

Comparative Efficacy of Individual and Group Psychotherapy: A Meta-Analytic Perspective

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Recent reviews of the group psychotherapy literature indicate that group is a beneficial and cost-effective treatment format. However, collective findings on the differential efficacy of group when compared with individual therapy remain problematic, incomplete, or controversial. To remedy this problem, the authors conducted a meta-analysis of 23 outcome studies that directly compared the effectiveness of the individual and group therapy formats when they were used within the same study. Results were consistent with previous reports that indicated no difference in outcome between the group and individual formats. This finding generally held true when client, therapist, methodology, treatment, and group variables were examined for possible relationship with effect sizes comparing group and individual therapy. Results bolster past findings that group therapy can be used as an efficacious cost-effective alternative to individual therapy under many different conditions.

The efficacy of group treatment is well established, and narrative reviews of this modality indicate that it reliably exceeds gains made by minimal treatment and wait-list control groups (Bednar & Kaul, 1994; Fuhriman & Burlingame, 1994b; Kanas, 1986; Kaul & Bednar, 1986; Zimpfer, 1990). Fuhriman and Burlingame (1994a) reviewed 700 group therapy studies and concluded that group therapy consistently produces beneficial results with a variety of disorders and across treatment models. Many narrative reviewers have also concluded that group psychotherapy is as effective as individual psychotherapy (Bednar & Kaul, 1994; Fuhriman & Burlingame, 1994a; MacKenzie, 1994, 1995; Orlinsky & Howard, 1986; Sternbarger & Budman, 1996; Toseland & Siporin, 1986). Results of empirical studies comparing the effectiveness of these modalities indicate that both group and individual treatments delivered according to various theoretical

orientations are significantly more effective than no treatment or minimal treatments for a variety of disorders and over a variety of different client groups (Bednar & Kaul, 1994; Fuhriman & Burlingame, 1994a, 1994b; Lambert & Bergin, 1994; M. L. Smith, Glass, & Miller, 1980).

An important component in delineating the comparative efficacy of group and individual therapies is determining whether and under what circumstances one therapy format might be more beneficial to clients than the other format. Some researchers have suggested that group therapy involves different processes as well as different therapeutic factors than individual therapy (Bednar & Kaul, 1994; Fuhriman & Burlingame, 1990, 1994b; Yalom, 1975, 1985, 1995), and they recommend that these differences and their impact on differential outcomes be examined empirically.

As can be seen in Table 1, several meta-analytic studies have compared outcomes in group and individual therapy. A meta-analysis combines statistical results from a number of primary outcome studies into a common metric (effect size, ES), which allows conclusions to be drawn on the basis of the results of many researchers. Fuhriman and Burlingame (1994a) indicated that meta-analyses comparing group and individual therapy (see Table 1) generally support no differential effectiveness between these modalities. However, they pointed out that

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Partial support for this research was provided by the Brigham Young University Alumni Association Replenishment Grant. We wish to thank Michael J. Lambert and Addie Fuhriman for lending their expertise to this research endeavor and David Coon for his unflinching efforts in behalf of this project.

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Table 1
Group Versus Individual Meta-Analyses

Author	Clients	Conclusions
M. L. Smith, Glass, and Miller (1980; $N = 475$ studies)	Heterogenous: diagnostic categories included depression, anxiety, psychotic, normal, delinquents and felons, handicapped.	The mode in which therapy was delivered made no difference in its effectiveness. The average effect size was 0.87 for individual therapy and 0.83 for group therapy. Of the studies reviewed, 43% were individual and 49% were group.
Shapiro and Shapiro (1982; $N = 143$ studies)	Heterogenous: diagnostic categories included depression, anxiety, physical and habit problems, social and sexual problems.	This refined meta-analysis of the one conducted by Smith and Glass (1977) reported that although individual therapy appeared to be the most effective mode ($M = 1.12$), it was closely followed by the predominant group mode ($M = 0.89$).
R. C. Miller and Berman (1983; $N = 48$ studies)	Adolescent and adult volunteers/outpatients. Diagnostic categories included depression, anxiety, and somatic.	This meta-analysis reported that cognitive-behavior treatment was equally effective in group and individual formats when compared with a nontreatment group (individual = 0.93; group = 0.79) and when compared with other treatment controls (individual = 0.31; group = 0.18).
Dush, Hirt, and Schroeder (1983; $N = 69$ studies)	Outpatients, volunteers, and undergraduates. Diagnostic categories included phobias, depression, psychotic, somatic.	In this analysis, treatment modality was highly influential, with the mean effect for individual therapy nearly double that of group therapy across all comparisons. When compared with no-treatment controls, the effect size was 0.93 for individual and 0.58 for group, and when compared with placebo controls was 0.71 for individual and 0.36 for group.
Nietzel, Russell, Hennings, and Gretter (1987; $N = 31$ studies)	Adults with unipolar depression	These authors reported a reliable difference between individual and group treatment, with group treatment being less effective. Clients treated with group ($M = 12.47$) reported more depressive symptoms than clients receiving individual treatment ($M = 10.06$).
Robinson, Berman, and Neimeyer (1990; $N = 58$ studies)	Depressed clients were classified as having or not having a formal diagnosis.	Analysis indicated that both group and individual therapy produced more improvement than no treatment, and that the effects of the two approaches were comparable (individual = 0.83; group = 0.84).
Tillitski (1990; $N = 9$ studies)	Adults, adolescents, children, diagnostically heterogeneous	Tillitski reported the same average effect size for both group and individual treatment (1.35) ^b and states that this effect was consistently greater than that of controls (0.18). ^b

Note. From "Group Psychotherapy: Research and Practice," by A. Fuhrman and G. M. Burlingame, 1994a. In A. Fuhrman & G. M. Burlingame (Eds.), *Handbook of Group Psychotherapy* (pp. 3-40). Copyright 1994 by John Wiley & Sons, Inc. Adapted with permission.

