

**Group Interventions for Patients with Cancer and HIV Disease: Part I. Efficacy at
Different Phases of Illness**

American Group Psychotherapy Association
Task Force on Group Interventions for Medical Patients

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Abstract

Group interventions for individuals facing cancer or HIV disease have drawn considerable attention among researchers and clinicians over the past twenty years. There is growing evidence that group services may be helpful, but which interventions are most effective for participants at what phases in the trajectory of disease has been less clear. Moreover, professionals working in different intervention settings (e.g., primary prevention vs. clinical care) and different disease sites (cancer vs. HIV disease) often have little awareness of relevant advances in other fields. Efforts to integrate findings in the literature may accelerate research and advance the standard of care. The current paper critically evaluates the efficacy of group interventions led by professional or trained facilitators for individuals confronted by cancer or HIV, across the spectrum of illness from elevated risk through advanced disease. We examine the evidence for different interventions directed toward different patient subgroups, trace common themes, highlight important limitations, and offer recommendations for further research.

Life-threatening illnesses such as cancer and HIV disease present patients and their families with considerable burdens. Both cancer and HIV disease have evolved, for many, from acutely terminal conditions into chronic illnesses, characterized by complex psychosocial and physical morbidities. A spectrum of illness impact has emerged, including, among other challenges, disrupted role functioning, disconcerting treatment toxicities, and elevated risks for depression, anxiety, and posttraumatic stress symptoms (Bing et al., 2001; Maguire, 1995; Smith, Redd, Peser, & Vogel, 1999; Zabora, Brintzenhoffeszoc, Curbow, Hooker, & Piantadosi, 2001). Over the past two decades, group interventions have drawn great interest as a means of helping patients manage some of these challenges.

Relative to other psychosocial services, groups have been thought to offer a particularly compelling treatment modality for medical patients. Group interventions provide a range of therapeutic processes, both general and specific (Burlingame, MacKenzie, & Strauss, in press; Yalom, 1995). Groups offer a forum for peer support, a sense of universalism or shared experience, and an opportunity to learn from others facing similar challenges. Participants may derive hope by witnessing others face the challenge of illness with resourcefulness, or they may experience renewed self-worth by helping others who are faring more poorly than they are (Leszcz & Goodwin, 1998). Peer support and modeling also may contribute to new coping resources and self-efficacy, perhaps more effectively than is possible in individual therapy (Fawzy, Fawzy, & Wheeler, 1996). Moreover, groups are often regarded by medical patients as less stigmatizing and by health providers as more cost-effective than individual treatment.

How effective are these services, and which patients are most responsive to which types of interventions? The database concerning peer-led self-help groups for medical patients is quite limited (Barlow, Burlingame, & Fuhriman, 1999), but an active research literature has examined the efficacy of group interventions led by professional or trained facilitators. A recent meta-analytic review of studies across different illnesses suggested an overall effect size of .49, which represents a moderately strong treatment effect (Burlingame, Fuhriman, & Mosier, in review). As others have noted (Krupnick, Rowland, Goldbeg, & Daniel, 1993; Trijsbrug, van Knippenberg, & Rijma, 1992; Ulman, 1993), however, the groups that have been studied are marked by considerable diversity. Interventions differ widely with respect to characteristics of the participants, level of impairment or distress, duration of treatment, training of the leaders, specific interventions employed, underlying theoretical model, and outcome domains assessed. They differ too with regard to basic group therapy parameters (e.g., group homogeneity).

Few reviews have focused exclusively on group interventions for cancer patients (Bottomley, 1997; Fawzy & Fawzy, 1998), but several narrative (Andersen, 1992; Krupnick et al., 1993; Trijsbrug et al., 1992) and meta-analytic (Devine & Westlake, 1995; Meyer & Mark, 1995; Sheard & Maguire, 1999) reviews of diverse psychological treatments have suggested modest but meaningful effects, especially for those patients who are more distressed upon enrollment. Pressing questions remain, however, particularly with regard to which group services, if any, meet conventional criteria for "empirically supported" interventions¹ (Chambless & Hollon, 1998; Elwood, 2001); which types of interventions are best suited for which individuals; what mechanisms explain these improvements; and how services can be extended to underserved populations. Since these literature reviews were undertaken, many additional studies have become available, underscoring the need for an updated review. Moreover, few efforts have been made to incorporate findings from important international sources, such as German-language journals, which have a long tradition of fostering research on group services.

In the HIV literature, primary prevention programs have been the subject of several reviews, although few focused exclusively on groups (Ehrhardt & Exner, 2000; Jemmott &

Jemmott, 2000; Kelly, 2000; Kim, Stanton, Li, Dickersin, & Galbraith, 1997; Rotheram-Borus, Cantwell, & Newman, 2000). To date, there have been surprisingly few attempts to critically evaluate the literature on group interventions for patients with established HIV infection (Antoni, 2000), despite significant progress in this work and dramatic changes in medical treatment. Moreover, there have been very few systematic reviews directed toward integrating findings across these different medical conditions (Dobkin & Da Costa, 2000; Spira, 1997). To what extent are the therapeutic advances and dilemmas that are encountered in oncology settings similar to those that emerge in HIV settings? Are the hard-won discoveries of those working in prevention relevant to providers laboring in the clinic? As professionals become increasingly specialized within diseases, attending different conferences and publishing their work in different journals, developments in one field may be missed by those working in another.

The current paper offers a critical assessment of the value of group services led by professional or trained leaders for individuals facing cancer or HIV disease. The inquiry was explicitly grounded in a group psychotherapy perspective, and efforts were made to incorporate findings from the North American and European (i.e., German and English language) literatures. Part I of this review focuses on efficacy, with an emphasis on different types of interventions at different phases of illness. Prior reviews have rarely differentiated interventions by phase of illness but, as highlighted by Andersen (1992), participants confront markedly different demands as they transition from primary prevention through end-stage disease. Part II examines other moderating factors (characteristics of the intervention and the participants) and considers mechanisms of action. We highlight areas of commonality and divergence across the two medical conditions, and note important gaps in the literature and priorities for future work.

METHODS

Search strategy

Inclusion criteria included studies published in peer-reviewed journals between January 1980 and February 2002 that used validated outcome measures and quantitative statistical analyses to examine the effects of group interventions² conducted by professional or trained leaders. Randomized controlled trials and investigations using uncontrolled pre-post-test designs were included. However, qualitative studies, dissertations, and abstracts were not included. Studies of self-help support groups were excluded as well. Pilot studies reporting statistical analyses with extremely small samples ($N \leq 10$) that were highly unlikely to reveal significant effects also were deleted. Search strategies included the use of computerized databases (Medline, 1980-2002; Psycinfo, 1980-2002), manual searches of relevant journals (e.g., Psycho-Oncology, Health Psychology, Psychosomatic Medicine, Der-Onkologe, Psychotherapie, Psychosomatik, Medizinische Psychologie), and examination of article reference sections. All studies were abstracted independently by reviewers using standardized coding sheets to insure consistency of information. Variables included, among others, target population, demographics, research design, refusal/attrition rates, baseline distress, type of intervention, session frequency/duration, number and training of group leaders, use of treatment manual, and main outcome measures.

