

Review of Group Interventions for Pediatric Chronic Conditions

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Objective: To identify treatment studies on group interventions for pediatric conditions and to review their efficacy using standardized criteria.

Methods: Through a systematic literature review, we identified 125 studies describing group treatments for pediatric populations. Group interventions were classified into one of four types of groups distinguished by their primary goals and intended outcomes: emotional support, psychoeducation, adaptation/skill development, or symptom reduction. A fifth category, summer camps, contained elements of the other categories, but due to their unique setting, we considered them separately. Treatments were evaluated and designated as “promising,” “probably efficacious,” or “well-established,” based on the Chambless/Society for Pediatric Psychology criteria.

Results: Group interventions for children and adolescents have been developed to increase knowledge of illness, to increase psychological adaptation, and to decrease physical symptoms and side effects. This literature falls on a broad continuum, ranging from descriptive articles with no empirical assessment of outcome to treatment outcome studies employing randomized control conditions and standardized outcome measures.

Conclusions: Although well-established group interventions do exist, much work is required to establish the efficacy of most group treatments for children and adolescents with chronic illness. Recommendations for improving the status of research are offered.

Key words: *pediatric; childhood chronic illness; support groups; group therapy; efficacy.*

Although individual psychotherapy is the most common format for treatment in clinical settings, nearly half of all child and adolescent clinical treatment outcome studies have assessed the efficacy of treatments provided within a group context (Kazdin, Bass, Ayers, & Rodgers, 1990). Until the early

1980s, few articles on group therapy with pediatric populations were published. The first article describing a group intervention for children and adolescents with medical illness appeared in 1951 (Dubo, 1951). Perhaps spurred on by the expanding child clinical literature on groups and the growing use of group interventions with adult medical populations, the 1980s saw an increase in descriptive accounts and preliminary evaluations of the use of groups to provide psychological services to children with chronic illness.

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Group treatment may be particularly beneficial to children with medical conditions for several reasons. Social adjustment is an area of particular vulnerability for children with chronic illnesses, and peer relationships may affect adaptation to the disease (Harbeck-Weber & McKee, 1995). Interacting with peers is a familiar activity that dovetails with children's developmental needs and typical social context (Kalogerakis, 1996; Schaefer, 1999). Groups also give participants opportunities for modeling, problem solving, helping others, and relating to peers who share similar circumstances, all of which are more difficult to arrange through individual therapy (Citrin, Zigo, LaGreca, & Skyler, 1982; Gilbert, 1990; Schaefer, 1999).

The goal of this article is to identify and systematically evaluate group interventions developed for pediatric populations. Thus far, the published articles on empirically supported treatment in pediatric psychology have focused on specific diagnoses (Spirito, 1999), and there have been no reviews of group interventions that may be applied across pediatric populations and problems. Because reports about group interventions are often published in journals devoted to a specific disease (e.g., *Diabetes Care*, *Headache*), this article consolidates information from separate literatures so that researchers and practitioners seeking treatment models to apply to one pediatric population may borrow from models that have yielded good outcomes with other populations. We hope that highlighting gaps and suggesting future directions in the empirical evaluation of pediatric treatment groups will stimulate systematic research on this treatment modality.

Literature Search

We generated a comprehensive list of pediatric populations for which psychological treatment might be sought. Relevant articles about pediatric group interventions were then identified for each medical condition using Psychlit and Medline, computerized databases of psychological and medical literature. Search parameters included the name of the chronic illness or disability (e.g., asthma, cerebral palsy) paired with phrases related to group psychological treatments (i.e., group treatment, group therapy, group psychotherapy, group intervention, camp). In addition, "pediatric," "children," and "adolescents" were used as key words to exclude articles about group treatments for adult populations.

Reference lists within the obtained primary and review articles then were searched for other relevant publications.

To be eligible for inclusion, an article had to be published in English in a peer-reviewed journal between 1970 and 2000. The participant sample had to consist of children or adolescents (birth to age 18 years) with an identified medical problem. A psychological intervention had to have been administered in a group format to the identified patient group with the goal of improving psychological adjustment to the illness or reducing physical symptoms. Interventions that included a collateral parent- or family-group component were also included, but parent groups existing in the absence of direct treatment for patients were excluded. The methodological rigor of the studies was not a criterion for inclusion or exclusion.

Methodological Criteria

We classified the group interventions into one of four types of groups distinguished by their primary goals and intended outcomes: emotional support, psychoeducation, adaptation/skill development, and symptom reduction. A fifth type of group, summer camps, contained elements of the four categories, but due to their unique setting, we considered them separately. Emotional support groups, symptom reduction groups, and summer camps were easily distinguished from one another and categorized. Psychoeducational groups and adaptation/skill development groups emphasize enhancing psychosocial adaptation to the illness/condition. Their distinguishing feature was whether the secondary goal of the intervention was provision of information about the illness and its management or the development and practice of specific skills that could lead to better management of the illness.

Studies within each category were evaluated using the Society for Pediatric Psychology (SPP) modifications (Spirito, 1999) to the criteria for empirically supported treatments outlined by the Task Force on Promotion and Dissemination of Psychological Procedures (1995; Chambless et al., 1996), hereafter referred to as the Chambless/SPP criteria.

Well-established treatments have at least two good between-group design experiments or at least nine single-subject experiments demonstrating (1) the superiority of an intervention to pill, psychological placebo, or alternative treatment or (2)

equivalence to an already established treatment. Experiments are conducted with treatment manuals or with a specified treatment protocol; characteristics of the client samples are clearly specified; and effects are demonstrated by at least two different investigative groups. *Probably efficacious* interventions have at least two experiments showing the treatment is more effective than a waiting-list control, or one or more experiments meeting the criteria for a well-established treatment conducted by the same investigative group. *Promising* interventions have at least one well-controlled study and another less rigorously controlled study by a separate investigator, or two or more well-controlled studies with either small sample size or conducted by the same investigative group.

We used the Chambless/SPP criteria to evaluate the body of literature for each type of group intervention (e.g., emotional support vs. symptom reduction) as applied across pediatric chronic conditions. Where possible, however, we also evaluated the efficacy of group interventions within specific conditions.

Results

Emotional Support Groups

The primary goal of emotional support groups is to improve psychological adaptation to illness by providing contact and discussion with others in similar situations. Emotional support groups explicitly and exclusively emphasize providing support, as opposed to providing information or modifying specific skills or symptoms. We identified 27 articles describing emotional support groups for children and adolescents with cancer, cystic fibrosis, diabetes, seizure disorders, headache, HIV, neuromuscular disorders, renal disease, sickle cell disease, and heterogeneous diagnoses. Across all diseases, most articles on emotional support groups were descriptive. The formats ranged from unstructured play or expressive art groups (e.g., Kriestmeyer & Heiney, 1992) to semistructured discussion groups (e.g., Brown, Krieg, & Belluck, 1995; Heiney, Wells, Coleman, Swygert, & Ruffin, 1990).

