

# A Controlled Evaluation and Description of Individual-Cognitive Problem Solving and Family-Behavior Therapies in Dually-Diagnosed Conduct-Disordered and Substance-Dependent Youth

Nathan H. Azrin  
Brad Donohue  
Gordon A. Teichner  
Thomas Crum  
Jennifer Howell  
Leah A. DeCato

**ABSTRACT.** There is a strong comorbid relationship between conduct and substance disorders in youth. However, there is an absence of controlled studies that have explicitly examined treatment efficacy in this dually-diagnosed population. In the present study, 56 such youth were randomly assigned to receive either individual-cognitive therapy or family-behavioral therapy. Subjects in both intervention groups demonstrated significant improvements in their conduct and reductions in their use of illicit drugs from pre-treatment to post-treatment, and these results were maintained at follow-up. Measures of youth satisfaction with parents, parent satisfaction with youth, and overall mood of these youth demonstrated similar improvements and closely corresponded with im-

---

Nathan H. Azrin, Thomas Crum, Jennifer Howell, and Leah A. DeCato are affiliated with Nova Southeastern University. Brad Donohue is affiliated with the University of Nevada, Las Vegas. Gordon A. Teichner is affiliated with the Medical University of South Carolina, Charleston.

This research was funded by the National Institute of Mental Health, Grant # R01MH53455.

improvements in standardized measures of conduct and drug use. No significant differences were found in conduct or reductions of illicit drug use between subjects in the two intervention conditions at post-treatment, or at 6-month follow-up. Study implications are discussed in light of these results.[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <getinfo@haworthpressinc.com> Website: <<http://www.HaworthPress.com>> © 2001 by The Haworth Press, Inc. All rights reserved.]

**KEYWORDS.** Drug, treatment, outcome, conduct disorder, youth, adolescent

Almost 50% of all referrals to child mental health facilities are due to conduct problems (Kazdin, 1995). Conduct Disorder, the DSM diagnosis depicting a constellation of behaviors in which the rights of others are violated, is estimated to occur in up to 9% of youth, and the relatively less severe DSM diagnosis of Oppositional Defiant Disorder, which includes negativistic, hostile, and defiant behaviors, is estimated to occur in up to 10% of youth (see American Psychiatric Association, 1994; Costello, 1990). Comorbidity of conduct disorders with the DSM substance disorders (abuse, dependence) is particularly pronounced, and complicates treatment (Weinberg, Rahdert, Collier, Glantz, & Meyer, 1998).

Adolescent conduct disorders are associated with deficits in cognitive (lack of impulse control, problem solving deficits) and familial/social functioning (Akers, 1985, 1992; Marlatt & Donovan, 1981). Interventions addressing these deficits have demonstrated significant reductions in pre-adolescent problem behaviors (for reviews, see Kazdin, 1987, 1997; McMahon and Wells, 1998; Patterson, Dishion, & Chamberlain, 1993). Cognitive problem-solving interventions (e.g., Kazdin, Esveldt-Dawson, French, & Unis, 1987a, 1987b; Kazdin, Siegel, & Bass, 1992; Kendall, Reber, McLeer, Epps, & Ronan, 1990; Kendall & Braswell, 1982; Lochman & Curry, 1986; Spivack, Platt, & Shure, 1976; Spivack & Shure, 1974), and family-based interventions (e.g., Besalel & Azrin, 1981; Forehand & Long, 1988; Patterson, Chamberlain, & Reid, 1982; Peed, Roberts, & Forehand, 1977; Stuart, 1971; Webster-Stratton, 1990; Webster-Stratton & Hammond, 1997; Webster-Stratton, Hollingsworth, & Kolpacoff, 1989; Webster-Stratton, Kolpacoff, & Hollingsworth, 1988), have been particularly effective in

the amelioration of problem behaviors of younger youth. In contrast to younger youth, as noted by McMahon and Wells (1998), validated treatment for antisocial behaviors in older youth (i.e., adolescents) is relatively sparse.

Similarly, minimal controlled evidence exists regarding effective interventions for drug abuse and dependence in adolescents (Catalano, Hawkins, Wells, Miller, & Brewer, 1991; Myers, Brown, & Vik, 1998). Until the mid-1980s it was common for these youth to be treated within adult treatment settings (Beschner & Friedman, 1985), and the majority of research on drug abuse treatment has focused on adults (for reviews see Acierno, Donohue, & Kogan, 1994; Catalano et al., 1991; Higgins, Budney, & Bickel, 1994; Myers et al., 1998; Ozechowski & Liddle, 2000; Van Hasselt, Hersen, & Milliones, 1978). Although drug use treatment programs have been developed specifically for adolescents in the past two decades (Myers et al., 1998), controlled evaluation of these programs is only in its beginning stages (Liddle & Dakof, 1995). Controlled treatment outcome studies of drug abuse in adolescents suggest that therapies which involve the family or parent(s) and/or include contingency contracting, stimulus control, and communication training may be effective in reducing drug use and problems of conduct (e.g., Azrin, Donohue, Besalel, Kogan, & Acierno, 1994; Azrin et al., 1996; Henggeler et al., 1991; Joanning, Quinn, Thomas, & Mullen, 1992; Liddle et al., 1992; Szapocznik, Kurtines, Foote, Perez-Vidal, & Hervis, 1983, 1986). Although family-based interventions are promising, there is a lack of clear evidence regarding optimal approaches to adolescent drug abuse, and there is a great need to evaluate the relative effectiveness of individualized versus family-based interventions (Myers, Brown, & Vik, 1998; Weinberg et al., 1998). Also, there is an absence of controlled studies for youth who have been dually diagnosed with Conduct Disorder and Substance Dependence, and it is difficult to draw definitive conclusions from many of the intervention studies that have been conducted with either type of problem with youth because of methodological considerations. For example, most of these studies do not control for non-specific effects by using comparative treatments that are comparable in terms of session length, number of sessions, extent of treatment, schedule of sessions, therapist commitment, investigator supervision, and expectancy for change. Also, as noted by Dumas (1989) and Ward (1998), the majority of previous intervention studies of conduct disordered and drug abusing adolescents have not described treatment integrity procedures in extensive detail, or reported data on the extent to which the therapists reliably adhered to the procedures.

A separate conceptual question concerns the relative efficacy of cognitive versus behavioral intervention strategies, both of which have been found effective, as noted above, with younger children for behavior problems. Cognitive procedures have often included a variety of behavioral components (i.e., role-playing, parental reinforcement and supervision, behavioral rehearsal, prescriptive therapy assignments, recording charts, therapist instructions to engage in specific behaviors). Consequently, the effects of the cognitive therapies may be attributable to the inclusion of behavioral components. This confound has been noted previously by Latimer and Sweet (1984) and Wolpe (1990) for behavioral versus cognitive comparisons.

Given the widespread negative impact of youth illicit drug use and behavior problems, research identifying effective treatments and addressing the aforementioned methodological difficulties is needed. The objectives of the present study were to: (1) evaluate the effectiveness of a family behavioral therapy for youth drug use and behavior problems, (2) evaluate the effectiveness of a relatively "pure" cognitive version of problem-solving training for youth drug use and behavior problems, (3) compare this cognitive problem-solving approach with the behavioral family approach to provide an indication of the differential effectiveness of cognitive versus behavioral strategies, (4) obtain follow-up data to ascertain durability of benefits, (5) utilize an experimental design with methodological features such as random assignment, standardized treatment protocol manuals, quantified measurement of therapist adherence to the treatment protocol, utilization of multiple measures of drug use and conduct that have established strong psychometric properties, and equivalence of contextual factors across treatment conditions (e.g., therapist commitment, expectancy for change, number and frequency of sessions, assessors blind to treatment assignment of subjects, standardized measures of behavior problems), and (6) evaluate dually-diagnosed (conduct and substance disorders) youth, a subpopulation that has not been previously studied in treatment outcome studies.

## METHOD

### Participants

**Youth Characteristics.** Participants were referred to the study by juvenile detention center staff, judges, probation officers, and school ad-

ministrators. Those youth who met the following inclusionary criteria participated in this study: (1) between 12 and 17 years of age, (2) exhibited symptoms consistent with DSM-IV diagnosis of (a) Conduct Disorder plus either Substance Abuse or Substance Dependence, or (b) Substance Dependence and Oppositional Defiant Disorder, (3) lived with the parent, (4) lived within 30 minutes of the clinic, (5) no diagnosis of mental retardation or a psychotic disorder, (6) not currently receiving psychological intervention, and (7) at least one parent who could provide transportation to, and participate in, the youth's treatment. Of 178 participants who met the aforementioned criteria, according to a structured phone interview, 88 attended the assessment sessions (3 sessions of 60 mins. duration, scheduled 1 week apart) and completed at least one treatment session. It should be mentioned that many of the youth who met the above criteria (i.e.,  $N = 178$ ) were not invited to participate in the intervention study because their responses to structured clinical interviews (see Measures section) during the assessment phase of the study did not validate the DSM substance and conduct disorder diagnoses that were obtained during the initial telephone interview. Fifty-six subjects completed at least eight of the scheduled 15 treatment sessions, and were included in the final data analyses.<sup>1</sup> As shown in Table 1, the mean age of the final participants was 15.4 years, and 82% ( $N = 46$ ) were male. Twenty-one percent ( $N = 12$ ) were of ethnic minority status. Most (71%) were externally mandated by the court or other outside agency to attend treatment, and were previously arrested (77%). Nineteen (40%) of the youth were enrolled in special education programs. Not indicated in the table, most ( $N = 43$ ; 76%) of these youth received the dual-diagnosis of Conduct Disorder and Substance Dependence. A great percentage of youth, in addition to the conduct and substance use diagnoses, received ADHD or Dysthymia.

**Caregiver Characteristics.** As can be seen in Table 2, most guardians responsible for bringing the youth to treatment were biological mothers and fathers. The median gross family income per year was \$44,000. Not shown in the table, parents' mean age was 43.3, and 25 percent of the youth lived in single-parent families.

**Youth Drug Use History.** A structured interview of the youths' history of drug use was administered to the youth alone. Table 2 shows that all youth had used marijuana at least once, and most had used alcohol or "hard drugs" (illicit drugs other than marijuana). Youth estimates of their total number of days using these substances in their lifetime appeared to be quite high (e.g., 385 days of marijuana) given their relatively young age (15.4 years). Lastly, youth appeared to be relatively

TABLE 1. Demographic Characteristics of Youth Participants (N = 56)

Mean Age	15.4 yrs. (sd = 1.3)	Relationship of Primary Caregiver to Youth	
Gender		Biological Mother	40
Male	46	Biological Father	11
Female	10	Step (Adoptive) Mother	1
Race		Step (Adoptive) Father	2
Caucasian	44	Other relative	2
African-American	1	Marital Status of Primary Caregiver	
Hispanic	9	Dual Parent	42
Other	2	Single Parent	14
SCID-IV and P-CAS Diagnosis*		Mandated to Treatment	
Substance Dependence	55	External Mandate	40
Conduct Disorder	46	No External Mandate	16
Oppositional Defiant Disorder	10	Gender of Primary Caregiver	
Dysthymia	24	Male	12
ADHD	23	Female	44
Major Depressive Disorder	4	Previous Psychiatric/Psychological Care	
Generalized Anxiety Disorder	3	Yes	32
Simple Phobia	2	No	24
Encopresis/Enuresis	2	History of Being Arrested	
Obsessive Compulsive Disorder	1	Yes	43
Substance Abuse	1	No	13
Median Family Income		Enrolled in School	
\$44,000 (range = 11,700 to 220,00)		Yes	46
		No	10
		Participates in Special Education Program	
		Yes	19
		No	37

\*The number of diagnoses obtained is greater than the total N of 56 since some youth had more than 1 diagnosis.

unmotivated to decrease their marijuana and alcohol use prior to treatment, according to their responses to the 0 to 100 scale that was utilized in this study (0 = definitely will not discontinue use, 100 = definitely would discontinue use).

