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Evaluation of a short-term group therapy program for children with behavior problems and their parents

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Abstract

The current study investigated the effectiveness of a short-term, cognitive behavioral program for 106 primary school-aged children referred with externalizing behavior problems and their parents, compared with 39 children and their parents on a waiting-list to be treated. *Exploring Together*[1] comprised a children's group (anger management, problem-solving and social skills training), a parents' group (parenting skills training and dealing with parents' own issues), and a combined children's and parents' group (to target parent-child interactions). The program reduced children's behavior problems and improved their social skills at home. Changes in children's behaviors and social skills at home were generally maintained at 6- and 12-month follow-up. Implications of the findings for improving interventions for childhood externalizing behavior problems are discussed.

Keywords: Program evaluation; Child behavior problems; Cognitive behavior therapy; Parent training; Group therapy

1. Introduction

Childhood externalizing behavior problems (EBP) involving aggressive/antisocial and delinquent behavior are a serious, pervasive and costly problem within our community. The prevalence of EBP in 4- to 16-year-old children in a recent Western Australian study was 13.2% (Zubrick et al., 1995). These problems comprise between one third and one half of all child and adolescent clinic referrals (e.g., Kazdin, Bass, Siegal & Thomas, 1989). EBP have been widely researched

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and the results of these studies have shown that: (a) EBP are stable within individuals over time (e.g., Esser, Schmidt & Woerner, 1990), becoming fairly well entrenched in the children's repertoire by adolescence, and making EBP extremely difficult to treat (Kazdin, 1993); (b) EBP are stable within families (e.g., Huesmann, Eron, Lefkowitz & Walder, 1984); and (c) children with EBP tend to exhibit and experience associated difficulties including poor social skills (Walker, Shinn, O'Neill & Ramsey, 1987), peer rejection (e.g., Pettit, Clawson, Dodge & Bates, 1996), problem-solving skills deficits and/or distortions (e.g., Dodge & Frame, 1982), and academic underachievement, particularly in the area of reading (Sturge, 1982).

In an attempt to improve the poor long-term prognosis of children with EBP, a range of interventions has been utilised. These interventions have included child-focused psychotherapy, such as social skills training and problem-solving skills training; parenting skills training (PST) for the children's caregivers; and multicomponent interventions for both the children and their families. The most promising, and probably the most thoroughly investigated, intervention is PST. Using a range of outcome measures, many studies have reported PST to be an effective treatment in clinics (e.g., Serketich & Dumas, 1996; Webster-Stratton, 1990) and in community settings (Cunningham, Bremner & Boyle, 1995; Fleischman & Szykula, 1981), with PST gains being maintained for up to 14 years after treatment (Long, Forehand, Wierson & Morgan, 1994). Furthermore, the effects of PST have been reported to generalize to sibling behavior (Humphreys, Forehand, McMahon & Roberts, 1978) and parents report satisfaction with PST, both during treatment and at 1-month follow-up (Webster-Stratton, 1989).

However, PST alone may not be appropriate for treating some families, including those with severe dysfunction, parent psychopathology and socioeconomic disadvantage (Forehand & Long, 1988; Kazdin, Esveldt-Dawson, French & Unis, 1987b). For some families, PST should address not only parenting skills deficits but also parental and family functioning (e.g., parents' attitudes, parental perceptions of the child, parental psychopathology, marital dissatisfaction, family communication). The effects of PST addressing parental and family functioning have been mixed; with some reports of enhanced PST outcomes (e.g., Dadds, Schwartz & Sanders, 1987; Spaccarelli, Cotler & Penman, 1992), but others finding similar effects to PST alone at post-treatment (Dadds & McHugh, 1992) and at follow-up (Spaccerelli et al., 1992). The inclusion of supplementary treatment components may ensure that PST is both appropriate and maximally effective for a wide range of families but further research is required to investigate which components are most crucial for which families.

Another line of research has investigated the effectiveness of multicomponent treatment programs which include at least separate therapy sessions for children and parents but may also include combined children's and parents' groups (in which all participating children and parents and group leaders meet together), and teacher consultations. Separate concurrent children's problem-solving skills training (PSST) and PST (administered individually or in groups) has been shown to reduce children's EBP and improve their prosocial behaviors at home, immediately following treatment and at up to 12-month follow-up (Horn, Ialongo, Greenberg, Packard & Smith-Winberry, 1990; Kazdin, Esveldt-Dawson, French & Unis, 1987a; Kazdin, Siegal & Bass, 1992; Webster-Stratton & Hammond, 1997). Clinically significant changes in children's behavior at home have also been reported (Kazdin et al., 1987a, 1992) but the effects of concurrent children's and parents' therapy on children's school behavior have been mixed (Horn, Ialongo, Popovich & Peradotto, 1987; Kazdin et al., 1987a, 1992; Webster-Stratton & Hammond, 1997). There

is preliminary data supporting the effectiveness of concurrent children's and parents' group therapy with a combined children's and parents' group (Parmenter, Smith & Cecic, 1987; Smith, 1985), however, these studies require replication using a more rigorous methodology (e.g., inclusion of an untreated control group, utilization of established outcome measures, data analysis using inferential statistics).