We identified three studies that attempted to empirically evaluate the impact of emotional support groups on adolescents with cancer and sickle cell disease, and one in which a support group was compared to self-help relaxation treatment for ado-

lescents with headache. Baider and De-Nour (1989) offered group treatment to 16 adolescents and young adults with cancer, only half of whom were willing to join. Those who refused to join the group were diagnosed more recently. Results depended on participants' stage of treatment. Group participants in active treatment reported pre-post increases in psychological symptoms whereas group participants no longer in active treatment reported pre-post decreases in psychological symptoms. Clark and colleagues (1992) described a unique adolescent support group that incorporated healthy high school students, first in preparing a documentary for a video production class, then by participating jointly in a support group for over 2 years. Positive effects were noted on a post-hoc, nonstandardized survey of perceived impact. Telfair and Gardner (1999) presented an uncontrolled evaluation of 12 existing community and hospital-based support groups for adolescents with sickle cell disease. On average, the groups met monthly and had been operating for 3 years. Satisfaction with the group correlated positively with physical and psychological well-being and moderated an association between pain and well-being. A support/problem-discussion group was used as a control condition and compared to an individually based self-help relaxation treatment for headaches (Larsson, Melin, Lamminen, & Ullstedt, 1987). The support/discussion group resulted in no pre-post changes in headache symptoms.

Support groups exist because of the widely accepted belief that meeting and talking with other people who understand and share one's unique experiences and challenges with illness can be psychologically comforting and instrumentally useful. To date, there have been no well-controlled studies of the psychological or physical impact of emotional support groups with pediatric populations. Thus, currently, emotional support groups do not meet minimal Chambless/SPP criteria for empirical validation.

Psychoeducational Groups

The primary goal of psychoeducational groups is to enhance psychological adjustment to illness by providing information about the illness and its management as well as discussion of social and psychological issues. We identified four articles describing such groups for children and adolescents with asthma, diabetes, HIV/AIDS, and sickle cell dis-

ease. One was purely descriptive (Bacha, Pomeroy, & Gilbert, 1999), and another could only highlight the patient and systems factors that interfered with successful implementation and evaluation of the group (Ceccoli, 1992). One (Wamboldt & Levin, 1995) presented positive results of a post-hoc survey of the perceived impact of a brief (5-hour) interdisciplinary intervention with 72 families of children with asthma. The final study (Borofice, 1992) randomly assigned 56 adolescents with sickle cell disease to a psychoeducational group, an education-only group, or a wait-list condition. Participants completed a pre-post questionnaire assessing attitude toward medical services. A pill count method assessed adherence to medical regimen. As compared to controls, both treatment conditions improved attitudes and adherence.

Psychoeducational groups also have served as controls for other treatments for children and adolescents with diabetes. We included five such articles in our discussion because the analyses provided data regarding the efficacy of the psychoeducational groups themselves. Twenty-one adolescents were randomly assigned to a psychoeducational or a social learning group, both 3 weeks long (Kaplan, Chadwick, & Schimmel, 1985). The psychoeducational group showed slight pre-post increases in blood glucose (Hb_{A1}) and had significantly higher Hb_{A1} than the social learning group, who showed slight decreases in pre-post Hb_{A1} . Wysocki et al. (1997, 1999, 2000) compared a psychoeducational group to behavioral family systems therapy (BFST), and standard medical care for adolescents with poorly controlled diabetes living within highly conflicted families. Both the psychoeducational group and BFST resulted in improved self-reports of global parent-adolescent conflict. Psychoeducational groups did not alter adherence, self-reports of diabetes-specific conflict (Wysocki et al., 2000), or observed family communication and conflict resolution skills (Wysocki et al., 1999). Consumer satisfaction and evaluation were better for BFST than for the psychoeducational groups (Wysocki et al., 1997).

In summary, psychoeducational groups may be equivalent to education-only groups in improving attitudes toward medical services and adherence to regimen and may be equivalent to family-based behavioral therapy in reducing global family conflict. However, they do not appear effective in improving symptoms. Given the variation in clinical popula-

tions and outcome measures and the lack of well-controlled studies, psychoeducational groups do not currently meet minimum Chambless/SPP criteria for efficacy.

Adaptation/Skill Development Groups

Adaptation/skill development groups are those with the dual goals of enhancing psychosocial adaptation to the condition and improving physical symptoms by enhancing specified skills. We found 14 studies on asthma, cancer, and diabetes that met these criteria. The skills targeted included family communication and functioning, social skills, problem-solving skills, symptom monitoring, and skills directly related to managing physical symptoms (e.g., improving diet). Formats of these groups included child/adolescent groups only, child/adolescent groups with collateral parent groups, and multifamily groups in which children and their parents met in a group of several families together.

The cancer group (Kazak et al., 1999) was unique in its focus on a potential *psychological* side effect of the disease and treatment, posttraumatic stress disorder (PTSD) symptoms, whereas the other studies targeted physical symptoms. A multifamily format was combined with a cognitive-behavioral approach to reduce anxiety and PTSD symptoms and to increase communication and perceptions of social support in adolescent patients and their families. The pilot intervention provided information on PTSD symptoms, discussion of impact of cancer on the family, and instruction in cognitive coping skills and generalization of new skills to home life. At 6 months postintervention, there were decreases in anxiety and PTSD symptoms in all family members and improvement in family functioning in selected domains.

Two studies targeted family functioning to improve psychological adjustment and diabetes management via multifamily groups. Groups that focused on family communication and conflict resolution improved diabetes attitudes, adherence, and metabolic control when groups were small (three to four families) and when parents had opportunities to experience diabetes self-care through simulation (Satin, LaGreca, Zigo, & Skyler, 1989). A pilot study with small sample sizes reported greater improvements in the parent-teen relationship and a trend for better adherence for adolescents who participated in behavioral multifamily groups fol-

lowed by a separate adolescent discussion group than for adolescents randomized to standard outpatient medical care (Delamater et al., 1991). Based on these results, the use of focused multifamily groups for adolescents with poorly controlled diabetes does not currently meet minimum Chambless/SPP criteria for empirical validation, as only one study documented their superiority over a no-treatment condition.

Nine studies targeted coping skills such as social problem solving, stress management, and behavior change. In youngsters with diabetes, decreases in perceived stress (Boardway, Delamater, Tomakowsky, & Gutai, 1993) and improvements in knowledge (Gross, Magalnick, & Richardson, 1985), adherence (Gross, 1982; Gross et al., 1985), social skills (Gross, Heimann, Shapiro, & Schultz, 1983; Gross, Johnson, Wildman, & Mullett, 1981), metabolic control (Grey, Boland, Davidson, Yu, & Tamborlane, 1999; Gross et al., 1985; Kaplan et al., 1985), and quality of life (Grey et al., 1999) have been demonstrated using multiple baseline designs (Gross et al., 1981; Gross, 1982; Gross et al., 1985) and comparisons to psychoeducational (Kaplan et al., 1985) and medical care alone (Boardway et al., 1993; Grey et al., 1999; Gross et al., 1983). Group-based education groups combined with instruction in relaxation and coping with asthma also have been demonstrated more effective in improving physical symptoms (Perrin, MacLean, Gortmaker, & Asher, 1992; Weingarten, Goldberg, Teperberg, Harrison, & Oded, 1985) and behavioral functioning (Perrin et al., 1992) when compared to randomized no-treatment (Perrin et al., 1992; Weingarten et al., 1985) or relaxation-only conditions (Weingarten et al., 1985). Thus, coping skills groups have been *well-established* for improving physical (Gross et al., 1985; Kaplan et al., 1985; Weingarten et al., 1985) and psychological (Boardway et al., 1993; Grey et al., 1999; Gross, 1982; Gross et al., 1981, 1983, 1985; Perrin et al., 1992) symptoms because they have been demonstrated efficacious via use of multiple baseline designs and wait-list and alternative treatment controlled comparisons.