### Diagnostic Interviews

Parent Version-Child Assessment Schedule (P-CAS). The Parent Version-Child Assessment Schedule (Hodges, Kline, Stern, Cytryn, & McKnew, 1982) is a structured clinical interview that is administered to parents to obtain psychological diagnoses of their children. It is among the most thoroughly evaluated structured clinical interviews for children (Hodges, 1993), and has been revised and employed to assess DSM-III-R Axis I categories of psychopathology in adolescents (Kashani, Orvaschel, Rosenberg, & Reid, 1989). Reliability and validity estimates of this interview are good (see Hodges, Cools, & McKnew, 1989; Hodges, Gordon, & Lennon, 1990). For the present

TABLE 2. Youth History of Drug Use (N = 56)

	<u>Alcohol</u>	<u>Marijuana</u>	<u>Hard Drugs</u>
Past history of use (% of youth)	95.74	100	70.20
Mean age at first use	11.81 (sd = 2.97)	12.54 (sd = 1.51)	13.91 (sd = 1.74)
Mean total days of use in lifetime	107.00 (sd = 229.69)	384.75 (sd = 393.56)	41.56 (sd = 143.31)
Pretreatment likelihood of discontinuing use, according to youth (0 to 100, 100 = definitely)	50.65 (sd = 40.88)	32.86 (sd = 36.39)	70.99 (sd = 33.67)

study, three questions were added to ensure consistency with the DSM-IV diagnosis of Conduct Disorder.

Structured Clinical Interview for DSM-IV (SCID-IV). The SCID-IV is a structured diagnostic interview to assess disorders that are listed in the DSM-IV (Spitzer, Williams, Gibbon, & First, 1992). Only the substance abuse/dependence module of the SCID-IV was utilized in this study. We separately interviewed the youth and parent, rather than the usual practice of the youth alone, to obtain the youth's substance abuse/dependence diagnoses (youth questions were modified to be appropriate for use with parents). This latter practice was employed in the present study to enhance the sensitivity of drug abuse/dependence detection since parents were often very aware of their youth's drug use behaviors when their youth refused to disclose this information. All drugs were queried, except alcohol. Good estimates of validity and reliability for the SCID-IV have been reported in youth administrations of this test (Spitzer, Williams, Gibbon, & First, 1992).

#### Measures of Substance Use

Urine Drug Screens. A urine sample was obtained from participants during each assessment and treatment session under the supervision of a same-gender research assistant to serve as an objective measure of drug use. Samples were screened by an independent laboratory using an SYVA Emit enzyme amino acid assay technique for the following illicit substances: alcohol, THC (marijuana), cocaine, amphetamines, barbiturates, benzodiazepines, opiates, PCP, and methaqualone. All positive immunoassay screens were then verified using gas chromatography for alcohol and thin layer chromatography for all other substances. The lab-

oratory (Redwood Toxicology: California) has established an accuracy of over 95.5% using this procedure. Conventional cutoffs at or above those typically regarded as positive in routine clinical laboratory work were utilized in this study.

Time-Line Follow-Back Interview (TLFB). Reports of the youth's frequency of illicit drug and alcohol use were obtained from the youth and parent separately via the "Time-Line Follow-Back" procedure (TLFB; Babor, Cooney, & Lauerma, 1987; Ehrman & Robbins, 1994; Sobell, Sobell, Klajner, Paven, & Basian, 1986). A month by month calendar for the time period of interest was shown to the youth and parent separately. Significant events (e.g., birthdays, vacation days, holidays) were marked on the calendar to facilitate recall of the days in which substances were used. After calendars were constructed, participants were asked to indicate on the calendar which days they had used illicit drugs, including the specific drug(s) that were used. Illicit drugs other than marijuana (e.g., cocaine, benzodiazapines, amphetamines, barbiturates) were denoted "Hard" drugs. The time periods assessed were the six months preceding the initial intake session, the six months during intervention, and the six months post-treatment. When reports of substance use from the parent and youth conflicted, the greater frequency of use reported by the parent or child was used in determining outcome evaluation. A similar method was used to gather information about each youth's total number of hours employed by an agency during each month. The TLFB method has been found to correspond closely with official records and reports by substance abusers, and test-retest reliability is good (Ehrman & Robbins, 1994; Sobell et al., 1986).

#### Measures of Conduct

Arrest History Records. The frequency of arrests, as obtained from official court records, is a commonly used index in studies of illegal activity (Alexander & Parsons, 1973; Lipton, Martinson, & Wilkes, 1974). Therefore, the frequency of arrests for each youth in this study was obtained from courthouse records. The time periods assessed were the six months preceding the initial intake session, the six months during intervention, and the six months post-treatment.

Child Behavior Checklist (CBCL; Achenbach, 1991). The CBCL is completed by parents to assess their youth's competence in school, social relations, and recreational activities (20 items), and their youth's specific emotional and behavioral problems (118 items). T-scores with a mean of 50 and a standard deviation of 10 may be derived for each

scale in this measure. The Delinquency, School, Externalizing, Internalizing, and Total scales were used in this study, as these scales are most relevant to conduct disorders. The psychometric properties of this instrument are excellent in adolescent samples (see Achenbach, 1991; Achenbach & Edelbrock, 1983).

Youth Self-Report (YSR; Achenbach, 1991). The YSR is a 119-item measure completed by adolescents. This measure essentially examines the same domains as the CBCL, except that this measure is completed by youth regarding perceptions of their own behavior. Reliability and validity of YSR are good (Achenbach, 1991; Achenbach & Edelbrock, 1987).

Eyberg Child Behavior Inventory (ECBI; Eyberg & Ross, 1978). The ECBI is completed by parents to assess (a) the frequency and (b) perceived severity of problem behaviors of children between the ages of 2 and 17 years. Higher scores indicate problematic behavior. Psychometric properties are excellent in adolescent samples (Eyberg, 1992; Eyberg & Robinson, 1983; Eyberg & Ross, 1978; Kazdin, 1991; Robinson, Eyberg, & Ross, 1980).

Sutter-Eyberg Student Behavior Inventory (SESBI; Funderburk & Eyberg, 1989). The SESBI is a parallel form of the ECBI for teachers. Data from this measure were not utilized in the final data analyses since too few were completed and returned. A total of 18 (32% of participants) were received during pre-assessment, 4 (7%) were received during post-assessment, and 3 (5%) were received during follow-up. No subjects had pre, post, and follow-up assessment questionnaires returned for both assessment periods. Poor compliance was due to several factors (e.g., youth switched schools, teachers were different across assessment times, youths graduated or dropped out of school, teacher noncompliance).

### Measures of Problem-Solving Skills

Social Problem-Solving Inventory-Revised (SPSI-R; D'Zurilla, Nezu, Maydeu-Olivares, in press). The Social Problem-Solving Inventory (SPSI-R) is a 52-item self-report measure that yields five problem-solving summary scores (i.e., Negative Problem Orientation, Impulse Control Style, Avoidant Style, Positive Problem Orientation, and Rational Problem Style). Lower scores indicate better use of problem-solving strategies for the former three summary scales (NPO, ICS, AS), and higher scores indicate better problem-solving strategies for the latter two scales (PPO, RPS). This inventory was derived from its original

version (SPSI; D'Zurilla & Nezu, 1990). A number of investigations have demonstrated its concurrent validity, test-retest reliability, internal consistency, and predictive and discriminant validity (for review, see D'Zurilla, Nezu, & Maydeu-Olivares, in press).

#### Measures of Mood and Personal and Family Satisfaction

Parent Happiness with Youth Scale (PHYS; Donohue, DeCato, Azrin, & Teichner, 2001). This measure consists of 11 content items that assess parents' degree of satisfaction with their youth in 11 behavioral domains (Communication, Friends and Activities, Curfew, Household Rules, School, Response to Rewards, Response to Discipline, Chores, Alcohol Use, Drug Use, Illicit Behavior) using a scale of 0% to 100% happiness. An additional item assesses the parent's "Overall Happiness" with the adolescent utilizing the same scale. A Total Scale score may be derived by averaging scores on the 11 behavioral domains. Reliability and validity of this measure have been previously evaluated and found to be adequate (Donohue et al., 2001).

Youth Happiness with Parent Scale (YHPS; DeCato, Donohue, Azrin, & Teichner, 2001). This measure consists of 11 content items, each of which assesses youths' degree of satisfaction with their parents in 11 behavioral domains, and an overall happiness domain, that are identical to those used in the Parent Happiness with Youth Scale (see above). As with the PHYS, a Total Scale score may be derived by averaging scores of the 11 behavioral domains. Reliability and validity of this measure were previously evaluated, and found to be adequate (DeCato et al., 2001).

Life Satisfaction Scale for Adolescents (LSS-A; Teichner, Azrin, Donohue, Howell, Rindsberg, Decato, & Ward, 1998). LSS-A includes 12 content items, and a single item that requires the youth to rate his/her "overall life satisfaction." Content items assess the youth's degree of happiness in 12 aspects of his/her life (i.e., friendships, family, school, employment/work, fun activities, appearance, sex life/dating, drug use, alcohol use, money/material possessions, transportation, control over one's own life) using a 0% to 100% scale of happiness. A Total Scale score may be derived by averaging scores of the 12 behavioral domains. The initial reliability and validity of this measure were previously evaluated, and found to be adequate (Teichner, Azrin, Donohue, Howell, Rindsberg, Decato, & Ward, 1998).

Beck Depression Inventory (BDI). The BDI (Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961) is widely used to assess depressive symptom-

atology, with a recommended age range of 13 years and above. A summative score reflecting the severity of depression is obtained by adding all item responses. Higher scores indicate greater severity of depression.

### Procedure

**Pre-Treatment Assessment.** A structured telephone interview was conducted with a parent of each youth who was referred to the study. Each youth who appeared to meet the previously described inclusionary criteria, and his/her parent, then completed the aforementioned measures during three assessment sessions of 60 minutes duration within approximately 3 weeks. During the first assessment session, the parent and youth were provided a general overview of the program, after which they signed consent forms for treatment, audio-taping of sessions, and permission for the State of Florida to release arrest history records. All interviews were conducted by trained, doctoral-level students in a clinical psychology program. All structured interview assessments (i.e., PCAS and SCID-IV) with the parent and youth were audio-taped, and 25% were randomly selected to be coded by an independent rater. Inter-rater agreement was calculated across diagnostic categories by summing agreements and dividing by total agreements and disagreements. Inter-rater agreement was 96.3% and 93.1% for the PCAS and SCID-IV, respectively.

**Post- and Six-Month Follow-Up Assessment.** A post-assessment was completed at the end of treatment, and a follow-up assessment was completed six months after the end of treatment. The instruments completed during the post- and follow-up assessments were the same as those given during the pre-treatment assessment, except for the PCAS, SCID-IV. These latter measures were not administered during the post and follow-up assessment. The persons who administered the post and follow-up assessments were blind, independent assessors who were not aware of the participants' treatment assignment, nor were these assessors involved in the treatment program.

### Random Assignment

Attempts were made to match participants based on age, days of monthly drug use, types of drugs used, and the Problem and Intensity scales of the ECBI. When two or more participants were available for assignment, they were matched on the aforementioned variables; one

participant was assigned by coin toss to one of the treatment conditions, and the other person was assigned to the other treatment condition. If an appropriate match was not available for a participant by the end of the baseline period (i.e., approximately 4 weeks after the initial assessment session was conducted), the participant was randomly assigned by coin toss.

### Treatment Conditions

**Standardized Features.** The two treatments were designed to be comparable in the following aspects: (1) duration of treatment (six months), (2) number of sessions (15), session length (90 minutes initially, decreasing to 60-75 minutes from the seventh to fifteenth sessions), (3) structured sessions that were focused on specific presenting problems and guided by treatment manuals, (4) schedule of sessions (sessions were to initially occur once per week for the first three months, and then decrease to every other week, and eventually once a month), (5) consistent praise of the client for attending the session, timeliness of arrival, actively participating in the session, and maintaining attention and effort during the session, (6) consistent rewarding of clients who performed well during session by permitting them to choose a snack at the completion of the session, (7) therapist commitment to the treatment to which they were assigned (different therapists for the two treatments), and (8) a standardized program introduction during the initial session in which the therapist described the format and course of treatment, revealed pertinent assessment results, answered any questions about the assessment results, emphasized the importance of attending sessions consistently for improvement to occur, provided information about the efficacy of and research support for the therapies, encouraged realistic expectations for change, and spent time developing rapport with the youth.

The fixed number of 15 sessions was chosen based on data from a pilot study (Azrin et al., 1996) which indicated that 15 sessions were sufficient to produce a large reduction of drug usage. The gradual spacing of sessions was employed to promote generalization of treatment gains (Azrin et al., 1996; Kazdin, 1992). However, many youth did not complete their sessions according to the pre-planned session schedule due to missing sessions. In this case, the remaining sessions were scheduled more frequently to attempt receipt of the scheduled 15 sessions within the six month treatment period. The average number of intervention sessions attended for treatment completers in the family-behavior and

individual-cognitive conditions was 13.48 (sd = 2.4), and 13.70 (sd = 2.27), respectively.