The generalization of treatment effects to children's classroom behaviors might be enhanced by conducting a school-based program (Michelson et al., 1983). A school-based program enables children to rehearse their skills with peers in 'real-life' situations, and peers and teachers are able to both support the children during the program and reinforce the children's newly-acquired skills in the classroom. A school-based, peer-coping skills program (Prinz, Blechman & Dumas, 1994) for children at risk of developing EBP improved the children's coping and social skills at post-treatment and 6-month follow-up. However, the children's aggressive behavior was only somewhat reduced at post-treatment and the children remained in the clinical range for aggressive behavior at 6-month follow-up (Prinz et al., 1994). As children with EBP tend to have academic, behavioral and social difficulties at school, a school-based intervention has face validity as a treatment option for these children.

To date, no individual intervention has been shown to be effective in producing stable, clinically significant changes in the behavior of children with EBP. It is now recognised that given the range of difficulties that children with EBP, their parents and families experience, the use of multicomponent interventions to target the difficulties of not only the children but also their parents and families may be more effective in treating EBP (Kazdin et al., 1987a, 1992).

The current study was designed to evaluate the effectiveness of a multicomponent treatment program, *Exploring Together* (ET; Littlefield, Story, Woolcock & Trinder, 1993), for childhood behavioral and emotional problems. Most of the children referred to ET present with EBP. The intervention utilised in this study is a short-term, group therapy program for primary school-aged children and junior high school students and their parents. ET comprises a children's group (anger management, social and problem-solving skills training); a parents' group (parenting skills training and dealing with parents' personal, relationship, and family-of-origin issues); a combined parents' and children's group (to improve parent-child interactions); partner meetings (to involve the non-participating parent in ET); and teacher meetings (to inform the children's classroom teachers about ET and to encourage the implementation within the classroom of child management procedures consistent with that of ET).

The current paper focuses on the changes in children's behavior following participation in ET. It was hypothesized that the behavior problems of the children who attended ET would show significant decreases at home and at school at the end of ET compared with an untreated, waiting-list control group, and that the changes at home would be maintained at 6- and 12-month follow-up.[2] In addition, it was hypothesized that the social skills of children who completed ET would improve at home by the end of ET and that these changes would also be maintained at 6- and 12-month follow-up. The clinical significance of changes in children's behavior problems and social skills at home was also investigated at a descriptive level.

[2] In Victorian schools, children's teachers change at the end of each school year, so it was not possible to obtain follow-up measures of children's behavior problems at school.

2. Method

2.1. Treatment program

ET (Littlefield et al., 1993) was designed to be conducted as a short-term secondary prevention program for both primary school-aged children (6- to 11-year-olds) and junior high school students (12- to 14-year-olds) with behavioral and emotional disorders, and their families. ET was conducted in a range of community agencies, including a university-based clinic, primary and junior secondary schools, school support centres, community health centres, neighbourhood houses and welfare agencies in suburban and rural areas of Victoria, Australia. For a community agency worker to be accepted into training for ET, the worker was required to have a background in psychology, social work, teaching, or welfare work, and preferably, to have training in therapy or group work (especially cognitive behavioral or family therapy and group process).

ET sessions were conducted in small groups of four to eight participants for 8–10 consecutive weeks; that is, equivalent to the length of a school term. The total duration of each weekly session was 1.5 hr (1 hr for simultaneously-held separate parents' and children's groups, and 0.5 hr for a combined parents' and children's group). Potential participants (children and parents) were interviewed prior to the commencement of ET to ensure that the program could adequately address their major presenting problems. The composition of both the children's and parents' groups was carefully considered (e.g., at least two children of each gender, socioeconomic levels comparable across participants). Each group had two leaders with at least one leader per group having completed training for ET and the other having suitable experience and qualifications to conduct ET as a leader-in-training.

2.1.1. Children's group

The content of the children's group aims to increase the children's awareness of the effect of their behaviors on others, to enhance the children's social, interpersonal and problem-solving skills at home and at school, and to decrease children's problematic behavior at home and at school. ET is cognitive behavioral, teaching cognitive skills such as verbal self-instruction in social situations, performance evaluation, and self-reinforcement. Behavioral techniques, including modelling of skills, behavioral rehearsal and positive reinforcement are also used in ET. In addition, the group process is used to interpret the children's feelings and behavior.

2.1.2. Parents' group

Through discussion, the parents' group aims to: (a) develop parents' understanding of factors underlying their children's behavior and their relationships with their children; (b) challenge the parents' negative perceptions and irrational beliefs about their children's behavior, themselves, and the requirements of parenting; (c) teach parents behavior management principles and techniques and put these into practice; (d) explore parents' personal difficulties (e.g., social isolation, depression, lack of assertiveness and poor self-esteem), parenting, marital and family-of-origin issues, and to attempt to resolve them; and (e) assist parents to become more aware of, and to have a greater understanding of their feelings, to recognise their strengths and to foster the use of their own resources. The therapeutic techniques used in the parents' group were cognitive behavioral therapy, family therapy, and group processes.

2.1.3. Combined parents' and children's group

Through dealing directly with each parent-child dyad, the combined group aims to enhance parent-child communication; encourage positive interaction, a co-operative working relationship and shared problem solving; provide a setting for positive, non-judgemental interaction where each others' views and needs can be heard and accepted; and to work on relationship issues as they arise.

2.1.4. Partners' evenings

Two partners' evenings were held during the course of ET (at approximately the 5th and 10th weeks). These were attended by both mothers and fathers or the parent attending the group and a support person *without* the children. The focus was on adults working together and supporting each other in disciplining and nurturing their children. More specifically, these evenings were conducted to involve the other parent or support person in ET, to inform him or her of the nature, aims and processes of ET, to explore each partner's perceptions of his/her family's problems, and to encourage him or her to support the participating parent's efforts to change child-rearing practices. In addition, any issues arising between the partners or parents and support persons were discussed and efforts were made to resolve them.

