

Individual and Group CBT and IPT for Puerto Rican Adolescents With Depressive Symptoms

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This study compared individual (I) to group (G) formats of cognitive-behavioral therapy (CBT) and interpersonal psychotherapy (IPT) for the treatment of depression in adolescents. One hundred and 12 Puerto Rican adolescents were randomized to four conditions (CBT-I, CBT-G, IPT-I, IPT-G). Participants were assessed at pretreatment and posttreatment with structured interviews to establish diagnosis and with self-report measures to assess treatment outcome. The results suggest that CBT and IPT are robust treatments in both group and individual formats. However, CBT produced significantly greater decreases in depressive symptoms and improved self-concept than IPT. The implications of these findings are discussed.

Keywords: CBT and IPT treatments, randomized clinical trial, adolescents with depressive symptoms

Depressive disorder in adolescence is a serious mental health problem that is related to suicidal ideation, suicide attempts and completion, as well as academic underachievement, school dropout, substance abuse, and adult depression (Kessler, 2002; Lewinsohn & Clarke, 1999). These disorders have a lifetime prevalence of 15% to 20% during adolescence (Lewinsohn, Rhode, Klein, Seely, & Gotlieb, 2003), while current prevalence rates range from 6% to 28.3% (Kessler, 2002). For Latino adolescents, these rates are higher (R.E. Roberts, Roberts, & Chen, 1997; Twenge & Nolen-Hoeksema, 2002). Data from the CDC identified Hispanic students (34%) as being more likely than black or white students (28.8% and 26.5% respectively) to report sadness and hopelessness everyday for more than two weeks (Centers for Disease Control, 1992).

Given the prevalence and consequences of depression for the adolescent population, effective treatments are urgently needed.

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Important advances have been made in treatment development for adolescents (National Advisory Mental Health Council Workgroup on Child and Adolescent Mental Health Intervention Development and Deployment, 2001). Recent reviews of psychosocial treatments for depression have identified cognitive-behavior therapy (CBT) as the most thoroughly tested intervention, while interpersonal psychotherapy (IPT) has also received considerable attention (Kaslow & Thompson, 1998; Seligman, Goza, & Ollendick, 2004; Weisz & Jensen, 1999; Weisz, McCarty, & Valeri, 2006). With few exceptions (Clarke et al., 2002; TADS, 2004; Vostanis, Feehan, Gratton, & Brickerton, 1996), most studies have documented the efficacy of CBT (Asarnow et al., 2005; Brent et al., 1997; Clarke, Rohde, Lewinsohn, Hops, & Seeley, 1999; Lewinsohn, Clarke, Hops, & Andrews, 1990; Reynolds & Coats, 1986; Rohde, Clarke, Mace, Jorgensen, & Seeley, 2004; Rosselló & Bernal, 1999; Weersing & Weisz, 2002; Wood, Harrington, & Moore, 1996). Given that several independent teams of investigators have documented the efficacy of CBT, it appears that CBT meets the criteria for a well-established treatment for depression in adolescents (Chambless et al., 1996; Compton et al., 2004). IPT has also received some attention from researchers who have evidenced its efficacy in the treatment of adolescent depression in Latino populations (Mufson & Dorta, 2003; Mufson, Moreau, Weissman, & Klerman, 2004; Mufson, Weissman, Moreau, & Garfinkel, 1999; Mufson, Dorta, Olfsen, Weissman, & Hoagwood, 2004; Rosselló & Bernal, 1999).

Even though Latinos/as are now the largest minority group in the United States, relatively few treatment studies include members of this population as participants, and others fail to analyze the data according to minority group membership (Hall, 2001; Miranda et al., 2005). Given that minorities can be recruited and retained in psychotherapy research, it is unfortunate that their participation has not been consistently reported or considered in the scientific literature (Hall, 2001; Miranda, Nakamura, & Bernal, 2003). The resulting knowledge, which can mostly be generalized to white, middle class, English-speaking individuals, may lead to a bias in psychological science (Bernal & Scharron-del-Rio, 2001).

IPT and CBT seemed the best candidates for cultural adaptation because of the strong body of evidence on their efficacy. CBT had been adapted and tested for a number of populations, including Latinos by Ricardo Muñoz and his team (Muñoz & Mendelson, 2005). On the one hand, CBT has several elements which are consonant with the Latino culture such as: (1) a didactic orientation that structures the therapy and educates about symptoms and the therapeutic process; (2) a classroom or didactic format often serves to decrease the stigma of psychotherapy for "locos" (crazy); (3) meeting expectations of receiving a directive and active intervention from the "expert"; (4) an orientation focused on the present and on problem-solving; (5) providing concrete solutions and techniques to be used when facing problems; (6) offering alternatives to interpersonal problems through assertiveness training, role playing, among other therapeutic exercises (Organista, 2006). On the other hand, IPT focuses mainly on the present interpersonal conflicts. This addresses the Latino values of *familismo* and *personalismo*. The importance of family relationships and the personal dimension of social interactions are integral elements of IPT. Both IPT and CBT can be adapted to respond and emphasize the cultural context of Latinos (Bernal & Scharron del Río, 2001; Casas, 1995; Comas-Díaz, 2006; Muñoz & Mendelson, 2005).

