Evaluating the effectiveness of child and adolescent group treatment: a meta-analytic review

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Authors' objectives
To examine the effectiveness of group therapy for children and adolescents, and to identify variables that might relate to the differential efficacy of group treatments.

Searching
PsycLIT was searched for all articles between 1974 and 1997 on child and adolescent group treatment. The reference sections of previous reviews, recent relevant publications, and articles identified in the PsycLIT search were examined for additional publications. Only studies published in the English language were included.

Study selection
Study designs of evaluations included in the review
Outcome studies published between 1974 and 1997, which were at the experimental or quasi-experimental level with either matching or random assignment to groups.

Specific interventions included in the review
Group treatment including preventative programmes, psychotherapy, counselling, guidance and training groups, taking place in schools (74%) or elsewhere.

Participants included in the review
Children and adolescents aged between 4 and 18 years, who were receiving group treatment, were included.

Outcomes assessed in the review
The outcome measures of effectiveness, in terms of the content of the studies, were: disruptive behaviour; anxiety and fear; adjustment to divorce; cognitive skills and performance; social skills and adjustment; self-concept and self-esteem; depression; and locus of control.

The outcome measures of effectiveness, in terms of the source of the measurement in the studies, were: parent, therapist, teacher, trained-observer, self-report, and peer.

The effect size (ES) was measured in each of the groupings.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality
The authors do not state that they assessed quality.

Data extraction
Two undergraduate researchers rated the studies on twenty-nine variables. Each study was rated independently by each rater, and afterwards the coders met to obtain a consensus rating for each variable on each study.

The ESs were calculated from the outcome statistics in each study using the DSTAT computer software package according to the within-study meta-analysis formula. This formula was used to calculate two types of ES: one that directly compared group treatment with controls or placebos, and a second that used pre- to post-treatment scores.
Methods of synthesis
How were the studies combined?
The overall ESs were calculated using a t-test comparing group treatment to wait-list or placebo control groups, and pre- to post-treatment improvement. The ESs from any given study were averaged so that only one ES was obtained for each study. If more than one treatment was utilised, multiple ESs were also averaged so that each study contributed only one ES.

The analysis also examined the relationship between the predictor variables from client (8), therapist (3), treatment (7), group (5) and methodological domains with the criterion being the effectiveness of group treatment when compared with placebo and wait-list control groups.

How were differences between studies investigated?
A t-test was calculated on the overall ES, which reflected the difference between the actual group treated and the wait-list control groups, to determine if it differed reliably from zero.

Each of the variables was examined to identify whether various levels of the coded variables were differentially related to the overall ES.

An analysis of variance (ANOVA) was conducted on the levels of each variable to determine if there were significant differences in the average ES associated with each. Bonferroni-corrected post hoc comparisons between levels were conducted when the results from the ANOVA were significant.

Results of the review
Fifty-six outcome studies were included. These were used in different combinations in the analyses of the individual outcome variables. The average size of the treatment group was 31 clients (range: 6 to 199), whilst that for the control sample was 32 clients (range: 5 to 181).

The kappa score for the independent rating of the studies was 0.88, with an agreement of 94%.

Of the 8 content outcome measures, only 6 produced an ES that differed significantly from zero (i.e. showing a reliable improvement).

1. Disruptive behaviour (21 studies): the mean ES was 0.69 (95% confidence interval, CI: 0.36, 1.02, p=0.000) and the standard deviation (SD) was 0.16.
2. Anxiety and fear (8 studies): the mean ES was 0.62 (95% CI: 0.40, 0.84, p=0.000) and the SD was 0.09.
3. Adjustment to divorce (5 studies): the mean ES was 0.51 (95% CI: 0.30, 0.72, p=0.003) and the SD was 0.08.
4. Social skills and adjustment (22 studies): the mean ES was 0.49 (95% CI: 0.34, 0.65, p=0.000) and the SD was 0.07.
5. Self concept and self-esteem (17 studies): the mean ES was 0.48 (95% CI: 0.29, 0.67, p=0.000) and the SD was 0.09.
6. Locus of control (8 studies): the mean ES was 0.44 (95% CI: 0.14, 0.75, p=0.011) and the SD was 0.13.