2.1.5. Teachers' meetings

Teachers' meetings were held twice during the course of ET (at approximately the 1st and 9th or 10th weeks). The general aims of these meetings were to inform the teachers of the nature, objectives, and strategies used in ET, to discuss any issues pertaining to the children, to instigate a similar approach to that of ET for handling the children at their schools, to offer support for dealing with the children in the school setting, and to provide the opportunity for two-way feedback between teachers and group leaders regarding each child's progress.

2.2. Treatment integrity

Several procedures were adopted to try to ensure that the treatment integrity of ET was maintained. First, all ET programs held in community agencies had at least one trained leader (either 10-week training or 2-day workshop) in each group, often one of the leaders was a core group leader (i.e., one of the authors of the manual). Second, all leaders implemented ET according to the structure outlined in the program manual. Third, ongoing consultation with the core group leaders was offered to all leaders. Fourth, ongoing training was provided to leaders in the form of an annual 'reunion' where the progress of their ET programs was discussed, any issues arising from conducting ET itself were addressed, and any developments in ET were explained.

2.3. Participants

The participants in this study comprised a total of 145 children and their primary caregivers; those who completed ET (the treatment group, n=106; 85 boys, 21 girls) and those who did not receive ET but were on a waiting-list for treatment at a university-based clinic or at a local hospital clinic (untreated, waiting-list control group, n=39; 29 boys, 10 girls). The treatment group children ranged in age from 5 to 14 years (M=8.88, SD=1.90) and the control group were 5–13

years old (M=8.54, SD=2.28). Both treatment and control group participants were obtained primarily from metropolitan areas (70% and 89%, respectively), with the remainder from rural areas. Selected demographic characteristics of the treatment and control groups are presented in Table 1.

A composite measure of socioeconomic status (SES), comprised of caregiver-partner education level, caregiver-partner occupation level, and reported family income level revealed a statistically significant difference between the treatment (M=10.26, SD=3.38, n=69) and control (M=11.97, SD=2.95, n=29) groups, $t(96)=-2.36$, p=0.02, with the control group having a higher mean SES score than the treatment group.

The mean number of sessions attended by Program Completers was 9.00 for caregivers (n=80) and 9.18 for children (n=74). Fifty-four percent of caregivers and 61% of children attended all of the ET sessions, and 85% of caregivers and 88% of children attended at least 75% of the ET sessions. Hence, the majority of children and caregivers who completed ET attended most of the program sessions.

2.4. Measures

2.4.1. Achenbach child behavior checklist parents' report form (CBCL)

Achenbach's (1991a) version of the behavior problems section of the CBCL has 118 items and two 'broad-band' scales, titled: externalizing (delinquent behavior and aggressive behavior) and

Table 1
Demographic characteristics of treatment and control groups

Participants' characteristics	Treatment group (n=106)	Control group (n=39)
Family composition		
Sole parent	36 (34%)	15 (39%)
Natural parents	54 (51%)	17 (44%)
Other	15 (14%)[a]	7 (18%)[a]
Caregiver's highest level of education		
High school or less	83 (78%)	22 (56%)
TAFE/Apprenticeship	6 (6%)	7 (18%)
College/Uni Diploma	10 (9%)	3 (8%)
College/Uni Degree	5 (5%)[a,b]	7 (18%)
Caregiver's occupation		
Home duties	59 (57%)	20 (53%)
Un/Semi-skilled, or skilled manual	10 (10%)	3 (8%)
Clerical/Sales	26 (25%)	4 (11%)
Semi-Professional/Professional/Manager	9 (9%)[a,b]	11 (29%)[a,c]
Income		
Less than AUS$29,999	59 (67%)	25 (64%)
AUS$30,000–AUS$49,999	16 (18%)	8 (21%)
Greater than AUS$50,000	13 (15%)[d]	6 (15%)

[a] Due to rounding up of numbers some totals≠100%.
[b] n=104.
[c] n=38.
[d] n=88.

internalizing (withdrawn, somatic complaints, and anxious-depressed) scales. High scores on the externalizing and internalizing scales are indicative of more severe behaviors. Clinical and borderline clinical cut-off points have been derived for each of these scales. Adequate reliability and validity data are available for the CBCL (see Achenbach, 1991a).

The social competence section of the CBCL has seven social competence items and three scales (activities, social, and school), of which, only the social scale scores were analyzed for the current study. The social scale measures children's participation in organizations, the number of, and contact with, friends and behavior towards others. Low scores on this scale are indicative of less competent behaviors. Clinical and borderline clinical cut-off points have been derived for this scale.

2.4.2. Achenbach child behavior checklist teachers' report form (TRF)

Achenbach's (1991b) teachers' form also has two sections; (a) the behavior problems section, which parallels and has the same scales as those on the CBCL; and (b) the adaptive functioning section. Only the results internalizing and externalizing scales of the behavior problems section are reported in this paper. High scores on the behavior problems section of the TRF are indicative of more severe behavior problems. Clinical and borderline clinical cut-offs have been derived for the externalizing and internalizing scales. Adequate reliability and validity data are also available for the TRF (see Achenbach, 1991b).