^a This meta-analysis reported mean Beck Depression Inventory (BDI) scores in comparing individual and group treatment. Studies had to use the BDI to measure outcome to be included in the analysis and only the BDI was used to calculate effect sizes. ^b Represents pretest to posttest change rather than a comparison with a control group.

results have been somewhat equivocal with the Dush, Hirt, and Schroeder (1983) and Nietzel, Russell, Hemmings, and Gretter (1987) meta-analyses suggesting that individual therapy may be more effective under some circumstances. Fuhrman and Burlingame (1994a) noted that these two meta-analyses included studies that did not investigate group therapy as it is thought of in the traditional sense but, rather, investigated group as a "convenient, cost effective, vehicle for the delivery of a treatment package originally designed for use in individual therapy" (p. 16). In other words, some of the studies included in these meta-analyses could "best be described as individual treatment in the presence of others" (p. 16).

An additional problem with the methodology of each of the meta-analyses in Table 1 is the use of between-study rather than within-study comparisons in calculating differential efficacy. In other words, the typical study being compared in the aforementioned meta-analyses independently investigated either an individual or a group format. The results were then combined in the meta-analysis to arrive at a differential effectiveness estimate. When a between-study design, such as this, is used in a comparative meta-analysis, a host of possible confounds result that cannot be controlled for in the meta-analytic process (Robinson, Berman, & Neimeyer, 1990; Shadish, 1992). For example, clients involved in the group studies may have been recruited from inpatient populations, whereas clients in the individual studies may have been selected from a mildly disturbed university population. This confound problem may hold true for any number of client, setting, methodology, and therapist variables. Because of the possible confounds inherent in between-study comparisons, interpretation of the group versus individual therapy results of the existing meta-analyses in Table 1 must be made with caution.¹

In an attempt to remedy this situation, Tillitski (1990) conducted a pioneering meta-analysis that included only those studies that directly compared group and individual therapy with either an active or inactive control group within the same experiment. As Table 1 indicates, Tillitski's overall analysis indicated no difference in effectiveness between the individual and group formats. Unfortunately, Tillitski's method of calculating ES estimates

(subtracting pretest from posttest means and dividing by the pooled standard deviation of the pretest and posttest groups²) does not directly compare the individual and group modalities. This method computes pre- to posttest change within a treatment modality and then compares whether one treatment modality was more or less effective than the other using this metric. In essence, Tillitski conducted a between-study comparison despite having individual and group treatment contrasts available within the same study. A more robust method is to compute ESs that directly compare group and individual posttest means rather than comparing the pre- to posttreatment improvement of individual and group separately (Robinson et al., 1990; Shadish, 1992). Additional limitations of Tillitski's report are that it is quite brief; combines child and adolescent clients with adults; omits critical methodological information such as inclusion-exclusion criteria; and does not provide a clear definition of group therapy. Furthermore, his conclusions are based on only nine studies that were previously reviewed by Toseland and Siporin (1986).

The primary purpose of the present study was to conduct a meta-analysis evaluating differential outcome between individual and group therapy from primary research articles that use group and individual therapy in the same study and correcting for the deficiencies noted above. In addition, this meta-analysis examines differential outcomes across a number of moderator variables to determine whether and under what circumstances group or individual therapy may be preferable to the other treatment format.

¹ Only Robinson et al. (1990) made any effort to compare the two formats meta-analytically when they were compared within the same study. They identified five studies in their meta-analysis, which made a direct comparison between individual and group therapy, and the overall ES estimate provided no evidence for differential effectiveness between these two modalities. However, their sample size of five was quite small; consequently, their results must be considered tentative (Neimeyer, Robinson, Berman, & Haykal, 1989).

² This pre-post method generally produces larger effects than the method of subtracting the comparison group's posttest mean from the posttest mean of the treatment group and dividing by the pooled standard deviation between these groups because treatment and control groups generally experience positive change over time (Lambert & Hill, 1994).

Method

Inclusion and Exclusion Criteria

Articles were obtained by a computer search of the PsycLIT and Medline computer databases to locate all articles published between 1950 and 1997 that compared individual and group psychotherapy within the same study. In addition, the reference sections of previous group therapy meta-analyses, recent relevant publications, and articles identified in the computer search were examined (e.g., Bergin & Garfield, 1994; Dush et al., 1983; Forsyth, 1990; Fuhri-man & Burlingame, 1994b; R. C. Miller & Berman, 1983; Nietzel et al., 1987; Robinson et al., 1990; Shapiro & Shapiro, 1982, 1983; M. L. Smith et al., 1980; Tillitski, 1990; Toseland & Siporin, 1986; Yalom, 1975, 1985). Initially, well over 70 articles were identified for possible inclusion in the meta-analysis.

Articles were then included or excluded from the meta-analysis on the basis of criteria similar to those used by Hoag and Burlingame (1997) in their meta-analysis of group therapy for children and adolescents. These criteria are also comparable with those used in the Robinson et al. (1990) and Shapiro and Shapiro (1982) meta-analyses. These criteria were as follows: (a) Studies had to use both group, defined "rather broadly to include counseling, guidance, or training groups, and involve group interactions and the potential for reciprocal influence of three members or more" (Dagley, Gazda, Eppinger, & Stewart, 1994, p. 345), and individual formats within the same study; (b) groups had to meet regularly with an identified therapist for a specified purpose; (c) clients had to exhibit a clinical problem representative of those typically treated by mental health professionals; (d) the study had to be at the experimental or quasiexperimental level with either matching or random assignment to groups (Cook & Campbell, 1979); (e) outcome variables had to be stated in terms amenable to calculating ES estimates; and (f) reports had to be written in English. Studies that used child or adolescent clients were excluded from this analysis because therapeutic procedures for these populations often differ from those that are the focus of this review (Dagley et al., 1994). Also, studies investigating therapy with inpatient samples were excluded because clients

were generally receiving several other concurrent forms of treatment. After evaluating over 70 studies on these criteria, 23 remained for analysis. All were conducted after 1973.