Although, individual CBT and IPT appear to be efficacious in the treatment of depression in Latino adolescents (Mufson & Moreau, 1999; Rosselló & Bernal, 1999), evidence that CBT or IPT is efficacious when administered individually does not necessarily mean that it is efficacious when administered to a group. Based on our findings that both CBT and IPT were superior to a wait list condition (Rosselló & Bernal, 1999), the next step in preparation for effectiveness and technology transfer studies was to test these therapies in formats designed to reach a wider sector of society, such as groups. Given that CBT is a well established treatment for depression in adolescents and has been considered a standard against which treatments should be measured (Compton et al., 2004; Harrington, Whittaker, & Shoebridge, 1998; Seligman et al., 2004) and the risks of a wait list control, we reasoned that a no treatment control was unnecessary. The question of interest was relative, not absolute efficacy comparing individual and group formats of CBT and IPT.

Individual IPT and CBT have been previously adapted to groups (Wilfley et al., 1993; Wilfley, Frank, Welch, Spurrell, & Rounsville, 1998; Wilfley, McKenzie, Welch, Ayers, & Weissman, 2000). Wilfley and colleagues reported promising results when they compared their group adaptations to the individual therapeutic counterparts (CBT and IPT) for the treatment of nonpurging bulimia. Their work suggests that a group adaptation is comparable to the original individual treatment. Comparing outcomes through a meta-analysis, Lockwood, Page and Conroy-Hiller (2004) studied whether group or individual CBT were comparable in treating depression. For adolescents, they reported that group and individual CBT were equally efficacious and could be used to treat moderately depressed adolescents.

There are several reasons to test group against individual formats. The literature has largely supported the efficacy of evidence-based CBT and IPT for adolescent depression (Kaslow & Thompson, 1998; Piper & Joyce, 1996; Tillitski, 1990). One study found that a Group CBT treatment was the most efficacious treatment for

depressed adolescents (Kaslow & Thompson, 1998). Group CBT has repeatedly resulted in positive outcomes for treating depression in predominantly white adolescent populations (Clarke et al., 2002, 1999; Lewinsohn et al., 1990; Rohde et al., 2004). Furthermore, group treatments for depression in Latino adults have been found efficacious (Comas-Díaz, 1981; Miranda, Azocar, Organista, Dwyaer, & Arean, 2000; Organista, 2000). Given the developmental stage of adolescence, peers are considered an important source of feedback and support (Garneski & Diekstra, 1996; Roberts et al., 1997) and thus, a group format may provide opportunities for peer support. Also, a group approach can provide a context for shared experiences in adolescence. Another advantage of the group format is that it can provide a scenario in which to observe, learn, and practice new skills in a safe environment. Finally, we reasoned that Latino/a cultural values (Bernal & Enchaustegui, 1994), such as *personalismo* that is, preference for personal contact in social situations, and *familismo* that is, placing the interest of the family over the individual, would be heightened in group formats given their interpersonal focus.

In the present study, we evaluate the relative efficacy of CBT and IPT delivered in group and individual formats. We hypothesized that the group treatment would be superior to an individual treatment format in reducing depression symptoms. Furthermore, based on our prior work, we expected CBT and IPT to be efficacious treatments for depression symptoms, yet we predicted that IPT would impact other areas of outcome over CBT such as self-concept and social adaptation. We reasoned that an approach such as IPT that directly addresses interpersonal values of Puerto Rican adolescents should again impact other levels of outcome.

Method

Sample and Recruitment

The sample consisted of 112 adolescents ranging in age from 12 to 18 years ($M = 14.52$, $SD = 1.85$), 55.4% of whom were female. Participants were eligible if they met *DSM-III-R* criteria (American Psychiatric Association, 1987) for MDD ($n = 74$, 66%) or were deemed by a clinical interviewer to be impaired. Also eligible were those who did not meet the *DSM-III-R* criteria for MDD but obtained a score of 13 or higher on the CDI ($n = 38$, 34%) the cut-off point suggested by Kovacs (1983) for depressive symptoms. There were no significant differences between participants who met the MDD criteria and those who scored 13 or higher on the CDI (sex, age, grade, CDI scores at pretreatment, or number of sessions completed). The exclusion criteria were: serious imminent suicide risk (actively suicidal with both ideation and plans), psychosis, mental retardation, hyper-aggression (history of physical fights), currently receiving pharmacotherapy or psychotherapy, involvement in legal proceedings, bipolar disorders, conduct disorder, or drug use.

Adolescents were referred from schools in San Juan, Puerto Rico. Three hundred and 22 referrals were received from January 15, 1996 through December 1, 1999. Figure 1 shows that the main reasons for exclusion were that 69 participants did not want to receive treatment upon contact, 23 did not show up for appointments, 42 did not meet *DSM-III-R* diagnostic criteria for MDD, and 21 did not meet the age criteria.