RESULTS: CANCER

47 eligible studies (not counting multiple reports from the same cohort) were identified.

Treatment Characteristics

Treatment setting. Almost all investigations were conducted within academically-affiliated cancer treatment centers. These predominantly addressed questions of efficacy (i.e., whether changes are due to the intervention) rather than effectiveness (i.e., whether the intervention is useful in actual clinical practice), although it is important to note that all took place in "real-world" active clinics (Seligman, 1995; Chambless & Hollon, 1998). However, four studies explicitly

focused on community-based interventions (Cella, Sarafian, Snider, Yellen, & Winicour, 1993; Schwartz, Feinberg, Jilinskala, & Applegate, 1999; Spiegel et al., 1999; van-Wegberg, Lienhard, & Andrey, 2000), and two additional reports were essentially translational studies that modified a previously developed program in order to accommodate the practical needs of a busy clinic and lower barriers to care (Cunningham, Edmonds, & Williams, 1999; Cunningham, Jenkins, Edmonds, & Lockwood, 1995). These translational or community-based studies suggest that group services using a variety of formats in a variety of settings are feasible and effective, although clearly there is a need for additional efforts to evaluate interventions outside of large academic institutions. (Studies of effectiveness capitalize on features that are part of routine clinical practice [e.g., patient self selection, clinical judgement, matching of patient and therapists' expectancies], and therefore often generate more positive findings than efficacy studies, in which these features are more tightly controlled [Seligman, 1995].)

Refusal and attrition rates. The degree to which study results might generalize to the broader population may be significantly influenced by refusal and attrition rates. Poor accrual and retention may reflect patients' compromised functioning, but they may also stem from negative attitudes toward supportive care among patients or lack of emphasis among health providers (Del Giudice, Leszcz, Pritchard, & Goodwin, 1997). Moreover, differential attrition across study conditions (e.g., treatment vs. control) can compromise internal validity. 18 of 47 studies (38.30%) provided information about initial refusal rates (i.e., the proportion of eligible patients who declined participation). Rates varied from widely from 0 to 70.35%. In some cases rates were quite difficult to estimate because recruitment strategies included mass mailing or media postings. Nevertheless, it is clear that accrual was a problem for many studies (Llewelyn et al., 1999). Increasing patient interest in group services and lowering barriers to participation remain salient priorities (Bauman, Gervery, & Siegel, 1992; Taylor, Falke, Shoptaw, & Lichtman, 1986).

36 studies (76.60%) reported information about attrition (i.e., proportion of participants enrolled who dropped out of the study or whose data were missing from the analyses). Sometimes attrition was reported for the sample as a whole but not for the different treatment conditions, or for some assessment periods but not for others. Attrition rates varied from 0 to 69.62% at the last assessment reported (excluding participants discovered to be ineligible after enrolling). Clearly, the meaning of these data are colored by the nature of the population and the intervention-- different rates would be anticipated in different settings. Attrition ranged from 6.45- 24.00% for healthy individuals at risk for cancer, from 8.00- 38.30% for patients with early-stage disease, and from 8.00- 69.62% for those with advanced disease. For the most part, these figures are roughly compatible with the rates of premature treatment termination associated with general group psychotherapy (Yalom, 1995)

Treatment goals. A few interventions were designed to enhance psychosocial adjustment and personal risk assessment for healthy individuals facing heightened genetic risk for cancer. Most groups were intended to improve adjustment or overall quality of life (QOL) for patients with established disease. Toward that end, some interventions sought to improve medical knowledge, social support, coping skills, or communication with physicians. Other groups attempted to modify physical symptoms or functional status. And some targeted medical endpoints such as disease progression or survival, or the presumed immunologic or endocrine mediators of these endpoints. Very few focused explicitly on altering utilization patterns (e.g., hospital days, analgesic use, participation in clinical trials) or adherence to medical treatment, despite the relevance of these variables for medical outcomes.

Treatment strategies. While most groups included an element of mutual support, exploration of coping, and shared feelings, there was wide variation in the emphasis placed on these

components and on other interventions such as health education, training in self-management strategies, or exploration of existential challenges. Conceptual models (Krupnick et al., 1993; Simonton & Sherman, 2000; Spira, 1997) and reviews (Edelman, Craig, & Kidman, 2000; Trijsburg et al., 1992) have generally distinguished between more highly structured interventions, which focus on psychoeducational strategies and coping skills training, and less structured approaches, which emphasize emotional expression and group interaction, and in which the content of discussion arises organically from the group. In turn, important distinctions can be made among different types of less structured, less prescriptive interventions. Peer discussion groups provide an open forum for dialogue and emotional expression (Helgeson, Cohen, Schulz, & Yasko, 1999). Other less manifestly structured groups, such as supportive-expressive (Leszcz & Goodwin, 1998; Spiegel & Spira, 1991) or existential-experiential (van der Pompe et al., 2001; van der Pompe, Duivenvoorden, Antoni, Visser, & Heijnen, 1997) group therapy, are theory-driven approaches that adhere to particular domains of inquiry and attention. There has been considerable interest in determining the differential efficacy of these approaches, particularly for subgroups of patients at different phases of treatment.

Six investigations directly compared the effects of brief structured vs. less structured group interventions (Bottomley, Hunton, Roberts, Jones, & Bradley, 1996; Cunningham & Tocco, 1989; Edelman, Bell, & Kidman, 1999a; Evans & Connis, 1995; Helgeson et al., 1999, 2001; Telch & Telch, 1986). Most used randomized designs, and three included a randomized no-treatment control condition (Evans & Connis, 1995; Helgeson et al., 1999, 2001; Telch & Telch, 1986). Four studies focused on patients with early-stage disease (Bottomley et al., 1996; Edelman et al., 1999a; Evans & Connis, 1995; Helgeson et al., 1999, 2001), while two included individuals with varying disease severity (Cunningham & Tocco, 1989; Telch & Telch, 1986). Results favored the more structured approach in all studies but one (Evans & Connis, 1995). The superiority of the structured groups was maintained (Cunningham & Tocco, 1989; Helgeson et al., 1999, 2001) or strengthened (Bottomley et al., 1996) over time in three of the studies that included follow-up assessments, but dissipated in one (Edelman et al., 1999a).

One of the methodologically strongest studies was conducted by Helgeson et al. (1999; 2001), who compared the effects of group education, peer-discussion, a combined education/discussion group, and a control condition, using a 2 (education vs. no education) X 2 (peer discussion vs. no discussion) factorial design. Contrary to expectations, the combined group did not generate the strongest gains. Instead, groups that received education fared better on several emotional and physical outcomes than those that did not (i.e., a main effect for education rather than an interaction between education and discussion). The peer discussion (support) condition was tied to adverse changes on a few physical and social outcomes, offering one of the few illustrations in the oncology literature of negative treatment effects.

On the other hand, a different picture emerged in a study by Evans and Connis (1995). Relative to controls, patients reported lower distress following either a structured cognitive-behavioral group or a less structured support group; however, improvements were somewhat broader for those in the support group, and only these patients maintained their therapeutic gains over time.