2.4.3. Demographic information sheet

This sheet was employed to obtain information about the participants and their families, and included items relating to the ages and country of birth of family members, as well as parents' and partners' education, occupation and income levels. The items asking about the highest level of education were rated on a 6-point scale from 1 (primary school level) to 6 (completion of a university degree or higher). Occupations were rated on 6-point prestige scale, ranging from 1 (unskilled) to 6 (professional or manager). The classifications for the prestige scale were based on the Australian Standard Classification of Occupations (ASCO; Department of Employment and Industrial Relations and Australian Bureau of Statistics, 1987). The family's gross income level per annum (from all sources) was rated on a 6-point scale from 1 (less than AUS$ 9999) to 6 (AUS$ 50,000 and over), which was based on that used for the 1986 Australian Census (Australian Bureau of Statistics, 1987).

2.5. Questionnaire administration

Written consent for participation in the research project was obtained from the director or manager of each agency and from treatment and control group parents and hospital clinic control group children prior to the administration of the questionnaires. ET participants (parents and children) and the children's classroom teachers were administered the questionnaires prior to the first session of the program and at the end of the program. Parents also completed questionnaires at 6- and 12-month follow-up.

The parents of control group children were sent the CBCL and demographic information sheet through the mail, twice at 10-week intervals. The teachers of control group children completed the TRF twice, at 10-week intervals.

3. Results

3.1. Level of children's behavior problems

Using the clinical cutoff scores developed by Achenbach (1991a, 1991b) for the CBCL and the TRF, the proportions of treatment and control group children who were in the clinical and borderline clinical range (i.e., *T* score of at least 60) on the externalizing scale only ('pure' EBP), the internalizing scale only ('pure' internalizing problems), and on both the externalizing and internalizing scales (i.e., comorbid), as well as those who were in the nonclinical range on both the externalizing and internalizing scales, were calculated. The borderline, rather than clinical, range cutoff score was utilised as this occurs at the 82nd percentile and it was considered that children with scores above this level have 'clinically significant' problems. Reportedly, more than half of the treatment and control group children scored in the borderline clinical range or higher on both externalizing and internalizing behavior at home and 46% of treatment group children and 33% of control group children were in the borderline clinical range or higher on both externalizing and internalizing behavior at school. An additional 11% of treatment group children and 19% of control group children showed EBP at home only, whereas approximately 20% of treatment and control group children showed EBP at school only. Most of the children who participated in this study therefore seemed to have clinically significant levels of behavior problems.

3.2. Changes in children's behavior

To assess the effectiveness of ET, both the *statistical* and *clinical* significance of changes in the children's externalizing and internalizing behaviors at home and at school, as well as changes in children's social skills at home, were investigated.

For the treatment vs control group comparisons at pre- and post-treatment, covariate analyses of variance were conducted, with the pre-treatment behavior problem score as a covariate, to control for any differences in the initial behavior problem scores of children in the treatment and control groups (given that children were not randomly assigned to each group). All statistical analyses were conducted using change scores from pre- to post-treatment to ensure that the magnitude of changes in children's behavior problems for the treatment and control groups was compared.

For changes in a child's behavior to be regarded as 'clinically significant' on the CBCL and TRF, the child's score was required to show a categorical shift towards a normative level of functioning. This was assessed using the nonclinical, borderline clinical, and clinical ranges identified on the CBCL and TRF externalizing and internalizing scales and the CBCL social scale. Children in the borderline clinical range were deemed to show clinically significant improvement if their scores moved to the nonclinical range at post-treatment or follow-up; and children in the clinical range could show clinically significant improvement if their scores moved into either the borderline clinical range or nonclinical range at post-treatment or follow-up.

3.2.1. Statistical significance of changes in children's behavior

3.2.1.1. Pre- to post-treatment. Change scores between pre- and post-treatment means were calculated separately for the treatment and control groups on the externalizing and internalizing scales of the CBCL and TRF to compare the magnitude of changes in children's behavior problems in each group. A dependent Hotelling's T^2 was conducted on change scores, using pre-treatment scores on each scale as covariates.

For the CBCL, the multivariate results revealed a statistically significant but small association between the combined dependent variables (DVs) and the combined covariates, Hotelling's T^2=0.31, F(4,266)=10.32, $p<0.01$ (Eta-squared=0.13). The results of the univariate analyses of covariance revealed significant group differences on both the externalizing and internalizing scales, indicating that the mean scores of the treatment group decreased significantly more from pre- to post-treatment than those of the control group, even with the effects of pre-treatment scores controlled. The measure of effect size (Cohen's d) for the internalizing scale was in the moderate range, whereas the large effect size for the externalizing scale suggested that there was a strong treatment effect, as reported by parents (see Table 2).