Family Behavior Therapy (FBT). All interventions used in the FBT program followed the format generally used in behavior therapy, including: therapist modeling, rehearsal for each procedure, self-recording between sessions, homework assignments, review of self-recordings and assignments, and therapist praise of all signs of progress. FBT was a multi-component program, addressing cognitive, verbal, social, and familial factors, in addition to variables that were believed to influence drug use and antisocial behavior. The primary interventions used were: (1) Behavioral Contracting, (2) Stimulus Control, (3) Urge Control, and (4) Communications Training, which are described briefly as follows (for a more detailed review, see Donohue & Azrin, in press).

Behavioral contracting was included to increase the youths' motivation to engage in drug-incompatible and pro-social activities, and also sought to teach parents how to monitor, supervise, and reinforce desired behaviors of their youth. Behavioral contracting consisted of establishing a "level system" with three specified levels that typically targeted the following behavioral domains: (a) drug and alcohol abstinence, (b) legal behavior, (c) curfew adherence, (d) parental notification of the youth's whereabouts, (e) calm resolution of disagreements, (f) chores, and (g) school attendance/performance. The therapist and parent(s) established the desired responses for levels one, two, and three in each of these domains. At level one, parents were encouraged to choose responses that were a slight improvement over their child's "current" behavior. For level three, the parents were encouraged to establish behaviors that would be present if their child was an "ideal child." Level two behaviors were then established to include responses that fell between levels one and three. The level system was used rather than the point system used in the pilot study (Azrin et al., 1994) for ease in implementation.

The therapist and youth established desired rewards for each level. Typical reinforcers included increased allowance, means of transportation, later curfew, telephone privileges, visiting privileges, and special gifts of clothing or recreational items. After the parent's desired responses and the youth's contingent rewards were negotiated and agreed upon by all parties, a form was used to record the target behaviors and rewards for each level.

The parent and youth completed the recording form on a daily basis. In doing so, parents monitored their youths' completion of target behaviors, and youths monitored their receipt of earned rewards. If youths

performed all target behaviors for one day, they were given rewards the following day that corresponded to the appropriate level. With the exception of drug use, and being arrested, when youth failed to complete target behaviors, such as chores and school homework, they were allowed to ask their parents if they could earn credit for the missed behavior by completing the task that was missed, plus possibly something extra on that particular day (i.e., "make-up," see Azrin & Besalel, 1999 for a review of over-correction interventions). If a "make-up" was allowed by the parent, the youth would earn credit for the completion of the target behavior. In order to advance one level, the youth had to complete each task (target behavior) recorded in the contract for seven consecutive days. An indication of youth drug use, or being arrested, resulted in demotion to level one. Therapists reviewed the completion of the contingency plan during treatment sessions. Importantly, parents often failed to monitor target behaviors, and thus did not provide appropriate rewards contingently. When monitoring was not performed, parents were instructed to complete the recording form retrospectively, and provide rewards, if earned.

The Stimulus Control procedure was implemented to help youth decrease their exposure to drugs and "risky" social situations, and to increase their amount of time spent engaging in drug incompatible and pro-social activities, as in the Community Reinforcement treatment approach (Hunt & Azrin, 1973). Briefly, a comprehensive list was created with each youth, containing "safe" and "at-risk" associations. "Safe" associations included people, places, and activities with which the youth had never used drugs or engaged in delinquent behavior. If the youth was interested in getting a job (a common "safe" association), the Job Club procedure (Azrin & Besalel, 1980; Azrin, Flores, & Kaplan, 1975) was utilized to assist the youth in obtaining gainful employment. "At-risk" associations included people, places, and activities with which drug use or antisocial behavior had occurred. The "at-risk" lists were not revealed to parents to encourage greater openness of youth in reporting at-risk people and situations. Youth monitored these behaviors on a structured daily recording form by placing a check next to the people they had spent time with, places they had been, and the activities in which they had engaged. Often times, youth failed to record time spent with risky and safe associations, and were thus asked to complete the form retrospectively. Therapists praised youth when they spent time with "safe" associations, and helped youth identify methods of spending more time with "safe" associations, and less time with "at-risk" associations. Additionally, therapists met with parents alone to ask how

they could help their children spend more time with “safe” associations. Following meetings with the parent and youth alone, the therapist met with parents and youth together, and instructed them to plan a pleasant family activity during the upcoming week to increase positive family interaction, and to provide an additional safe activity for the youth.

The Urge Control procedure was designed to assist youth in decreasing their desires to use drugs and/or engage in antisocial behavior. In this intervention, youths are taught to interrupt thoughts, urges, and physical sensations related to drug use and antisocial behavior, and to replace these thoughts and sensations with competing thoughts and actions. The specific steps of the procedure were modeled and practiced in session by imagining out loud the follow steps: (1) identify a troublesome or drug use situation, (2) detect the earliest thought, feeling, action, or image related to the drug use or engagement in antisocial behavior, (3) interrupt the first thought, feeling, action, or image, by shouting “Stop!,” (4) state at least two negative consequences for self, and two negative consequences for others, that could occur from the drug use/antisocial behavior, (5) relax by scanning and relaxing one’s muscles, and taking a few deep breaths, (6) state four prosocial alternatives to the drug use/antisocial behavior in that situation, (7) pick one of the generated alternatives, and imagine out loud engaging in that behavior, (8) tell someone important to youth, how youth was able to avoid drug use/antisocial behavior, and imagine the person responding positively, and (9) state at least 2 positive consequences of having avoided drug use or antisocial behavior in that situation.

Following each trial, the youth was asked to rate his/her pre- and post-desire ratings for drug use or antisocial behavior on a scale from 0 (no desire at all) to 100 (complete desire). Youth were also asked to designate which of the nine steps listed above helped to decrease the desired drug use or antisocial behavior the most, and to emphasize that step in-vivo. The therapist and youth then independently rated the youth’s performance on each step, using a scale from 0 (forgot to perform the step) to 100 (perfect performance). The therapist provided descriptive feedback for each of the 9 actions, including praise and suggestions for future improvement. At a minimum, two trials per session were completed, one for drug use behavior, and one for antisocial behavior. However, the number of trials performed was often much more than that (i.e., up to 6 trials) if there was a failure to perform target behaviors in the Level System. For instance, if drug use was indicated during the week, more trials were performed to assist the youth in avoidance of similar drug use situations.

**Communication Skills Training.** Communication skills training procedures were included to increase positive communication between family members, and to improve family relationships. One component of communication training was a set of Communication Guidelines specifying the rules of communication expected to occur during sessions for the purpose of session management (e.g., no swearing, no yelling, no use of criticism, insults, or sarcasm). If a communication guideline was violated during a session, the therapist would interrupt, point out the violation, and have the person correct himself/herself by rephrasing the statement more positively. In extreme circumstances (e.g., emotional upset), the youth and/or parent were instructed to go to the waiting room until calm.

Three main communication procedures were modeled and practiced during session to be used in family communication at home. These interventions included Reciprocity Awareness, Annoyance Prevention, and Positive Request, which were initially developed in previous evaluation studies of Reciprocity Counseling (Azrin, Naster, & Jones, 1973; Besalel & Azrin 1981). Relationship Enhancement training has been shown to be effective in improving the relationship between parents and youth (Besalel & Azrin, 1981).

The Reciprocity Awareness procedure was designed to make each member aware of the satisfactions (reinforcers) provided by the other members, and to increase further the amount of positive reinforcement given between family members. Initially, each family member listed: (a) things the other person had done for him/her that he/she appreciated and (b) things that he/she had done for the other person that the other person appreciated. The parent and youth were each instructed to communicate these positive interactions, and express appreciation to one another for the recorded items in their lists. The therapist provided feedback regarding the interaction, and asked the recipient how it felt to hear the appreciation. Family members were also taught to utilize "appreciation reminders" by reading one of the things on their list that had been done for the other person, and asking if the other person appreciated it. If the behavior was appreciated, the individual was told that s/he would perform the behavior more often. In later sessions, the lists were not used, but family members were instructed to disclose what appreciations, and appreciation reminders, were expressed during the week.

The Annoyance Prevention or Anger Control procedure, also described by Azrin et al. (1973) and Besalel and Azrin (1981) as the "no-blame procedure," was included to assist in decreasing the amount of anger/annoyance that family members expressed to one another.

When anger was first identified, the individual was taught to initiate the following steps: (1) take a deep breath and relax, (2) state the problem in a neutral, non-blaming way, (3) blame something in the situation, and (4) state something that you yourself may have done to contribute to the annoying behavior, or might have done to prevent it. Conceptually, this procedure taught the annoyed person how to remain calm, and divert disappointment toward the situation, or self, rather than toward the other person. When anger was indicated during an intervention session, each person who was involved was provided the aforementioned steps, and urged to attempt the procedures while the therapist provided guidance. Individuals were provided feedback regarding their compliance with these steps, and were encouraged to use the steps during disagreements at home that were accompanied by anger.

The Positive Request procedure (Besalel & Azrin, 1981) involved teaching family members to ask others for reinforcers or actions in a positive manner. The following steps were modeled and practiced by family members: (1) request a specific action (i.e., what, where, when) using “please,” and stating when the desired behavior was desired, (2) state benefits for the other person if the request was completed, (3) state why the action would be good for the person making the request, (4) state why the action might be difficult or inconvenient for the person being asked to perform the request, (5) offer to help the person being asked to make the request to make the action easier for him/her to perform, (6) offer to do something nice for the person being asked to perform the request, (7) suggest one or more alternative actions should the original request not be acceptable, and (8) ask for alternative suggestions. The sequence of these steps was open, and not all steps needed to be included. The therapist recommended that the families practice the steps at home, and that they use the procedure after performing the annoyance prevention procedure.

In addition to the main treatment components described above, a secondary treatment procedure called the Annoyance Review procedure (Azrin, Donohue et al., 1994; Hunt & Azrin, 1973) was utilized. The purpose of the Annoyance Review was to enhance motivation of youth to abstain from drugs, and engage in pro-social behavior (i.e., self-motivation for change). Youths were first instructed to generate negative consequences associated with each of the drugs that were recently used, as well as negative consequences for three or four major undesired behaviors that were targeted in the Level System. For each undesired behavior or illicit drug, youth were then instructed to rate the intensity of each set of related consequences on a scale from 0 (not unpleasant at all)

to 100 (extremely unpleasant). When each set of related negative consequences was rated less than 70, therapists prompted youth to fully discuss why the consequences were experienced negatively, and were also prompted for additional negative consequences (e.g., "Other girls say that being high on Valium increases their chances of being taken advantage of sexually. Is this a concern of yours?"). Following this initial generation of negative consequences, therapists provide empathy regarding the consequences (i.e., "It must be terrible for you to get harassed by your parents and the police."). Youth are then asked to review positive consequences that would be likely to occur if drug use and troublesome behavior were avoided. This procedure was introduced at the beginning of treatment, and reintroduced only when motivation seemed low.

The youth and parent were given their Choice of Interventions to Be Emphasized to increase their motivation and interest. During the first session, the youth and parent were each given a form containing brief, one sentence, descriptions of each of the above-mentioned treatment procedures. They were instructed to rate each of the treatment rationales on a scale from 0 (not helpful) to 100 (very helpful). An average rating was obtained from the youth and parent for each intervention rationale, and the interventions were rank-ordered from most to least helpful. The interventions were then administered in this order until all of them had been introduced to the family (sequential and cumulative administration of interventions). Typically, families were given all interventions by the sixth session. Once the family had been exposed to all of the intervention procedures, they were given the opportunity to mutually choose their interventions at the beginning of each subsequent session.

