Published in final edited form as:

J Fam Psychol. 2011 August ; 25(4): 610–614. doi:10.1037/a0024016.

Preliminary Results for an Adaptive Family Treatment for Drug Abuse in Hispanic Youth

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Abstract

A small randomized trial investigated a new family-based intervention for Hispanic adolescents meeting DSM-IV criteria for substance abuse disorder. The Culturally Informed and Flexible Family-Based Treatment for Adolescents (CIFTA) is a tailored/adaptive intervention that includes a flexible treatment manual and multiple treatment components. The study used an “add on” design to isolate the effects on substance abuse, behavior problems and parenting practices attributable to the newly developed components. 28 Hispanic adolescents and their families were randomized to either the experimental treatment or traditional family therapy (TFT) and were assessed at baseline and 8 month follow-up. Despite the small sample, results revealed statistically significant treatment by time effects on both self-reported drug use (marijuana + cocaine), $F(1, 22) = 10.59, p < .01, \eta^2 = .33$ and adolescent reports of parenting practices, $F(1, 22) = 9.01, p < .01, \eta^2 = .29$. Both sets of analyses favored CIFTA participants. There was a significant time by treatment effect, $F(1, 22) = 6.72, p = .02, \eta^2 = .23$ favoring CIFTA on parent report of parenting practices using a composite that matched the variables used for adolescents, but only a non-significant trend, $F(1, 22) = 2.43, p = .13, \eta^2 = .10$ when a composite that used all parenting subscales. Parent reports on adolescent behavior problems did not show a significant time or treatment by time effect. These results show the promise of this adaptive treatment for substance abuse in Hispanic adolescents and suggest the need for a larger randomized trial to fully investigate this treatment.

Keywords

adolescent; Hispanic; drug abuse treatment; evidence-based; family therapy

A recent review (Huey & Polo, 2008) highlights efficacious treatments for adolescent conduct and drug use problems (Henggeler, Clingempeel, Brondino, & Pickrel, 2002; Liddle, Dakof, Turner, Henderson, & Greenbaum, 2008; Santisteban et al., 2003) but also concludes that no treatment qualifies as a “well established treatment” for drug abuse in Hispanic adolescents. This is an untenable state of affairs given that Hispanic adolescents: 1) make up 17% of the U.S. population ages 15-19 (U.S. Census Bureau Estimate, 2007), 2) often experience unique stressors that can impact symptom development and service utilization, and 3) have high rates of drug use (Johnston, O’Malley, & Bachman, 2005) and associated risky sexual behaviors.

In a program of research designed to develop and test an integrated family-based treatment for drug abuse in Hispanic adolescents, development was informed by recommendations from the psychotherapy research literature. One recommendation has been to increase the

focus on hypothesized mediators (Kazdin & Nock, 2003). A second has been to consider “adaptive” interventions tailored to unique client needs and articulating decision rules that facilitate replication (Chorpita, 2007). A third has been to include themes important to Hispanic families that increase the treatment’s “external validity” (Bernal & Scharron-Del-Rio, 2001). The recommendations identified in this review were incorporated into our treatment development efforts (Santisteban & Mena, 2009). Individual, family, and psycho-educational sessions included content such as parenting practices, acculturation and immigration stressors, drug use, risky sexual behavior, and motivation to change. Interventions were designed to be delivered within an adaptive treatment framework with decision-making rules.

The research design of the study tested an “add on” enhancement strategy by comparing a once-per-week conjoint family therapy to the new twice-per-week integrated family-based treatment. Although at first it may seem that any increase in intervention dosage would yield superior outcomes, one of the largest collaborative clinical trials ($n = 600$ adolescents with drug abuse problems) found no differences in drug use outcomes between a 5 session CBT treatment, a 12 session CBT treatment, an 18-22 session condition that combined family and CBT interventions, and two intensive conditions that combined family and individual interventions (Dennis et al., 2004). These findings suggesting that a mere increase in sessions is not necessarily better, are also consistent with findings showing that it is quite difficult to document differential outcomes when comparing active and bona fide interventions (Wampold et al., 1997). The purpose of this brief report is to present preliminary findings of a Stage 1 randomized trial investigating the impact of an adaptive family-based treatment on substance use, behavior problems, and hypothesized family-level mediators in Hispanic adolescents meeting criteria for substance abuse disorder. The study investigated whether there was a detectable impact that might be attributable to the program enhancements.