Of the 6 source outcome measures, only 5 produced an ES that differed significantly from zero (i.e. showing a reliable improvement).

1. Parent (7 studies): the mean ES was 0.79 (95% CI: 0.13, 1.45, p=0.026) and the SD was 0.26.
2. Therapist (4 studies): the mean ES was 0.74 (95% CI: 0.40, 1.07, p=0.006) and the SD was 0.11.
3. Teacher (18 studies): the mean ES was 0.60 (95% CI: 0.36, 0.85, p=0.000) and the SD was 0.12.
4. Trained observer (15 studies): the mean ES was 0.56 (95% CI: 0.13, 1.00, p=0.015) and the SD was 0.20.
5. Self-report (36 studies): the mean ES was 0.51 (95% CI: 0.38, 0.64, p=0.000) and the SD was 0.06.

The overall ES from 49 studies comparing group treatment with a wait-list or placebo control group was 0.61 (range: -0.04 to 2.99; SD 0.52), which was significant (p=0.001).

The overall ES reflecting pre-test to post-test improvement was 0.72, which was significant (p=0.001).

In examining the relationship among predictor variables, a significant relation was found between the overall ES of group treatment and variables in the client, treatment, and methodological domains.

In the client domain, the sole variable found to be differentially related to treatment outcome was socioeconomic status. Children with 'middle' socioeconomic status (ES 0.79) showed significantly greater gains than those with low socioeconomic status (ES 0.29; F(1,21)=7.22, p=0.01, power 0.86).

The only treatment variable found to be statistically significant between levels was setting. Studies in the school setting (ES 0.53) were significantly less effective than those in clinical settings (ES 1.13; F(1,42)=8.02, p=0.007, power 0.48).

Two methodological variables were significant: experimenter allegiance and publication year. Where it was clear that the experimenter had a clear preference for the type of treatment, there was significantly more improvement (ES 0.72) than for those therapies where the experimenter clearly stated a preference (ES 0.30; F(1,11)=4.63, p=0.05, power 0.68).

Finally, there was a significant correlation (r) between publication year and ES (r=0.29, p=0.04, power 0.53), where more recent studies had larger ESs.

**Authors' conclusions**
This meta-analysis demonstrated that children and adolescents treated in group treatment improved significantly more than wait-list or placebo controls. Moreover, greater improvement was associated with higher socioeconomic standing, allegiance to a particular treatment, and publication year of the study. This study also identified specific areas of 'weaknesses and areas of neglect', e.g. 62% of the variables examined with one-way ANOVAs produced non significant results with low power.

**CRD commentary**
This was a good review of the effectiveness of child and adolescent group treatment, reviewing not only content outcome measures but also source outcome measures and their differential effects on treatment.

Studies were identified by searching for articles using PsycLIT and by examining the reference lists of the articles retrieved. The search was restricted to English language studies and relevant studies could, therefore, have been missed. No attempt was made to identify unpublished studies so the possibility of publication bias cannot be ruled out. The search could have been extended to other databases.

The inclusion criteria were clearly stated. The individual studies were discussed within the subgroups used to examine and calculate the ESs for the different outcome measures. These studies were summarised both in tabular format and in the text; however, there were no details about the characteristics of the participants, such as age or gender.

The authors did not describe how judgements were made about the relevance of the included studies and they did not conduct a quality review of those studies included.

The data analysed individual variables, overall ESs, and possible differences in the relationships between the variables. Although the authors' conclusions follow from their analysis, the review should be viewed with caution because of the limitations of following: the limitations of the literature search; the lack of a quality review of the selected articles; and the possibility of ESs being influenced by the wide differences between the study characteristics, despite the mitigating stratification performed by the authors.
Implications of the review for practice and research
The authors state 'increased attention is needed by child and adolescent researchers to test these variables adequately in future research'. The authors believe that this would not be difficult since much of the information lacking in the literature can be easily obtained in the current managed health care environment.

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