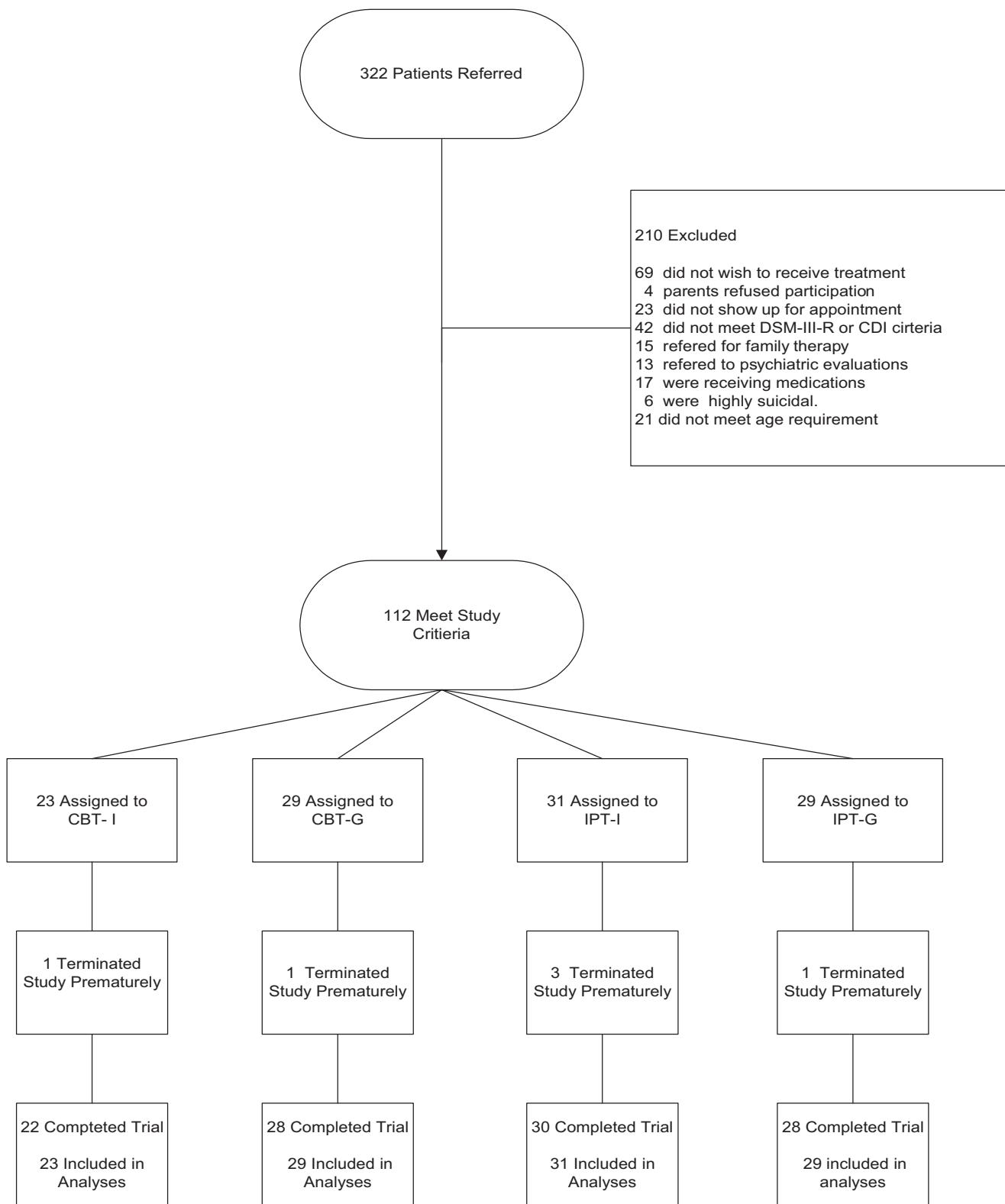


Figure 1. CBT and IPT for adolescent depression study flowchart. CBT indicates cognitive behavior therapy and IPT indicates interpersonal psychotherapy. I – for individual format. G – for group format.

All participants were in school from 6th to 12th grades, and 50% were in public schools. None of the participants were receiving medications. The four factor index (Hollingshead, 1975) was used to estimate socioeconomic status (SES) of family members. Approximately 1.9% of participants were categorized as low; 32.1% as middle to low; 58.5% as middle; and 7.5% as middle to high SES. Family characteristics were as follows: 45% of adolescent parents were married, 52% were divorced or separated, and 3% widowed. Most families had three (31.3%, $n = 35$), four (33%, $n = 37$), or five (22.3%, $n = 25$) family members. After establishing cohorts of about 16 participants, a table of random numbers was used and participants were randomly assigned to one of four treatment conditions: Cognitive Behavioral Treatment-Individual (CBT-I), Cognitive Behavioral Treatment-Group (CBT-G), Interpersonal Treatment-Individual (IPT-I), and Interpersonal Treatment-Group (IPT-G). Participants waited about four to six weeks prior to randomization and were not receiving any treatment at that time. Each group had an initial composition of four to six adolescents. Because of attrition, the final composition of the treatment groups was three to four adolescents. The age range of participants in each group spanned 6 years across all the therapy groups. Before assignment to treatment condition, parents and participants were asked to call the project coordinator if symptoms worsened for an immediate evaluation and appropriate referral. This did not occur (except for one participant) as treatment was delivered after pretreatment evaluation and randomization. None of the participants were removed from treatment for significant clinical deterioration. As Figure 1 illustrates, six participants who were randomized were not available for the posttreatment assessments. At the posttreatment assessment, those participants who had not improved or whose symptoms increased were referred for additional treatment.

Of the 112 participants who entered the trial, 106 (95%) completed posttreatment evaluations. Sixty-two percent of the participants in IPT and 63% of the participants in CBT completed 75% or more of the sessions. Analyses of group means revealed no significant differences in completion or attendance as a function of treatment condition (IPT vs. CBT; $t = -.74$, $p = .46$) or treatment format (Individual vs. Group), $t = 1.15$, $p = .25$.

Doctoral candidates in clinical psychology performed the initial evaluations and clinical interviews. A Ph.D. clinical psychologist supervised all evaluations. To assess clinical depression at intake, the sections on MDD and DD of the Spanish version of Diagnostic Interview Schedule for Children were used (Bravo, Woodbury-Fariña, Canino, & Rubio-Stipek, 1993).

Assessment Measures

All the instruments in this section were administered at pretreatment and at posttreatment (after the 12th week). Some measures were available in Spanish by the publisher; others had been translated to Spanish and adapted to the Puerto Rican culture, taking into consideration semantic, content, and technical equivalence to the original version (Bravo, 2003). All measures have acceptable psychometric indices for the population under study.