Overall, comparison studies point to stronger effects for structured psychoeducational interventions (see also Edelman et al., 2000). However, it is important to note that direct comparisons between structured and less structured groups have involved only brief interventions, largely directed toward patients with less disseminated disease. There have been no direct comparisons of *long-term* group interventions, or of interventions geared specifically toward patients with *advanced disease*. Moreover, the "less structured" approaches employed in comparison studies generally involved peer discussion rather than more sophisticated group

psychotherapy. Interventions based on group theory and grounded in underlying conceptual models (e.g., supportive-expressive, existential, or family-systems) might prove more robust than the typical peer discussion condition.

Target Populations at Different Phases of Illness

Healthy adults at heightened risk for cancer. There has been growing interest in the challenges faced by individuals who are at heightened risk for cancer, by virtue of family history or identified genetic susceptibility (e.g., mutations in BRCA 1 or 2, MSH2, MLH1, or APC genes). In particular, there have been concerns about their vulnerability to emotional distress and overestimation of personal risk, and the impact of these reactions on adherence to screening practices (Esplen et al., 2000; Kash et al., 2000; Zakowski et al., 1997). Two studies in our review evaluated group interventions for individuals at elevated risk for cancer. Both used uncontrolled single-arm designs, and were designed for women with positive family histories of breast cancer. The first study selected women who had demonstrated persistently inaccurate perceptions of risk following genetic counseling sessions (Esplen et al., 2000). Pre-treatment levels of distress appeared to be fairly high. Following 12 sessions of a supportive-expressive group, which included an educational element, participants demonstrated significant improvements in their understanding of risk, as well as enhanced coping and reductions in multiple measures of emotional distress. There were also indications of improved mammography screening practices among the few women who were not adherent at enrollment. The second investigation evaluated a more structured, 6-week intervention (Wellisch et al., 1999). Participants demonstrated improvements in anxiety and depression. Screening behaviors were not assessed. Neither study included a follow-up evaluation.

Pediatric patients. A large literature has delineated the shifting psychosocial and cognitive challenges that confront children with cancer during active treatment and long-term survivorship (Eiser, 1998; Elkin, Phipps, Mulhern, & Fairclough, 1997). Nevertheless, we found only one eligible study that evaluated group services for pediatric patients. The intervention involved a weekend retreat sponsored by the American Cancer Society for young adult survivors of childhood cancer (Schwartz et al., 1999); it included both structured and unstructured group activities. An uncontrolled pre-posttest analysis suggested that participants experienced improved global QOL at the end of treatment, but surprisingly poorer QOL at 3-month follow-up. However, when scores were statistically adjusted for response shift (i.e., changes in how patients subjectively evaluate QOL), participants displayed increased autonomy and global QOL at the end of the program. These gains were not maintained over the course of follow-up.

Adults with early-stage disease. Eight studies evaluated the effects of group interventions on psychosocial adjustment for patients with limited disease (i.e., local or regional tumor involvement; Antoni et al., 2001; Edelman et al., 1999a; Evans & Connis, 1995; Fawzy et al., 1990a; Helgeson et al., 1999; 2001; Samarel, Fawcett, & Tulman, 1997; Spiegel et al., 1999; Wenzel, Robinson, & Blake, 1995). Seven of these studies employed randomized designs with follow-up assessments (Antoni et al., 2001; Edelman et al. 1999a; Evans & Connis, 1995; Fawzy et al., 1990a; Helgeson et al., 1999; 2001; Samarel et al., 1997; Wenzel et al., 1995), and all but one (Evans & Connis, 1995) were homogeneous for disease site. Pretreatment levels of distress appeared to be low in most of these investigations. With one exception (Wenzel et al., 1995), all reported favorable findings for some interventions on some outcome measures. However, findings differed with respect to which groups were associated with which benefits at what points in time.

Seven studies included an evaluation of brief structured interventions (Antoni et al., 2001; Edelman et al., 1999a; Evans & Connis, 1995; Fawzy et al., 1990a; Helgeson et al., 1999; 2001;

Samarel et al., 1997; Wenzel et al., 1995). At the conclusion of treatment, all but one (Wenzel et al., 1995) found significant improvements in psychosocial functioning relative to a no-treatment control (Evans & Connis, 1995; Fawzy et al., 1990a; Samarel et al., 1997) or an active treatment comparison condition (Antoni et al., 2001; Edelman et al., 1999a; Helgeson et al., 1999; 2001). More specifically, some studies demonstrated reduced emotional distress (Evans & Connis, 1995; Fawzy et al., 1990a), while others reported gains in social functioning (Helgeson et al., 1999; Samarel et al., 1997), coping (Fawzy et al., 1990a), and self-esteem (Edelman et al., 1999a). In one study, treatment contributed to perceptions of illness-related benefits or growth ("benefit-finding," Antoni et al., 2001), which is an area of increasing interest. Improvements in QOL (Edelman et al., 1999a) or physical functioning (Fawzy et al., 1990a; Helgeson et al., 1999, 2001) were evident in some studies.

How well were these improvements maintained over time? In contrast to the generally positive findings noted at the end of treatment, follow-up assessments revealed mixed results. Therapeutic gains were maintained over time in two studies (Antoni et al., 2001; Helgeson et al., 1999, 2001), strengthened in one study (Fawzy et al., 1990), and dissipated in three investigations (Edelman et al., 1999a; Evans & Connis, 1995; Samarel et al., 1997). Wenzel et al. (1995) reported more complex changes over time. Gynecological cancer patients who participated in a brief counseling group reported a deterioration in mood at the end of treatment, relative to controls. By follow-up these differences were no longer evident, and there was a trend for reduced helplessness among those in the counseling group.

On the other hand, four studies of patients with early-stage disease examined brief, less structured treatment groups (Edelman et al., 1999a; Evans & Connis, 1995; Helgeson et al., 1999, 2001; Spiegel et al., 1999). Two reported favorable outcomes. In the first study, support group participants demonstrated greater improvements in distress than those in a no-treatment control condition (Evans & Connis, 1995); these gains were evident at post-treatment and maintained through follow-up. The second study found significant improvements in emotional functioning for participants in a supportive-expressive therapy group, using an uncontrolled pre-posttest design (Spiegel et al., 1999). Interestingly, these gains were not apparent until 6 months after the intervention, suggesting perhaps that some interventions launch an effect that mounts with time and experience. The other two investigations found that unstructured support groups were significantly less effective than comparison groups involving more structured, educational services (Edelman et al., 1999a; Helgeson et al., 1999, 2001). An investigation by Edelman et al. (1999a) suggested improved psychosocial functioning at the end of the support group (though at less pronounced levels than those following the psychoeducational group), which dissipated over time. Of greater concern, Helgeson et al. (1999) reported negative effects on physical functioning in the short-term, and more enduring negative effects on vitality.

In sum, considerable evidence points to short-term benefits associated with brief psycho-educational groups for patients with limited disease. Preservation of improvements over time is more varied, ranging from a strengthening to a weakening of effects. In contrast, evidence for brief, less structured groups is more mixed.