The multivariate results on the TRF revealed a statistically significant but small association between the combined DVs and the combined covariates, Hotelling's T^2=0.49, F(4,194)=11.77, $p<0.01$ (Eta-squared=0.20). Univariate analyses of covariance showed that there were no significant group differences for either the externalizing or internalizing scales, indicating that there were no perceived differences between the treatment and control groups in the level of reduction of externalizing and internalizing behaviors at school from pre- to post-treatment (see Table 2). The mean difference scores between pre- and post-treatment scores on the Social Scale of the CBCL were calculated separately for both the treatment group (M=3.52, SD=7.72) and the control group (M=0.79, SD=6.98), and an independent samples t-test was conducted between the change

Table 2
Results on measures of child behavior[a]

Scales	Treatment group		Control group		d	Effect of group	
	Pre	Post	Pre	Post		Univ F	df
	(n=102)		(n=37)				
CBCL — Ext	64.36 (10.99)	58.20 (10.97)	66.54 (10.30)	66.32 (11.08)	0.94	24.38**	1,135
CBCL — Int	65.15 (10.15)	59.01 (10.89)	63.65 (11.12)	61.78 (11.67)	0.57	6.48*	1,135
	(n=76)		(n=27)				
TRF — Ext	63.53 (10.52)	61.00 (9.85)	62.30 (11.21)	61.22 (11.07)		0.67	1,99
TRF — Int	63.13 (11.19)	59.09 (10.58)	59.22 (11.18)	56.22 (12.71)		0.02	1,99
	(n=100)		(n=34)			t[b]	df
CBCL Social	38.40 (7.66)	41.78 (7.92)	37.11 (8.99)	37.63 (9.89)	0.37	1.82*	132

[a] The values in the Pre and Post columns represent mean behavior problem scores on the externalizing and internalizing scales, with SD in parentheses. Pre=pre-treatment; Post=post-treatment; Ext=externalizing; Int=internalizing. *$p<0.05$. **$p<0.01$.

[b] One-tailed test.

scores for the two groups (see Table 2). The results were statistically significant, with the treatment group mean increasing (i.e., improving) significantly more than the control group mean.

3.2.1.2. Pre-treatment to 6-month follow-up. The number of participants available at 6-month follow-up was approximately 58% of the original sample. The reasons for the drop-out rate were twofold: first, many participants chose not to return the third set of questionnaires (80%); and second, some participants had moved to new residences, without leaving a forwarding address and were unable to be traced, or they were traveling overseas (20%). Given the nature of the sample, particularly the level of socioeconomic disadvantage and the chaotic lives of many participants, the level of attrition was not surprising.

The results of the treatment group participants with 6-month follow-up data are reported separately to show the changes in this subgroup from pre- to post-treatment and to 6-month follow-up. Compared with parents who did not participate at follow-up, parents who completed the 6-month follow-up questionnaires tended to: be more highly educated; engage in home duties; have partners in professional/management positions and family incomes in the middle range (AUS$30,000–49,999); have smaller family sizes; and be less likely to rate their children as very difficult to manage.

The results of treatment group participants with 6-month follow-up data are reported separately to show changes in this subgroup from pre- to post-treatment and to 6-month follow-up. The analyses reflected two main questions of interest in this study: (a) were children's behavior problems reduced at the end of ET?; and (b) were any gains achieved during ET maintained at 6-month follow-up, or did the children's behavior problems either improve further, or worsen at 6-month follow-up?

The mean scores on the externalizing and internalizing scales of the CBCL for the treatment group (n=61) were compared at pre-treatment, post-treatment and at 6-month follow-up (within-subjects factor) using a one-way MANOVA. The multivariate results revealed a statistically significant difference, Hotelling's T^2=1.28, $F(4,57)$=18.24, $p<0.01$. As the Mauchley sphericity test was highly significant ($p<0.0005$), paired samples t-tests were conducted to investigate which pairwise comparisons from pre- to post-treatment and from post-treatment to 6-month follow-up were statistically different (Hochberg & Tamhane, 1987). Using Bonferroni adjustment, the alpha rate per comparison was set at 0.01. Results of the paired samples t-tests, as well as the means, standard deviations, and effect sizes of the 6-month follow-up completers at pre- and post-treatment and at 6-month follow-up are presented in Table 3. The mean scores on both the externalizing and internalizing scales significantly decreased (i.e., improved) from pre-treatment to post-treatment, and effect sizes were in the moderate range. The children's scores on the internalizing scale continued to improve somewhat from post-treatment to 6-month follow-up, whereas gains on the externalizing scale at post-treatment seemed to be maintained at 6-month follow-up.

For analyses on the social scale of the social competence section of the CBCL, two separate paired samples t-tests were conducted between pre- and post-treatment means, and between post-treatment and 6-month follow-up means (see Table 3). There was a significant difference in the mean scores obtained at pre-treatment and post-treatment, but not between post-treatment and 6-month follow-up means, suggesting that the improvements achieved by the end of ET were maintained at 6-month follow-up.

Table 3
Results of 6-month completers on CBCL[a]

Scales	Means (SD)			Pre to Post			Post to FU		
	Pre	Post	FU	t^b	df	d	t^b	df	d
	(n=61)								
Ext	63.34 (10.67)	57.28 (10.90)	56.84 (11.68)	−5.85**	60	0.56	−0.42	60	
Int	64.85 (10.09)	59.28 (11.34)	56.13 (11.47)	−5.34**	60	0.52	−2.76**	60	0.28
	(n=60)								
Social	39.12 (7.02)	42.98 (7.19)	41.97 (7.01)	4.01**	59	0.54	−1.11	59	

[a] Pre=pre-treatment; Post=post-treatment; FU=6-month follow-up; Ext=externalizing; Int=internalizing; Social=social scale. **$p<0.01$.
[b] One-tailed test.

3.2.1.3. Pre-treatment to 12-month follow-up. Twelve-month follow-up data were available for approximately 45% of the treatment group. Comparisons of the demographic characteristics of those children and caregivers in the treatment group who completed the 12-month follow-up questionnaires ('12-month completers') vs those who did not ('12-month noncompleters') were difficult, due to the low number of participants in the noncompleter group. However, it was noted that the noncompleters comprised: more sole parent families; more full-time caregivers; and of those who were employed, fewer worked in clerical or sales positions than the completers; larger family sizes; rated their children as somewhat easier to manage and to get along with.