Children's Depression Inventory (CDI). The CDI (Kovacs, 1983) is a 27-item self-rated symptom-oriented scale suitable for school-age children and adolescents. Our data with the CDI with different Puerto Rican samples suggest that it is valid (Bernal,

Rossello, & Martinez, 1997) and internally consistent (Rosselló, Guisasola, Ralat, Martínez, & Nieves, 1992), with alphas above .83.

Piers-Harris Children's Self-Concept Scale (PHCSCS). The PHCSCS (Piers & Harris, 1984) consists of 80 items. The general score is an index of self-concept. An internal consistency coefficient of .91 was observed for this study.

Child Behavior Checklist, Adolescent and Parent version (CBCL-A and CBCL-P). The CBCL-A and the CBCL-P (Achenbach, 1983; Bird et al., 1987) measure social abilities and behavior problems in children and adolescents. The CBCL has been widely studied and it has valid and reliable indexes in diverse samples, including Puerto Ricans (Bird et al., 1987; Jensen, Hibbs, & Pilkonis, 1996).

Social Adjustment Scale for Children and Adolescents (SASCA). The SASCA (Beiser, 1990) is a self-report measure with 22 items on personal qualities and daily activities. A high internal consistency (.99) was obtained in a previous study (Rosselló & Bernal, 1999).

Diagnostic Interview Schedule for Children (DISC-2.1). The DISC is a structured diagnostic interview that has been widely used in child psychiatry and psychology during the past two decades (Costello, Elderbrock, Dulcan, Kalas, & Klarick, 1984). For this study, the Spanish DISC-2.1 (MDD & DD modules) was used (Bravo et al., 1993). At the time of this study, the DISC-2.1 was the most recent form available in Spanish with established validity and reliability indices for Puerto Ricans.

Treatment Conditions

The individual treatment conditions consisted of 12 1-hr therapy sessions held once a week over 12 weeks. The group treatment also consisted of 12 sessions which were 2 hours in length and were held over a 12-week period. CBT and IPT were provided in both group and individual formats. CBT and IPT were culturally and developmentally adapted to Puerto Rican adolescents (Rosselló & Bernal, 1999, 2005) and were adapted to group formats using the previous manuals. A full description of the adaptation process is available elsewhere (Rosselló & Bernal, 2005). The cultural adaptation of both CBT and IPT was based on a framework that employs criteria of ecological validity (Bernal, Bonilla, & Bellido, 1995). The thesis advanced is that beyond sound clinical practice, cultural and social processes must be considered in treatment (Bernal & Saez-Santiago, 2006).

Cognitive behavioral therapy. CBT was based on a manual developed by Muñoz and Miranda (1986) which is a group intervention for depressed adults used with adult Hispanic populations (Muñoz & Mendelson, 2005). The model was adapted for adolescents, and modified to an individual treatment format (Rosselló & Bernal, 1999, 2005). This CBT intervention is based on concepts of behavioral and cognitive therapy (Lewinsohn, Antonuccio, Steinmetz-Brekenridge, & Teri, 1984), cognitive therapy (Beck, Rush, Shaw, & Emery, 1979), and rational-emotive therapy (Ellis, 1962). Its premise is that thoughts, actions, and feelings are closely interrelated. This model attempts to identify the thoughts and actions that influence mood. The goals are to diminish depressive feelings, shorten the time that the person feels depressed, teach alternative ways of preventing depression, and increase the person's sense of control over his or her life. CBT sessions are divided into three major themes: how thoughts influence mood (Sessions 1–4); how daily activities influence mood (Sessions 5–8); and

how interactions with other people influence mood (Sessions 9–12).

Interpersonal psychotherapy. There are two adaptations of IPT for the treatment of adolescent depression (Mufson et al., 2004; Rosselló & Bernal, 1996, 1999). The Rosselló and Bernal (1996, 1999) version was used in the present study. IPT is based on the original model developed for depressed adults (Klerman, Weissman, Rounsville, & Chevron, 1984). It is based on the notion that depression is related to problems in interpersonal relationships. As the quality of the person's current interpersonal relationships improve, IPT is presumed to facilitate recovery by decreasing symptoms and by developing of more satisfying and healthy relationships. IPT is focused on the evaluation of current problems, important interpersonal relationships, and solving the problematic situation. It is a short-term psychotherapy administered in 12 weekly 1-hr sessions. The first four sessions (1–4) focus on information about depression and its development, explanations about what IPT is, evaluation of the interpersonal relationships, identification of main problems, and discussion of expectations of the patient in therapy. The intermediate sessions (5 to 8) aim to help the patient work on the selected interpersonal problem. The last four sessions (9 to 12) discuss termination, acknowledge feelings related to separation from the therapist, and review the course of treatment.

Parent involvement. For all conditions, one or both parents were interviewed in the initial assessment. They also participated in the pretreatment and posttreatment assessments using the CBCL-P. Cultural values were considered when interacting with parents. For example, "*Familismo*" is one of the strongest cultural values of Puerto Ricans and other Hispanics (Sabogal, Marín, & Otero-Sabogal, 1987). It refers to a strong identification and attachment to the family group, with strong feelings of solidarity, loyalty, and reciprocity. The family is considered to be one of the most important resources for meeting psychological needs. The therapists worked to strengthen positive family values. Since Puerto Rican adolescents rely on their parents for solutions, advice, and even to attend therapy sessions, parents were interviewed in a climate of utmost respect. Therapists discussed issues related to treatment, either with the parents individually or together with their son/daughter to foster parental collaboration.