Adults with advanced disease. For individuals with metastatic cancer, concerns often focus on living with uncertainty, confronting mortality, and finding personal meaning in illness (Leszcz & Goodwin, 1998; Simonton & Sherman, 2000; Spiegel, 1993). Maintaining a sense of relatedness and well-being in the face of growing functional limitations can be a daunting challenge. Seven studies evaluated the psychosocial effects of group programs for patients with advanced disease (Classen et al., 2001; De Vries et al., 1997; Edelman et al., 1999b; Edmonds, Lockwood, & Cunningham, 1999; Goodwin et al., 2001; Spiegel, Bloom, & Yalom,

1981) or heightened risk for recurrence (Fukui et al., 2000a). All but one included a randomized control condition (DeVries et al., 1997). Most of these studies focused on breast cancer patients, but one included participants with diverse disease sites (DeVries et al., 1997).

Two studies evaluated brief, structured groups (Edelman et al., 1999b; Fukui 2000a). Both demonstrated favorable psychosocial outcomes on some measures at post-treatment, relative to controls. Improvements were noted in emotional distress (Edelman et al., 1999b, Fukui et al., 2000a), self esteem (Edelman et al., 1999b), and fighting spirit (Fukui et al., 2000a). Only one study analyzed follow-up data, and gains were not maintained (Edelman et al., 1999b).

The majority of studies focused on long-term, semi-structured groups (Classen et al., 2001; De Vries et al., 1997; Goodwin et al., 2001; Spiegel et al., 1981; Spiegel et al., 1983). Most were based on the same manual-driven, supportive-expressive treatment model (Spiegel et al., 1981). Participants attended these groups for a year or longer, health permitting. Although each study included multiple assessments over time, none included a follow-up after the completion of treatment; many patients continued to participate until their deaths. Positive findings were documented in each of these investigations. Relative to controls, participants fared better with respect to emotional distress (Classen et al., 2001; Goodwin et al., 2001; Spiegel et al., 1981), coping (Spiegel et al., 1981), and a sense of purpose in life (De Vries et al., 1997). Pain and fatigue were also less problematic for those in the therapy groups (Goodwin et al., 2001; Spiegel & Bloom, 1993; Spiegel et al., 1981). Benefits were considerably more pronounced for, or sometimes restricted to, those who entered the groups with greater distress (Classen et al., 2001; Goodwin et al., 2001) or higher pain levels (Goodwin et al., 2001). The more robust improvements displayed by patients with higher levels of distress reflect a treatment effect rather than simply regression to the mean (i.e., the tendency of extreme scores to return to average levels over repeated assessments), since the same pattern was not evident among the control patients, and the inexorable progression of metastatic disease pulls for deterioration rather than improvement.

A final project found few benefits among metastatic breast cancer patients who participated in a long-term group that included both psychoeducational elements and less structured group interaction (Edmonds et al., 1999). Overall, findings from well-designed studies support the value of both brief structured interventions and, more compellingly, long-term interactive groups for patients with disseminated disease. However, brief structured groups have not yet displayed sustained improvements in the face of progressive disease. On the other hand, long-term supportive-expressive groups sometimes require considerable time before measurable gains become evident (Spiegel et al., 1981). Most research has been confined to breast cancer.

Outcomes Domains of Special Interest

Studies have examined a broad range of outcomes. Although emotional functioning has received the greatest attention (reported in 41 of 47 studies, 87.23%), group services have been tied to changes in other important endpoints as well, including medical knowledge, social functioning, and health-related QOL. There has been particular interest in the potential impact of interventions on physical endpoints (e.g., immune activity, symptom burden), given growing evidence that psychosocial factors can influence clinically relevant biological processes (e.g., Cohen, Doyle, & Skoner, 1999; Kiecolt-Glaser, Marucha, Malarkey, Mercado, & Glaser, 1995).

Physical symptoms. Two studies explicitly focused on use of behavioral strategies to improve physical functioning (Berglund, Bolund, Gustafsson, & Sjoden, 1994; Davidson et al., 2001). Among patients with insomnia, Davidson et al. (2001) found significant improvements on multiple measures of sleep, role functioning, and medication use following completion of a brief

group that focused on relaxation training and stimulus control. This was an uncontrolled study with no follow-up. In a controlled trial, patients with mixed types of cancer received physical training and information about health and coping, or a control condition (Berglund et al., 1994). Group participants demonstrated significantly greater improvement on self-report measures of physical training, physical strength, body avoidance, and a composite measure of fatigue, pain, and infections, as well as other benefits. Notably, however, this study included an extremely large number of outcomes and there was no statistical adjustment for multiple comparisons.

Sixteen additional studies included physical symptoms among the endpoints that were measured, although physical changes were not an intensive focus of the interventions. Positive effects were noted in 9 of these investigations (Coward, 1998; Cunningham et al., 1993; Fawzy et al., 1990a; Goodwin et al., 2001; Helgeson et al., 1999; 2001; Roberts et al., 1997; Specia, Carlson, Goodey, & Angen, 2000; Spiegel & Bloom, 1983; Spiegel et al., 1981; Telch & Telch, 1986), with a trend in an additional study (Cunningham & Tocco, 1989). Benefits included reductions in fatigue, pain intensity, and stress-related physical symptoms, as well as improvements in role functioning. These effects were associated with both structured and less structured interventions, and sometimes were evident only among patients with high baseline levels of symptomatology (Goodwin et al., 2001). The frequent though inconsistent reports of reduced fatigue are especially notable, given the high prevalence of this problem and the fact that this was rarely an explicit goal of treatment. It would be helpful for additional studies to focus on changes in fatigue, using more recently developed, multidimensional self-report measures (Stein, Martin, Hann, & Jacobsen, 1998) and objective monitoring devices (e.g., Actigraph; Sadeh, Sharkey, & Carskadon, 1994). Group interventions for pain control (Spiegel & Bloom, 1983) and sleep disturbance (Davidson et al., 2001) also warrant further attention.

Immunologic and endocrine functioning. Some of the most provocative findings for group interventions concern their effects on biological endpoints. Advances in psychoneuro-immunology have illuminated a tapestry of neural and biochemical interactions among the brain, the neuroendocrine system, and the immune system (Ader, Cohen, & Felten, 1995; Cohen & Rabin, 1998). Eight studies (involving separate cohorts) focused on alterations in immune (e.g., cytokine levels, natural killer cell activity) or endocrine (e.g., cortisol, serum free testosterone) parameters. These included both structured and less structured services. Findings are summarized in Table 1. Significant changes on some outcomes emerged in 6 of these cohorts; a seventh study (Richardson et al., 1997) found no significant between-group differences, but frequency of imagery practice was associated with increased natural killer cell activity.

Disease endpoints. Nine studies assessed the effect of group interventions on recurrence, tumor progression, or survival. One investigation examined patients with early-stage disease (Fawzy et al., 1993), two included patients with mixed stages of cancer (Gellert et al., 1993; Illyckj et al., 1994), and six focused on advanced disease, usually breast cancer (Cunningham et al., 1998; Cunningham et al., 2000; De Vries et al., 1997; Edelman, Lemon et al., 1999, Goodwin et al., 2001; Spiegel et al., 1989). Findings are summarized in Table 2.