Variables Included for Analysis

Because a major purpose of this study was to determine under what circumstances differential outcomes might be obtained between the individual and group formats, a large number ($N = 28$) of variables were included. These variables were directly drawn from conclusions noted in previously published narrative and meta-analytic reviews of the group and individual therapy outcome literature and were classified into the following five content domains: client, therapist, treatment, group, and methodological.

The seven treatment variables investigated were the following: theoretical orientation of the therapy being investigated; treatment standardization; treatment setting; therapy dosage; and frequency, length, and number of sessions (Lambert & Bergin, 1994; R. C. Miller & Berman, 1983; Orlinsky, Grawe, & Parks, 1994; Robinson et al., 1990; Shadish, 1992; Shapiro & Shapiro, 1982, 1983; M. L. Smith et al., 1980). Gender, age, diagnosis or identified problem, whether the problem involved diffuse or circumscribed symptomatology, chronicity of the problem, and formalization of diagnosis were six client variables identified as having a possible relationship with ES (Garfield, 1994; Lambert & Bergin, 1994; R. C. Miller & Berman, 1983; Orlinsky et al., 1994; Piper, 1994; Robinson et al., 1990; Shadish, 1992; Shapiro & Shapiro, 1982, 1983; M. L. Smith et al., 1980; Yalom, 1995).

Previous research indicated that four therapist variables should be evaluated for their possible contribution to differential effect between individual and group therapy: gender, level of training, level of experience, and presence of a cotherapist (Beutler, Machado, & Neufeldt, 1994; Dies, 1994; Lambert & Bergin, 1994; R. C. Miller & Berman, 1983; Orlinsky et al., 1994; Robinson et al., 1990; Shadish, 1992; Shapiro & Shapiro, 1982, 1983; M. L. Smith et al., 1980; Stein & Lambert, 1995). Six methodological variables were included: allegiance of the experimenter; publication year; validity of the study; and content, source, and reactivity of

outcome measures (Kazdin, 1994; Lambert & Hill, 1994; R. C. Miller & Berman, 1983; Robinson et al., 1990; Shapiro & Shapiro, 1982, 1983; M. L. Smith et al., 1980). Finally, five group characteristics thought to correlate with outcome were examined: size of group, pre-group training, group membership, presence of interaction, and type of group treatment (Bednar & Kaul, 1994; Forsyth, 1990; Fuhri-man & Burlingame, 1990, 1994a; R. C. Miller & Berman, 1983; Orlinsky et al., 1994; Robinson et al., 1990; Smith et al., 1980; Yalom, 1985).

Coding of Variables and Computation of ES

Each article was coded on the above variables by an undergraduate research team. The team had previous experience (Burlingame, Fuhri-man, McRoberts, Hoag, & Anderson, 1995; Hoag & Burlingame, 1997) and initially coded each article independently. The average kappa level for these independent ratings was .87 (92% average agreement), which represents "excellent agreement beyond chance" (Fleiss, 1981, p. 218). Kappa values ranged from .73 to 1.0, whereas average agreement ranged from 84% to 100%. When raters disagreed, they met to reach a consensus. If consensus was not reached, the first author (Chris McRoberts) met with the raters until all three agreed.³

An ES estimate for each measure used in a study was calculated with the DSTAT computer software package (Johnson, 1989) according to the within-study meta-analysis formula:

$$d = (M_1 - M_2) / S_p,$$

where d is the estimated ES, M_1 and M_2 are the means of the groups being compared, and S_p is the pooled within-group standard deviation⁴ (Cohen, 1977). With this formula, an ES of 1.00 indicates that the M_1 group achieved an effect one standard deviation above the effect obtained by the M_2 group. When this is the case, it can be said that the average person in the M_1 group achieved a better outcome than 84% of the people in the M_2 group. This formula was used in a consistent manner to calculate ESs directly comparing individual and group therapy by always subtracting the posttest mean of the group therapy treatment from the posttest mean of the individual therapy group. Likewise, when

calculating ESs comparing individual or group treatment with wait-list controls, we always subtracted the posttest mean of the wait-list group from the posttest mean of the treatment group.

When means and standard deviations were not provided (e.g., when only an F or a t statistic was provided), ESs were computed using formulas provided by DSTAT. In addition, when outcome measures were described in the methods sections, but statistics were not reported in the results sections, an ES of zero was assigned for that measure.⁵ Zero was also assigned as an ES when results were reported as nonsignificant. Robinson et al. (1990) suggested that excluding statistics that are not reported or statistics reported as nonsignificant results in an artificial inflation of the overall ES because investigators are likely to report results that were statistically significant. Assigning an ES of zero is thus a conservative procedure that likely results in a lower overall ES. ESs were calculated by one advanced undergraduate student and by the first author, both of whom are experienced in meta-analytic techniques.

It is common for outcome studies to use more than one outcome measure within a given study (Lambert & Hill, 1994; McRoberts & Lambert, 1993), and the studies included in this analysis were no exception, having an average of 4.8 outcome measures per study. Using a separate ES for each dependent measure within a study creates problems of independence if a study is allowed to contribute more than one ES to the overall average ES estimate (see Robinson et al., 1990). Furthermore, doing so gives dispro-

³ Coders met with Chris McRoberts only three times for questions regarding coding. The first two meetings occurred early in the rating of the studies, and coders asked for clarification on the rating of group type and allegiance. The third related to questions about coding of validity.

⁴ The within-study meta-analytic methods used were similar to those used in several recent meta-analyses (Neimeyer et al., 1989; Robinson et al., 1990; Shadish, 1992).