Two sets of investigators described groups designed to provide social support and practice of diabetes management skills. Sessions included education about diabetes and self-management, discussion of psychosocial issues, self-monitoring, and practice of problem solving regarding diabetes-related situations. One intervention consisted of 18

monthly group sessions led by interdisciplinary staff with five adolescent African American girls (Warren-Boulton, Anderson, Schwartz, & Drexler, 1981). Group participation was associated with significant pre-post improvements in glycemic control and cholesterol levels. Improved psychosocial adjustment was reported anecdotally. The other study consisted of adolescents with diabetes in moderate to poor metabolic control who were randomly assigned to either a wait-list or a "social support group" that met bimonthly for 8 months (Marrero et al., 1982). There were pre-post trends for the group participants to have improvements on measures of depression, self-esteem, and social support, but not blood glucose levels. Larger sample sizes and randomized control conditions would be needed for groups that combine education and discussion with practice of diabetes management skills to meet Chambless/SPP criteria for being a *promising* intervention for adolescents with diabetes.

In summary, multifamily groups that provide adaptation/support and skill development show positive trends for adolescents with diabetes, as well as for survivors of childhood cancer and their families. Adaptation/skill development groups that provide practice of diabetes management skills have also shown promise. However, additional studies documenting their efficacy are warranted before they can be considered *promising* according to Chambless/SPP criteria. Adaptation/skill development groups that target coping and disease management skills have been shown to be *well-established* for improving physical symptoms and psychosocial functioning among children and adolescents with diabetes and children with asthma.

Symptom Reduction Groups

Symptom reduction groups are those in which the explicit and exclusive goal of treatment is to reduce or eliminate physical symptoms through behavior change. Psychological or social adaptation is neither a focus nor a goal of treatment. We identified 16 symptom reduction groups for children and adolescents with cystic fibrosis, diabetes, encopresis, and headache. We identified 43 articles on symptom reduction groups for pediatric obesity.

Three articles demonstrated the effectiveness of symptom reduction groups in increasing the caloric intake and body weight of young, mildly malnourished children with cystic fibrosis. The manualized

treatment consisted of six (Stark, Bowen, Tyc, Evans, & Passero, 1990) or seven (Stark et al., 1993, 1996) 90-minute sessions for patients with a collateral parent group. Both the parent and patient groups included didactic information regarding nutrition and food preparation, behavior management, relaxation to manage abdominal pain, and consumption of high-caloric foods. Combined multiple baseline, changing criterion design (Stark, Bowen, et al., 1990; Stark et al., 1993) and a randomized treatment with wait-list controls (Stark et al., 1996) demonstrated the group treatment's ability to significantly increase calorie consumption and physical growth, with maintenance at 2 years (Stark et al., 1993). These group treatments meet Chambless/SPP criteria for being *promising*, as there has been one study with a small sample size demonstrating the treatment to be more effective than a wait-list control, as well as two single-case studies conducted by the same investigative group.

Five articles described symptom reduction groups for adolescents with diabetes. In one article (Anderson, Wolf, Burkhart, Cornell, & Bacon, 1989), adolescents randomized to a symptom reduction group showed improvement in blood glucose levels and self-reported diabetes self-management when compared to standard medical care alone. Four articles utilized group "anchored instruction" with adolescents to improve problem solving about nutrition and social situations affecting their diabetes care (Pichert, Murkin, Snyder, Boswell, & Kinzer, 1993; Pichert, Smeltzer, et al., 1994; Pichert, Snyder, Kinzer, & Boswell, 1994; Schlundt et al., 1996). Anchored instruction is a technique in which a video-presented problem serves as an "anchor" or framework for learning. One study (Schlundt et al., 1996) used a pre-post test design, and the other three studies used randomized assignment to compare anchored instruction to traditional direct instruction. Improvements were documented in diabetes knowledge (Pichert et al., 1993; Pichert, Smeltzer, et al., 1994), meal planning skill (Pichert, Smeltzer, et al., 1994), problem solving about sick day management (Pichert, Snyder, et al., 1994) and managing obstacles to adherence (Schlundt et al., 1996). Symptom reduction groups offered via direct (Anderson et al., 1989) or anchored instruction meet criteria for being *well-established* treatments in producing improvements in diabetes knowledge and problem solving. Anchored instruction has been demonstrated equivalent (Pichert, Smeltzer, et al., 1994; Pichert, Snyder, et al., 1994) or superior (Pichert et

al., 1993) to traditional diabetes instructions. However, symptom reduction groups have not yet met minimum criteria as efficacious in improving metabolic control.

We identified two studies of group treatment of encopresis using a pre-post design (Stark, Owens-Stively, Spirito, Lewis, & Guevremont, 1990; Stark et al., 1997) and one descriptive account of a 4-year-old boy with pervasive developmental disorder progressing through an encopresis group (Stadtler & Burke, 1998). In the two studies (Stark, Owens-Stively, et al., 1990; Stark et al., 1997), children met for six 1-hour group sessions with a collateral parent group. The parent group included information about encopresis and its management and instruction in monitoring and behavior management. The children's group provided a similar education component, plus demonstration of relaxation strategies to use during enemas and goal setting and reinforcement of fiber intake and toileting. Soiling significantly decreased and fiber intake significantly increased from pre- to posttreatment. These carefully conducted pre-post studies indicate that group treatment has promise for encopresis; however, the lack of control groups prevents the group treatment modality from being categorized as a *promising* intervention according to the Chambless/SPP criteria.

Our review of the pediatric headache literature revealed four randomized controlled studies of cognitive-behavioral training provided in symptom reduction groups. A brief (two 90-minute sessions) cognitive-behavioral child group with collateral parent group was no better than a wait-list control in reducing headaches (Barry & von Baeyer, 1997). Group progressive muscle relaxation training and rapid relaxation training were significantly better than information-only and wait-list control conditions (Larsson & Melin, 1986), but not more effective than individual self-help relaxation (Larsson, Daleflod, Hakasson, & Melin, 1987) in reducing headache frequency. Another study compared a treatment combining headache education, group relaxation, and individual biofeedback to wait-list and no-treatment conditions (Helm-Hylkema, Orlebeke, Enting, Thussen, & van Ree, 1990). The treatment was associated with a decrease in headache symptoms, but the relative effects of the individual and group components of the treatment were not assessed. Of the headache studies reviewed, two reported decreases in headache symptoms as a result of group treatment when compared to controls (Helm-Hylkema et al., 1990; Larsson &

Melin, 1986), whereas one did not (Barry & von Baeyer, 1997). Relaxation groups for decreasing headache symptoms in children and adolescents meet Chambless/SPP criteria for being *promising*; however, their advantage over self-managed structured relaxation training has not been determined (Larsson, Daleflod, et al., 1987).