DISCUSSION

The studies included in the current review extend prior findings concerning the value of professionally-led groups for individuals facing cancer. Benefits have been noted across a broad range of outcomes for patients with diverse types of cancer, and progress has been made in exploring which types of services might be most helpful at varying phases of treatment. Efforts have begun to turn toward populations that previously received very little study, such as healthy individuals at heightened risk for cancer and pediatric cancer patients. To what extent are findings for cancer patients consistent with developments in HIV settings?

RESULTS: HIV/AIDS

70 studies (not counting multiple reports from the same cohort) met our inclusion criteria. In addition to clinical investigations, we included studies from the large HIV primary prevention literature if they focused on: (1) small group services rather than community- or population-level interventions; (2) incorporated peer interaction rather than only didactic presentations; and (3) assessed actual risk behavior rather than only attitudes and beliefs. Related papers that did not explicitly discuss HIV prevention were not included (e.g., teenage pregnancy prevention programs). Prevention programs in the developing world were excluded because many of the barriers and priorities they confront are distinct from those in more developed countries, and these services merit a separate literature review (Merson, Dayton, & O'Reilly, 2000).

Treatment Characteristics

Treatment setting. Most clinical studies (i.e., those involving persons with HIV disease) were conducted in academic medical centers. A few took place in community health centers or social service agencies. Primary prevention studies, in contrast, were implemented in a broad range of community settings, including primary care clinics, sexually-transmitted disease (STD) clinics, mental health centers, schools, and shelters.

Refusal and attrition rates. Only 28 of 70 (40.00%) studies provided information about the number of individuals who declined services. Consistent with their reliance on volunteers who responded to media or outreach efforts, most studies lacked meaningful data about refusal rates. Data came mostly from prevention studies, where rates varied from less than 1.00% among junior high school students (Weeks et al., 1997) to 95.52% among college students (Sikkema, Winett, & Lombard, 1995). Despite this variability, most rates were fairly low.

Information about attrition was available in 64 (91.43%) investigations. At the final follow-up assessment, attrition was 10.00- 30.78% among individuals receiving group services to help them cope with early-stage, asymptomatic HIV infection; 6.06- 51.92% for those with early symptoms of HIV progression; and 13.33- 40.87% in diverse samples that included patients with more advanced disease (including AIDS). Rates varied widely from 0- 53.09% for (more or less) medically healthy individuals participating in primary prevention programs.

Treatment goals. Group services have been directed toward altering risky health behaviors and inaccurate perceptions of vulnerability among healthy individuals at heightened risk for contracting HIV. Other interventions focused on enhancing adjustment and managing stress for those who have been infected, or reducing psychosocial morbidity (e.g., major depression) for those struggling with more serious sequelae. Some targeted immune or neuroendocrine parameters that might be linked to disease progression. Improved health behaviors or self-care was a common component of many groups for patients with HIV disease, though these were seldom measured. Despite the enormous challenges associated with highly active antiretroviral (HAART) medication regimens and the alarming risks of poor adherence (Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000; Nieukerk et al., 2001), few studies as yet have focused specifically on adherence. Similarly, only a few studies evaluated changes in physical symptoms or health-care utilization. Cost-effectiveness was examined in prevention but not in clinical settings.

Treatment strategies. Groups for patients with HIV infection were predominantly brief, structured interventions, usually based on cognitive-behavioral approaches (Antoni et al., 1991; Antoni et al., 2000; Antoni, Cruess, Cruess et al., 2000; Chesney, Folkman, & Chambers, 1996; Cleary et al., 1995; Cruess, Antoni, et al., 2000; Cruess, Antoni, Kumar, & Schneiderman, 2000; Cruess, Antoni, Schneiderman et al., 2000; Kelly et al., 1993; Gifford, Laurent, Gonzales, Chesney, & Lorig, 1998; Lutgendorf et al., 1997; McCain, Zeller, Cella, Urbanski, & Novak,

1996; Mulder et al., 1994; Targ et al., 1994). In contrast, few studies examined less structured groups (Goodkin et al., 1999; Kelly et al., 1993; Mulder et al., 1994; Zisook et al., 1998).

Is there evidence that one approach works better than another for individuals with HIV disease? Two investigations directly compared the effects of structured and less structured groups (Kelly et al., 1993; Mulder et al., 1994). Both focused on brief interventions, employed randomized designs, and included follow-up assessments. Kelly et al. (1993) found that a cognitive-behavioral group and a support group both led to significant improvements in psychiatric symptoms, compared with a control condition, for depressed gay men with HIV-infection. Outcomes for the two treatment approaches did not differ significantly from each other. However, patients in the support group showed improvements on a broader range of measures and were more likely to maintain their gains at follow-up, though in general gains tended to fade over time. Similarly, Mulder et al. (1994) compared the efficacy of a cognitive-behavioral group and an experiential therapy group for gay men with somewhat lower levels of distress. Patients who received either intervention fared significantly better than those in a wait-list control group. However, there were no differences between the two active treatment groups on measures of emotional functioning, coping, social support, or emotional expression. Thus, preliminary studies of time-limited groups suggest that structured interventions and less structured, more interactive ones have roughly comparable effects for gay men with asymptomatic or somewhat more advanced HIV disease. Whether clearer differences would emerge in larger samples, in other populations (e.g., women, IV drug users), or in other areas of functioning (e.g., health behaviors, life satisfaction, relationships) remains to be explored.

Groups offered in primary prevention settings have very different aims than those designed for clinical populations, and have drawn on different intervention strategies. An early wave of prevention studies that focused on education about HIV transmission yielded uniformly disappointing results. The lesson seemed clear: information is not enough in changing risky sexual practices (Calsyn, Saxon, Freeman & Whittaker, 1992; Magura et al., 1991). Previous research concerning other health behaviors, such as smoking or over-eating, had generated similar conclusions about the tenacity of complex, multiply determined patterns. More recent efforts in the HIV arena have used culturally-tailored interventions that emphasize skills training. These groups are designed to enhance attitudes, sexual assertiveness and communication, and personalized coping strategies for managing high risk situations. For the most part, these interventions have their theoretical underpinnings in social cognitive theory (Bandura, 1998) or in other health behavior-change models³ (e.g., Information-Motivation-Behavior, Fisher & Fisher, 2000; Health Beliefs Model, Janz & Becker, 1984; Theory of Reasoned Action, Ajzen & Fishbein, 1980; Relapse Prevention, Marlatt & Gordon, 1985). Many prevention studies compared brief, educational interventions with more intensive cognitive-behavioral skills-training groups; findings have supported the superiority of skills groups (these are reviewed below in the section on *Healthy individuals at heightened risk for HIV-infection*).