⁵ Only 1 (4%) of the 23 studies examined by this meta-analysis failed to report a result after describing an outcome measure, but 14 (61%) reported a statistic as nonsignificant. Of the 109 ESs computed overall, 47 (43%) were rated as zero. These 47 typically reported the results of the comparison as "nonsignificant," making it impossible to assess the direction of the ES.

portionate weight to those studies that use the greatest number of outcome measures. Consequently, the ESs of all measures calculated within a given study were averaged for specific treatment comparisons (group and individual), and the mean ES for each was averaged so that each study contributed only one ES to the overall ES estimate (see Robinson et al., 1990). Measures that were not administered at both pre- and posttreatment were discarded because equivalence between groups on level of pretreatment symptomatology could not be established.

Analysis

To address the primary question posed by this study—Is there differential outcome between the group and individual therapy formats?—we conducted a one-sample *t* test comparing the overall mean ES to zero. A significant *t* in this analysis indicates that one format produced better outcomes than the other format across all of the studies included in this meta-analysis. If *t* is significant and negative, group therapy fared better than individual therapy. Although this analysis provides information regarding differential effectiveness by format, it does not provide evidence that either format provides effective treatment. Therefore, to determine the effectiveness of individual therapy when compared with wait-list controls, we calculated a *t* test on the ES reflecting the differences between the individually treated clients and wait-list controls to determine if it differed reliably from zero. An identical analysis was conducted for clients treated in group therapy. In both analyses, a significant and positive *t* indicates that treatment achieved outcomes superior to wait list.

To answer the second question posed by this study—Are there client, therapist, treatment, methodological, or group characteristics that explain differential outcomes by treatment format?—we conducted one-sample *t* tests on the mean ES for each level of the coded variables having a sample size of at least three. Finally, because variables were continuous, we conducted a test of the linear relationship between ES and the variable using correlational analysis.

Results

Characteristics of Reviewed Studies

An examination of study characteristics sets a context for the results that follow. Clients ranged in age from 24 to 45 years with a mean age of 35. Thirteen percent used only female clients, and the remaining 87% used a mixture of male and female clients. Approximately one fourth of the studies treated clients with heterogeneous diagnoses, whereas three fourths dealt exclusively with clients having a uniform diagnosis or problem. A review of the studies investigating specific diagnoses indicates that a limited range of psychiatric disorders were addressed (e.g., chemical dependency, depression, anxiety, schizophrenia, social phobia, bulimia, borderline personality disorder, obsessive-compulsive disorder, and anorgasmia).

Twenty-two percent of the groups were in university clinics and 52% in outpatient treatment centers. About 56% of the studies used a behavioral or cognitive-behavioral orientation. Approximately one fourth of the studies used only therapists who were described as having PhD or equivalent degrees, and one fifth used master's level, student, or paraprofessional therapists. In addition, one fifth used a mix of PhD, master's, student, and/or paraprofessional therapists. Thirty percent of the studies used therapists from several different disciplines, including nursing, psychiatry, social work, and psychology. Thirty-five percent of the therapists had less than 5 years postdegree experience, and 13% had more than 5 years experience. One quarter of the studies gave no information about therapist education, and 39% failed to report the experience level of the individuals conducting treatment.

The average sample study size was 25 clients for individual therapy (range = 8–53) and 24 for group therapy (range = 8–50). The average wait-list sample size was 15 clients, with a range of 11 to 22. On average, individual therapy lasted for fourteen 60-min sessions and group therapy consisted of sixteen 90-min sessions. In all studies, groups were closed to new members and were led by therapists rather than group members, with 44% using cotherapists.

Comparative Efficacy of Individual and Group Therapy

The mean overall ES from the 23 studies comparing the individual and group formats was 0.01, which was not significantly different from zero, $t(22) = 0.15$, $p = .88$, power = .05. These results indicate no advantage for either group or individual therapy when posttreatment means are compared and support results from previous narrative and meta-analytic reviews (Bednar & Kaul, 1994; Fuhrman & Burlingame, 1994b; Lambert & Bergin, 1994; R. C. Miller & Berman, 1983; Robinson et al., 1990; Shapiro & Shapiro, 1982; M. L. Smith et al., 1980; Tillitski, 1990). When individual therapy was compared with wait-list controls within the same study, a significant advantage for individual therapy was found. Clients receiving individual therapy improved three fourths of a standard deviation beyond benefits obtained by wait-list controls, $ES = 0.76$, $t(5) = 3.63$, $p = .02$, power = .82. Likewise, the posttreatment mean for group therapy differed significantly from that obtained by wait-list controls within the same study, $ES = 0.90$, $t(5) = 2.73$, $p = .04$, power = .59. The mean ES for group therapy is nearly one standard deviation higher than that obtained by wait-list controls. Thus, individual therapy patients fared better on average than 78% of wait-list patients, and group therapy patients fared better on average than 82% of the wait-list patients. These findings indicate that both the individual and group formats provide effective treatment, and the ESs are comparable with those obtained in previous meta-analyses (R. C. Miller & Berman, 1983; Robinson et al., 1990; Shapiro & Shapiro, 1982; M. L. Smith et al., 1980). In a test to determine if the effect of individual therapy compared with wait-list controls was significantly different from the effect of group therapy compared with wait-list, we found no statistical difference in ES, paired $t(5) = 1.01$, $p = .36$.

Differences in Individual and Group Outcomes Across Moderator Variables

Client characteristics. Of the six variables within the client domain (see Table 2), one was found to be significantly related to differential outcome, and two showed trends for differential effects. When a formal diagnostic system (e.g.,

Table 2
Comparative Efficacy of Group Versus Individual Therapy on Client Variables

Client variable	N of studies	Effect size		t	p	Estimated power
		M	SE			
Treatment focus						
Diffuse symptoms	15	.08	.05	1.41	.18	.26
Circumscribed symptoms	8	-.12	.07	-1.85	.10	.36
Formal diagnosis						
Yes	11	.13	.06	2.43	.04	.59
No	9	-.11	.06	-1.75	.12	.34
Diagnostic class						
Chemical dependency	3	-.12	.15	-.81	.50	.08
Depression	4	.29	.11	2.80	.07	.48
Heterogenous ^a	6	.02	.04	.68	.53	.09
Other diagnoses ^b	10	-.08	.06	-1.36	.21	.23
Chronicity of disorder						
Chronic	7	-.08	.06	-1.43	.20	.23
Acute	1	.09				
Mixed	3	-.10	.16	-.63	.59	.07
Client gender						
Female	3	-.002	.06	-.04	.97	.05
Male	0					
Mixed	20	.008	.05	.16	.88	.05

Note. A positive effect size (ES) indicates that individual therapy achieved a better outcome. Negative ESs indicate that group therapy achieved a better outcome.