Our search yielded 33 group intervention studies using randomized treatment designs and 7 using nonrandomized designs and targeting weight reduction in obese children and adolescents. Because there have been recent comprehensive reviews of treatment studies in pediatric obesity (Epstein, Myers, Raynor, & Saelens, 1998; Haddock, Shadish, Klesges, & Stein, 1994; Jelalian & Saelens, 1999), we will review the core features of the "well-established" pediatric obesity group treatments (Jelalian & Saelens, 1999). Interventions generally involve an initial block of 8 to 15 weekly group sessions followed by monthly follow-ups for 1 year. Sessions include time for weight checks and reviews of diet and exercise diaries and provide information regarding diet, exercise, and behavior modification (e.g., self-monitoring, parent-training, contingency management and contracting, problem solving, and goal setting) (e.g., Epstein, Wing, Koeske, & Valoski, 1984). Data include patients' weight, body mass index, nutritional and caloric intake, and activity and fitness levels. Most studies document weight reductions of approximately 5% to 20% in percent overweight immediately following treatment (Jelalian & Saelens, 1999). Follow-up assessments have been conducted to 10 years (e.g., Epstein, McKenzie, Valoski, Klein, & Wing, 1994). Across studies, the most durable outcomes appear to be achieved with collateral parent and child groups in which both parent and child weight loss is targeted (Epstein et al., 1994) and where lifestyle changes in activity and exercise are targeted (Epstein, Wing, Koeske, & Valoski, 1985). Researchers also have examined effects of treatment/weight loss on psychopathology and self-esteem, with equivocal findings (Foster, Wadden, & Brownell, 1985; Myers, Raynor, & Epstein, 1998; Sherman, Alexander, Gomez, Kim, & Marole, 1992). Based on the existence of numerous well-controlled, randomized studies from different investigators, group treatments for pediatric obesity are *well-established*; however, their superiority to individually based treatments has not been thoroughly investigated (Braet, Van Winckel, & Van Leeuwen, 1997).

The literature on symptom reduction groups is

relatively rigorous in terms of both outcome measurement and experimental design. Although the number of studies and sample sizes vary by disease, considered together as an intervention format, symptom reduction groups can be considered a *well-established* treatment for improving pediatric patient knowledge, disease management, and problem-solving skills, as well as physical symptoms.

Summer Camps

Summer camps are residential or day programs designed for children with chronic illness or disability, which include typical social-recreational activities such as crafts, swimming, and campfires. Unlike other forms of groups, they may or may not include didactic activities or discussions focused explicitly on illness-related issues. We identified 23 articles describing summer camp interventions offered for children with asthma, cancer, diabetes, HIV infection, obesity, renal disease, and spina bifida. Adaptation to illness was the primary target of the majority of these camp programs, although some camps for children with diabetes and asthma also targeted symptom reduction.

Of those camps targeting adaptation primarily, program evaluation methods ranged from qualitative data on parent consumer satisfaction to standardized measures of attitudes and psychological symptoms. Qualitative evaluations of the impact of camp on parent or child attitudes about the camp experience were positive for campers with asthma (Silvers et al., 1992) and cancer (Bluebond-Langner, Perkel, & Goertzel, 1991; Hvizdala, Miale, & Barnard, 1978). Pre-post evaluations without control groups of camps for children with cancer found increased knowledge of cancer (Bluebond-Langner, Perkel, Goertzel, Nelson, & McGear, 1990), equivocal findings regarding self-concept (Benson, 1987; Eng & Davies, 1991), and improvements in campers' social and physical activity after camp and family members' social activities during and after camp (Smith, Gotlieb, Gurwitch, & Blotcky, 1987). Evaluation of a camp for patients with renal failure indicated improvements in depressive symptoms, hopelessness, and self-efficacy, but sample size was small, no control group was employed, and statistical information was not provided (Warady, Carr, Hellerstein, & Alon, 1992). A study assessing the impact of camp on children with spina bifida, asthma, and diabetes who went to camp at separate times found statistically significant overall improvements

in standardized measures of anxiety and attitude (Briery & Rabian, 1999). However, only children in the asthma and diabetes groups showed decreases in anxiety over the course of camp.

Camps for children with diabetes and asthma were more likely to use standardized evaluation procedures and to target self-management and symptom control in addition to adaptation to the illness, with mixed results. A pre-post evaluation of a 1-day camp attended by urban African American children showed better self-management and fewer complications of asthma (Fitzpatrick, Coughlin, & Chamberlain, 1992). When compared with control conditions, camps for children with asthma have shown equivocal results. A camp incorporating yoga with psychotherapy was associated with improvements in asthma symptoms in older adolescents (Vijayalakshmi, Satyanarayana, Krishna, & Prakash, 1988), but a camp for younger children (7–15 years) yielded no differences between campers and controls in asthma symptoms, knowledge, or attitudes (Hazzard & Angert, 1986). A study comparing asthma camp with inpatient hospitalization showed the inpatient program to be more effective but was fraught with confounds (e.g., setting and duration) and lack of random assignment (Brazil, McLean, Abbey, & Musselman, 1997). No controlled studies of camps for children with diabetes were identified. However, pre-post evaluations have shown increases in knowledge and self-management during camp (Havarky et al., 1983; Spevack, Johnson, Riley, & Silverstein, 1991), with maintenance of behavioral changes moderated by family functioning (Holden et al., 1991).

A summer day camp in Thailand targeted obesity in children via daily dietary restriction, nutrition education, exercise, and individual and group therapy (Jirapinyo et al., 1995). Over a 4-week period, participants lost an average of 5% of initial weight and a statistically significant amount of body fat. An earlier article described a summer camp for boys with obesity that resulted in a statistically significant improvement in the trend of weight gain for participants (Rohrbacher, 1973). No control groups were employed.

In summary, pre-post evaluations have indicated that campers gain disease-related knowledge and may have improvements in self-esteem, anxiety, attitudes toward the illness, and management of asthma, diabetes, and obesity. However, gender (Punnett & Thurber, 1993), age, family functioning, and experience with camp may moderate treatment

effects, and the generalization of treatment effects once camp has ended has been questioned. Because controlled comparisons have rarely been reported, summer camp interventions do not meet minimum Chambless/SPP criteria for empirical validation.

Discussion

Our review found that group interventions have been used with a variety of pediatric populations to increase knowledge of the medical condition, increase adaptation to the illness, and reduce physical symptoms. The studies fell on a wide continuum of empirical sophistication from descriptive articles with no empirical assessment of outcome to treatment outcome studies employing randomized control conditions and standardized outcome measures.