#### Individual Cognitive Problem-Solving (ICPS)

The Individual Cognitive Problem-Solving Therapy was based on theory, empirical research, and previously developed problem-solving methods to improve self-control and problem-solving deficits in youths and adults evidencing aggressive and defiant behaviors (e.g., Dodge, 1985, 1986; D'Zurilla, 1986; D'Zurilla & Goldfried, 1971, 1994; Kazdin et al., 1989; Kazdin et al., 1987a, 1987b; Kendall & Braswell, 1982, 1985, 1987; Kendall, Padawer, Zupan, & Braswell, 1985; Kendall et al., 1990; Richard & Dodge, 1982; Spivak et al., 1976). Of conceptual importance, the problem-solving treatment employed in this study was modified, and differed from most previously researched problem-solving therapies (e.g., D'Zurilla & Goldfried, 1971; Kazdin et al., 1989; Kazdin et al., 1987a, 1987b; Kendall & Braswell, 1982, 1985,

1987; Kendall et al., 1985; Kendall et al., 1990; Spivack et al., 1976) in that it was more “purely” cognitive. The therapist did not encourage the generation of choices that were distinctly prosocial, or evaluate, reinforce, or punish the content or merit of the youths’ choices. Only the use of the problem-solving steps was reinforced (e.g., the youth was praised for generating or selecting a solution, but not for content or social wisdom of the solutions). In addition, behavioral features, such as role-playing, specific behavioral rehearsal, homework assignments, behavioral recording charts, parent training, and planned parental/familial reinforcement, were not utilized. Also, in contrast to the prescriptive behavioral format, the therapist always maintained a non-directive Socratic style with regard to the type of choice or behavior, never directing the youth to engage in specific behaviors or prescribing specific solutions. Thus, this approach more clearly distinguished the cognitive from the behavioral approach and promoted the learning of a general cognitive strategy that could be applied to a wide range of problems in diverse situations.

**Problem-Solving Procedure.** Clients learned and applied the following problem-solving steps (D’Zurilla & Goldfried, 1971; Kendall & Braswell, 1985, 1987; Kendall et al., 1985; D’Zurilla, 1986; Spivack et al., 1976): (1) “Stop and Think” to focus attention, (2) “State the problem,” or define the problem situation specifically, identifying the details and circumstances relevant to the problem situation, (3) “What are all of my choices? Brainstorm everything I can think of,” which involved generating a minimum of three possible alternative solutions (whether positive/prosocial or negative/antisocial) without evaluating the alternatives yet, (4) “If I were to carry out this choice, what are the possible good or bad things that could happen?,” which involved identifying the positive and negative consequences of each solution, and (5) “O.K. I’ve thought about it and I think this one is best,” which involved selecting the solution which, in the youths’ view, maximized the likelihood of positive, and minimized the likelihood of negative consequences. Additionally, the “think out loud” procedure (Meichenbaum & Goodman, 1971; Camp, Blom, Frederick, & van Doorninck, 1976; see Meichenbaum, 1977) was utilized to promote adherence to the steps and allow for corrective feedback. Throughout treatment, the youth read each step, and verbalized thoughts aloud as each step was completed (e.g., “State the problem. The problem is that I do not like when my mother yells at me, and I want her to talk to me calmly instead of yelling.”).

During step 3, either the therapist, or youth, listed the choices on a dry erase board. If the youth had difficulty generating choices, the therapist used open-ended prompts (e.g., “What have you seen others do in similar situations?” “What have you seen others do in movies or television shows?”). During step 4, the positive and negative consequences for each choice were also listed on the dry erase board separately. After listing the positive and negative consequences of a choice, the youth rated, and recorded on a 0 to 100 scale, both the probable degree of benefit and degree of cost to assist in the selection of the desired choice of action. The degree of cost was then subtracted from the degree of benefit to obtain an overall rating. Finally, during step 5, youths were instructed to choose a 1st, 2nd, and 3rd “best choice” using the overall ratings as a guide. Youths were also instructed to eliminate any choices that had a net negative rating (e.g., -30), because such choices had a high likelihood of maximizing negative and minimizing positive consequences using the youth’s own standards.

Throughout this procedure, the therapist provided corrective feedback when the youth committed an error. Errors included: (1) going too fast, (2) not saying or completing a step aloud, (3) skipping a step/not doing the steps in order, (4) completing the step incorrectly, (5) not completing the step after stating it aloud, and (6) not paying attention/focusing on the tasks. In addition, for younger youths (ages 12 to 14), an office response-cost procedure was employed to maintain their attention and participation (e.g., Kendall & Braswell, 1982, 1985, 1987; Kendall et al., 1985; Kendall et al., 1990). With this procedure, youths began each session with 20 tokens, and a token was subtracted any time they committed an error. This response cost procedure was not used with youths who were at least 15 years-old due to its obvious lack of appropriateness for these youth. Other than correcting errors, and reinforcing the correct use of the steps, the therapist was non-directive, providing neither punishment nor reinforcement of solutions, nor feedback regarding the social appropriateness of youths’ responses, nor advice regarding solutions.

**Format of Sessions for ICPS.** During the First Session, after the standard program introduction, and establishment of rapport, the therapist provided the youth with the following general description of, and rationale for, problem-solving:

During these sessions we are going to be talking about ways to solve problems. The goal of this counseling program is to learn, and practice a strategy for solving problems, and to apply this

strategy, if you desire, to problems that you may have. By exploring several alternatives when a problem arises, you will feel assured that you gave the situation serious thought, and did what you thought was best at the time. Many kids your age who have trouble with (e.g., parents, school) have found this way of thinking helpful.

The above problem-solving steps were then taught to youths in the following manner. The therapist gave the youth a card on which the five steps were written as an external prompt. The youth read each step aloud and was praised for reading the steps. After the youth read the card, the therapist explained the rationale for the “think out loud” procedure. The therapist then read aloud a hypothetical problem involving a missing dog, and modeled reading, and completing, each step aloud. In addition, after reading and before completing, each step, the therapist provided the youth with an explanation of how to complete the step (e.g., “State the problem. This means that I have to describe what is going on in my own words.”).

After completing the problem, the therapist explained the session “rules,” or behaviors that constituted errors (e.g., skipping a step). For youths ages 12 to 14, the therapist also explained the office response cost (token) procedure. The youth then completed a hypothetical problem involving the inheritance of a jet plane that s/he did not have sufficient funds to maintain. Therapists corrected youths if they committed the aforementioned errors (e.g., did not complete a step). If there was a delay in starting the next step, the therapist suggested that the youth glance at the prompting card. In this manner, the prompting card was used only when necessary, thereby promoting spontaneous use of the cognitive strategy. The therapist and youth alternated solving hypothetical problems in this manner until the session’s end. The hypothetical problems did not involve potentially explosive legal, parental, or familial issues associated with intense emotions. Non-provocative problems were used to assist youth in learning the steps without interference from intense emotions.

Throughout treatment, the correct use of the problem-solving steps was praised, as was youth effort. In addition, the therapist recorded, on a form, the number of steps that the youth correctly completed. At the end of the session, the therapist, and then the youth, filled out a “performance rating,” indicating how correctly the youth had used the steps to solve problems on a 0% (completely inadequate) to 100% scale (completely adequate). Youth ages 15 to 17 with ratings of 70% or higher,

and youths ages 12 to 14 who had 14 or more tokens left, were permitted to choose a snack. All youths were praised for accurately rating their performance, and the therapist discussed discrepancies of 20 points or higher with the youth. The therapist next met briefly with the parent alone to provide a brief description of, and rationale for, the problem-solving procedure. The therapist provided minimal parenting direction, suggesting only that when problems occurred at home to state, "Maybe it would help if you (youth) did what you've learned in counseling." The parent was instructed to make this general type of comment brief, and not to argue with the youth, or insist that the youth use the problem-solving procedure.

During sessions 2 through 15, almost all youth met the "resolution criteria" of completing an average of three or more steps correctly during the first session, and began to solve "real life" problems in the second session. In addition, once youth achieved resolution criteria, no therapist modeling occurred. To obtain real life problems, youths completed the YHPS and the LSS-A, and their parents completed the PHYS, at the start of each session. The therapist first met separately with the parent, and then with the youth, to query responses that were rated as 50% or less happiness to obtain problem scenarios (e.g., "I see that school is 40%. What would it take to get that to 100%? What would you want to be different?"). Problems were obtained from both the parent and youth to increase the relevance of the problem-solving procedure to the presenting problem, and, thereby, promote the generalizability and applicability of the problem-solving strategy to real life situations. Parent and youth problems typically focused on peers, money, work, school, chores, substance use, arguments over parental rules and expectations, anger control, and impulsivity of the youth.

After eliciting problems, the youth read the problem-solving steps aloud, stated the general rules for the session (e.g., do the steps in order), and indicated whether s/he had used the problem-solving procedure since the last session to address problems which had arisen in-vivo. The youths were praised for reading the card, stating the rules, and using any problem-solving step(s) outside of session. For the remainder of the session, the youth alternated between applying the problem-solving steps to the problems previously obtained from the youth and the youth's parents, by querying YHPS, YLSS, and PHYS responses.

For youth who were unable to provide a problem situation, hypothetical problems were used in a predetermined order. Hypothetical problems were based upon typical presenting problems to promote the generalization and applicability of the problem-solving strategy to real

life situations (e.g., drug use, school, dating). Moreover, a variety of interpersonal and social situations were utilized to ensure that the problem-solving strategy was acquired as a general coping style rather than being situation specific. When youth attempted to solve real life problems, higher severity problems were completed first, with severity being indicated by scores on the satisfaction scales (lower scores indicated higher severity).

To further promote the generalization and use of the problem-solving skills in-vivo, therapists employed several non-directive strategies: (1) following the completion of the final step of each problem scenario, therapists told youth the problem-solving steps could be used in-vivo should the practiced problem situation occur, and the youth desired to do so, (2) at the end of each session, therapists told youth that the problem-solving skills could be utilized in-vivo in less severe problem situations (e.g., achieve As instead of Bs), if the youth desired to do so, and (3) therapists asked youth to identify problem scenarios to be practiced during therapy sessions, if the youth desired to do so.

### Therapists

Nine clinicians (five female) served as therapists for the FBT condition, and 10 different clinicians (five female), served as therapists for the ICPS condition. Clinicians ranged in age from 24 to 33 years. Therapists were only assigned cases in one condition to prevent diffusion of treatment and differential therapist expectancy effects (Kazdin, 1992). Therapists were predominately advanced students in an APA-approved doctoral program in clinical psychology. All therapists received extensive training in their respective conditions, including extensive modeling and role-playing with corrective feedback. Therapist supervision consisted of review of audiotapes on a session by session basis, discussion of cases, and weekly meetings in which program and treatment issues were discussed.

### Treatment Integrity

Several strategies were employed to ensure the integrity of treatment (Yeaton & Sechrest, 1981): (1) utilization of intervention manuals that outlined each session, (2) written documentation by the therapist of techniques used during the session, youth level of participation, and youth progress towards treatment goals, (3) audio taping of all sessions, (4) ongoing clinical supervision of treatment sessions, review of all au-

dible audiotapes, and corrective feedback to therapists, and (5) detailed prompting lists for the therapists that indicated the materials needed for each session, specific tasks to be completed, and the order in which treatment tasks were to be completed.

Additionally, prompting lists were used to obtain reliability and validity estimates. Specifically, therapists indicated on the prompting list whether each therapy task was performed. Independent raters extensively trained in one of the two treatment conditions then listened to the audio-tapes, and indicated on a separate prompting list whether the therapy tasks had been completed. The therapists' and raters' lists were compared, and a reliability estimate was computed. Reliability was calculated by dividing the total number of agreements by the total number of agreements plus disagreements, and multiplying the resulting dividend by 100. The validity estimate was based only upon the lists completed by therapists, and was calculated by dividing the number of tasks completed by the total number of possible tasks, and multiplying the dividend by 100. For the FBT condition, the reliability estimate was 97.48%, and the validity estimate was 99.33%. For the ICPS condition, the reliability estimate was 96.97%, and the validity estimate was 98.64%. These results suggest program therapists in both treatment conditions adhered closely to their protocol, and that protocol adherence was corroborated by objective raters.

#### Treatment Credibility

To assess youths' perceptions of the credibility of the two treatment approaches, youths completed a treatment credibility questionnaire at the end of the first treatment session (Borkovec et al., 1987; Borkovec & Nau, 1972). The questionnaire includes three questions which are rated on a 9-point Likert scale, with higher scores indicating greater treatment credibility: (1) Did the information we discussed today make sense?, (2) How successful do you think this information will be?, and (3) How willing would you be to recommend this information to others? Youth were also asked to rate "What percentage of improvement in your behavior do you expect if you follow these guidelines?," using a scale ranging from 0% to 100%. The FBT subjects evidenced means (and standard deviations) of 8.4 (1.2), 7.0 (2.5), 6.7 (2.9), and 72.6 (25.4), as consistent with the order mentioned above. The ICPS subjects evidenced means of 7.9 (1.3), 6.6 (2.1), 5.9 (2.5), and 59.6 (29.2), respectively. T-tests comparing subjects in the two intervention groups on the items of this questionnaire were all non-significant (all  $ps > .05$ ), indi-

cating no treatment expectancy biases of participants were found between treatment conditions.