Parents were scheduled for sessions at pre, mid, and post treatment. The therapist would discuss progress in therapy, answer questions, provide recommendations about particular issues, and obtain parental observations on progress during these sessions. Therapists could schedule a maximum of two additional sessions with a participant's parent(s), or with the parent(s) and the adolescent, as deemed necessary in supervisory sessions. For example, when parental support was needed for reinforcement or activity planning, sessions with the participant's parent(s) were scheduled.

Treatment Protocol for Group and Individual CBT and IPT

Detailed manuals were prepared for the four therapy conditions to ensure protocol compliance and aid in replication. Group and individual modalities had parallel content. However, the groups utilized processes inherent to the modality, such as encouraging peer modeling, practicing interpersonal and communication skills *in vivo*, feedback giving and receiving, using positive reinforce-

ment from group members, and discussing social comparisons. Both manuals are described elsewhere by Rosselló and Bernal (1996, 2005).

Therapists and Maintenance of Treatment Integrity

The therapists were all advanced graduate clinical psychology students with an average of three years of clinical experience. They were trained and supervised weekly by two Ph.D. clinical psychologists experienced in each of the therapy approaches. Training included 18 hours of the basics of CBT or IPT and video observations. Readings on CBT and IPT were also assigned and discussed. There were two individual IPT, two individual CBT, two Group IPT, and two Group CBT therapists.

To ensure treatment integrity: 1) detailed treatment manuals were employed for both CBT and IPT; 2) the contents of each session or group of sessions were detailed in a checklist of therapist actions; 3) therapists received training in the treatment model to which they were assigned; and 4) weekly supervision meetings were held separately for each CBT and IPT team, in which sessions were reviewed and planned following the manual's indications. As a check of treatment integrity, all sessions were videotaped and 25% were rated by an independent evaluator (trained in each of the treatment models) using an integrity checklist, based on the treatment manuals. A Ph.D. clinical psychologist was available for consultation regarding the coding of items. Integrity rates were calculated as follows: 92% for CBT-I, 90% for CBT-G, 78.2% for IPT-I, and 88.3% for IPT-G.

Data Analytic Strategy

A two-way ANOVA was used to evaluate the randomization procedure on the pretreatment status of the participants in the four conditions in terms of demographic and dependent measures. Descriptive statistics were used considering treatment condition and format to identify outliers on the distributions scores at pretreatment and posttreatment for the primary (CDI) and secondary (Self-concept, Social adaptation, Internalizing and Externalizing Behaviors) outcome variables and to assess mean changes from pretreatment to posttreatment intervention. Special attention was given to confidence intervals to obtain the true value of the amount of reduction for the primary and secondary outcomes.

Univariate analysis, with pretreatment scores as covariates, was used to assess the two main hypothesis of the study. Since post-treatment measures correlated with pretreatment scores, and pretreatment scores on primary and secondary outcomes did not differ between the groups of treatment, analyses of covariance (ANCOVA) were used to minimize standard error in the estimates. In addition, analyses were conducted to ensure that the assumptions of ANCOVA were not violated (e.g., histograms, scatter plots, Levene's test, homogeneity of slopes, correlation between covariate and dependent variables, and reliability of covariate). An ANCOVA was used to test the efficacy of CBT versus IPT and Group versus Individual at posttreatment on primary and secondary outcomes using a two by two factor design. Homogeneity tests and other analyses were used to assess that the groups meet test assumptions of similarity of pretreatment scores and that the interactions were not significant between treatment conditions (CBT vs. IPT) and format (Group vs. Individual). To control for

experiment-wise error rate, the comparison alpha level (.05) was divided by the number of secondary outcomes (4) therefore using a critical alpha level of 0.0125. Also, group equivalence analysis to evaluate functional equivalence of means for treatment formats in depressive symptoms was used as suggested by Jaccard and Guilamo-Ramos (2002). A threshold value of 2.5 of CDI unit's difference was established to create a confidence interval of $-2.5 - 2.5$. Similar analysis was used to confirm the results obtained for treatment condition.

Once it was determined that there were no significant differences in completion or attendance as a function of treatment condition or format, an Expectation Maximization (EM) algorithm was used to handle missing data on the secondary outcomes measures at the post. As recommended by Graham, Cumsille, and Elek-Fisk (2003) and Jaccard and Guilamo-Ramos (2002) this strategy is an alternative when data is Missing Completely at Random (MCAR) or Missing at Random (MAR). There were no missing values in the primary outcome measure at pretreatment or at posttreatment. EM imputations were obtained for social adaptation (6%), self-concept (4%), internalizing behaviors (6%) and externalizing behaviors (5%).

Results

Intent to Treat Analyses

A two factor ANOVA showed that the participants did not differ in age [$F(1, 108) = 1.36, p = .25$ for treatment format; $F(1, 108) = .36, p = .55$ for treatment condition], or severity of depressive symptoms [$F(1, 106) = 2.44, p = .121$ for treatment format; $F(1, 106) = .17, p = .69$ for treatment condition] at pretreatment. In the case of the secondary outcomes, the CBCL Internalizing scale by treatment format [$F(1, 100) = .76, p = .39$], treatment condition [$F(1, 100) = 1.93, p = .17$], and self-concept by treatment format [$F(1, 101) = 1.50, p = .22$] and treatment condition [$F(1, 101) = .37, p = .54$] revealed no significant differences. None of the interaction terms were

significant for the above variables, with F values ranging from .01 to .65, and p values in the range of .20 to .95. Differences were found for social adaptation [$F(1, 82) = 5.31, p < .05$] and the CBCL Externalizing scale [$F(1, 101) = 4.83, p < .05$] at pretreatment by treatment condition. The results show that participants in CBT and IPT did not differ by gender [$\chi^2(1, N = 112) = .09, p = .76$] or SES [$\chi^2(3, N = 53) = 3.34, p = .34$]. Similar results were obtained in Group and Individual format for SEs [$\chi^2(3, N = 53) = 5.13, p = .16$]. However, participants differed by gender [$\chi^2(1, N = 112) = 3.77, p = .05$] in the treatment formats, whereby 64.8% of the participants in the individual format were female.

