"The objective during our time together will be learning how to assess how you and your parents solve problems. As a way of achieving this goal, it’s helpful to know how you resolve problems or arguments right now. I am going to give you a scenario that many parents and teens experience it may or may not be something you have experienced. I would like you to imagine that you are not here being taped, but at home and the following conflict as has just occurred. I will read the scenario, give you a moment to think about it, and then read it again. If you have not come to a natural conclusion within five minutes I will end the role-play by saying “stop.” [Scenario - 60 seconds - scenario] Go ahead and solve the problem.”

Instructions during following sessions:

"Today, we are going to do a role-play. The role-plays will be just like they were a few weeks ago only one of the situations will be a different problem. Once again, I’d like you to act as if you weren’t here, but at home and you need to talk about the following dilemma. I will read the scenario and give you a moment to think about it and then read it again. I will say “stop” after five minutes if a natural conclusion has not happened. [Scenario - 60 seconds - scenario] Go ahead and solve the problem”

Scenarios:
Repeated Scenario

(Adolescent’s Name), you would like $50 to help you with a school activity. You decide to ask your parent for the money. (Parent’s Name), you’d like to give (adolescent’s Name) the money, but know that in the past the money was spent to buy drugs.

Novel Scenarios

Week 1

(Adolescents Name), your entire family is going to spend the weekend together. You would like to go but have other responsibilities and would like some time to yourself during the weekend. (Parent’s name), you want (adolescents Name) to go with you on this trip.

Week 2

(Adolescent’s Name), you have been working long hours at work or school, which has left you tired and irritable. (Parent’s name), from your perspective it seems like (Adolescent’s Name) may be using drugs or alcohol.

Week 3

(Adolescent’s Name), you have been invited to go on a trip for a weekend with a few friends and one set of parents. (Parent’s Name), you are concerned with the destination as it is a popular site for partying teens. You are also worried about supervision as five teens will supervised by only two parents whom you’ve only spoken with three times.
Week 4

(Adolescent’s Name), you need to alter your school schedule, but school personnel has not been willing to listen to you because of problems you’ve had in the past. You would like your (mom/dad) to help. (Parent’s Name), you would like to help, but aren’t certain what would be the best thing to do for (Adolescent’s Name).

Week 5

(Adolescent’s Name), you would like to get an after school job but you don’t have transportation. (Parent’s Name), you would like (Adolescent’s Name) to focus on school instead.
APPENDIX II

YOUTH-PARENT COGNITIVE PROBLEM SOLVING SKILLS

TREATMENT PROTOCOL CHECKLIST

1st Session (60 Minutes)

1. Introduction or re-introduction with parent and youth and briefly review of any important events that have occurred since the last session.

2. Provide youth and parent with Communications Guidelines Handout.

3. State and review each guideline.

4. Obtain a commitment from youth and parent to comply with each guideline.

5. a. Attempt to elicit other guidelines that should be incorporated into sessions.
   b. Incorporate new guidelines and make any necessary modifications necessary to the entire list of guidelines.

6. State the salient problems mentioned during the baseline/intake session(s) on the parent and youth satisfaction scales.

7. Point out the highest youth and then highest a parent concern on the youth and parent satisfaction scales.

8. Have youth and parent disclose how solving problems will assist them in their lives and relationship.

9. Introduce the idea of learning a strategy for addressing their problems and the prompt chart with the five steps on the prompt card.
   - Let them know that you will be giving an example.
   - Explain that you will begin easy/low emotion and increase to a more difficult/emotional scenarios and then their own problems.

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10. Review the steps and explain the idea of using scenarios in order to learn how to include all parts of problem solving in addressing a problem.
   * Remember to explain rating system and use of averaging parent and youth scores to create an overall score.

11. Introduce the scenario of a lost dog and review the steps using this problem.

12. Have the youth and parent solve a scenario (inherited plane):
   a. Check off the steps correctly completed
   b. Praise the effort to discuss the problem and participation
      Do not praise or provide qualifying comments about the solution.
      Prompt the parent and youth if silent for over 5 seconds.
      Praise constructive interaction between the parent and youth (without mentioning solution content).

13. Give another scenario (broken television) and review the steps.
   a. Check off the steps correctly completed
      1. Focus
      2. State
      3. List Choices
      4. Rate
      5. Choose
   b. Praise the effort to discuss the problem and participation
      Do not praise or provide qualifying comments about the solution.
      Prompt the parent and youth if silent for over 5 seconds.

14. Continue to alternate between therapist and clients in solving scenarios for the duration of the session
   a. Check off the steps correctly completed
      1. Focus
      2. State
      3. List Choices
      4. Rate
      5. Choose
   b. Praise the effort to discuss the problem and participation
      Do not praise or provide qualifying comments about the solution.
      Prompt the parent and youth if silent for over 5 seconds.
15. Give parent and adolescent a card with the steps on it and remind them that if any problems arise during the week they can utilize the steps in order to decide on a decision.

2nd through 4th sessions (60 minutes)

1. Briefly review any important events that occurred during the week for both parent and youth.

2. Review the 5 steps of problem solving and solicit explanation of the steps from the clients. Provide a list of scenarios to parent and adolescent (without therapist script). Present example scenario if clients have forgotten more than 3 of the steps.