## RESULTS

### Demographic and Baseline Comparisons Between Treatment Completers and Non-Completers

To ascertain potential demographic differences between youth who were considered treatment completion failures (i.e., completed < 8 intervention sessions,  $N = 32$ ), and youth who were considered treatment completers (i.e., completed at least 8 intervention sessions,  $N = 56$ ), two-tailed t-tests and Chi-square tests were performed on all demographic variables listed in Table 1. Treatment completers differed from treatment noncompleters only in that the former had more male primary caregivers,  $\chi^2(1) = 6.98, p = .008$ . All other demographic characteristics were statistically equivalent between completers and noncompleters (all  $ps > .05$ ).

Two tailed t-tests and Chi-square tests were also conducted between treatment completers (at least 8 sessions) and noncompleters (< 8 sessions) on all baseline assessment scores that were reviewed in the Measures section above. No statistical differences were found (all  $ps > .05$ ).

### Demographic and Baseline Comparisons Between Intervention Conditions

Two-tailed t-tests and Chi-square tests were performed on all demographic variables listed in Table 1, and scores on all pre-treatment assessment measures listed in Tables 3 through 7, to ascertain whether subjects who completed the ICPS intervention differed from youth who completed FBT. No differences in demographic characteristics between these groups were indicated (all  $ps > .05$ ). However, subjects who completed the Individual-Cognitive intervention demonstrated more severe pre-treatment scores on the CBCL Externalizing scale than did those subjects who completed FBT ( $p < .05$ ). For subjects who completed 8 or more sessions, no other differences between pre-treatment assessment scores were found between intervention conditions (all  $ps > .05$ ).

As indicated above, pre-treatment scores on the CBCL Externalizing scale were more severe for subjects who completed the ICPS condition

than those subjects who completed FBT. At first inclination, it would appear that this difference was simply due to chance factors in assigning subjects to intervention groups. However, t-tests and Chi-square tests indicated that there were no differences in demographic and baseline assessment scores between subjects who were assigned to the ICPS condition and subjects who were assigned to FBT when treatment noncompleters and treatment completers were combined. These findings would suggest more subjects with higher CBCL Externalizing pre-treatment scores may have withdrawn from treatment prematurely in the FBT intervention. To test this assumption, a 2 (intervention)  $\times$  2 (treatment completion status) Analysis of Variance (ANOVA) was performed on the pre-treatment CBCL Externalizing scale for all subjects (i.e., all subjects who received at least 1 intervention session,  $N = 88$ ). Main effects for intervention assignment and treatment completion status were not significant ( $ps > .05$ ). However, there was a significant interaction effect between intervention assignment and treatment completion status,  $F(1, 100) = 5.46, p = .021$ . Subjects who were assigned to FBT, and terminated treatment prematurely, demonstrated higher baseline CBCL Externalizing scores. Thus, subjects with higher CBCL Externalizing scores were more likely to terminate treatment prematurely when they were assigned to FBT.

#### Evaluation of Intervention Effects Across Time

Tables 3 through 7 show the means and standard deviations of subject responses to the primary dependent measures at pre-treatment, post-treatment, and follow-up assessments. Data are presented separately for subjects who received ICPS or FBT. Examined were subjects with whom either the post-treatment or follow-up assessment could be attained ( $N = 56$ ; 29 FBT, 27 ICPS); data was obtained for 51 of the 56 youth at post-treatment assessment, and 50 of the 56 youth at follow-up assessment.<sup>2</sup> To examine intervention effects from pre-treatment to post-treatment, and from pre-treatment to follow-up, a series of repeated measures Analysis of Variance (ANOVA) tests was performed using intervention (FBT, ICPS) as the between subjects factor, and scores of the dependent measures that are listed in Tables 3 through 7 as the within subjects factors. There were no Intervention by Time effects from pre-treatment to post-treatment or from pre-treatment to follow-up ( $ps > .05$ ), indicating that subjects in both interventions demonstrated similar patterns of conduct and behavior across time. Therefore, Tables 3 through 7 include the within-subject F values from pre-treatment to post-treatment, and from pre-treatment to follow-up, as well as the re-

sulting two-tailed probabilities. As will be indicated below, youth improved in most dependent measures from pre-treatment to post-treatment, and these improvements were maintained for most measures at follow-up. Although the number of tests performed is relatively high, the observed pattern of results is consistent across the data sets that were analyzed, and most associated p values are highly reliable. Thus, the interpretation of findings is supported despite potential problems due to Type 1 error rate (Jacob & Seilhamer, 1985).

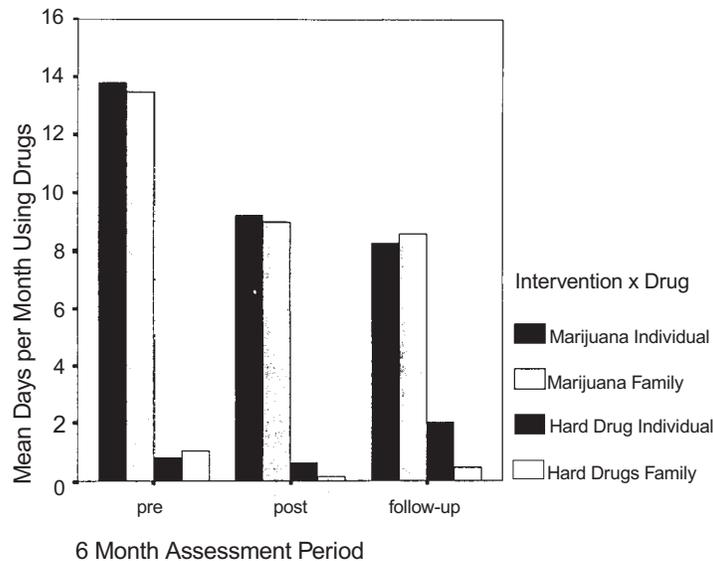
Drug use. Table 3 indicates that youth in both intervention conditions demonstrated significant decreases in their average number of days using illicit drugs per month from the 6 months preceding treatment to the 6 months during treatment, and that these results were maintained during the 6 months following treatment ( $p < .005$ ). However, there was no Time by Intervention effect ( $p > .05$ ), indicating that subjects in both intervention conditions demonstrated similar decreases in their drug use frequency over time. Figure 1 shows the youths' average number of days per month using marijuana and "hard" drugs during the aforementioned time periods. Thus, Figure 1 presents data for marijuana and hard drug use separately, whereas the information in Table 3 combines these illicit substances. The figure indicates that both interventions had a sig-

TABLE 3. Intervention Effects on Drug Use, and Satisfaction with Drug Use, Across Time (N = 56)

	Pre	Post	FU	Pre-Post	Pre-FU
	M(sd)	M(sd)	M(sd)	F value	F value
# Days/Mo. Using Drugs				10.91***	9.88***
FBT	13.62 (10.30)	9.00 (8.33)	8.61 (9.76)		
ICPS	14.14 (10.58)	9.28 (10.23)	8.35 (9.23)		
% of Ss Abstinent Based on UA Alone				3.46	4.81*
FBT	24.14	25.00	45.00		
ICPS	22.22	52.00	44.44		
PHYS: Drug Use				69.43****	56.72****
FBT	20.06 (25.50)	67.93 (23.51)	65.74 (26.90)		
ICPS	23.70 (31.88)	57.52 (32.78)	60.61 (27.25)		
YHPS: Drug Use				9.83***	7.00*
FBT	12.17 (23.92)	63.91 (41.20)	57.37 (45.69)		
ICPS	15.65 (25.55)	59.13 (42.52)	62.10 (36.45)		
LSS-A: Drug Use				2.09	4.28*
FBT	64.93 (31.34)	65.57 (37.76)	75.17 (31.00)		
ICPS	60.85 (37.62)	77.78 (33.78)	74.62 (34.97)		

Notes. UA = urine analysis, PHYS = Parent Happiness with Youth Scale, YHPS = Youth Happiness with Parent Scale, LSS-A = Life Satisfaction Scale for Adolescents, FBT=Family Behavior Therapy, ICPS = Individual Cognitive Problem-Solving, # Days/Mo. = Average # of days using illicit drugs per month in the respective six month period, according to greater reported frequency of youth or parent. The 6-month period is for 6 months preceding Tx (Pre), 6 months of Tx (Post), and 6 months after the termination of treatment (FU). F values are for within subjects effects. \* $p < .05$ . \*\*\* $p < .005$ . \*\*\*\* $p < .001$ .

FIGURE 1. Mean Number of Days per Month Using Marijuana and "Hard" Drugs Across Time



nificant positive effect on the youths' frequency of marijuana use. Initiation of the family intervention led to a slight reduction in hard drug use during treatment and follow-up months, whereas initiation of the ICPS resulted in an insignificant reduction in hard drug use during treatment, and an increase in hard drug use during the follow-up months.

A more objective method of assessing illicit substance use is to examine the percentage of subjects who are abstinent from illicit drugs, according to urine drug screen analyses. Therefore, subjects were evaluated for abstinence from illicit drugs utilizing urine drug assay tests performed at pre-, post-, and follow-up assessments. The percentage of subjects who tested negative, indicating no drug use during these times, is presented in Table 3. As compared with pre-treatment assessment, significantly more subjects were abstinent at the follow-up ( $p < .05$ ). However, a within-subject difference was not indicated from pre- to post-treatment, perhaps due to the relatively high percentage of youth who were using drugs in the family condition at post-treatment. Consis-

tent with drug use frequency, there was no significant Intervention by Time effect ( $p > .05$ ).

Table 3 shows the parents' satisfaction with their youth's drug use (PHYS Drug Use item), and youths' satisfaction with their parents' reactions to their use of drugs (YHPS Drug Use item), both significantly improved from pre-treatment to post-treatment ( $p < .001$  and  $p < .005$ , respectively), and that these gains were maintained at follow-up ( $p < .001$  and  $p < .05$ , respectively). Youth also demonstrated significant improvements in satisfaction with their drug use from pre-treatment to follow-up ( $p < .05$ ), according to their responses to the LSS-A Drug Use item, but not from pre-treatment to post-treatment ( $p > .05$ ). Interestingly, comparisons between the LSS-A and UA means at each of the assessment time periods show a remarkable correspondence, which appears to suggest youths' happiness with their drug use may be influenced by their abstinence from illicit drugs. There were no significant Intervention  $\times$  Time differences for any satisfaction index ( $p > .05$ ). Overall, these results suggest youths' and parents' satisfaction with youth drug use are both dependent on reductions in drug use, and the interventions appeared to reduce conflict between the parent and youth in the domain of drug use.

Lastly, although alcohol use was not a primary focus in this study, alcohol use was statistically examined in the same way as the frequency of illicit drug use. An analysis of alcohol use results indicated no within-subject or between intervention group differences ( $p > .05$ ), indicating both interventions had no significant effects on the number of days these youth used alcohol.