Assessing the mean change from pretreatment to posttreatment for the Group Format (GF), the pretreatment mean was 20.74 and the posttreatment mean was 13.41, yielding a reduction in depressive symptoms of 7.33 units on the CDI (see Table 1). For the Individual Format (IF), the pretreatment mean was 23.41 and the posttreatment mean was 13.43, yielding a reduction of 9.98 units on the CDI. A similar pattern was observed for self-concept. For the rest of the secondary outcomes, although the mean at pretreatment and posttreatment showed a decrease or increase in their respective units from pretreatment to posttreatment, their 95% confidence intervals overlap for both treatment formats.

For the IPT condition, the pretreatment mean was 21.52 and the posttreatment mean was 14.62, yielding a point estimate reduction in depressive symptoms of 6.9 units on the CDI (See Table 2). For the CBT condition the pretreatment mean was 22.62 and the posttreatment mean was 12.04, yielding a reduction of 10.58 units on the CDI. A similar pattern was observed for the secondary outcomes such as self-concept, internalizing, and externalizing behaviors. The 95% confidence intervals for the means at pretreatment and posttreatment did not overlap for both IPT and CBT for depressive symptoms. This was not the case for the secondary outcomes where there was no overlapping in the confidence intervals for CBT on self-concept and internalizing behavior. However,

Table 1
Means, Standard Deviation, and 95% Confidence Intervals of Mean of Primary and Secondary Outcomes for Treatment Format and Time

	Pre-treatment				Post-treatment			
	N	M	SD	95% CI	N	M	SD	95% CI
Primary outcome								
CDI								
Group	58	20.74	6.34	19.11–22.37	58	13.41	6.72	11.68–15.14
Individual	54	23.41	7.46	21.42–25.40	54	13.43	7.86	11.33–15.53
Secondary outcomes								
Self-concept								
Group	58	48.36	11.43	45.42–51.30	58	54.89	11.31	51.98–57.80
Individual	54	45.28	13.32	41.73–48.83	54	53.44	13.15	49.93–56.95
Social adaptation								
Group	58	32.55	5.62	31.10–34.00	58	35.14	5.63	33.69–36.59
Individual	54	30.01	7.34	28.05–31.97	54	32.11	7.92	30.00–34.22
CBC L-internalization								
Group	58	20.21	11.09	17.36–23.06	58	15.26	9.40	12.84–17.68
Individual	54	22.00	11.61	18.90–25.10	54	18.11	10.96	15.19–21.03
CBC L-externalization								
Group	58	17.27	8.46	15.09–19.45	58	15.43	8.41	13.27–17.59
Individual	54	18.53	8.93	16.15–20.91	54	16.68	9.25	14.21–19.15

Table 2

Means, Standard Deviation, and 95% Confidence Intervals of Primary and Secondary Outcomes for Treatment Condition and Time

	Pre-treatment				Post-treatment			
	N	M	SD	95% CI	N	M	SD	95% CI
Primary outcome								
CDI								
IPT	60	21.52	6.88	19.78–23.26	60	14.62	7.33	12.77–16.47
CBT	52	22.62	7.16	20.67–24.57	52	12.04	6.98	10.14–13.94
Secondary outcomes								
Self-concept								
IPT	60	47.22	11.65	44.27–50.17	60	52.08	11.98	49.05–55.11
CBT	52	46.48	13.35	42.85–50.11	52	56.63	12.10	53.34–59.92
Social Adaptation								
IPT	60	30.14	7.06	28.35–31.92	60	32.35	7.36	30.49–34.21
CBT	52	32.70	5.80	31.12–34.28	52	35.21	6.21	33.52–36.90
CBC L-Internalization								
IPT	60	19.71	10.83	16.97–22.45	60	17.80	10.90	15.04–20.56
CBT	52	22.65	11.79	19.45–25.86	52	15.29	9.33	12.75–17.83
CBC L-Externalization								
IPT	60	16.17	8.01	14.14–18.20	60	16.64	9.19	14.32–18.97
CBT	52	19.85	9.06	17.39–22.31	52	15.32	8.37	13.04–17.60

with IPT the 95% confidence intervals obtained show overlapping for all the secondary outcomes.

A two factor ANCOVA was conducted to evaluate the efficacy of treatment condition and treatment format on the primary outcomes, as well as to evaluate possible interaction terms. Pretreatment measures were included as covariates to control for time and initial differences at pretreatment. The results of these analyses are summarized in two separate tables to simplify their presentation. As shown in Table 3, results from a two factor ANCOVA show that treatment format did not have a significant effect on the primary outcome variables [$F(1, 107) = 1.01, p = .316$]. Similar results were obtained for secondary outcomes. Interaction terms also were not significant for the primary and secondary outcomes with F values from .000 to 2.49 and p values from .12 to .99. However, the group equivalence assessment, using an equivalence threshold of 2.5 units on the CDI and the 95% confidence interval for the mean difference in Table 3, demonstrated that the upper

limit of 3.88 is greater than the threshold of 2.5 established. Therefore, there was too much sampling error in the data to conclude that the groups were functionally equivalent.