There have been no well-controlled studies of emotional support groups, although there were instances in which standardized outcome measures were used to assess pre-post changes. Likewise, systematic evaluation of psychoeducational groups was rare and used pre-post designs and a mix of standardized and nonstandardized outcome measures. When randomization did occur, the psychoeducational group was considered the control condition and was compared to an active treatment condition. For emotional support and psychoeducational groups to meet criteria for being *promising* interventions, they need to be compared to randomized wait-list control conditions with standardized measures.

Adaptation/skill development groups have been evaluated more rigorously with several instances of randomized trials and use of standardized measures. Results supported this modality as a *well-established* intervention for physical symptoms and a *probably efficacious* treatment for psychosocial outcomes among children with diabetes and asthma when coping skills are taught. Whereas groups that target diabetes management skills and multifamily groups that target family communication and conflict have some support in the literature, additional evidence from well-controlled studies is needed for them to meet minimum Chambless/SPP criteria for efficacy. In the studies reviewed, symptom reduction groups were evaluated with the most sophisticated methodology. Efficacy has been demonstrated from the level of a *promising* intervention (e.g., relaxation groups for headache) to a *well-established* treatment (e.g., pediatric obesity groups). Although positive

pre-post effects have been found for camp interventions, they have not been compared to a randomized control condition; thus, efficacy has not been established.

We frequently encountered a mismatch between the stated target of group interventions and the outcome measures employed. As an example, emotional support groups aim to increase perceived social support and decrease isolation. However, treatment adherence or symptom control was a measured outcome in some studies we reviewed. Similarly, studies investigating interventions with the dual goals of enhancing adaptation and reducing symptoms did not always include measures of both psychosocial and physical outcomes. Improving the correspondence between treatment objectives and their measurement will significantly advance evaluation of the efficacy of group treatments.

This review highlighted the stages through which interventions are tested. We hope that researchers interested in group treatment evaluation can use this review to bring the literature to the next stage in efficacy evaluation. For example, if an intervention is untested, practitioners may consider adding a pre-post objective measure of expected treatment effects, or if resources are few, an easily administered evaluation of consumer satisfaction and perception of change. Whereas consumer satisfaction generally cannot be used as a proxy for change in symptom level (Lambert, Salzer, & Bickman, 1998), it is an important first step in determining feasibility for new treatments (Bauman, Drotar, Leventhal, Perrin, & Pless, 1997) and is considered an important outcome by managed care organizations (Lambert et al., 1998). If the most empirically sophisticated studies on a group intervention used nonrandomized designs and nonstandardized measures, then randomized control trials with standardized outcome measures would bring that intervention to the next step in evaluation. Finally, all modalities require research on pediatric populations for which the treatment has not yet been shown to be efficacious.

We have no doubt that there is a significant gap between what is clinically available and what has been empirically validated. For example, although we found no articles describing or validating groups that target pain management for children or adolescents with sickle cell disease, we are aware of such groups offered routinely at pediatric hospitals. Furthermore, many of the studies we reviewed were

grant-funded, recruited extensively for treatment groups, or had many exclusionary criteria for participation, which limit the external validity of their findings. Studies showing efficacy under these conditions must be followed by effectiveness studies, documenting levels of efficacy under typical clinical conditions (Kazdin & Weisz, 1998; Weisz, Weiss, & Donenberg, 1992).

As evidence for the efficacy of group treatment is gathered, a question arises regarding the relative efficacy and cost-effectiveness of group versus individual treatment, since some individual treatment interventions have been empirically validated for reducing disease-related symptoms in children (McQuaid & Nassau, 1999). Although some of the individual studies have been methodologically flawed, reviews and meta-analyses comparing individual and group psychotherapy for child clinical populations have not found statistically significant differences between the modalities (Hoag & Burlingame, 1997); however, the empirical pediatric literature has addressed this question only in a few instances (Braet et al., 1997; Larsson, Daleflod, et al., 1987). It is important to investigate how efficacy might differ across illnesses or within the same illness population by age/developmental level, gender, race, ethnicity, and family and psychosocial factors.

Group treatment is often discussed as a cost-effective alternative to individual treatment. However, the articles we reviewed suggested higher setting, material, and staffing costs. Most of the empirical, structured groups were externally funded. Participants were reimbursed for their participation and, in some cases, for reaching treatment goals (e.g., Epstein, McKenzie, Valoski, Klein, & Wing, 1994). Among programs within existing clinical services (e.g., Stark, Owens-Stively, et al., 1990), treatments were provided on a fee-for-service basis, which requires additional time for clinical record-keeping. Many of the studies we reviewed referred to the cost-effectiveness of the group interventions they were investigating, but only two (Larsson, Daleflod, et al., 1987; Warren-Boulton et al., 1981) made any attempt to estimate the cost savings of their intervention. More attention to this variable is necessary to justify the use of a group modality in circumstances in which it is found to be no more effective than individual therapy.

It has yet to be demonstrated that forming homogeneous groups is necessary for effectiveness of any or all types of treatment groups (educational, adaptational, etc.). When forming groups, the more

empirically oriented treatments employed inclusion and exclusion criteria in consideration of the developmental characteristics of the participants (e.g., Epstein et al., 1998), their race (e.g., Ceccoli, 1992; Wadden et al., 1990), and their severity or stage of illness or treatment (e.g., Grey et al., 1999; Kazak et al., 1999). Although we assume that compatibility may enhance group process, overfocusing on the homogeneity of groups may critically reduce the number of eligible participants and may exclude participation of underrepresented populations. Most of the reviewed studies described groups targeted to one particular medical condition. For pediatric conditions of relatively low incidence, there simply may not be enough children who share the same diagnosis or treatment goal to allow group treatment. Multisite studies may be used to garner large enough sample sizes to evaluate treatment efficacy of groups.

Although many issues in need of study have been raised, research on group interventions for each individual pediatric condition must begin where previous investigators ended. Again, we hope that this review can serve as a guide, both for the practitioner seeking to implement the current "state-of-the-art" group intervention and for the researcher planning to take the next logical step in evaluating group treatment for a given pediatric condition.

Appendix

Articles Reviewed, Categorized by Illness Type

Key:

ES = Emotional Support

P = Psychoeducation

A/SD = Adaptation/Skill Development

SR = Symptom Reduction

SC = Summer Camp

Asthma

- SC Brazil, K., McLean, L., Abbey, D., & Muselman, C. (1997). The influence of health education on family management of childhood asthma. *Patient Education & Counseling, 30*, 107-118.
- SC Fitzpatrick, S. B., Coughlin, S. S., & Chamberlain, J. (1992). A novel asthma camp intervention for childhood asthma among

urban blacks. *Journal of the National Medical Association, 84*, 233-237.