Conduct. Table 4 indicates significant improvements in conduct for youth from pre- to post-treatment, and from post-treatment to follow-up, on all of the standardized measures of conduct (all  $ps < .001$ ). Indeed, the Delinquency subscales of the Youth Self Report and the Child Behavior Problem Checklist, both indicated that improvements in youth conduct was about one standard deviation better at follow-up assessment, as compared with pre-treatment. No significant Intervention by Time effects were found ( $p > .05$ ), indicating both interventions led to similar improvements in conduct, according to these measures. Figure 2 presents the CBCL and YSR Total Scale T-scores for each intervention condition across the three assessment time periods (pre, post, fu). Observation of the means of these scales shows youth improved their overall conduct, from pre-treatment to post-treatment, and that these improvements were maintained at follow-up. Results of the Externalizing and Internalizing scales of the CBCL and YSR, not presented

TABLE 4. Intervention Effects on Conduct, and Satisfaction with Conduct, Across Time (N = 56)

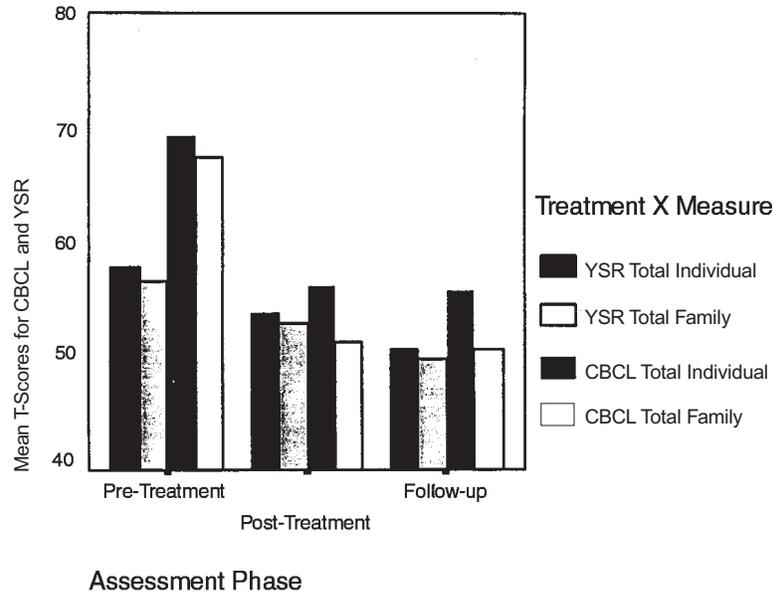
	Pre	Post	FU	Pre-Post	Pre-FU
	M(sd)	M(sd)	M(sd)	F value	F value
CBCL: Delinquency				50.41****	40.64****
FBT	74.44 (6.70)	63.55 (9.10)	65.83 (10.25)		
ICPS	77.40 (8.45)	66.67 (12.11)	64.15 (8.32)		
YSR: Delinquency				13.76****	29.17****
FBT	68.55 (11.00)	63.27 (6.53)	60.67 (6.52)		
ICPS	69.03 (10.31)	65.58 (9.91)	60.19 (9.00)		
ECBI: Problem				68.87****	38.47****
FBT	17.86 (8.52)	8.58 (9.09)	8.22 (8.41)		
ICPS	21.52 (6.12)	11.95 (9.46)	11.52 (12.02)		
ECBI: Intensity				68.27****	88.03****
FBT	133.55 (38.26)	90.72 (36.37)	94.29 (40.35)		
ICPS	145.93 (35.58)	110.35 (45.92)	86.71 (38.10)		
Frequency of Arrests (6 mo. duration)				9.53***	7.59***
FBT	0.93 (1.51)	0.28 (0.48)	0.51 (0.59)		
ICPS	0.84 (1.02)	0.42 (0.82)	0.24 (0.29)		
YHPS: Illicit Behavior				22.47****	27.93****
FBT	28.97 (35.29)	63.45 (44.18)	71.27 (35.61)		
ICPS	40.37 (36.64)	71.48 (39.00)	59.51 (41.04)		
PHYS: Illicit Behavior				51.87****	32.12****
FBT	32.76 (39.72)	75.17 (36.02)	56.95 (43.75)		
ICPS	18.52 (29.18)	62.22 (40.70)	75.24 (32.81)		

Notes. CBCL and YSR Delinquency = Delinquency scales of Child Behavior Checklist and Youth Self Report, ECBI Problem and Intensity measures = Problem and Intensity scales of the Eyberg Problem Behavior Inventory, YHPS and PHYS Illicit Behavior measures = Illicit Behavior items of the Youth Happiness with Parent Scale and Parent Happiness with Youth Scales. The 6-month duration for arrests refers to the 6 months preceding Tx (Pre), 6 months of Tx (Post), and 6 months post-treatment (FU). F values are for within subjects effects. \*\*\*p < .005. \*\*\*\*p < .001.

in Table 4 or Figure 2, demonstrated similar patterns of improvements. Measures of conduct, according to the ECBI scales in Table 4, were similar to YSR and CBCL results, as significant improvements in youth conduct were found across time ( $ps < .001$ ), but not between intervention conditions over time ( $ps > .05$ ).

Observation of the mean number of arrests shown in Table 4, as per official court records, for each of the 3 six-month assessment periods shows the number of arrests decreased greater than 50% at post- and follow-up assessments, and that these within-subject effects were significant ( $ps < .005$ ). Subjective improvements of youth and parent satisfaction with youths' illicit conduct were also found at post- and follow-up assessments ( $ps < .001$ ), suggesting the interventions had a positive effect on reducing conflict between parents and their youth in this area. As with the drug use measures, no Intervention by Time effects were indicated for any measures of conduct ( $p > .05$ ), indicating both interventions influenced the conduct of youth similarly.

FIGURE 2. Mean T-Scores for CBCL and YSR Total Scale Scores Across Time



School and Work. Table 5 presents information relevant to school and work (employment) performance. School performance, as per the School subscale of the CBCL, was assessed for only those youth who were enrolled in school during the respective assessments (both pre- and post-assessments = 37 youth, both pre- and follow-up assessments = 27 youth). The low number of parents who participated in two or more assessments for this measure was primarily due to youth high school graduation during the course of intervention and/or follow-up, as well as termination from school to pursue high school equivalency programs or work. As can be seen, significant improvements in school performance were noted for this standardized measure from pre- to post-treatment ( $p < .001$ ), and these results were maintained at follow-up ( $p < .001$ ). Observation of T-scores for this measure, indicate that youth in both conditions improved about a half a standard deviation at post- and follow-up. There was no significant Time by Intervention effect, indi-

TABLE 5. Intervention Effects on School/Employment, and Satisfaction in These Domains, Across Time (N = 56)

	Pre	Post	FU	Pre-Post	Pre-FU
	M(sd)	M(sd)	M(sd)	F value	F value
CBL: School					
FBT	32.32 (8.01)	38.05 (11.02)	40.00 (10.63)	12.77****	10.54****
ICPS	33.78 (7.80)	37.89 (11.30)	36.85 (9.15)		
PHYS: School					
FBT	20.06 (25.50)	67.93 (23.51)	65.74 (26.90)	69.43****	56.72****
ICPS	23.70 (31.88)	57.52 (32.78)	60.61 (27.25)		
LSS-A: School					
FBT	63.60 (30.61)	78.28 (23.77)	79.24 (25.01)	16.19****	15.12****
ICPS	65.35 (31.89)	87.41 (17.45)	83.81 (23.90)		
#Hours/Mo. Employed (6 mo. duration)					
FBT	6.38 (14.62)	16.71 (30.18)	34.69 (56.62)	8.04**	9.57***
ICPS	8.43 (18.2)	24.26 (43.86)	23.34 (51.51)		
LSS-A: Employment					
FBT	51.49 (35.75)	57.00 (35.88)	62.77 (31.58)	5.66*	10.00***
ICPS	41.48 (36.94)	69.63 (31.92)	67.79 (32.47)		

Note. PHYS and LSS-A School measures = School item of the Parent Happiness with Youth and Life Satisfaction Scales (ranges = 0 to 100). The 6-month duration for employment refers to the 6 months preceding Tx (Pre), 6 months of Tx (Post), and 6 months post-treatment (FU). F values are for within subjects effects. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ . \*\*\*\* $p < .001$ .

cating both interventions led to similar improvements in school performance ( $p > .05$ ).

As Table 5 indicates, compared to pre-treatment scores (about 22% happiness), parents were significantly ( $p < .001$ ) more satisfied with their youth in the domain of School at post-treatment (about 62%), and follow-up (63%). Youth were also more satisfied in the School domain at post-treatment and follow-up, compared to pre-treatment, according to their scores on the School subscale of the LSS-A ( $p < .001$ ). No significant Time by Intervention effects were found for these school satisfaction indices ( $ps > .05$ ), indicating that youth and parents in both intervention conditions demonstrated similar increases in their satisfaction with youth in the domain of school over time.

Gainful employment is perhaps more important for some youth than school. Table 5 shows youth demonstrated significant improvements in the number of hours they were employed during treatment ( $p < .01$ ), and during the 6 months post-treatment ( $p < .005$ ), relative to the 6 months before treatment. Moreover, youth responses to the LSS-A Employment subscale indicate significant improvements in satisfaction with their employment/work at post-treatment assessment ( $p < .05$ ), and follow-up assessment ( $p < .001$ ), relative to pre-treatment assessment. No significant Time by Intervention effect was found for this measure ( $p >$

.05), suggesting youth in both intervention conditions demonstrated similar increases in their satisfaction with work across time.

**Mood and Overall Satisfaction.** Table 6 indicates that youth depression decreased, as measured by the Beck Depression Inventory, from pre-treatment to post-treatment ( $p < .001$ ), and that these improvements were maintained at follow-up ( $p < .001$ ). Indeed, mean scores for youth at post- and follow-up assessments were no longer above commonly accepted clinical cut-off scores for Mild depression. As might be expected, youth responses to the LSS-A, which is a composite index of the youth's perceived satisfaction in "Life," were significantly improved at post- and follow-up assessments, relative to pre-treatment assessment ( $ps < .001$ ).

YHPS and PHYS Total Scale scores were also significantly elevated at post- and follow-up assessments, relative to pre-treatment ( $ps < .001$ ). These results suggest intervention led to greater levels of satisfaction between youth and their parents in areas that are typically problematic in this population. No significant Interaction by Time effects were found for mood and satisfaction indices ( $p > .05$ ), which indicates similar improvements in mood and satisfaction across time for youth in the two intervention conditions.

**Problem-Solving.** The results of the SPSI-R problem-solving measure were of special interest since one of the treatment programs, ICPS, dealt exclusively with problem-solving training. Table 7 shows the results for each SPSI-R subscale. As shown, with the exception of Ratio-

TABLE 6. Intervention Effects on Mood and Overall Happiness Indices Across Time (N = 56)

	Pre	Post	FU	Pre-Post	Pre-FU
	M(sd)	M(sd)	M(sd)	F value	F value
BDI					
FBT	12.10 (9.57)	4.72 (4.80)	5.07 (6.16)	34.31****	38.42****
ICPS	12.07 (10.20)	5.8 (7.10)	4.13 (3.34)		
LSS-A: Total Scale					
FBT	64.50 (11.98)	74.08 (15.57)	77.96 (14.13)	26.77****	47.79****
ICPS	63.27 (15.13)	81.33 (14.48)	77.72 (14.29)		
YHPS: Total Scale					
FBT	51.47 (21.28)	72.52 (20.02)	82.23 (14.18)	45.93****	81.51****
ICPS	54.04 (24.07)	75.60 (14.34)	74.27 (18.79)		
PHYS: Total Scale					
FBT	39.05 (19.97)	68.48 (22.80)	61.25 (28.13)	78.30****	68.77****
ICPS	29.02 (57.96)	57.96 (31.75)	68.66 (19.14)		

Notes. BDI = Beck Depression Inventory, Total scale scores of Life Satisfaction Scale for Adolescents, Youth Happiness with Parent, and Parent Happiness with Youth all range from 0 to 100. F values are for within subjects effects. \*\*\*\* $p < .001$ .

TABLE 7. Intervention Effects on Problem-Solving (SPSI-R Subscales) Across Time (N = 56)

	Pre	Post	FU	Pre-Post	Pre-FU
	M(sd)	M(sd)	M(sd)	F value	F value
Negative Problem Orient.				27.51****	23.87****
FBT	14.31(7.93)	8.88 (6.47)	9.54 (6.71)		
ICPS	15.59(9.88)	10.48 (6.70)	10.36 (7.27)		
Pos. Problem Orient.				5.87*	5.57*
FBT	10.93 (5.16)	12.76 (4.30)	12.55 (3.95)		
ICPS	11.11 (4.59)	11.69 (3.77)	12.62 (4.52)		
Rational Problem Style				1.71	9.93***
FBT	40.86 (18.83)	42.96 (17.49)	45.50 (15.58)		
ICPS	34.07 (15.83)	37.75 (14.26)	43.03 (17.18)		
Impulsive Control Style				53.44****	38.10****
FBT	17.21 (8.72)	9.93 (7.60)	10.72 (7.74)		
ICPS	18.93 (6.82)	12.15 (5.97)	12.12 (6.94)		
Avoidant Style				30.42****	17.45****
FBT	10.90 (6.38)	6.66 (4.98)	6.93 (5.64)		
ICPS	10.96 (6.30)	6.90 (4.56)	7.50 (5.08)		

F values are for within subjects effects. \*p < .05. \*\*\*p < .005. \*\*\*\*p < .001.

nal Problem Style from pre-treatment to post-treatment, all youth significantly improved their problem-solving from pre-treatment to post-treatment, and these improvements were maintained at follow-up (range of ps < .05 to .001). As with all other measures examined in this study, there were no significant Intervention by Time differences, indicating youth in the two treatment conditions demonstrated similar improvements in their problem-solving abilities across time.