CBT produced significantly greater decreases in depressive symptoms as measured by the CDI [$F(1, 107) = 5.96, p = .016$] in comparison to IPT (see Table 4). With secondary outcomes, CBT also produced marked changes in self-concept, as measured by the PHCSCS [$F(1, 107) = 7.93, p = 0.006$], as well as significant reductions in internalizing [$F(1, 107) = 4.44, p = .037$] and externalizing behaviors [$F(1, 107) = 4.57, p = .035$] as measured by the CBCL in comparison to IPT. However, after controlling for experiment-wise error rate using a critical alpha level of 0.0125 for the secondary outcomes, the results remain significant for self-concept but not for internalizing and externalizing behaviors. Analyses were also conducted to explore the potential effect of subsyndromal depression. When MDD was entered as a covariate in the design, the results were similar to

Table 3

ANCOVAs for Primary and Secondary Outcomes at Post-treatment for the Individual and Group Format

Primary and secondary	Adjusted means	F	df	Estimated difference	Confidence interval
Outcomes					
CDI					
Individual	12.63	1.01	1,107	1.31	−1.27–3.88
Group	13.94				
Self-concept					
Individual	54.97	.256	1,107	−0.94	−4.60–2.73
Group	54.03				
Social Adaptation					
Individual	33.13	1.44	1,107	1.21	−.79–3.22
Group	34.35				
CBCL Internalizing					
Individual	17.44	1.10	1,107	−1.81	−5.21–1.60
Group	15.63				
CBCL Externalizing					
Individual	16.14	.072	1,107	−.39	−3.30–2.52
Group	15.75				

Table 4
ANCOVAs for Primary and Secondary Outcomes at Post-Treatment for CBT and IPT Treatments Conditions

Primary and secondary outcomes	Adjusted means	F	df	Estimated difference	Confidence interval
CDI					
IPT	14.84	5.96*	1,107	3.12	.589–5.66
CBT	11.72				
Self-concept					
IPT	51.91	7.93**	1,107	-5.17	-8.81–-1.53
CBT	57.08				
Social adaptation					
IPT	33.15	1.35	1,107	-1.18	-3.19–0.83
CBT	34.33				
CBCL internalizing					
IPT	18.36	4.44***	1,107	3.64	.22–7.07
CBT	14.71				
CBCL externalizing					
IPT	17.54	4.57****	1,107	3.20	.23–6.17
CBT	14.34				

* p = .016. ** p = .006. *** p = .037. **** p = .035.

those reported above [$F(1, 106) = 5.58, p = .02$] in favor of CBT. When the subgroup of MDD participants were analyzed separately, these results were maintained [$F(1, 62) = 3.87, p = .054$].

Effect sizes were calculated based on the equation [$g = (M_a - M_b)/s$] suggested by Hedges and Olkin (1985), where M_a and M_b are the two treatments compared and s is the pooled standard deviation. The effect size based on the adjusted means of Table 3 for Individual versus Group format was .18, suggesting that the average participant in individual therapy (CBT or IPT) was better by 54% than those in group therapy. Similarly, based on the adjusted means of Table 4, the effect size for CBT versus IPT (regardless of format) was .43, suggesting that the average adolescent in CBT was better than 67% of those in IPT.

Clinical Significance

The analysis of the number and proportion of patients who move from a dysfunctional or clinical range to a more normative range (Kendall & Grove, 1988) is defined as clinically significant change. The proportion of patients that moved out of the dysfunctional range into the normative range (using the mean CDI from adolescent community samples) was examined. From two previous community samples (Bernal et al., 1997; Rivera, 2003), the mean CDI scores were 13.5 and 14.26. We selected a cut-off score of 12 on the CDI, which is a more conservative figure but provides a point of comparison to stateside studies. Analyses of clinical significance suggested that 62% of the participants in the CBT treatment and 57% of the participants in the IPT were functioning in the nonclinical range of depression at the posttreatment. Similar proportions were observed for the Individual and Group formats.

Discussion

This study examined the relative efficacy of CBT and IPT in individual and group formats for the treatment of depression in Puerto Rican adolescents. Intent-to-treat analyses did not reveal differences between individual and group conditions. The results obtained suggest that CBT produced significantly greater

decreases than IPT in depressive symptoms as measured by the CDI, as well as in other measures of outcome, such as improved self-concept. These findings were consistent with the analysis of clinical significance, in which the proportion of participants who moved from a dysfunctional or clinical range to a normative range was greatest for the CBT treatment condition.

While all the treatment conditions were effective in significantly reducing symptoms of depression, some were more effective than others. We expected IPT to show beneficial effects in other areas of outcome such as self-concept and social adaptation because in our prior study the IPT condition showed improvement in these areas over the wait-list control. We interpreted these results as suggesting a greater congruence between IPT and interpersonal values of the Latino culture (e.g., *personalismo* and *familismo*). It was surprising to find evidence of a differential effect of treatment, in favor of CBT. There are several possible explanations for this finding. First, CBT may have a stronger relative efficacy than IPT in the acute treatment of depression symptoms. Second, some of the outcome measures may be biased in favor of cognitive interventions such as the CDI. A third explanation may be that IPT was not administered as it should have been, given the somewhat lower fidelity. The rate of adherence to the manual for IPT was lower (78.2–88.2%) than for CBT (90–92%). This could have affected the results. However, our impression is that IPT manuals are less structured than the CBT manuals that have session by session instructions. The somewhat lower adherence rates could have affected the results in favor of CBT. Finally, another explanation may be that the CBT clinical team acquired experience in framing cultural-interpersonal elements of the Latino culture into CBT, thus augmenting the possible effects of this treatment. Although IPT takes into account *familismo* because of its emphasis on the interpersonal context, CBT usually appears to offer faster symptom relief, we believe in part because it is structured, concrete, and its directive approach is consonant with the cultural value of *respeto*, which often means looking up to authority figures for guidance. Indeed, CBT is more structured and in the early stages promotes a collaborative

relationship with the therapist assuming an active "expert" role. This appears to be consonant with the interdependent characteristics of Puerto Rican and other Latino cultures. As CBT sessions advance, and participants acquire skills, such as identifying and changing negative thinking, the participants are encouraged to be more independent and have alternatives when facing problems on their own. A fruitful avenue for future studies will be the evaluation of cultural constructs such as *personalismo*, *familismo*, and interdependence to explore how these might mediate outcome.