- SC Hazzard, A., & Angert, L. (1986). Knowledge, attitudes, and behavior in children with asthma. *Journal of Asthma, 23*, 61-67.
- A/SD Perrin, J. M., MacLean, W. E., Gortmaker, S. L., & Asher, K. N. (1992). Improving the psychological status of children with asthma: A randomized controlled trial. *Developmental and Behavioral Pediatrics, 13*, 241-247.
- SC Punnett, A. F., & Thurber, S. (1993). The Child Evaluation Inventory: An adaptation for asthma camp. *Children's Health Care, 23*, 69-74.
- SC Silvers, W. S., Holbreich, M., Go, S., Morrison, M. R., Dennis, W., Marostica, T., & Buckley, J. M. (1992). Champ Camp: The Colorado Children's Asthma Camp experience. *Journal of Asthma, 29*, 121-135.
- SC Vijayalakshmi, S., Satyanarayana, M., Krishna Rao, P. V., & Prakash, V. (1988). Combined effects of yoga and psychotherapy on management of asthma: A preliminary study. *Journal of Indian Psychology, 7*, 32-39.
- P Wamboldt, M. Z., & Levin, L. (1995). Utility of multifamily psychoeducational groups for medically ill children and adolescents. *Family Systems Medicine, 13*, 151-161.
- A/SD Weingarten, M. A., Goldberg, J., Teperberg, Y., Harrison, N., & Oded, A. (1985). A pilot study of the multidisciplinary management of childhood asthma in a family practice. *Journal of Asthma, 22*, 261-265.

Cancer

- ES Adams, M. A. (1976). A hospital play program: Helping children with serious illness. *American Journal of Orthopsychiatry, 46*, 416-424.
- ES Baider, L., & De-Nour, A. K. (1989). Group therapy with adolescent cancer patients. *Journal of Adolescent Health Care, 10*, 35-38.
- SC Benson, P. J. (1987). The relationship between self-concept and a summer camping program for children and adolescents who have cancer. *Journal of the Association of Pediatric Oncology Nurses, 4*, 42-43.
- SC Bluebond-Langner, M., Perkel, D., & Goertzel, T. (1991). Pediatric cancer patients' peer relationships: The impact of an oncology

- camp experience. *Journal of Psychosocial Oncology*, 9, 67–80.
- SC Bluebond-Langner, M., Perkel, D., Goertzel, T., Nelson, K., & McGeary, J. (1990). Children's knowledge of cancer and its treatment: Impact of an oncology camp experience. *Journal of Pediatrics*, 116, 207–213.
- ES Carr-Gregg, M., & Hampson, R. (1986). A new approach to the psychological care of adolescents with cancer. *Medical Journal of Australia*, 145, 580–583.
- ES Clark, H. B., Ichinose, C. K., Meseck-Bushey, S., Perez, K. R., Hall, M. S., Gibertini, M., & Crowe, T. (1992). Peer support group for adolescents with chronic illness. *Children's Health Care*, 21, 233–238.
- SC Eng, B., & Davies, B. (1991). Effects of a summer camp experience on self-concept of children with cancer. *Journal of Pediatric Oncology Nurses*, 8, 89–90.
- ES Heiney, S. P., Ruffin, J., Ettinger, R. S., & Ettinger, S. (1988). The effects of group therapy on adolescents with cancer. *Journal of Pediatric Oncology Nurses*, 5, 20–24.
- ES Heiney, S. P., Wells, L. M., Coleman, B., Swygert, E., & Ruffin, J. (1990). Lasting impressions: A psychosocial support program for adolescents with cancer and their parents. *Cancer Nursing*, 13, 13–20.
- SC Hvizdala, E. V., Miale, T. D., & Barnard, P. J. (1978). A summer camp for children with cancer. *Medical and Pediatric Oncology*, 4, 71–75.
- A/SD Kazak, A. E., Simms, S., Barakat, L., Hobbie, W., Foley, B., Golomb, V., & Best, M. (1999). Surviving Cancer Competently Intervention program (SCCIP): A cognitive-behavioral and family therapy intervention for adolescent survivors of childhood cancer and their families. *Family Process*, 38, 175–191.
- ES Krietemeyer, B. C., & Heiney, S. P. (1992). Storytelling as a therapeutic technique in a group for school-aged oncology patients. *Children's Health Care*, 21, 14–20.
- ES Orr, D. P., Hoffmans, M. A., & Bennetts, G. (1984). Adolescents with cancer report their psychosocial needs. *Journal of Psychosocial Oncology*, 2, 47–59.
- SC Shields, J. M., Abrams, P., & Siegel, S. (1985). An alternative health care setting for children with cancer: A residential summer camp. *Children's Health Care*, 13, 135–138.
- SC Smith, K. E., Gotlieb, S., Gurwitsch, R. H., & Blotcky, A. D. (1987). Impact of a summer camp experience on daily activity and family interactions among children with cancer. *Journal of Pediatric Psychology*, 12, 533–542.
- ES Stuber, M., Gonzalez, S., Benjamin, H., & Golant, M. (1995). Fighting for recovery: Group interventions for adolescents with cancer and their parents. *Journal of Psychotherapy Practice and Research*, 4, 286–296.
- Cystic Fibrosis**
- ES Brown, D. G., Krieg, K., & Belluck, F. (1995). A model for group intervention with the chronically ill—Cystic fibrosis and the family. *Social Work in Health Care*, 21, 81–94.
- SR Stark, L. J., Bowen, A. M., Tyc, V. L., Evans, S., & Passero, N. A. (1990). A behavioral approach to increasing calorie consumption in children with cystic fibrosis. *Journal of Pediatric Psychology*, 15, 309–326.
- SR Stark, L. J., Knapp, L. G., Bowen, A. M., Powers, S. W., Jelalian, E., Evan, S., Passero, N. A., Mulvihill, M. M., & Hovell, M. (1993). Increasing calorie consumption in children with cystic fibrosis: Replication with a two-year follow-up. *Journal of Applied Behavior Analysis*, 26, 435–450.
- SR Stark, L. J., Mulvihill, M. M., Powers, S. W., Jelalian, E., Keating, K., Creveling, S., Byrenes-Collins, B., Harwood, I., Passero, M. A., Light, M., Miller, D. L., & Hovell, M. F. (1996). Behavioral intervention to improve calorie intake of children with cystic fibrosis: Treatment versus wait list control. *Journal of Pediatric Gastroenterology and Nutrition*, 22, 240–253.
- Diabetes**
- SR Anderson, B. J., Wolf, F. M., Burkhart, M. T., Cornell, R. G., & Bacon, G. E. (1989). Effects of peer-group intervention on metabolic control of adolescents with IDDM: Randomized outpatient study. *Diabetes Care*, 12, 179–183.
- A/SD Boardway, R. H., Delamater, A. M., Tomakowsky, J., & Gutai, J. P. (1993). Stress management training for adolescents with diabetes. *Journal of Pediatric Psychology*, 18, 29–45.
- P Ceccoli, V. C. (1992). Developing group treatment for a pediatric diabetic popula-