Results for the 12-month completers are reported separately to show the changes in this subgroup from pre- to post-treatment, from post-treatment to 6-month follow-up, and from 6- to 12-month follow-up. Mean scores on the externalizing and internalizing scales of the CBCL for the treatment group (n=46) were compared at pre- and post-treatment and at 6- and 12-month follow-up (within-subjects factor), using a one-way MANOVA. The multivariate results revealed a statistically significant difference, Hotelling's T^2=1.29, $F(6,40)$=8.62, $p<0.01$. The Mauchley sphericity test was highly significant ($p<0.0005$), so paired samples t-tests were conducted to compare pre- and post-treatment means, post-treatment and 6-month follow-up means, and 6- and 12-month follow-up means. Bonferroni adjustment was used to derive an alpha level of 0.005 for each comparison (see Table 4). All t-tests were one-tailed. There were again statistically significant decreases in the mean scores on both the externalizing and internalizing scales from pre-treatment to post-treatment, with the effect sizes on both scales in the moderate range. There were statistically significant improvements in the mean scores of the 12-month follow-up completers on the internalizing scale between post-treatment and 6-month follow-up, but no statistically significant changes in scores on the externalizing scale between post-treatment and 6-month follow-up, nor were there any statistically significant changes on either the internalizing or externalizing scales between 6- and 12-month follow-up (see Table 4). These results suggest that ET is effective in reducing children's externalizing and internalizing behaviors from pre- to post-treatment, with children's internalizing behavior improving further for up to 6-months after the program. The changes in children's externalizing and internalizing behaviors were maintained at 12-month follow-up.

Table 4
Results of 12-month follow-up completers on CBCL[a]

Scale	Means (SD)				Pre to Post		Post to 6 FU		6 to 12 FU
	Pre	Post	6 FU	12 FU	*t*	*d*	*t*	*d*	*t*
Ext[b]	62.74 (10.49)	56.89 (10.35)	55.89 (11.41)	56.39 (11.53)	−4.61**	0.56	−0.78		0.58
Int[b]	64.78 (9.74)	59.22 (10.92)	55.87 (11.43)	56.43 (11.59)	−4.93**	0.54	−2.39*	0.30	0.53
Social[c]	39.19 (6.96)	43.33 (7.36)	42.61 (6.87)	41.81 (6.40)	3.57*	0.58	−0.77		−0.87

[a] Pre=pre-treatment; Post=post-treatment; 6 FU=6-month follow-up; 12 FU=12-month follow-up; Ext=externalizing scale; Int=internalizing scale; Social=social scale. *$p<0.05$. **$p<0.01$.
[b] $n=46$.
[c] $n=43$.

The results on the social scale of the CBCL at 12-month follow-up were analysed using three paired samples *t*-tests to compare the pre- and post-treatment means, the post-treatment and 6-month follow-up means, and the 6- and 12-month follow-up means. Using an alpha level of 0.017 (Bonferroni adjustment), there was a statistically significant difference in the mean scores obtained at pre-treatment and post-treatment (see Table 4). However, there were no statistically significant differences between the post-treatment and 6-month follow-up means, nor between the 6- and 12-month follow-up means, suggesting that changes at post-treatment were maintained at follow-up.

3.2.2. Clinical significance of changes in children's behaviors

To investigate the clinical significance of changes on the CBCL externalizing and internalizing behavior scales and the CBCL social scale, the treatment group and control group samples were divided into those children who at pre-treatment were in the nonclinical, borderline clinical, or clinical range on the scales (see Achenbach, 1991a, 1991b for cut-off scores). The clinical significance of changes on the TRF was not examined due to the lack of statistically significant changes on this measure.

The children at post-treatment were classified as having improved, remained the same, or worsened according to whether the scores showed a category shift from pre-treatment to post-treatment. Similar comparisons were made for 6-month and 12-month follow-up data.

3.2.2.1. Pre- to post-treatment. The percentage of treatment and control group children in the nonclinical, borderline clinical, or clinical range at pre-treatment whose behavior improved by a category change, remained the same, or worsened at post-treatment on the externalizing and internalizing scales of the CBCL, as well as the social scale of the CBCL is presented in Table 5. These results will be examined at a purely descriptive level (i.e., statistical tests will not be conducted).

In general, it seemed that a higher percentage of the nonclinical range treatment group children's behavior remained the same and fewer worsened than the nonclinical control group children on each scale (Table 5). The percentage of treatment group children in the clinical range whose behaviors improved at post-treatment seemed to be higher than for the control group children in

Table 5
Clinical significance of changes in treatment and control group children's behaviors[a]

Scale/Pre category	Treatment group				Control group			
	n	% Improve	% Same	% Worse	*n*	% Improve	% Same	% Worse
Externalizing								
Nonclinical	32	–	97	3	10	–	70	30
Borderline	9	56	11	33	2	100	0	0
Clinical	61	44	56	–	25	12	88	–
Internalizing								
Nonclinical	28	–	93	7	13	–	77	23
Borderline	14	71	14	14[b]	3	100	0	0
Clinical	60	43	57	–	21	24	76	–
Social scale								
Nonclinical	69	–	90	10	19	–	79	21
Borderline	21	71	24	5	8	25	25	50
Clinical	10	70	30	–	7	57	43	–

[a] Pre=pre-treatment; Ext=externalizing; Int=internalizing.
[b] Due to rounding error some totals≠100%.

the clinical range. The apparent differences between the treatment and control groups were clearer for children in the borderline clinical range on the social scale. These results suggest that ET was effective in producing clinically significant changes in some children's behavior problems and social skills at home.