^a This category included studies that used patients from several diagnostic groups. For example, several studies used a sample of clients with psychotic, mood, adjustment, and anxiety disorders.

^b This category included studies that did not fit within the four other diagnostic categories. They included obesity, parent training, female orgasmic disorder, vocational training, bulimia, social phobia, obsessive-compulsive disorder, borderline personality disorder, and chronic pain.

the *Diagnostic and Statistical Manual of Mental Disorders*, Schedule for Affective Disorders—Schizophrenia Research Diagnostic Criteria, and International Classification of Diseases, Vol. 10, etc.) was used to classify clients, individual therapy had significantly better outcomes than group therapy. However, when studies were sorted according to treatment focus, clients with circumscribed symptoms and problems (e.g., physical pain, substance abuse, obesity, anorgasmia, parenting problems, and vocational problems), group therapy tended to have superior outcomes.

Although no diagnostic category achieved effects in favor of either group or individual

therapy, a trend in the depression category favored individual therapy. Finally, neither treatment modality showed an advantage according to the chronicity of disorder, gender, or age of client, $r(18) = -.03, p = .90$.

Treatment characteristics. The analyses conducted on variables within the treatment domain resulted in only one variable that approached significance (see Table 3). A trend favoring group therapy was found when a total of 10 or fewer sessions was used. However, when the effects of total dosage in individual and group therapy were examined, no relationship was found for amount of time per session, $r(4) = -.40, p = .60$; the number of sessions per week, $r(15) = -.17, p = .55$; or the total amount of time spent in treatment, $r(4) = -.10, p = .90$. There was no differential benefit for either group or individual therapy for theoretical orientation (behavioral, cognitive-behavioral, or psychodynamic-supportive) or treatment setting.

Studies were rated according to the level of treatment standardization. High standardization existed when therapists used a manual and treatment adherence was monitored and deemed high. Medium standardization involved studies that used manuals but with no monitored adherence or when monitored adherence was deemed moderate. When no manual or monitoring was used or adherence to a model was low, treatment standardization was considered low. Analyses indicated no difference in ES for group

and individual therapy when standardization was high, medium, or low.

Group characteristics. Several variables thought to have a relationship with effectiveness in group therapy were examined to determine if they were related to differential outcome for the group and individual formats (see Table 4). None showed a reliable effect favoring a particular treatment format. However, reliable analyses were impossible in two categories (pregroup and group membership) because pregroup training was used in only one study, and all studies used closed group membership.

Treatments were categorized according to the type of group with psychoeducational groups being primarily didactic, focused on a specific topic or content, and group members were responding to specific subject matter or practicing specific actions or behaviors introduced by the therapist. The second group type, process, involved less structure and allowed more client interaction but was still therapist led, with discussion about member reactions, behaviors, and feelings rather than a specific topic or problem. No difference in effectiveness between individual and either type of group was found. Likewise, no differential effect was found when interaction between clients was mentioned as a primary component of the group therapy or when interaction had a limited role in the group treatment. Finally, the size of the therapy group (number of members) was also found to have no

Table 3
Comparative Efficacy of Group Versus Individual Therapy on Treatment Variables

Treatment variable	N of studies	Effect size		t	p	Estimated power
		M	SE			
No. of sessions						
Ten or fewer	5	-.14	.07	-2.16	.10	.38
More than 10	10	.09	.06	1.62	.14	.31
Therapy orientation						
Behavioral	5	-.17	.10	-1.70	.16	.26
Cognitive-behavioral	7	.16	.09	1.67	.11	.35
Dynamic-supportive	5	.05	.03	1.63	.18	.24
Eclectic	3	-.17	.12	-1.41	.29	.14
Treatment standardization						
High	3	-.004	.01	-0.46	.69	.06
Medium	8	.03	.09	0.26	.80	.06
Low	12	-.003	.07	-0.04	.97	.05
Setting						
University counseling center	5	-.08	.15	-0.50	.64	.07
Other outpatient mental health	12	-.02	.04	-0.47	.65	.07

Note. A positive effect size (ES) indicates that individual therapy achieved a better outcome. Negative ESs indicate that group therapy achieved a better outcome.

Table 4
Comparative Efficacy of Group Versus Individual Therapy for Relevant Group Variables

Group variable	N of studies	Effect size		<i>t</i>	<i>p</i>	Estimated power
		<i>M</i>	<i>SE</i>			
Pregroup training used						
No	12	-.04	.05	-0.84	.42	.12
Yes	1	.38				
Group membership						
Open	0					
Closed	23	.007	.05	0.15	.88	.05
Group type						
Psychoeducational	14	.04	.07	0.54	.60	.08
Process	6	-.03	.08	-0.32	.76	.06
Interaction						
Mentioned	13	.07	.07	1.02	.33	.16
Unimportant	4	-.01	.04	-0.27	.80	.06
Group size						
5-9	9	.06	.07	0.95	.37	.14
More than 9	4	-.10	.11	-0.97	.40	.11

Note. A positive effect size (ES) indicates that individual therapy achieved a better outcome. Negative ESs indicate that group therapy achieved a better outcome.

relationship to the differential effects of group and individual therapy.