## DISCUSSION

The present results indicated that FBT and ICPS interventions were equally effective in reducing the frequency of alcohol and illicit drug use, as well as improving various conduct problems, according to standardized measures and court records. It does not appear that dually diagnosed youth (conduct and substance use disorders) have been previously studied in controlled treatment outcome studies. Thus, treatment efficacy demonstrated with these dually diagnosed youth in the present study is encouraging, particularly given the severity of their condition. The present findings that FBT reduces youth behavioral problems confirms previous findings and conclusions with teenage youth (Bank et al., 1991), and extends previous similar results with younger youth (Besalel & Azrin, 1981; Farehand & Lang, 1988; Kazdin

et al., 1989). Similarly, the reduction of drug use in the present study for adolescents in FBT subjects is consistent with previous studies that have found reductions in drug use (Azrin et al., 1994) and drug arrests (Henggeler et al., 1991) for older youth consequent to the receipt of behavioral/family type counseling. The current finding that ICPS reduces illicit drug usage of youth does not appear to have been demonstrated previously in controlled studies, and therefore provides additional treatment modality for adolescent substance abuse/dependence. Several previous controlled studies have found that individual/cognitive treatment is effective in treating behavior problems of young children (Spivak & Shure, 1974) and pre-adolescents (Kazdin et al., 1987a, 1987b). Thus, the present results extend this conclusion to adolescents. Further, the present results are similar to those findings of Kazdin (1987b), who also found problem-solving therapies to be as effective as family behavior counseling therapies with pre-adolescent conduct disorder. Similarly, for adolescent drug abuse, Szapocznik et al. (1983, 1986) found that youth only treatment was as effective as family treatment.

Improvements for youth were also evidenced in the domains of depression, problem-solving, life satisfaction, and satisfaction with parents. Similarly, improvement for parents were found in satisfaction with their children. This generalized psychological improvement has been noted previously as accompanying treatment produced reductions in drug use (Azrin et al., 1994), and suggests treatment procedures are not forcing improvements in drug usage or behavior problems at the expense of personal or family satisfaction.

Methodologically, the present study included a combination of features to an extent rarely found in similar studies: random assignment, comparison of treatments, equal duration and frequency and number of sessions, quantified treatment reliability and validity measures taken for all sessions, separate therapists and supervisors for each of the treatments, equal patient credibility/expectancy for both treatments, multiple measures of both drug use and behavior problems, DSM specification of the subject sample, utilization of standardized self-report measures that complement additional objective measures (urine samples, arrests), and use of assessors "blind" to treatment assignment. Such precautions helped assure that between-treatment differences in effectiveness would not be caused by external factors.

The lack of difference in benefit between treatments may, of course, be attributable to the usual factors of insufficient power, or large within group heterogeneity and variance. However, it is plausible that there

was a true lack of difference in effectiveness. The ICPS treatment consisted entirely of problem-solving training, thus it might be expected that this intervention would result in more improvement on the problem-solving measures; failure to do so seems explainable in that FBT included problem-solving training as part of the stimulus control and urge control procedures. Conversely, the FBT program might have been expected to show greater overall benefits than the single-dimension ICPS program. A possible explanation may be the "ceiling effect" in which conduct was improved to a near-normal level, as were most of the other measures. Yet, the final level of drug use to about 8 days per month would seem to provide additional margin for improvement, but informal impression is that many of the parents and youth abide with the opinion that this level was not a major problem, particularly since most of these days of drug use involved primarily marijuana. In support of this possibility was the measured substantial increase in parental satisfaction with the youth's final drug use. An alternative conclusion regarding the lack of difference between treatments is that the benefits of both were attributable to non-treatment specific factors since no "placebo" condition was included. In support of the conclusion that the present benefits were treatment specific is the previous finding, both by Azrin et al. (1994) and by Kazdin et al. (1989) that supportive counseling did not produce the extent of benefit as did the behavioral treatment.

Since both types of treatment were equally effective, are there other factors to consider in recommending one procedure over the other? Certainly, the ICPS treatment is simpler and requires less training. Moreover, this intervention is more feasible in that it does not require the cooperation of parents, nor attempt explicit changes in broad categories of conduct such as communication, peer relations, family relations, etc. In support of this choice was the finding that youth who evinced relatively high levels of delinquency were more likely to drop-out of counseling if assigned to FBT. On the other hand, if the family is cooperative, intuition, but not the present data, would seem to make the family treatment more appropriate.

## NOTES

1. Subjects who completed 8 of the scheduled 15 intervention sessions were considered treatment completers in this study because all components of the interventions were successively and cumulatively implemented by the 8th session in both intervention conditions.

2. When missing data were present, series mean substitution was utilized. Series mean substitution was not utilized for statistics involving (a) urinalysis, since data for each subject was recorded dichotomously (negative, positive), or (b) the School subscale of the CBCL, since this measure was not appropriate for youth who were not enrolled in school at post-treatment or follow-up due to graduation or employment.

## REFERENCES

- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behaviour Profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Achenbach, T. M., & Edelbrock, C. (1987). *Manual for the Youth Self Report and Profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Acierno, R., Donohue, B., & Kogan, E. (1994). Psychological interventions for drug abuse: A critique and summation of controlled studies. *Clinical Psychology Review*, 14, 417-442.
- Akers, R. L. (1985). *Deviant behavior: A social learning approach* (3rd ed.). Belmont, CA: Wadsworth.
- Akers, R. L. (1992). *Drugs, alcohol, and society: Social structure, process, and policy*. Belmont, CA: Wadsworth.
- Alexander, J. F., & Parsons, B.V. (1973). Short-term behavioral intervention with delinquent families: Impact on family process and recidivism. *Journal of Abnormal Psychology*, 81, 219-225.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Azrin, N. H., Acierno, R., Kogan, E. S., Donohue, B., Besalel, V. A., & McMahon, P. T. (1996). Follow-up results of supportive versus behavioral therapy for illicit drug use. *Behaviour Research and Therapy*, 34, 41-46.
- Azrin, N. H., & Besalel, V. A. (1980). *Job Club Counselor's Manual: A behavioral approach to vocational counseling*. Austin, TX: PRO-ED.
- Azrin, N. H., & Besalel, V. A. (1999). *How to use positive practice, self-correction, and over-correction* (2nd ed.). Austin, TX: PRO-ED.
- Azrin, N. H., Donohue, B., Besalel, V. A., Kogan, E., & Acierno, R. (1994). Youth drug abuse treatment: A controlled outcome study. *Journal of Child & Adolescent Drug Abuse*, 3, 1-16.
- Azrin, N. H., Flores, T., & Kaplan, S. J. (1975). Job finding club: A group assisted program for obtaining employment. *Behavior Research and Therapy*, 13, 17-27.
- Azrin, N. H., McMahon, P. T., Donohue, B., Besalel, V. A., Lapinski, K. J., Kogan, E. S., Acierno, R. E., & Galloway, E. (1994). Behavior therapy for drug abuse: A controlled treatment outcome study. *Behaviour Research and Therapy*, 33, 857-866.

- Azrin, N. H., Nastor, B. J., & Jones, R. J. (1973). Reciprocity counseling: A rapid learning-based procedure for marital counseling. *Behavior Research and Therapy*, 11, 365-380.
- Babor, T. F., Cooney, N. L., & Lauerman, R. J. (1987). The dependence syndrome concept as a psychological theory of relapse behaviour: An empirical evaluation of alcoholic and opiate addicts. Special issue: Psychology and addiction. *British Journal of Addiction*, 82, 393-405.
- Bank, L., Marlowe, J. H., Reid, J. B., Patterson, G. R., & Weinrott, M. R. (1991). A comparative evaluation of parent training interventions for families of chronic delinquents. *Journal of Abnormal Child Psychology*, 19, 15-33.
- Beck, A. T., Ward, C. H., Mendelsohn, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 561-571.
- Besalel, V. A., & Azrin, N. H. (1981). The reduction of parent-youth problems by reciprocity counseling. *Behaviour Research and Therapy*, 19, 297-301.
- Beschner, G., & Friedman, A. (1985). Treatment of adolescent drug abusers. *International Journal of the Addictions*, 20, 971-993.
- Borkovec, T. D., Mathews, A. M., Chambers, A., Ebrahimi, S., Lytle, R., & Nelson, R. (1987). The effects of relaxation training with cognitive or non-directive therapy and the role of relaxation-induced anxiety in the treatment of generalized anxiety. *Journal of Consulting and Clinical Psychology*, 55, 883-888.
- Borkovec, T. D., & Nau, S. D. (1972). Credibility of analogue and therapy rationales. *Journal of Behavior Therapy and Experimental Psychiatry*, 3, 257-260.
- Camp, B. W., Blom, G. E., Frederick, H., & van Doorninck, W. J. (1976). "Think Aloud": A program for developing self-control in young aggressive boys. *Journal of Abnormal Child Psychology*, 5, 157-169.
- Catalano, R. F., Hawkins, D. J., Wells, E. A., Miller, J., & Brewer, D. (1991). Evaluation of the effectiveness of adolescent drug abuse treatment, assessment of risks for relapse, and promising approaches for relapse prevention. *The International Journal of the Addictions*, 25, 1085-1140.
- Costello, E. J. (1990). Child psychiatric epidemiology: Implications for clinical research practice. In B.B. Lahey & A.E. Kazdin (Eds.), *Advances in Clinical Child Psychology* (Vol. 13, pp. 53-90). New York: Plenum Press.
- DeCato, L., Donohue, B., Azrin, N.H., & Teichner, G.A. (2001). Satisfaction of Conduct-Disordered and Substance Abusing Youth with Their Parents. *Behavior Modification*, 25, 21-44.
- Dodge, K. A. (1985). Attributional bias in aggressive children. *Advances in Cognitive-Behavioral Research and Therapy*, 4, 73-110.
- Dodge, K. A. (1986). A social information processing model of social competence in children. In M. Perlmutter (Ed.), *The Minnesota Symposium on Child Psychology* (Vol. 18, pp. 77-125). Hillsdale, NJ: Erlbaum.

- Donohue, B., & Azrin, N. H. (in press). Family behavior therapy. In E. Wagman, & Waldon (Eds.), *Intervention innovations in adolescent substance use*. New York: Pergamon Press.
- Donohue, B., Decato, L., Azrin, N.H., & Teichner, G.A. (2001). Satisfaction of Parents with Their Conduct-Disordered and Substance Abusing Youth. *Behavior Modification*, 25, 21-44.
- Dumas, J. E. (1989). Treating antisocial behavior in children: Child and family approaches. *Clinical Psychology Review*, 9, 197-222.
- D’Zurilla, T. J. (1986). *Problem-solving therapy: A social competence approach to clinical intervention*. New York: Springer Publishing Company.
- D’Zurilla, T. J., & Goldfried, M. R. (1971). Problem solving and behavior modification. *Journal of Abnormal Psychology*, 78, 107-126.
- D’Zurilla, T. J., & Nezu, A. M. (1990). Development and preliminary evaluation of the Social Problem-Solving Inventory (SPSI). *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 2, 156-163.
- D’Zurilla, T. J., Nezu, A. M., & Maydeu-Olivares, A. (in press). *Manual for the Social Problem-Solving Inventory-Revised (SPSI-R)*. North Tonawanda, NY: Multi-Health Systems, Inc.
- Ehrman, R. N., & Robbins, S. J. (1994). Reliability and validity of 6-month reports of cocaine and heroin use in a methadone population. *Journal of Consulting and Clinical Psychology*, 62, 843-850.
- Eyberg, S. (1992). Parent and teacher behavior inventories for the assessment of conduct problem behaviors in children. In L. Vandecreek, S. Knapp, & T. L. Jackson (Vol. Eds.). *Innovations in clinical practice: A sourcebook* (Vol. 11, pp. 261-270). Sarasota, FL: Professional Resource Press.
- Eyberg, S., & Robinson, E. (1983). Conduct problem behavior: Standardization of a behavioral rating scale with adolescents. *Journal of Clinical Child Psychology*, 12, 347-354.
- Eyberg, S., & Ross, A. W. (1978). Assessment of child behavior problems: The validation of a new inventory. *Journal of Clinical Child Psychology*, 7, 113-116.
- Forehand, R. & Lang, N. (1988). Outpatient treatment of the acting out child: Procedures, long term follow-up data, and clinical problems. *Advances in Behaviour Research and Therapy*, 10, 129-177.
- Funderburk, B. W., & Eyberg, S. M. (1989). Psychometric characteristics of the Sutter-Eyberg Student Behavior Inventory: A school behavior rating scale for use with pre-school children. *Behavioral Assessment*, 11, 297-313.
- Henggeler, S. W., Borduin, C. M., Melton, G. B., Mann, B. J., Smith, L. A., Hall, J. A., Cone, L., & Fucci, B. R. (1991). Effects of multisystemic therapy on drug use and abuse in serious juvenile offenders: A progress report from two outcome studies. *Family Dynamics Addiction Quarterly*, 1, 40-51.