3. Present the youth and parent with a scenario and the five steps prompt list and have them solve the problem.
   a. Check off the steps correctly completed
      1. Focus
      2. State
      3. List Choices
      4. Rate
      5. Choose
   b. Praise positive interactions between parent and youth, the effort to discuss the problem, and participation. Do not praise or provide qualifying comments about the solution. Prompt the parent and youth if silent for over 5 seconds.

4. Provide another example by completing a scenario using the 5 steps.

5. Continue rotating between therapist and clients resolving scenarios until the client’s have an average of 3 or more of the 5 steps completed correctly with use of the prompt card only (not therapist) over a session.
   For youth-parent scenarios:
   a. Check off the steps correctly completed
      1. Focus
      2. State
      3. List Choices
      4. Rate
      5. Choose
   b. Praise positive interactions between parent and youth, effort to discuss the problem, and participation. Do not
praise or provide qualifying comments about the solution. Prompt the parent and youth if silent over 5 seconds.

6. Once step 5 is achieved begin using youth and parent’s problem lists of real life problems as scenarios beginning from least to most difficult problems.

7. Review any real life resolutions the clients implement between sessions at the beginning of sessions.

Parent and Youth Communication Guidelines:

#1. Be sincere at all times (no sarcasm).

#2. Speak in an audible tone (i.e., not under your breath or yelling).

#3. In giving feedback state what you like first and then make suggestions.

#4. Stick to the present problems (i.e., avoid bringing up problems in the past).

#5. Listen carefully to the other person without interruption.
APPENDIX III

INDIVIDUAL (YOUTH) COGNITIVE PROBLEM SOLVING SKILLS

TREATMENT PROTOCOL CHECKLIST

1st Session (60 Minutes)

1. Introduction to youth (if needed) and a brief review of any important events that have occurred since the last session.

2. State the salient problems mentioned during the baseline/intake session(s) and add any omitted problems.

3. Have youth number the problems in order of severity (e.g., #1 most severe and highest number the least difficult).

4. Have youth disclose how solving problems will assist them in their life.

5. Introduce the idea of learning a strategy for addressing their problems and the prompt chart with the five steps on the prompt card. 
   - Let them know that you will be giving an example.
   - Explain that you will begin easy/low emotion and increase to a more difficult/emotional scenarios and then their own problems.

6. Review the steps and explain the idea of using scenarios in order to learn how to include all parts of problem solving in addressing a problem.

7. Introduce the scenario of a lost dog and review the steps using this problem.

8. Have the youth solve a scenario (inherited plane):
   a. Check off the steps correctly completed
   b. Praise the effort to discuss the problem and participation
Do not praise or provide qualifying comments about the solution.
Prompt the youth if silent for over 5 seconds.

9. Give another scenario (broken television) and review the steps.
   a. Check off the steps correctly completed
   b. Praise the effort to discuss the problem and participation
   Do not praise or provide qualifying comments about the solution.
   Prompt the youth if silent for over 5 seconds.

10. Continue to alternate between therapist and clients in solving scenarios for the duration of the session
    a. Check off the steps correctly completed
    b. Praise the effort to discuss the problem and participation.
    Do not praise or provide qualifying comments about the solution.

11. Give adolescent a card with the steps on it and remind the youth that if any problems arise during the week they can utilize the steps in order to decide on a decision. Speak with parent and have them give the adolescent a reminder that they can use what they’ve learned if needed.

2 through 4th session (60 minutes)

1. Briefly review any important events that occurred during the week for the youth.

2. Review the 5 steps of problem solving and solicit explanation of the steps from the client. Provide a list of scenarios to the adolescent (without therapist script). Present example scenario if clients have forgotten more than 3 of the steps.

3. Present the youth with a scenario and the five steps prompt list and have the youth solve the problem.
   a. Check off the steps correctly completed
   b. Praise the effort to discuss the problem and participation
   Do not praise or provide qualifying comments about the solution.
   Prompt the youth if silent for over 5 seconds.

4. Provide another example by completing a scenario using the 5 steps.

5. Continue rotating between therapist and client resolving scenarios
until the client's have an average of 3 or more of the 5 steps completed correctly with use of the prompt card only (not therapist) over a session. (See manual checklist).

For youth scenarios:

- a. Check off the steps correctly completed
- b. Praise the effort to discuss the problem and participation
  Do not praise or provide qualifying comments about the solution.
  Prompt the youth if silent for over 5 seconds.

6. Once step 5 is achieved begin using youth problem list of real life scenarios as scenarios beginning from least to most difficult problems.

7. Review any real life resolutions the clients implement between sessions at the beginning of sessions.
**APPENDIX IV**

VIDEO TAPE ROLE PLAY ASSESSMENT RATINGS

1. Youth and parent were able to identify and agree upon the problem (state the problem).

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<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>Very Poor</td>
<td>Poor</td>
<td>Somewhat Well</td>
<td>Good</td>
<td>Excellent</td>
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2. Youth and parent were able to keep the discussion on the problem (Focus In).

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3. Youth and parent were able to generate solutions.

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4. Youth and parent were able to rate the solutions.

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5. Youth and parent identified the highest rated solution as the one to choose.

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6. Youth and parent were able to come to a mutual agreement about the best solution.

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7. Youth and parent’s overall problem solving abilities.

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APPENDIX V

SOLUTION EVALUATION CHART

<table>
<thead>
<tr>
<th>Choice</th>
<th>Positive Outcomes (0-100)</th>
<th>Negative Outcomes (0-100)</th>
<th>Overall Rating (Positive-Negative)</th>
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