However, when examining the actual differences between the CBT and IPT in this trial, one wonders about the meaning of these differences, given the changes in clinical significance. As Wampold (2001) notes, the relative efficacy of the NIMH Treatment of Depression Collaborative Research Program (TDCRP) with adults (Elkin, Gibbons, Shea, & Shaw, 1996) generated effect sizes that ranged from .02 to .29. The standards suggested by Cohen (1987) for a small, medium, and large effect are .20, .50, and .80, respectively. Wampold (2001) suggests that the effect sizes on the TDCRP "were associated with nonsignificant and trivial differences in means" (p. 107). Nevertheless, when the relative efficacy is considered for CBT (pending a replication of these findings), the implication is that CBT is superior to IPT in the treatment of depression symptoms in adolescents.

Consistent with previous studies, all treatment conditions were effective in reducing symptoms of depression. While causal statements are not possible because of the absence of a no treatment control, the reduction on CDI scores for all conditions (CBT-I, CBT-G, IPT-I & IPT-G) suggests marked reductions in depression symptoms at posttreatment. Also, the effect size for all conditions was in the range found in our previous studies. Thus, there is evidence for the efficacy of both interventions at posttreatment. CBT and IPT met criteria for "probably efficacious" empirically supported treatments (Ollendick & King, 2000).

We found no significant differences between individual and group format. Our clinical observation was that many adolescents were somewhat reluctant to enter the group format due to issues of confidentiality, particularly if there were students from their own high school in the group. Although Puerto Rican adolescents tend to be group oriented, it appears that in our sample of depressed adolescents, they were less oriented to groups. Also, there are a number of logistical and clinical issues that need to be worked out in the use of group formats. Not all patients assigned to group therapy can accommodate the group's scheduled meeting time. Also, when a group member is absent from a session, special arrangements must be made to cover the content discussed in the missed session. Finally, some patients reject group therapy and seem to find it more stressful and less private. Group treatment is not always a viable option in clinical settings.

The relative efficacy of individual over group conditions was small (.10), suggesting that the group format may be a cost-effective means of providing efficacious treatment. Although no cost data is available from this study, group treatment is assumed to be cost-effective because it permits the mental health professional to provide therapy to more patients without additional personnel or adding clinical hours. Group format can be an alternative for overburdened staff and clinical settings. Given the potential public health impact and cost effectiveness of reaching a

larger number of adolescents, a group treatment format may be an avenue for technology transfer studies in community settings.

There are limitations that should be considered in the interpretation of these results. First, the sample size is small and the study may be underpowered for the group therapy hypothesis. Also, there are threats to internal validity with regard to the diagnosis of the sample and with the composition of therapy groups. Concerning the diagnosis of MDD, because the sample was administered only the mood disorder module of the DISC 2.1, there may have been other disorders present had we given the full DISC. Also, the decision to admit a case was not based solely on the DISC interview. A number of cases that did not meet formal criteria for MDD and were either judged to be depressed (or scored above 13 on the CDI) were included. To examine if entry into the study based on DISC MDD diagnosis versus the other criteria, we entered the DISC MDD diagnosis as a covariate and found the same pattern of results. We also compared the DISC MDD participants with those without and found no differences. Nevertheless, the issue of having a clinical sample with fully diagnosed cases together with potentially subsyndromal cases is a threat to internal validity.

Another threat to validity is the issue of having included participants of ages ranging from 12 to 18 years, with a 6-year gap that could have affected the cohesion of the group therapy. However, there were only two adolescents with an age of 18 and four with an age of 12. The individual condition had one 18-year-old (IPT-I) and one 12-year-old (CBT-I). In the group condition, there was one 12-year-old (IPT-G) and one 18-year-old, and two 12-year-old participants in CBT-G. Thus, the impact of a 6 year gap appears to have been minimal since it would have occurred only in CBT-G and in only one group throughout the life of the study.

Despite these limitations, our findings provide further evidence on the relative efficacy of CBT and IPT for depressed adolescents in Puerto Rico. Our results are similar to those reported in other trials of CBT (Brent et al., 1997; Lewinsohn, Clarke, & Rohde, 1994; Rosselló & Bernal, 1999) and IPT (Mufson et al., 1999; Rosselló & Bernal, 1999), all of which have documented the efficacy of psychological interventions in reducing depressive symptoms in adolescents.

As with our earlier trial, this study followed a set of culturally informed procedures to ensure the ecological validity of the study (Bernal et al., 1995), beginning with the formulation of the research question itself and focusing on key aspects of the methodology, such as the translation, adaptation, and testing of instruments, as well as the adaptation of the treatment manuals. Some of these procedures are now described in the Multicultural Guidelines (American Psychological Association, 2003). Thus, our study serves as an example to those interested in conducting clinical trials with ethnic and/or language minorities and other diverse populations.

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