Method

Twenty-eight Hispanic adolescents who met the following criteria: (a) 14 to 17 years old, (b) living with a parent or guardian who came to the U.S. from a Spanish-speaking country; and (c) meeting DSM-IV criteria for a Substance Abuse Disorder, were included in the study. In each family at least one parent figure joined the adolescent during assessments and treatment. Participants were referred by a local Juvenile Addictions Receiving Facility and by Department of Juvenile Justice Diversion programs. Of the 28 families that agreed to participate all provided consent and assent, completed the baseline assessment, and were randomized. Twenty-five of the 28 cases had both parents and adolescents completing the final 8 month assessment (See CONSORT Figure 1). The small sample size is consistent with Stage 1 treatment development guidelines (Rounsaville, Carroll, & Onken, 2001). The study was approved by the university IRB. Family consent and adolescent assent procedures were offered in English and Spanish. Participants were randomized into the CIFTA or Traditional Family Therapy (TFT) conditions. Randomization was stratified by gender and drug use severity by a senior investigator. Youth and families were treated for approximately 4 months in each condition. Data were collected at baseline, 4-months, and 8-months post intake at the intervention site. Analyses focused on baseline and 8-month assessments because not all participants had completed treatment by the four month time-point. There were no significant differences between conditions on adolescent gender and age, annual family income, and adolescent and parent Spanish-language preference.

Measures were selected that had been used with Hispanic populations, had strong psychometric properties, and were available in Spanish and English. Masters-level assessors with several years of interviewing experience and fluent in Spanish and English were used.

The Revised Behavior Problems Checklist (Quay & Peterson, 1987) Conduct Disorder and Socialized Aggression subscales were used to create a composite score of parent reported adolescent behavior problems. Internal consistency reliability was high at baseline and follow-up (α s > .90). The Youth Self-Report (Achenbach, 1991) “externalizing” behaviors score was used to capture adolescent self reports of behavior problems. Internal consistency reliability was high at baseline and follow-up (α s > .90). The Parenting Practices Questionnaire (Gorman-Smith, Tolan, Zelli, & Huesmann, 1996) captured parent reports on their own Positive Parenting, Discipline Effectiveness, Discipline Avoidance, Curfew Rules, Time Spent Together and Extent of Involvement that were combined into a composite score. Adolescents reported on two aspects of parent behaviors (Positive Parenting and Extent of Involvement) that were combined into a composite score. Internal consistency was acceptable at baseline and follow-up (α s .79 to .94). Drug use was based on adolescent reports on the Timeline Follow-back over a 31-day period (Sobell et al., 2003) and was corroborated by urine toxicology tested by a certified laboratory.

CIFFTA has Structural Family Therapy (Minuchin & Fishman, 1981) as its foundation, integrates themes that are particularly relevant for Hispanic families, and was implemented by experienced family therapists over 16 weeks in a two session per week format. CIFFTA was delivered using a flexible and modular design (Santisteban & Mena, 2009) and the family work was integrated with: 1) individual interventions (e.g., Motivational Interviewing and skills training), and 2) psycho-educational modules (e.g., parenting, drug education, risky sexual behavior, acculturation-related stressors). Family therapy and some psycho-educational modules were delivered to individual families in a conjoint format. Individual treatment and certain psycho-educational modules (e.g., drug education) were delivered to the adolescent alone. Parenting modules were delivered to only parent figures of each individual family. The Traditional Family Therapy (TFT) condition was conducted by therapists experienced in Structural Family Therapy and adolescent drug abuse treatment. TFT was implemented in a once per week format similar to previous research (Santisteban et al., 2003) with Hispanic youth.

Results

Baseline ANOVA showed that TFT adolescents ($M = 69.62$, $SD = 14.85$) reported significantly greater externalizing problems than CIFFTA participants ($M = 54.23$, $SD = 12.28$), $F(1, 27) = 8.95$, $p < .01$, $\eta^2 = .26$. Parent reports of child Externalizing behaviors were not significantly different between conditions. Except for youth self-report of externalizing behavior, all subsequent analyses included baseline externalizing problems as a covariate.