Therapist characteristics. Analyses conducted on the four therapist characteristics (see Table 5) revealed no differential effects between individual and group treatments. Unfortunately, too few studies provided information about therapist gender, making reliable analyses impossible. Therapists with varying training and experience achieved equivalent outcomes regardless of the treatment format. Finally, having a

cotherapist present or not present in the group treatment was not found to be related to the differential effectiveness of group versus individual treatment.

Methodological variables. Results on methodological variables thought to have a relationship with ES are presented in Table 6. Two variables (allegiance and study year) showed a reliable difference in effect between group and individual formats. When the investigators indicated an allegiance to group therapy either

Table 5
Comparative Efficacy of Group Versus Individual Therapy for Relevant Therapist Variables

Therapist variable	N of studies	Effect size		<i>t</i>	<i>p</i>	Estimated power
		<i>M</i>	<i>SE</i>			
Therapist gender						
Male	3	.18	.12	1.46	.28	.14
Female	2	.03				
Mixed	7	-.01	.09	-0.08	.94	.05
Therapist training						
PhD level	6	-.01	.03	-0.29	.78	.06
Less than PhD	5	.20	.09	0.86	.44	.10
Mixed	5	-.06	.15	-0.39	.72	.06
Therapist experience						
Less than 5 years	8	.06	.06	1.14	.29	.17
Five or more years	3	.01	.07	0.12	.92	.05
Mixed	3	-.14	.26	-0.54	.64	.06
Cotherapist						
Yes	10	-.01	.06	-0.10	.93	.05
No	7	.05	.09	0.51	.63	.07

Note. A positive effect size (ES) indicates that individual therapy achieved a better outcome. Negative ESs indicate that group therapy achieved a better outcome.

Table 6
Comparative Efficacy of Group Versus Individual Therapy for Relevant Methodological Variables

Methodological variable	N of studies	Effect size		<i>t</i>	<i>p</i>	Estimated power
		<i>M</i>	<i>SE</i>			
Allegiance						
For group	5	-.06	.02	-2.79	.04	.56
For individual	2	.03				
For no difference	5	.21	.08	2.48	.07	.47
No allegiance	11	-.06	.08	-0.72	.49	.10
Study years						
1973-1980	6	-.22	.08	-2.62	.05	.56
1981-1987	9	.07	.07	0.99	.35	.14
1988-1995	8	.11	.05	2.36	.05	.53
Internal validity						
High	7	.06	.07	0.89	.41	.12
Medium	10	.002	.09	0.02	.98	.05
Low	6	-.04	.07	-0.63	.56	.08
Outcome source						
Self-report	21	.09	.06	1.50	.15	.30
Independent observer	8	.01	.08	0.07	.95	.05
Therapist	8	-.10	.12	-0.87	.42	.12
Significant other	2	.00				
Objective/physiological	5	-.08	.10	-0.86	.44	.10
Outcome content						
General	13	.03	.06	0.59	.57	.09
Social adjustment	6	.06	.06	1.08	.33	.14
Target symptoms	19	.05	.05	1.06	.30	.17
Outcome reactivity						
Low	4	-.10	.21	-0.47	.67	.06
Medium	21	.07	.05	1.33	.20	.24
High	9	-.03	.06	-0.47	.65	.07

Note. A positive effect size (ES) indicates that individual therapy achieved a better outcome. Negative ESs indicate that group therapy achieved a better outcome.

by hypothesizing the superiority of group therapy or by using one-tailed statistical tests in their analyses, the findings of the study favored group treatment. Only two studies had a clear allegiance to individual therapy, which precluded a similar analysis for that therapy mode. Several studies hypothesized equivalent outcomes between the group and individual therapies, and for these cases, a trend favoring individual treatment was found. Studies in which no clear allegiance could be determined did not favor either group or individual treatment effectiveness.

A second finding was that study year of publication had a significant relationship with the comparative effect obtained between individual and group therapy, $r(23) = .51, p = .01$. Because this association was significant, study year was categorized as pre-1981, 1981-1987, and post-1987. When mean ESs for these groups were compared to zero, it was found that pre-1981 studies significantly favored group

therapy, studies conducted between 1981 and 1987 favored neither format, and post-1987 studies favored individual therapy. No reliable difference in ES between individual and group was found for studies classified as having high, medium, or low internal validity according to guidelines used previously by Hoag and Burlingame (1997).⁶

As Robinson et al. (1990) reported, characteristics of the outcome measures used within a study can be related to the findings obtained. When the source of the outcome measure was examined (Table 6), no specific source favored group or individual formats. Likewise, when the

⁶ Studies classified as having high validity had less than 15% attrition, random assignment, and equivalence between groups. Medium validity studies were randomized but had high attrition, had "failed" randomization procedures, or were well-designed matching studies. Studies with low internal validity had poor matching procedures, highly disproportionate mortality between groups, or statistical or measurement irregularities.

content domain assessed by an outcome measure was broken into categories of target symptoms, general distress, and social adjustment, there were no differences in mean ES between modes of therapy. An adaptation of the coding system used by M. L. Smith et al. (1980) was used to evaluate the sensitivity to manipulation (reactivity) of the outcome measures. Measures that assessed outcome in minimally reactive ways (e.g., blind ratings and decisions, physiological measures, grade point average, blind projective devices, and standardized measures of "traits" such as the Minnesota Multiphasic Personality Inventory) were coded as having low reactivity. Experimenter-constructed scales completed by the client and most self-report measures were considered to have medium reactivity. High reactivity was assigned when outcome was assessed by therapist ratings and with nonblind projective devices. When analyzed, no significant differences between individual and group were found for high, medium, and low reactivity measures.

Discussion

Unlike previous meta-analyses, the present study directly compared the effects of individual and group therapy statistically when both therapy formats were used within the same study. Comparing effects in this way minimized the influence of variables that could confound results. Like the majority of previous narrative and meta-analytic reviews, results from this analysis indicate that there is little difference in efficacy between individual and group therapy. Both formats exceed gains made by wait-list controls, and the effects of group and individual therapy compared with wait list are comparable with those found in the M. L. Smith et al. (1980), R. C. Miller and Berman (1983), Robinson et al. (1990), and Shapiro and Shapiro (1982) meta-analyses.