3.2.2.2. Pre-treatment to 6-month follow-up. The clinical significance of changes in the children's behaviors were examined from pre-treatment to post-treatment, and from post-treatment to 6-month follow-up. Separate calculations of the number of children in the nonclinical, borderline clinical, and clinical ranges at *post-treatment* were completed to ascertain the proportions of children whose behavior improved, remained the same, or worsened from post-treatment to 6-month follow-up, as well as from pre- to post-treatment. Table 6 shows the percentage of 6-month follow-up completers in the nonclinical, borderline, or clinical range at pre-treatment and at post-treatment whose behavior significantly improved, showed no change, or worsened on the CBCL externalizing and internalizing behavior scales and the social scale at post-treatment and at 6-month follow-up, respectively.

It can be seen from Table 6 that many 6-month follow-up completers were in the clinical range on the externalizing and internalizing scales at pre-treatment, whereas few children were in the clinical range on the social scale. The behavior of children in the nonclinical range tended to remain the same from pre- to post-treatment and from post-treatment to 6-month follow-up. For all of the scales, except the internalizing scale, at least 50% of the children showed clinically significant improvements in their behaviors at post-treatment. Approximately 40% of children in the borderline clinical or clinical range on the externalizing scale continued to show clinically significant improvements from post-treatment to 6-month follow-up, with even more children

Table 6
Clinical significance of changes in behavior of 6-month follow-up completers[a]

Scale/Pre category	Pre- to Post-treatment				Post-treatment to 6 FU			
	n	% Improve	% Same	% Worse	*n*	% Improve	% Same	% Worse
Externalizing								
Nonclinical	18	–	94	6	33	–	82	18
Borderline	6	50	17	33	7	43	14	43
Clinical	37	51	49	–	21	38	62	–
Internalizing								
Nonclinical	17	–	100	0	30	–	77	23
Borderline	10	60	20	20	7	71	29	0
Clinical	34	35	65	–	24	46	54	–
Social scale								
Nonclinical	45	–	96	4	54	–	89	11
Borderline	10	70	20	10	5	60	40	0
Clinical	5	100	0	–	1	100	0	–

[a] Pre=pre-treatment; 6 FU=6-month follow-up.

continuing to improve up to 6-months after the end of ET on the internalizing scale and the social scale. These results suggest that ET continued to have a clinically significant impact on the children's behavior problems and social behaviors up to 6 months after the completion of the program.

3.2.2.3. Pre-treatment to 12-month follow-up. The clinical significance of changes in the children's behaviors was examined from pre-treatment to post-treatment, from post-treatment to 6-month follow-up, and from 6- to 12-month follow-up to ascertain the proportions of children whose behavior improved, remained the same, or worsened from pre- to post-treatment, from post-treatment to 6-month follow-up and from 6- to 12-month follow-up. Table 7 shows the percentage of 12-month completers in the nonclinical range, borderline clinical range, and clinical range whose behavior improved, remained the same, or worsened on the externalizing and internalizing behavior scales of the CBCL, as well as the social scale, at post-treatment and at 6- and 12-month follow-up.

A minimum of 75% of the children in the nonclinical range on the externalizing and internalizing scales and the social scale remained the same at post-treatment, 6-month follow-up, and 12-month follow-up. For children in the borderline clinical range on each of the scales, behaviors at post-treatment and at 6- and 12-month follow-up tended to improve, rather than remain the same. The behavior of approximately 31–64% of children in the clinical range on the externalizing and internalizing scales improved at post-treatment and at 6-month follow-up. At 12-month follow-up, the clinically significant gains in children's behavior seemed to be maintained. At both 6- and 12-month follow-up there were no longer any children in the clinical range on the social scale and at least 60% of children in the borderline clinical range, showed improvements at post-treatment and at 6- and 12-month follow-up.

Table 7
Clinical significance of changes in behavior of 12-month follow-up completers[a]

Scale/Pre category	Pre- to Post-treatment				Post-treatment to 6 FU				6- to 12-month follow-up			
	n	% Improve	% Same	% Worse	*n*	% Improve	% Same	% Worse	*n*	% Improve	% Same	% Worse
Externalize												
NC	15	–	93	7	27	–	81	19	30	–	93	7
BL	3	67	0	33	5	60	20	20	2	100	0	0
CL	28	57	43	–	14	36	64	–	14	7	93	–
Internalize												
NC	12	–	100	0	22	–	77	23	28	–	86	14
BL	8	75	25	0	6	67	33	0	7	71	29	0
CL	26	31	69	–	18	50	50	–	11	18	81	–
Social scale												
NC	33	–	94	6	39	–	90	10	38	–	92	8
BL	7	71	29	0	4	75	25	0	5	60	20	20
CL	3	100	0	–	0	–	–	–	0	–	–	–

[a] Pre=pre-treatment; 6 FU=6-month follow-up; Externalize=externalizing; NC=nonclinical; BL=borderline; CL=clinical; Internalize=internalizing.