More recently, investigations have begun to compare skills-training groups that vary in type or intensity. Thus far, major differences have not emerged among groups that focus on somewhat different skill-sets, but it appears that "more is better." Kalichman, Rompa, and Coley (1996) explored which components of multimodal skills-training interventions might be most important (i.e., dismantling research). Inner-city African American women were randomized to receive: (1) sexual communication training (i.e., assertiveness and refusal skills), (2) self-management training (i.e., coping strategies for situations that trigger risky behaviors), (3) both components combined, or (4) an HIV education/sensitization condition. Reductions in unprotected sex were most pronounced for women who received the full package. In a program for college students, a brief group that focused on communicating more assertively about safer sex (communication

skills) was roughly as effective as one that focused on more technical aspects of using condoms correctly and erotically (technical skills) (Sanderson & Jemmott, 1996). Both groups included a broader focus on HIV education, risk awareness, and condom use. Among men at an urban STD clinic, those who received either of two very brief, 15-20 minute skills-oriented programs showed benefits compared with controls (Cohen, Dent, MacKinnon, & Hahn, 1992). Men who received a "condom skills training" group subsequently displayed significantly lower STD reinfection rates, while those who received a "social influences" group (which emphasized communication skills and condom attitudes) showed marginally lower rates. In contrast, a condom distribution condition was not effective. For women, on the other hand, none of these approaches were helpful, and there was a trend for those in the "social influences" group to display *increased* reinfection rates, suggesting that a very brief communication intervention, administered in a public waiting-room, may be insufficient to address women's concerns.

Other investigations have begun to compare safer sex skills-training groups with other types of prevention services. In a creative program designed for individuals with chronic mental illness, patients were randomized to participate in a skills-training group, a skills group combined with advocacy training, or a control condition (Kelly et al., 1997). Those who received advocacy training were enlisted to carry the message of safer sex to others in the community, thereby inculcating a sense of mission and social action. Participants in the combined skills group and advocacy training condition demonstrated greater improvement in risk behaviors than those who received only the skills group. Neither intervention was significantly superior to a control condition, although the magnitude of change was greatest in the combined group.

Jemmott, Jemmott, & Fong (1998) compared an abstinence program with a safer sex intervention among inner-city African American adolescents. In the short-term, students in the abstinence group reported significantly less sexual behavior than those in the control condition, and marginally less than those in the safer sex group; however, these changes were not maintained at subsequent assessments. In contrast, the safer sex group led to a greater likelihood of protected sex (i.e., more frequent condom use) throughout the year, relative to the control condition. Interestingly, among the teenagers who were sexually experienced when they entered the study, those who received the safer sex intervention reported less sexual activity than students in the abstinence or control conditions as the study progressed.

Target Populations at Different Phases of Illness

Healthy individuals at heightened risk for HIV-infection. Small groups have been an important part of the tapestry of services devoted to stanching the pandemic of HIV infection. The significance of these programs should not be underestimated as, currently, behavioral change remains the only way to stem transmission of the virus (Pequegnat & Stover, 2000). 50 studies were identified that evaluated group interventions designed to alter risk behaviors and beliefs among persons at heightened risk. Most involved culturally-tailored, theoretically-based skills training programs. All of these prevention investigations included comparison conditions, and all but 5 used randomized designs at the level of the individual participant or a larger social unit (Kirby, Barth, Leland, & Fetro, 1991; Magura et al., 1991; Magura, Kang, & Shapiro, 1994; Rotheram-Borus et al., 1991; Walter & Vaughan, 1993). Relative to the comparison conditions (usually HIV education), most studies documented favorable changes for skills-training groups in some though not all risky sexual practices, and in some of the important variables thought to mediate these changes, such as perceived risk, self-efficacy, and sexual assertiveness.

Adolescents. Fourteen controlled investigations examined group programs for adolescents. Eleven of these focused on African American and/or Hispanic teenagers (Jemmott, Jemmott, & Fong, 1992; Jemmott et al., 1998; Jemmott, Jemmott, Fong, &

McCaffree, 1999; Kipe, Boyer, & Hein, 1993; Rotherman-Borus, Gwadz, Fernandez, & Srinivasan, 1998; Rotheram-Borus, Koopman, Haignere, & Davies, 1991; Rotherman-Borus, Murphy, Fernandez, & Srinivasan, 1998; Stanton et al., 1996; St. Lawrence, Brasfield et al., 1995; Walter & Vaughan, 1993; Weeks et al., 1997). African Americans and Hispanics are priority populations for prevention efforts because they constitute some of the largest subgroups of AIDS cases among youngsters, adult women, and adult heterosexual men. Moreover, across ethnic groups, adolescents tend to have optimistically biased perceptions of risk (Quadrel, Fischhoff, & Davis, 1993; Sikkema et al., 1995), which amplifies their vulnerability. In nine investigations, teenagers who received brief skills-training programs demonstrated significantly fewer sexual risk behaviors compared to those who participated in an HIV education intervention (St. Lawrence, Brasfield, et al., 1995; Stanton et al., 1996), a placebo-control condition (Jemmott et al., 1992; Jemmott et al., 1998; Jemmott et al., 1999), or a no-treatment control condition (Main et al., 1994; Rotheram-Borus et al., 1991; Rotheram-Borus, Gwadz et al., 1998; Walter & Vaughan, 1993). Improvements also were noted on some measures of risk-related beliefs and attitudes, though specific changes varied across studies (e.g., HIV knowledge, self-efficacy, communication skills). An additional study found reduced sexual risk behaviors for subgroups of participants, including sexually inexperienced students and females (Kirby et al., 1991). In contrast, four studies (Boyer, Shafer, & Tschann, 1997; Kipe et al., 1993; Rotheram-Borus, Murphy et al., 1998; Weeks et al., 1997) did not find reductions in risky sexual practices, although most reported improvements in related outcomes (e.g., sexual assertiveness, HIV/STD knowledge, risk perceptions); findings may have been influenced by the small number of participants who were sexually active (Kipe et al., 1993) or engaging in unprotected sex (Rotheram-Borus, Murphy et al., 1998), or the unusually brief follow-up interval (1 month; Boyer et al., 1997). To date, data do not support concerns that prevention projects may inadvertently increase sexual behavior among youngsters who are abstinent; instead they appear to delay sexual activity (St. Lawrence, Brasfield et al., 1995; Stanton et al., 1998).

Men who have sex with men. Five controlled studies focused on men who have sex with men, a group that traditionally bore the heaviest burden of HIV disease in the US and that remains at high risk for infection (Choi et al., 1996; Kelly et al., 1989; Peterson et al., 1996; Roffman et al., 1998; Valdiserri et al., 1989). Each of these investigations reported positive findings regarding some though not all risk behaviors (e.g., fewer sexual partners, decreased unprotected anal sex, or increased condom use). In a study (Peterson et al., 1996) that targeted inner-city African American men, participants who received a 3-session intervention improved more than those in a 1-session program, but they did not differ significantly from controls, perhaps due to a more favorable risk profile among control participants at baseline (despite block randomization). At the same time, most of the studies demonstrated improvements in some variables thought to influence sexual risk, such as HIV knowledge (Choi et al., 1996; Kelly et al., 1989), concern about AIDS (Choi et al., 1996), sexual assertiveness skills (Kelly et al., 1989; Roffman et al., 1998), and self-efficacy (Roffman et al., 1998).