One limitation of the present meta-analysis may be the exclusion of unpublished dissertations. Heinsman and Shadish (1996) suggested that under some circumstances nonrandomized experiments can approximate results from randomized experiments. When the effects of "crucial design features" of nonrandomized experiments are accounted for statistically, comparable effects can be found. Thus, including nonrandomized experiments may have

enhanced the power of the present analysis. However, this may also have introduced new sources of variability into the ESs. Randomization and publication biases may interact in such a way with the method of calculating ES that "difference in average effect size might be created or reduced as a result" (Heinsman & Shadish, 1996, p. 155). Because of these possible limitations, the present analysis excluded nonrandomized and nonpeer reviewed primary research. It is unknown what effect inclusion of such research would have had on the present findings. Future individual versus group meta-analyses should include an analysis of these possible mediators.

It should be noted that, in the present analysis, group and individual therapy achieved equivalent effects across 55 of the 60 analyses that were conducted with variables encompassing five content domains. Forty-five (70%) of the analyses had mean ESs that were at or below .10, and only one comparison achieved a significant effect while having a mean ES in excess of .20, the level at which Cohen (1977) considered an effect to be "small." This indicates that, even when differences between the two modalities are found, they tend to be negligible and may not be clinically significant. Given these results and the number of narrative (Bednar & Kaul, 1994; Fuhrihan & Burlingame, 1994a) and meta-analytic reviews (R. C. Miller & Berman, 1983; Robinson et al., 1990; M. L. Smith et al., 1980; Tillitski, 1990) that have reported equivalent outcomes regardless of format, this finding seems to be robust. In addition, these results indicate that equivalent outcomes are consistently obtained across a variety of settings, therapists, and clients.

Differential Effects Favoring Individual Therapy

Despite an overall equivalence in outcome between the individual and group formats, results from analysis of a number of moderator variables indicate that under some circumstances differential outcomes may be obtained depending on the format used. Four analyses revealed superior outcomes or trends for differential effectiveness in favor of individual therapy. Primary among these is the trend in support of Nietzel et al. (1987) that individual therapy tended to be more effective for treating

depression. This finding deserves further clarification because it has an impact on several of the findings indicating superior outcomes in individual treatment. An examination of the four studies that investigated depression revealed that all used a cognitive-behavioral approach. Furthermore, studies that used a cognitive-behavioral orientation ($ES = .16, p = .11$) favored individual over group treatment. Collectively, the results suggest that individual cognitive-behavioral therapy may be more effective for depression than group-based cognitive-behavioral therapy. On the other hand, the results do not speak to the differential effectiveness of group versus individual therapy for depression in general (i.e., other orientations). It is unfortunate that only four studies investigated differential outcomes for depression and that they were all cognitive-behavioral because this limits the generalizability of these findings. Perhaps, a wider sample of studies on depression (more theoretical orientation) would have produced results more consistent with findings of Robinson et al. (1990), who reported no differential effect by format in their meta-analysis of treatments for depression.

Analysis also revealed that the four cognitive-behavioral depression studies accounted for 36% of the formal diagnosis studies that favored individual therapy. Because the mean ES for the depression studies was 0.29 (one of the larger in this analysis), it seems plausible that they may have elevated the overall effectiveness of (ES) individual therapy in the formal diagnosis analysis. To test this partial confound, we removed ES s for the depression studies, and the reanalysis of the formal diagnosis category resulted in a nonsignificant difference between the two formats, $t(7) = 1.50, p = .18$. Similarly, no difference in effectiveness by format was revealed when the four depression studies were removed from the analysis that favored individual therapy when researchers hypothesized no allegiance to either treatment format, $t(2) = 1.90, p = .20$. Collectively, the above post hoc analyses suggest that the four cognitive-behavioral depression studies indeed acted as a partial confound within the formal diagnosis and no-allegiance analyses. Thus, a more conservative interpretation of the above differences is that individual cognitive-behavioral therapy may result in superior outcomes over group

cognitive-behavioral treatment for depressed clients.

The final significant finding favoring individual therapy occurred in studies conducted between 1988 and 1995. This finding is puzzling because there is no obvious reason why studies during this time should favor individual therapy. A possible explanation might be found in the fact that more recent studies are more rigorous (Burlingame, Kircher, & Taylor, 1994) and that rigor, in turn, favors individual therapy. However, this possibility does not find support in the present investigation because medium and low validity studies supported outcome equivalence between the two formats. We can only suggest future testing and replication of this finding before interpretation of such is proffered.

Differential Effects Favoring Group Therapy

Four analyses revealed significant findings or trends in favor of group therapy. First, the trend for problems with circumscribed symptomatology to be treated most effectively in the group format may be accounted for by the types of problems that were included in this category. Several authors have noted that group therapy has been shown to be effective for treating clients with chemical dependency problems (Burlingame et al., 1995; W. R. Miller et al., 1995; Stinchfield, Owen, & Winters, 1994) and when vocational choice is the focus of treatment. Similarly, Burlingame et al. (1995) indicated that group is effective for a number of stress syndromes and V-code diagnoses that do not meet strict criteria for mental health diagnosis. These categories make up the majority of the circumscribed problems being treated in the studies in this analysis. This is an important finding that warrants further study through primary research. The second finding, that studies conducted before 1981 favor outcomes in group therapy, may be explained by the fact that one half of the studies in this category were also included in the circumscribed problem category.