4. Discussion

The results of the current study partially supported the main aims of ET and the hypotheses of this study; children's externalizing and internalizing behavior problems at home, but not at school, showed statistically significant reductions at the end of the program, relative to an untreated control group. ET also improved children's social skills at home compared with the control group. Six- and 12-month follow-up suggested that the reduction in children's behavior problems and the gains in social skills at home at the end of ET were at least maintained, if not further improved. A nonstatistical examination of the clinical significance of changes in the children's behavior suggested that ET moved some children's behavior problems and prosocial behaviors at home to within the normative range.

The effectiveness of the current program, which utilised concurrent parents' and children's groups, and a combined parents' and children's group, was consistent with the results of other investigations which have included a parent-focused component in the form of PST, as well as a child-focused component in the form of children's PSST (Horn et al., 1990; Kazdin et al., 1987a, 1992; Webster-Stratton & Hammond, 1997). Together, these results suggest that concurrent PST and children's PSST (with or without a combined parents' and children's group) is more effective than no or minimal treatment in reducing children's behavior problems at home, and that these changes are maintained for at least one year after the end of treatment. The effectiveness of ET in producing statistically and clinically significant changes in the children's behavior problems and social skills at home and the maintenance of many of these changes at 6- and 12-month follow-up is impressive.

The results on the TRF suggested that the teachers did not perceive significant reductions in the externalizing and internalizing behaviors of treatment group children relative to those of the untreated control group. These findings are in contrast with those of Kazdin et al. (1987a) but consistent with those of Horn et al. (1987, 1990) and Webster-Stratton and Hammond (1997). Like ET, two of these studies provided teachers with information about the intervention and made suggestions regarding behaviors that teachers could reinforce in the classroom (Webster-Stratton & Hammond, 1997), or contacted teachers during the program to monitor each child's progress and to guide teachers in the use of methods for dealing with the children's behaviors (Horn et al., 1990). It seems likely that although teachers may have been well-informed about the intervention, they may not have changed their monitoring behavior, behavior management techniques, and methods of teaching problem-solving skills to students (Lochman, Lampron, Gemmer, Harris & Wyckoff, 1989). More frequent and active teacher involvement in interventions might strengthen treatment effects, particularly when the primary referrer is a member of staff at the children's school (as in the current study). Further research is clearly required to understand the ways in which generalization of changes in children's behaviors across settings might be improved.

The mechanisms through which multicomponent treatments (e.g., concurrent children's PSST and PST) exert their effects remains an important question for future research. The impact of the combined children's and parents' group on parent-child interaction and on other measures of treatment outcome, compared with other components of ET is important to establish. The identification of which children and families benefit most from particular components of the intervention may ensure that the *most appropriate* intervention available is offered to each family; some famil-

ies (e.g., socioeconomically disadvantaged families) may benefit most from multicomponent interventions, whereas others may benefit from PST alone or children's PSST alone. Given the lack of resources available for mental health services, treatment efficiency is of paramount importance. By tailoring intervention packages to suit the level of difficulties experienced by individual children and families, maximum benefits may be obtained for minimum effort.

One limitation of the current study was the nonrandom assignment of participants to the treatment and untreated control groups. However, it is extremely difficult in a community-based setting, in particular, to randomly assign families in need of assistance to treatment and control groups. This is especially so in the Australian context because the intake procedures and length of waiting-lists at mental health services preclude the inclusion of large numbers of participants in concurrent treatment and control groups. The inclusion of an untreated control group comprised of children and parents living in similar residential areas to the treatment group and having comparable behavior problems in this study is therefore a strength of the evaluation rather than a limitation. Previous research has shown that low SES levels are associated with poorer treatment outcome (e.g., Dumas, 1984; Webster-Stratton, 1985). In this study, it was the treatment group participants who were of lower SES status than the control group, so the effectiveness of ET may have *underestimated*. Further research, using random assignment of participants to treatment and control groups, is required to provide a more rigorous test of the effectiveness of ET. Replication supporting the effectiveness of ET in independent research settings, may allow inclusion amongst the "empirically supported treatments"; that is, "clearly specified psychological treatments shown to be efficacious in controlled research with a delineated population" (Chambless & Hollon, 1998, p. 7).

Consistent with extant research, many of the children referred to ET for EBP were found to have comorbid internalizing problems. Given that at least half of the children referred to treatment seem to have comorbid disorders, it is important that the interventions used are able to address the problems of these children. ET was designed to treat children with EBP and internalising behavior problems (although the main focus of the intervention has been on EBP) and the effectiveness of the program in the current study suggests that ET achieved this aim. It has been widely reported that children with comorbid disorders have a poor prognosis and therefore probably comprise some of the most difficult cases to treat effectively. The results of ET in this study are therefore very promising. The development of effective interventions for these children of the type ET offers may prove to be a very challenging but potentially fruitful endeavour.

In conclusion, the results of this evaluation of the effectiveness of ET were encouraging, particularly given that many of these families were socioeconomically disadvantaged and that the intervention was a brief, time-limited, group therapy program. Children's behavior problems at home were reduced and children's social skills at home increased. The changes in children's behavioral and social skills at home were maintained at 6- and 12-month follow-up. There also seemed to be clinically significant reductions in children's behavior problems and improvement in social skills at home. The results of this evaluation study suggest that ET may have the potential to exert an important impact on children's difficulties and can be implemented in community agencies to children with behavioral and emotional problems and their families, before the level of these problems warrant clinical referral.

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