- tion: The Bellevue experiment. *Journal of Child and Adolescent Group Therapy*, 2, 67–76.
- A/SD Delamater, A. M., Smith, J. A., Bubb, J., Davis, S. G., Gamble, T., White, N. H., & Santiago, J. V. (1991). Family-based behavior therapy for diabetic adolescents. In J. H. Johnson & S. B. Johnson (Eds.), *Advances in child health psychology* (pp. 293–306). Gainesville, FL: University of Florida Press.
- A/SD Grey, M., Boland, E. A., Davidson, M., Yu, C., & Tamborlane, W. V. (1999). Coping skills training for youths with diabetes on intensive therapy. *Applied Nursing Research*, 12, 3–12.
- A/SD Gross, A. M. (1982). Self-management training and medication compliance in children with diabetes. *Child and Family Behavior Therapy*, 4, 47–55.
- A/SD Gross, A. M., Heimann, L., Shapiro, R., & Schultz, R. M. (1983). Children with diabetes: Social skills training and hemoglobin A_{1c} levels. *Behavior Modification*, 7, 151–164.
- A/SD Gross, A. M., Johnson, W. G., Wildman, H., & Mullett, N. (1981). Coping skills training with insulin-dependent pre-adolescent diabetics. *Child Behavior Therapy*, 3, 141–153.
- A/SD Gross, A. M., Magalnick, L. J., & Richardson, P. (1985). Self-management training with families of insulin-dependent diabetic children: A controlled long-term investigation. *Child and Family Behavior Therapy*, 7, 35–50.
- SC Havarky, J., Johnson, S. B., Silverstein, J., Spillar, R., McCallum, M., & Rosenbloom, A. (1983). Who learns what at diabetes summer camp. *Journal of Pediatric Psychology*, 8, 143–153.
- SC Holden, E. W., Friend, M., Gault, C., Kager, V., Foltz, L., & White, L. (1991). Family functioning and parental coping with chronic childhood illness: Relationships with self-competence, illness adjustment, and regimen adherence behaviors in children attending diabetes summer camp. In J. H. Johnson & S. B. Johnson (Eds.), *Advances in child health psychology* (pp. 265–276). Gainesville, FL: University of Florida Press.
- P/A/SD Kaplan, R. M., Chadwick, M. W., & Schimmel, L. E. (1985). Social learning intervention to promote metabolic control in type 1 diabetes mellitus: Pilot experiment results. *Diabetes Care*, 8, 152–155.
- A/SD Marrero, D. G., Myers, G. L., Golden, M. P., West, D., Kershner, A., & Lau, N. (1982). Adjustment to misfortune: The use of a social support group for adolescent diabetics. *Pediatric and Adolescent Endocrinology*, 10, 213–218.
- ES Nathan, S. W., & Goetz, P. (1984). Psychosocial aspects of chronic illness: Group interactions in diabetic girls. *Children's Health Care*, 13, 24–29.
- SR Pichert, J. W., Murkin, S. A., Snyder, G. M., Boswell, E. J., & Kinzer, C. K. (1993). Problem-based diabetes education using a video anchor. *Diabetes Spectrum*, 6, 160–164.
- SR Pichert, J. W., Smeltzer, C., Snyder, G. M., Gregory, R. P., Smeltzer, R., & Kinzer, C. K. (1994). Traditional vs. anchored instruction for diabetes-related nutritional knowledge, skills, and behavior. *Diabetes Educator*, 20, 45–48.
- SR Pichert, J. W., Snyder, G. M., Kinzer, C. K., & Boswell, E. J. (1994). Problem solving anchored instruction about sick days for adolescents with diabetes. *Patient Education and Counseling*, 23, 115–124.
- A/SD Satin, W., LaGreca, A. M., Zigo, M. A., & Skyler, J. S. (1989). Diabetes in adolescence: Effects of multifamily group intervention and parent simulation of diabetes. *Journal of Pediatric Psychology*, 14, 259–275.
- SR Schlundt, D. G., Rea, M., Hodge, M., Flannery, M. E., Kline, S., Meek, J., Kinzer, C., & Pichert, J. W. (1996). Assessing and overcoming situational obstacles to dietary adherence in adolescents with IDDM. *Journal of Adolescent Health*, 19, 282–288.
- ES Spevack, M., Johnson, S. B., Riley, W., & Silverstein, J. (1991). The effect of diabetes summer camp on adherence behaviors and glycemic control. In J. H. Johnson & S. B. Johnson (Eds.), *Advances in child health psychology* (pp. 285–292). Gainesville, FL: University of Florida Press.
- SC Travis, B. B., & Schreiner, B. (1984). Camps for children with diabetes: A philosophy and its application. *Diabetes Educator*, 10, 13–20.
- A/SD Warren-Boulton, E., Anderson, B. J., Schwartz, N. L., & Drexler, A. J. (1981). A group approach to the management of diabetes in adolescents and young adults. *Diabetes Care*, 4, 620–623.
- ES Wysocki, T., Harris, M. A., Greco, P., Bubb, J., Danda, C. E., Harvey, L. M., McDonnell, K.,

- Taylor, A., & White, N. H. (2000). Randomized, controlled trial of behavior therapy for families of adolescents with insulin-dependent diabetes mellitus. *Journal of Pediatric Psychology, 25*, 23–33.
- ES Wysocki, T., Harris, M. A., Greco, P., Harvey, L. M., McDonnell, K., Danda, C. L. E., Bubb, J., & White, N. H. (1997). Social validity of support group and behavior therapy interventions for families of adolescents with insulin-dependent diabetes mellitus. *Journal of Pediatric Psychology, 22*, 635–649.
- ES Wysocki, T., Miller, K. M., Greco, P., Harris, M. A., Harvey, L. M., Taylor, A., Danda, C. E., McDonnell, K., & White, N. H. (1999). Behavior therapy for families of adolescents with diabetes: Effects on directly observed family interactions. *Behavior Therapy, 30*, 507–525.

Encopresis

- SR Stadtler, A. C., & Burke, P. (1998). A group treatment approach to failure to toilet train: The case of Max. *Clinical Excellence for Nurse Practitioners, 2*, 83–87.
- SR Stark, L. J., Opiari, L. C., Donaldson, D. L., Danovsky, M. B., Rasile, D. A., & DeSanto, A. F. (1997). Evaluation of a standard protocol for retentive encopresis: A replication. *Journal of Pediatric Psychology, 22*, 619–633.
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Epilepsy/Seizures

- ES Libo, S. S., Palmer, C., & Archibald, D. (1971). Family group therapy for children with self-induced seizures. *American Journal of Orthopsychiatry, 41*, 506–509.
- ES Russi, G., Bonfiglio, S., Veggiotti, P., & Lanzi, G. (1997). Epilepsy: A study of adolescence and groups. *Seizure, 6*, 289–295.

HIV Infection

- P Bacha, R., Pomeroy, E. C., & Gilbert, D. (1999). A psychoeducational group intervention for HIV-positive children: A pilot study. *Health & Social Work, 24*, 303–306.
- ES Gomez, K. A., Haiken, H. J., & Lewis, S. Y. (1995). Support groups for children with HIV/AIDS. In N. Boyd-Franklin, G. L.