Young women. Eight controlled studies examined group interventions for young women. Among the challenges that heterosexual women face are a higher HIV transmission rate (i.e., transmission efficiency) from infected men to women than from infected women to men, and the fact that men generally control condom use. Prevailing upon partners to use condoms may be especially difficult in the context of economically dependent or coercive relationships (Kelly, 1995). Four investigations included samples of urban, low-income, predominantly African American women (DiClemente & Wingood, 1995; Hobfoll, Jackson, Lavin, Britton, & Sheperd, 1994; Kalichman et al., 1996; Kelly et al., 1994). Significant gains were noted in sexual risk behaviors (e.g., increased condom use, reduced unprotected sex) and presumed mediating variables (sexual communication). In contrast, four investigations evaluated groups for female

college students, most of whom were white (Bryan, Aiken, & West, 1996; Jaworski & Carey, 2001; Sikkema et al., 1995; Smith & Dickson, 1993). Interventions in university settings often broadened their focus beyond HIV to include a number of other STDs, which students regard as more prevalent and motivating (Bryan et al., 1996; Jaworski & Carey, 2001). Risk behaviors were significantly reduced in two of these studies (Bryan et al., 1996; Jaworski & Carey, 2001), with more limited or null findings in the other two investigations (Sikkema et al., 1995; Smith & Dickson, 1993), perhaps due in part to the relatively low rates of risk behavior among the students in these programs, the brief follow-up intervals (Sikkema et al., 1995; Smith & Dickson, 1993), and differential attrition (Smith & Dickson, 1993). Two additional studies included male as well as female college students and noted meaningful improvements in risky sexual practices (Fisher, Fisher, Misovich, Kimble & Malloy, 1996), particularly for those who were in casual as opposed to committed relationships (Sanderson & Jemmott, 1996).

Chronic mental illness. Five controlled studies evaluated small group interventions for individuals with chronic mental illness (Kalichman et al., 1995; Kelly et al., 1997; Otto-Salej, Kelly, Stevenson, Hoffman, & Kalichman, 2001; Susser et al., 1998; Weinhardt, Carey, Carey, & Verdecias, 1998). Mentally-ill individuals are at heightened risk for HIV infection due to a number of factors, including comorbid substance abuse, unstable living conditions, impaired judgement and impulse control, difficulty sustaining relationships, and sexual exploitation or exchange of sex for survival needs (Kalichman et al., 1995; Susser et al., 1998), all of which may contribute to greater risk exposure (Otto-Salaj, Heckman, Stevenson, & Kelly, 1998). Reduced risk behaviors were reported in three studies (Kalichman et al., 1995; Susser et al., 1998; Weinhardt et al., 1998), with a fourth investigation demonstrating improvements for women but not men (Otto-Salej et al., 2001). In the fifth study (Kelly et al., 1997), noted earlier, individuals who participated in a skills group combined with advocacy training fared significantly better than those who received a skills group only, but not better than controls. Each of these studies also demonstrated concomitant changes in a number of HIV-related beliefs and attitudes (e.g., self-efficacy, sexual communication, intentions regarding safer sex, etc.).

Individuals with STDs. Other studies have begun to evaluate group programs in STD clinics. The NIMH Multisite HIV Prevention trial (NIMH Multisite Prevention Trial group, 1998) was a keystone in HIV prevention research, involving 3,706 predominantly minority participants from 5 US metropolitan areas, screened for high risk of HIV infection. Men and women were recruited from STD clinics and women were recruited from primary care clinics as well. Relative to those randomized to a brief AIDS education control condition, those who received the group risk-reduction program demonstrated significantly reduced unprotected sex and increased consistent condom use throughout the 12-month follow-up, as well as decreased incidence of gonorrhea among men, according to chart reviews, and decreased self-reported symptoms of STDs among both men and women. The point-prevalence of gonorrhea at follow-up, as determined by urinalysis, was not significantly different. In other projects targeting predominantly African American and Hispanic patients at urban STD clinics, risky sexual practices declined in one study (Kalichman, Cherry, Browne-Sperling, 1999), STD reinfection rates were reduced in another study (Cohen, Dent, & MacKinnon, 1991), and these rates declined for men but not women in two other investigations (Cohen, Dent et al, 1992; Cohen, MacKinnon et al., 1992). The addition of a single group session to a brief video intervention improved condom acquisition (O'Donnell, San Doval, Duran, & O'Donnell, 1995) but it did not contribute to further reductions in STD reinfection rates, compared with the video alone (O'Donnell, O'Donnell, San Doval, Duran, & Labes, 1998). In a final study, group sessions were no more effective than standard individual HIV-counseling sessions, perhaps due in part to poor attendance (Branson, Peterman, Cannon, Ransom, & Zaidi, 1998).

Substance abusers and heterosexual men. In contrast to studies with adolescents, minority women, and gay men, who experienced fairly consistent improvements across investigations in at least some risky practices and beliefs, research with other populations yielded mixed results. Eight studies evaluated groups for chemically dependent patients (Colon, Robles, Freeman, & Matos, 1993; Magura et al., 1991; Magura et al., 1994; Malow, West, Corrigan, Pena & Cunningham, 1994; McCusker et al., 1992; Schilling, El-Bassel, Schinke, Gordon, & Nichols, 1991; Sorenson et al., 1994; St. Lawrence, Jefferson, Alleyne, & Brasfield, 1995). Four of these documented favorable results (Magura et al., 1991; Magura et al., 1994; Schilling et al. 1991; St. Lawrence, Jefferson et al. 1995). The impact of groups in changing sexual risk behaviors was more limited in the other four studies, which generally seemed to target more challenging populations (e.g., street outreach to untreated IV drug users; Colon et al., 1993). Finally, turning our focus to a different population at risk, a skills group for inner-city African American heterosexual men was not more effective than an educational intervention, both of which were plagued by high drop-out rates (Kalichman, Rompa, & Coley, 1997).

On balance, research suggests that skills-training groups are effective in reducing risk behaviors in a number of vulnerable populations, including minority group adolescents, women of color, gay men, and individuals with mental illness. Currently these groups are considered among the gold standards of HIV prevention interventions (CDC, 2002a; NIH Consensus Development Conference Panel, 2000). The durability of change remains a concern. Although some studies reported continued benefits at 8-15 month follow-ups (Cohen et al., 1991; El-Bassel & Schilling, 1992; Kelly et al., 1989; Kirby et al., 1991; Magura et al., 1994; NIMH Prevention Trial group, 1998; St. Lawrence, Brasfield et al., 1995; Valdiserri et al., 1989), for the most part improvements tended to dissipate over time. Even in a project specifically designed to improve long-term gains through use of relapse prevention principles, benefits tended to erode (Roffman et al., 1998). Some have argued that it may be unrealistic to expect brief services to produce enduring changes in deeply ingrained, complex behavior patterns, and that interventions may be required at several points in time (Otto-Salej et al., 2001). In any event, additional efforts are needed to evaluate long-term maintenance and to address the proclivity toward relapse.