Consistent with the “add on” design of this study the number of family sessions received was similar in the two conditions (CIFFTA: $M = 16.25$, $SD = 6.70$; TFT: $M = 12.15$, $SD = 4.12$), $F(1, 24) = 3.45$, ns , $\eta^2 = .13$, although therapy sessions in TFT ($M = 64.21$ min., $SD = 6.88$) were longer ($M = 57.75$ min., $SD = 5.40$), $F(1, 24) = 6.74$, $p < .05$, $\eta^2 = .23$. CIFFTA participants received more individual therapy sessions (CIFFTA: $M = 13.25$, $SD = 5.31$; TFT: $M = 0.31$, $SD = 0.63$), $F(1, 24) = 76.31$, $p < .001$, $\eta^2 = .77$, and psycho-educational modules (CIFFTA: $M = 7.58$, $SD = 3.75$; TFT: $M = 0$), $F(1, 24) = 53.28$, $p < .001$, $\eta^2 = .70$, than TFT participants.

Independent raters blind to condition and trained to an inter-rater reliability of $\kappa = .80$ used a treatment adherence checklist to measure treatment fidelity. Nine to twelve videotapes from each component (TFT-family, CIFFTA-family, psycho-educational modules, individual treatment) were chosen randomly. Ratings of family sessions in CIFFTA and TFT showed that family interventions were delivered in comparable ways and with no significant

between-condition differences in ratings. Ratings of CIFFTA individual and psycho-educational sessions showed that therapists delivered the intended individual therapy and didactic interventions and that the ratings could differentiate therapist behaviors between the two types of sessions.

Drug Use, Behavior Problem and Parenting Practices Outcomes

Separate 2 (treatment type: TFT vs. CIFFTA) x 2 (time: baseline vs. 8-month follow-up) mixed factorial ANCOVA with externalizing behaviors as the covariate were used for drug use, parent-reported behavior problems, and parenting. ANOVA analysis was used for child-reported behavior problems. Because of the modest sample size and the increased possibility of Type II error, experiment-wise error was not adjusted through Bonferroni correction or other means. Description of effect sizes followed Cohen's (1988) guidelines: small, $\eta^2 = .01$; medium, $\eta^2 = .06$; large, $\eta^2 = .14$. Drug use and adolescent-reported parenting practices are shown in Figure 2.

Drug Use—Marijuana and cocaine use showed substantial positive skew and were log-transformed, greatly improving the normality of the residuals. As Table 1 shows, despite the small sample size results revealed a large-sized treatment by time effect on drug use (marijuana + cocaine), $F(1, 22) = 10.59, p < .01, \eta^2 = .33$, with CIFFTA participants showing more improvement. When analyzed separately results showed a large-size treatment by time effect on marijuana, $F(1, 22) = 7.53, p < .05, \eta^2 = .26$, and a non-significant trend for a small treatment by time effect on cocaine, $F(1, 22) = 3.09, p = .09, \eta^2 = .12$. Although not significant, urine results for marijuana showed a similar pattern favoring CIFFTA. Other drugs were very infrequent with only two adolescents reporting methamphetamine use and no other drug emerging on urine testing. One adolescent refused to supply a urine sample at baseline.

Behavior Problems—A parent-reported behavior problem composite yielded no significant time or treatment by time effects. Although there were substantial mean changes in both conditions, the large standard deviations within a small sample may have contributed to the non-significant time effect despite a medium effect size. Results showed only a large time effect on child-reported Externalizing behaviors, $F(1, 23) = 8.63, p < .01, \eta^2 = .27$.

Parenting Practices-Adolescent Report—Analysis of a Parenting Practices-adolescent report composite (Positive Parenting and Extent of Involvement) yielded a large-sized treatment by time effect, $F(1, 22) = 9.01, p < .01, \eta^2 = .29$, favoring CIFFTA. Adolescent perceptions of Parenting practices showed large-size treatment by time effects for both Positive Parenting, $F(1, 22) = 5.64, p < .05, \eta^2 = .20$, and Extent of Involvement, $F(1, 22) = 8.63, p < .01, \eta^2 = .28$.

Parenting Practices-Parent Report—Results showed a non-significant trend for a medium-sized time by treatment effect on the Parenting Practices-parent report composite using all available subscales, $F(1, 22) = 2.43, p = .13, \eta^2 = .10$, favoring CIFFTA. When a composite was created with the same parent-reported subscales that were used for the adolescent-reported parenting composite (Positive Parenting and Extent of Involvement), there was a significant time by treatment effect, $F(1, 22) = 6.72, p = .02, \eta^2 = .23$, favoring CIFFTA.