Not unexpectedly, we found that when the researcher had a clear allegiance to group therapy, group therapy achieved better outcomes than individual therapy, although this effect was extremely small ($ES = -.06$). Some researchers (Shirk & Russell, 1992) have explained this

finding by an increased expertise of the experimenter in the therapy to which she or he has an expressed allegiance. Nevertheless, as Robinson et al. (1990) pointed out, experimenter allegiance is determined from the content of the study, and it is difficult to determine whether the experimenter's allegiance led to the outcome or if the outcome led to the experimenter's allegiance. The confounding of ESs according to experimenter allegiance is a controversial finding in meta-analyses (Lambert & Bergin, 1994) and underscores the need for rigorous methodology to minimize bias in outcome research.

The final significant finding in favor of group therapy is that group is more effective when 10 or fewer total sessions are attended by the client. This finding is difficult to interpret but supports the findings of Budman, Simeone, Reilly, and Demby (1994) and Burlingame and Fuhrman (1990), who indicated that group can be used effectively as a short-term treatment. A contrary finding was reported by Piper, Debbane, Bienvenu, and Grant (1984), who found that clients and therapists involved in short-term dynamically oriented group therapy rated outcome worse than those involved in short-term individual, long-term individual, and long-term group treatments. In general, the significance of this finding is unclear because the short-term group treatment used by Piper et al. (1984) averaged 22 sessions in length, whereas the five short-term studies in this meta-analysis used between 8 and 10 treatment sessions of 40. Furthermore, four of the five studies were investigating circumscribed problems (parent training, anorgasmia, chemical dependency, and obesity), which might also explain why group treatment fared better.

Methodological Considerations in Interpreting Results of the Meta-Analysis

Few of the client, therapist, treatment, group, or methodological variables showed a relationship with differential effects between individual and group treatments. One explanation may be lack of power.⁷ Of the 60 analyses conducted, 55 (or nearly 92%) produced nonsignificant results with low power ($<.20$; Cohen, 1977). Average power of these 55 analyses was poor ($M = .14$), indicating a relatively high

probability of a Type II error. Thus, little confidence can be placed in the aforementioned nonsignificant findings. It is interesting to note that the power to detect differences was low even though the variables in this analysis were identified from narrative and meta-analytic reviews of the group versus individual outcome literature.

Unfortunately, most meta-analyses to date have been reported without consideration of the power. An exception is the recent meta-analysis conducted by Hoag and Burlingame (1997). These authors found that the average power in the analyses they conducted was poor at best. Likewise, power in the present study is problematic, primarily because of the relatively small sample of studies that were available to be analyzed and the failure of investigators to report pertinent variables. If future meta-analyses request such information, the necessary

⁷ To better understand the nonsignificant differences in this meta-analysis, we assessed the probability of making a Type II error for each analysis through calculation of power. Low power has been described as the "Achilles heel of psychological research" (Kazdin, 1992, p. 328), and, until recently (Hoag & Burlingame, 1997), power has not been examined in meta-analyses. Most meta-analysts have been primarily concerned with minimizing or controlling the possibility of a Type I error (Howell, 1992) and have ignored the equally important probability of committing a Type II error (Rosenthal & Rosnow, 1991). In the case of this meta-analysis, a Type II error represents the acceptance of no difference between group and individual therapy on a given level of a variable when in fact a difference may exist but the statistical test is not powerful enough to detect it. The power of the test is a function of the probability of making a Type I error (alpha), the sample size, and the magnitude of the difference that is thought to exist between the groups being compared (Howell, 1992; Kazdin, 1992). Increasing the size of alpha (e.g., moving from a .05 to .10) in a comparison increases the probability of a Type I error but also results in increased power. Similarly, as sample size increases, a proportionate increase in power results. Because the sample size is easy to manipulate, most attempts to increase power address the sample size. In addition, as differences in the ES between the groups being compared increase, power also increases even if alpha and sample size remain constant (Kazdin, 1992). Because of this, if the differential effect in the analyses conducted in this meta-analysis were large, statistical tests with small sample sizes could have sufficient power to detect reliable differences. However, if ES differences between group and individual therapy were small (as was the case in most of the present analyses), power would likely be low even with very large sample sizes. When this is the case, differences between the groups are difficult to detect and may have little practical meaning.

context for better interpreting the above findings would be credited.

Conclusions and Recommendations

Research regarding differential effectiveness between group and individual treatment with adults appears to be failing to keep up with comparable research investigating individual and group therapy separately. This is occurring both in quantity of studies and quality or sophistication of methodology. It is sobering to note that only 23 studies could be included in this analysis after nearly 50 years of investigation of psychotherapeutic outcomes. Furthermore, it seems highly problematic that, in a time when group therapy is increasingly being used as a cost-effective alternative to individual therapy (Burlingame & Fuhrman, 1990), no studies conducted during the past 2 years could be found for inclusion in this meta-analysis. On the other hand, Burlingame et al.'s (1995) review of the adult group literature over 12 years produced 116 studies. This is troubling in the current managed care environment where group treatment is increasingly being recommended across a wide variety of client populations (MacKenzie, 1994, 1995).

Although it seems clear that clients in either format benefit equivalently, it is unclear if there are theoretically potent moderator variables to explain differential effectiveness between the individual and group formats. Because of the paucity of experimental research comparing the effects of group and individual therapy, this study was limited in the analyses on moderator variables that could be performed. Twelve percent of the planned analyses in this meta-analysis lacked sufficient sample size to determine differential effectiveness, and 92% of the variables examined produced nonsignificant *t* tests with low power. These findings are distressing because the variables selected came from standard reviews and texts in group and individual treatment. Without more detailed research, it is impossible to delineate many of the client, therapist, methodological, group, and treatment variables that may moderate effectiveness between individual and group therapy. Although a call for further research is common and often expected in narrative and meta-analytic reviews, the current request may not be a difficult one to follow. Much of the informa-

tion lacking in the literature (e.g., client, therapist, group, methodological, and treatment variables) can easily be obtained in the current managed health care environment. These systems stress accountability and demand evidence of progress, and many of the missing variables in this examination could simply be recorded as part of an ongoing accountability program. Such a policy would buttress future research and would add to our ability to evaluate differential effectiveness.

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