- Steiner, & M. Boland (Eds.), *Children, families, and HIV/AIDS: Psychosocial and therapeutic issues* (pp. 156–166). New York: Guilford.
- ES Gossart-Walker, S., & Moss, N. E. (1998). Support groups for HIV-affected children. *Journal of Child and Adolescent Group Therapy, 8*, 55–69.
- SC Miller, S. L., & Bortner, M. (1996). A week in the country: A model respite program. *AIDS Education and Prevention, 8*, 176–186.

Headache

- SR Barry, J., & Von Baeyer, C. L. (1997). Brief cognitive-behavioral group treatment for children's headache. *Clinical Journal of Pain, 13*, 215–220.
- SR Helm-Hylkema, H., Orlebeke, J. F., Enting, L. A., Thussen, J. H. H., & van Ree, J. (1990). Effects of behavior therapy on migraine and plasma β -endorphin in young migraine patients. *Psychoneuroendocrinology, 15*, 39–45.
- SR Larsson, B., Daleflod, B., Hakansson, L., & Melin, L. (1987). Therapist-assisted versus self-help relaxation treatment of chronic headaches in adolescents: A school-based intervention. *Journal of Child Psychology and Psychiatry, 28*, 127–136.
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- ES Larsson, B., Melin, L., Lamminen, M., & Ullstedt, F. (1987). A school-based treatment of chronic headache in adolescents. *Journal of Pediatric Psychology, 12*, 553–566.

Neuromuscular Conditions

- ES Bayrakal, S. (1975). A group experience with chronically disabled adolescents. *American Journal of Psychiatry, 132*, 1291–1294.
- ES Flynn, D. (1992). Adolescent group work in a hospital in-patient setting with spina bifida patients and others. *Journal of Child Psychotherapy, 18*, 87–107.

Noncategorical Pediatric Groups

- ES Blum, R. W., & Chang, P. (1981). A group for adolescents facing chronic and terminal illness. *Journal of Current Adolescent Medicine, 3*, 7–12.
- SC Briery, B. G., & Rabian, B. (1999). Psychosocial changes associated with participation in

- a pediatric summer camp. *Journal of Pediatric Psychology*, 24, 183–190.
- ES Cofer, D. H., & Nir, Y. (1975). Theme-focused group therapy on a pediatric ward. *International Journal of Psychiatry in Medicine*, 6, 541–550.
- ES Hughes, M. C. (1982). Chronically ill children in groups: Recurrent issues and adaptations. *American Journal of Orthopsychiatry*, 52, 704–711.
- Obesity**
- SR Aragona, J., Cassady, J., & Drabman, R. S. (1975). Treating overweight children through parental training and contingency contracting. *Journal of Applied Behavioral Analysis*, 8, 269–278.
- SR Braet, C., Van Winckel, M., & Van Leeuwen, K. (1997). Follow-up results of different treatment programs for obese children. *Acta Paediatrica*, 86, 397–402.
- SR Brownell, K. D., Kelman, J. H., & Stunkard, A. J. (1983). Treatment of obese children with and without their mothers: Changes in weight and blood pressure. *Pediatrics*, 71, 515–523.
- SR Coates, T. J., Jeffery, R. W., Slinkard, L. A., Killen, J. D., & Danaher, B. G. (1982). Frequency of contact and monetary reward in weight loss, lipid change, and blood pressure reduction with adolescents. *Behavior Therapy*, 13, 175–185.
- SR Coates, T. J., Killen, J. D., & Slinkard, L. A. (1982). Parent participation in a treatment program for overweight adolescents. *International Journal of Eating Disorders*, 1, 37–48.
- SR Duffy, G., & Spence, S. H. (1993). The effectiveness of cognitive self-management as an adjunct to a behavioral intervention for childhood obesity: A research note. *Journal of Child Psychology and Psychiatry*, 34, 1043–1050.
- SR Emes, C., Velde, B., Moreau, M., Murdoch, D. D., & Trussell, R. (1990). An activity based weight control program. *Adapted Physical Activity Quarterly*, 7, 314–324.
- SR Epstein, L. H., McKenzie, S. J., Valoski, A., Klein, K. R., & Wing, R. R. (1994). Effects of mastery criteria and contingent reinforcement for family-based child weight control. *Addictive Behaviors*, 19, 135–145.
- SR Epstein, L. H., Valoski, A., Koeske, R., & Wing, R. R. (1986). Family-based behavioral weight control in obese young children. *Journal of the American Dietetic Association*, 86, 481–484.
- SR Epstein, L. H., Valoski, A. M., Vara, L., McCurley, J., Wisniewski, L., Kalarchian, M. A., Klein, K. R., & Shrager, L. R. (1995). Effects of decreasing sedentary behavior and increasing activity on weight change in obese children. *Health Psychology*, 14, 109–115.
- SR Epstein, L. H., Wing, R. R., Koeske, R., Andrasik, F., & Ossip, D. J. (1981). Child and parent weight loss in family-based behavior modification programs. *Journal of Consulting and Clinical Psychology*, 49, 674–685.
- SR Epstein, L. H., Wing, R. R., Koeske, R., Ossip, D., & Beck, S. (1982). A comparison of life style change and programmed aerobic exercise on weight and fitness changes in obese children. *Behavior Therapy*, 13, 651–665.
- SR Epstein, L. H., Wing, R. R., Koeske, R., & Valoski, A. (1984). Effects of diet plus exercise on weight change in parents and children. *Journal of Consulting and Clinical Psychology*, 52, 429–437.
- SR Epstein, L. H., Wing, R. R., Koeske, R., & Valoski, A. (1985). A comparison of life-style exercise and calisthenics on weight loss in obese children. *Behavior Therapy*, 16, 345–356.
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- SR Epstein, L. H., Wing, R. R., Penner, B. C., & Kress, M. J. (1985). The effect of diet and controlled exercise on weight loss in obese children. *Journal of Pediatrics*, 107, 358–361.
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- report: The modification of activity patterns and energy expenditure in obese young girls. *Behavior Therapy*, 15, 101–108.
- SR Foster, G. D., Wadden, T. A., & Brownell, K. D. (1985). Peer-led program for the treatment and prevention of obesity in the schools. *Journal of Consulting and Clinical Psychology*, 53, 538–540.
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- SR Ikeda, J. P., Fujii, M., Fong, K. A., & Hanson, M. (1982). Two approaches to adolescent weight loss. *Journal of Nutritional Education*, 14, 90–92.
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- SR Mellin, L. M., Slinkard, L. A., & Irwin, C. E. (1987). Adolescent obesity intervention: Validation of the SHAPE DOWN Program. *Journal of the American Dietetic Association*, 87, 333–338.
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- SR Stolley, M. R., & Fitzgibbon, M. L. (1997). Effects of an obesity prevention program on the eating behavior of African-American

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- SR Stoner, S., & Fiorillo, M. (1976). A program for self-concept improvement and weight reduction for overweight adolescent females. *Psychology*, 13, 30–35.
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- Renal Disease/Urological Conditions**
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- Sickle Cell Disease**
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