Discussion

The findings of this study suggest that it may be possible to enhance the effect of family therapy on both drug use and parenting practices by adding components that strategically

target important drug, cultural, and parenting processes, and by delivering these within an adaptive framework. Changes achieved in drug use and parenting practices were consistent with CIFTA's targeting of multiple components on those two major areas (Santisteban & Mena, 2009). Interestingly, the two parenting practices subscales that showed significant change were Positive Parenting and Extent of Involvement. These effects were found for both adolescent and parent reports. Other aspects of parenting were not impacted by the intervention. Our results are meaningful in the context of the Dennis et al. (2004) findings that merely increasing dosage and/or combining family and individual components alone do not lead to increased impact on recalcitrant problems. These findings provide preliminary support for the position that researchers and clinicians should develop and utilize treatments that address salient cultural characteristics, that include rules for tailoring and avoids a "one-size-fits-all" approach, and that target core family processes. Limitations of this study should be noted. First, the small sample size may have produced less stable effect size estimates than a larger sample and did not allow formal mediation analysis. The randomization of 14 cases per cell is at the lower limit of 15-30 cases per cell recommended by Rounsaville et al. (2001). Second, the add-on design that included more individual and psycho-educational sessions did not permit the investigators to rule out the possibility that more dosage alone was responsible for improvement. Future research should follow up on promising Stage I studies with larger Stage II studies that include equivalent dosages across conditions and formal tests of mediation. The continued study and improvement of adaptive treatment frameworks is also highly encouraged.

Acknowledgments

This research was supported in part by grants from the National Institute on Drug Abuse (R01 DA 0190571 and R01 DA 13104) and from the Center for Minority Health and Health Disparities (P60 MD 002266). The authors gratefully acknowledge Clara Abalo and the team of clinicians that contributed to the development of this treatment.

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Figure 1.
CONSORT Participant Flow Diagram.

Figure 2. Means of adolescent reports in Traditional Family Therapy (TFT) or Culturally Informed and Flexible Family-Based Treatment for Adolescents (CIFTA) at baseline and 8-month follow-up on: A) Parenting Practices-Adolescent Report and B) Days of Drug Use.

Table

Means, Standard Deviations, and ANOVA/ANCOVA Results for Drug Use, Behavior Problems, and Parenting Practices.

Variable	TFT (<i>n</i> = 13)			CIFFTA (<i>n</i> = 12)			Time × Treatment			Time		
	Baseline	8-months	Baseline	8-months	Baseline	8-months	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)						
<i>Adolescent-reported Drug Use^a</i>												
Both Drugs	5.15 (4.93)	5.85 (9.16)	11.08 (11.31)	0.58 (1.00)			10.59	<.01	0.33	0.75	.40	.03
Marijuana	4.54 (4.31)	5.46 (9.08)	7.75 (9.11)	0.50 (0.90)			7.53	.01	0.26	0.92	.35	.04
Cocaine	0.62 (0.96)	0.38 (0.96)	3.33 (8.54)	0.08 (0.29)			3.09	.09	0.12	0.40	.53	.02
<i>Parent-reported Behavior Problems</i>												
Composite	82.56 (22.04)	61.95 (19.48)	69.19 (23.98)	59.69 (22.23)			2.57	.12	.10	1.89	.18	.08
<i>Adolescent-reported Behavior Problems</i>												
Externalizing	69.12 (15.33)	59.02 (18.26)	53.62(12.82)	47.63 (7.15)			0.56	.46	.02	8.63	.01	.27
<i>Parenting Practices (Adolescent-report and Parent-report)</i>												
Adol. composite	6.26 (1.52)	5.89 (1.89)	6.08 (2.09)	7.45 (1.54)			9.01	<.01	.29	0.47	.50	.02
Par. composite	7.64 (1.28)	7.49 (1.14)	7.70 (0.90)	8.00 (1.10)			6.72	.02	.23	7.53	.01	.26

Note. TFT = Traditional Family Therapy. CIFFTA = Culturally Informed and Flexible Family-based Therapy for Adolescents.

^aLogarithmic transformation of drug use variables for ANCOVA; actual *M* and *SD* shown.