- Higgins, S. T., Budney, A. J., & Bickel, W. K. (1994). Applying behavioral concepts and principles to the treatment of cocaine dependence. *Drug and Alcohol Dependence*, 34, 87-97.
- Hodges, K. (1993). Structured interviews for assessing children. *Journal of Child Psychology and Psychiatry and Applied Disciplines*, 34, 49-68.
- Hodges, K., Cools, J., & McKnew, D. (1989). Test-retest reliability of a clinical research interview for children: The CAS. *Psychological Assessment*, 1, 317-322.
- Hodges, K., Gordon, Y., & Lennon, M. (1990). Parent-child agreement on symptoms assessed via a clinical research interview for children: The CAS. *Journal of Child Psychol and Psychiat.*, 31, 427-436.
- Hodges, K., Kline, J., Stern, L., Cytryn, L., & McKnew, D. (1982). The development of a child assessment schedule for research and clinical use. *Journal of Abnormal Child Psychiatry*, 10, 173-189.
- Hunt, G. H., & Azrin, N. H. (1973). The community-reinforcement approach to alcoholism. *Behaviour Research and Therapy*, 11, 91-104.
- Jacob, T., & Seilhamer, R. A. (1985). Adaptation of the Areas of Change Questionnaire for parent-child relationship assessment. *American Journal of Family Therapy*, 13, 28-38.
- Joanning, H., Quinn, Q., Thomas, F., & Mullen, R. (1992). Treating adolescent substance abuse: A comparison of family systems therapy, group therapy, and family drug education. *Journal of Marital and Family Therapy*, 4, 291-300.
- Kashani, J., Orvaschel, H., Rosenberg, T., & Reid, J. (1989). Psychopathology in a community sample of children and adolescents: A developmental perspective. *Journal of the American Academy of Child and Adolescent Psychiatry*, 28, 701-706.
- Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin*, 102, 187-203.
- Kazdin, A. E. (1992). *Research design in clinical psychology* (2nd ed.). Boston, MA: Allyn & Bacon.
- Kazdin, A. E. (1991). Effectiveness of psychotherapy with children and adolescents. Special Section: Clinical child psychology: Perspectives on child and adolescent therapy. *Journal of Consulting and Clinical Psychology*, 59, 785-798.
- Kazdin, A. E. (1995). *Conduct disorders in childhood and adolescence* (2nd ed.). Thousand Oaks, CA: Sage.
- Kazdin, A. E., Bass, D., Siegel, T., & Thomas, C. (1989). Cognitive-behavioral therapy and relationship therapy in the treatment of children referred for antisocial behavior. *Journal of Consulting and Clinical Psychology*, 57, 522-535.
- Kazdin, A. E., Esveldt-Dawson, K., French, N. H., & Unis, A. S. (1987a). Problem-solving skills training and relationship therapy in the treatment of antisocial child behavior. *Journal of Consulting and Clinical Psychology*, 55, 76-85.

- Kazdin, A. E., Esveldt-Dawson, K., French, N. H., & Unis, A. S. (1987b). Effects of parent management training and problem-solving skills training in the treatment of antisocial child behavior. *Journal of the American Academy of Child and Adolescent Psychiatry*, 26, 416-424.
- Kazdin, A. E., Siegel, T. C., & Bass, D. (1992). Cognitive problem-solving skills training and parent management training in the treatment of antisocial behavior in children. *Journal of Consulting and Clinical Psychology*, 60, 733-747.
- Kendall, P. C., & Braswell, L. (1982). Cognitive-behavioral self-control therapy for children: A components analysis. *Journal of Consulting and Clinical Psychology*, 5, 672-689.
- Kendall, P. C., & Braswell, L. (1985). *Cognitive-behavioral therapy for impulsive children* (pp. 179-209). New York: Guilford.
- Kendall, P. C., & Braswell, L. (1987). Treating impulsive children via cognitive-behavioral therapy. In N. Jacobson (Ed.), *Psychotherapists in Clinical Practice* (pp. 153-189). New York: Guilford Press.
- Kendall, P. C., Padawer, W., Zupan, B., & Braswell, L. (1985). Developing self-control in children: The manual. In P. C. Kendall, & L. Braswell (Eds.), *Cognitive-behavioral therapy for impulsive children* (pp. 179-209). New York: Guilford.
- Kendall, P. C., Reber, M., McLeer, S., Epps, J., & Ronan, K. R. (1990). Cognitive-behavioral treatment of conduct-disordered children. *Cognitive Therapy and Research*, 14, 279-297.
- Latimer, P. R., & Sweet, A. A. (1984). Cognitive versus behavioral procedures in cognitive-behavior therapy: A critical review of the evidence. *Journal of Behavior Therapy and Experimental Psychiatry*, 15, 9-22.
- Liddle, H. A., & Dakof, G. A. (1995). Family based treatment for adolescent drug use: State of the science. In E. Rahdert, & D. Czechowics (Eds.), *Adolescent drug abuse: Clinical assessment and therapeutic interventions* (DHHS Publication No. ADM 95-3908, NIDA Research Monograph No. 156). Washington, DC: U.S. Government Printing Office.
- Liddle, H. A., Dakof, G. A., Diamond, G., Holt, M., Aroyo, J., & Watson, M. (1992). The adolescent module in multidimensional family therapy. In G. W. Lawson, & A. W. Lawson (Eds.), *Adolescent substance abuse: Etiology, treatment, and prevention* (pp. 165-186). Gaithersburg, MD: Aspen.
- Lipton, D., Martinson, R., & Wilks, J. (1975). *The effectiveness of correctional treatment: A survey of treatment evaluation studies*. Praeger Publishers.
- Lochman, J. E., & Curry, J. F. (1986). Effects of social problem-solving training and self-instruction training with aggressive boys. *Journal of Clinical Child Psychology*, 15, 159-164.
- Marlatt, G. A., & Donovan, D. M. (1981). Alcoholism and drug dependence: Cognitive, social-learning factors in addictive behaviors. In W. E. Craighead, A. E. Kazdin, & M. J. Mahoney (Eds.), *Behavior modification: Principles, issues, and applications* (2nd ed., pp. 264-285). Boston, MA: Houghton Mifflin.

- McMahon, R. J., & Wells, K. C. (1998). Conduct Disorders. In E. J. Mash and R. Barkley (Eds.), *Treatment of childhood disorders* (2nd ed., pp. 111-207). New York: Guilford Press.
- Meichenbaum, D. (1977). *Cognitive-behavior modification: An integrative approach*. New York: Plenum Press.
- Meichenbaum, D., & Goodman, J. (1971). Training impulsive children to talk to themselves: A means of developing self-control. *Abnormal Psychology*, 77, 115-126.
- Myers, M. G., Brown, S. A., & Vik, P. W. (1998). Adolescent substance use problems. In E. J. Mash, & R. A. Barkley (Eds.), *Treatment of childhood disorders* (2nd ed., pp. 692-729). New York: Guilford Press.
- Ozechowski, T. J., & Liddle, H. A. (2000). Family-based therapy for adolescent drug abuse: Knowns and unknowns. *Clinical Child and Family Psychology Review*, 3, 269-298.
- Patterson, G. R., Chamberlain, P., & Reid, J. B. (1982). A comparative evaluation of a parent-training program. *Behavior Therapy*, 13, 638-650.
- Patterson, G. R., Dishion, T. J., & Chamberlain, P. (1993). Outcomes and methodological issues relating to treatment of antisocial children. In T. R. Giles (Ed.), *Handbook of effective psychotherapy* (pp. 43-88). New York: Plenum Press.
- Peed, S., Roberts, M., & Forehand, R. (1977). Evaluation of the effectiveness of a standardized parent training program in altering the interaction of mothers and their noncompliant children. *Behavior Modification*, 1, 323-350.
- Richard, B. A., & Dodge, K. A. (1982). Social maladjustment and problem solving in school-aged children. *Journal of Consulting and Clinical Psychology*, 50, 226-233.
- Robinson, E. A., Eyberg, S., & Ross, A. W. (1980). The standardization of an inventory of child conduct problem behaviors. *Journal of Clinical Child Psychology*, 9, 22-28.
- Sobell, M. B., Sobell, L. C., Klajner, F., Pavan, D., & Basian, E. (1986). The reliability of the timeline method of assessing normal drinker college students' recent drinking history: Utility for alcohol research. *Addictive Behaviors*, 11, 149-162.
- Spitzer, R. L., Williams, J. B., Gibbon, M., & First, M. B. (1992). The structured clinical interview for the DSM-III-R (SCID): I. History, rationale, and description. *Archives of General Psychiatry*, 49, 624-629.
- Spivack, G., Platt, J. J., & Shure, M. B. (1976). *The problem solving approach to adjustment*. San Francisco, CA: Jossey-Bass.
- Spivack, G., & Shure, M. B. (1974). *Social adjustment of young children: A cognitive approach to solving real life problems*. San Francisco, CA: Jossey-Bass.
- Stuart, R. B. (1971). Behavioral contracting within the families of delinquents. *Journal of Behavior Therapy and Experimental Psychiatry*, 2, 1-11.
- Szapocznik, J., Kurtines, W. M., Foote, F. H., Perez-Vidal, A., & Hervis, O. (1983). Conjoint versus one-person family therapy: Some evidence for the effectiveness of conducting family therapy through one person. *Journal of Consulting and Clinical Psychology*, 51, 889-899.

- Szapocznik, J., Kurtines, W. M., Foote, F. H., Perez-Vidal, A., & Hervis, O. (1986). Conjoint versus one-person family therapy: Further evidence for the effectiveness of conducting family therapy through one person with drug abusing adolescents. *Journal of Consulting and Clinical Psychology, 54*, 395-397.
- Teichner, G., Azrin, N. H., Donohue, B., Howell, J., Rindsberg, J., Decato, L., & Ward, J. (1998, November). Psychometric evaluation of the Life Satisfaction Scale in a population of conduct-disordered and drug abusing youth. Poster presented at the Association for the Advancement of Behavior Therapy, Washington, DC.
- Van Hasselt, V. B., Hersen, M., & Millionses, J. (1978). Social skills training for alcoholics and drug addicts: A review. *Addictive Behaviors, 3* (3, supplement 4), 221-233.
- Ward, J. (1998). Conduct disorder in childhood and adolescence: A review of treatment outcome studies. Unpublished manuscript.
- Webster-Stratton, C. (1990). Long-term follow-up of families with young conduct problem children: From preschool to grade school. *Journal of Clinical Child Psychology, 19*, 144-149.
- Webster-Stratton, C., & Hammond, C. (1997). Treating children with early onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology, 65*, 93-109.
- Webster-Stratton, C., Kolpacoff, M., & Hollingsworth, T. (1988). Self-administered videotape therapy for families with conduct problem children: Comparison to two other cost-effective treatments and a control group. *Journal of Consulting and Clinical Psychology, 55*, 558-566.
- Webster-Stratton, C., Hollingsworth, T., & Kolpacoff, M. (1989). The long-term effectiveness and clinical significance of three cost-effective training programs for families with conduct problem children. *Journal of Consulting and Clinical Psychology, 57*, 550-553.
- Weinberg, N. Z., Naimah, Z., Rahdert, E., Colliver, J. D., & Glantz, M. D. (1998). *Journal of the American Academy of Child & Adolescent Psychiatry, 3*, 252-261.
- Wolpe, J. (1990). *The practice of behavior therapy* (4th ed.). New York: Pergamon Press.
- Yeaton, W. H., & Schrest, L. (1981). Critical dimensions in the choice and maintenance of successful treatments: Strength, integrity, and effectiveness. *Journal of Consulting and Clinical Psychology, 49*, 156-167.

Copyright of *Journal of Child & Adolescent Substance Abuse* is the property of Haworth Press and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.