Pediatric patients. A number of studies have evaluated groups for patients who are at various stages of HIV disease progression. Youngsters face a unique set of challenges, colored in part by their developmental level, their family context, and the means by which they became infected (e.g., perinatal transmission, contaminated transfusion, unprotected sex, IV drug use, etc.). Unfortunately, despite the large number of adolescents who are seropositive and the smaller number of children born with HIV infection, no outcome studies focused on pediatric patients.

Adults with asymptomatic HIV infection. As is the case for cancer, different stages of HIV disease present patients with different challenges. Four studies focused on groups for HIV-infected patients who were asymptomatic or newly diagnosed (Antoni et al., 1991; Cleary et al., 1995; Mulder et al., 1994; Targ et al., 1994). Each of these investigations included a randomized control or comparison condition, and three were directed toward gay men.

In an early study that became an important foundation for subsequent work, Antoni et al. (1991) evaluated a cognitive-behavioral stress management group for gay men. Halfway through the project, they were tested and notified of their HIV viral status. The intervention appeared to buffer the stress of notification for those who were HIV-seropositive: these individuals reported less depression relative to controls. There were no group differences in anxiety.

In a study noted earlier (Mulder et al., 1994), gay men who received either an experiential therapy group or a cognitive-behavioral group reported reduced mood disturbance, psychiatric

distress, and depression relative to controls (as indicated by a comparison between controls vs. participants in the two treatment groups combined). Targ et al. (1994) compared a group with an antidepressant trial for depressed gay men. Participants were randomized to a structured, skills-oriented group plus fluoxetine (20 mg fixed dose), or to the group plus a placebo pill. Participants in both conditions showed significant gains on several measures of depression and distress, relative to their baseline levels. However, outcomes did not differ across the two conditions, implying that a structured group may be sufficient to address mild-to-moderate depression without the attendant side effects of a pharmacologic regimen. The small sample size, fixed dosing, and lack of follow-up may have obscured potential differences, however.

Finally, Cleary et al. (1995) evaluated the effects of a cognitive-behavioral group for a heterogeneous sample of individuals who had been notified of their HIV seropositive status after donating blood to a blood bank. Recruitment proved to be extremely challenging, as roughly half of eligible individuals declined participation and 62% of those randomized to the group did not attend any sessions. At one-year follow-up, participants assigned to the group did not fare better than those encouraged to use community referrals on any of the outcomes assessed, including depression and sexual risk behaviors. On balance, these studies suggest that services may assist homogenous groups of gay men with mild-to-moderate distress in managing the initial crisis of diagnosis and the early stage of asymptomatic infection. There is a need for additional controlled investigations that examine the value of group services for other afflicted populations, in other important areas of functioning, over longer periods of time.

Adults with symptomatic early-stage disease. The emergence of symptoms marks a profound change in disease status, and ushers in new demands. Nine studies examined groups for individuals with symptomatic HIV disease (Antoni et al., 2000; Antoni, Cruess, Cruess et al., 2000; Auerbach, Oleson, & Solomon, 1992; Chesney et al., 1996; Cruess, Antoni, Cruess et al., 2000; Cruess, Antoni, Kumar et al., 2000; Cruess, Antoni, Schneiderman et al., 2000; Gifford et al., 1998; Lutgendorf et al., 1997). Six of these reports came from the same laboratory, however, and it is possible that some include an overlapping cohort of patients. Each of the investigations evaluated short-term, structured groups for gay men. Each included a randomized comparison condition (i.e., no-treatment control or alternate treatment).

Significant improvements in stress or emotional distress were noted in seven investigations (Antoni et al., 2000; Antoni, Cruess, Cruess et al., 2000; Chesney et al., 1996; Cruess, Antoni, Cruess et al., 2000; Cruess, Antoni, Kumar et al., 2000; Cruess, Antoni, Schneiderman et al., 2000; Lutgendorf et al., 1997). The consistency of findings across these studies is rather encouraging. However, few studies included follow-up assessments (Chesney et al., 1996; Gifford et al., 1998), and most examined only a narrow range of outcomes. Three investigations assessed a broader array of endpoints (Auerbach et al., 1992; Chesney et al., 1996; Gifford et al., 1998). Chesney et al. (1996) reported changes in perceived stress and burn-out, though not in other mood outcomes, for depressed patients who received coping effectiveness training compared with those in an HIV education comparison group. However, the intervention was not superior to a wait-list control condition (when findings were adjusted for multiple comparisons). Two other controlled studies found improvements in physical symptoms (Auerbach et al., 1992; Gifford et al., 1998), self-efficacy (Gifford et al., 1998), and hardiness (Auerbach et al., 1992) but not distress. The next wave of research should include patients with greater levels of distress or comorbidity, and should extend its reach to populations other than gay men.

Adults with advanced disease. Few investigations focused specifically on group services for individuals with AIDS. In an innovative study, Rotheram-Borus and colleagues (2001) evaluated a psychoeducational group program for low-income, predominantly African American and

Hispanic parents with advanced disease, and their adolescent children. Relative to controls, parents reported decreased distress and behavior problems (i.e., unprotected sex, substance abuse, and criminal justice involvement). Similarly, adolescents reported improved self esteem in conjunction with diminished distress, family stressors, and behavior problems. Most of these gains were maintained through 15-24 months. Differences were not found on measures of adolescent conduct problems, parental coping, HIV disclosure, or preparation of custody plans. This study offers a rare illustration that economically disadvantaged women (as opposed to gay men) can be successfully enrolled in a group program. Fathers proved more difficult to enlist.

Outcome Domains of Special Interest.

Prevention research has focused on altering HIV risk behaviors and associated attitudes, while clinical interventions, in turn, have emphasized improvements in emotional functioning. However, group services might have an impact on other important economic, social, and physical outcomes. Cost-effectiveness has yet to be explored in clinical settings, but several studies have demonstrated cost-effectiveness or cost-savings for HIV primary prevention programs (Holtgrave & Kelly, 1996; Holtgrave & Kelly, 1997; Pinkerton, Holtgrave, & Valdiserri, 1997). For example, a recent study that retrospectively evaluated the cost-utility of a brief prevention group for gay men suggested considerable medical cost-offsets (e.g., an incremental cost of \$13,000 for the service vs. discounted medical costs averted in excess of \$170,000; Pinkerton et al., 1997). Similarly, Holtgrave and Kelly (1997) found cost-savings in a retrospective cost-utility analysis of a more extensive, 12-session prevention program.

Among patients with HIV infection, another critically important endpoint involves changes in health behaviors or transmission-risk practices. This is a particularly compelling target for group interventions, because continued engagement in high-risk behavior has been tied to high levels of distress and negative identity (Kelly, 1998), problems that might respond well to groups. Changes in risk behaviors were evaluated in four investigations. Unprotected sex was reduced among HIV-infected gay men following enrollment in a support group (Kelly et al., 1993) as well as a cognitive-behavioral group (Coates, McKusick, Kuno, & Stites, 1989), while drug use declined following participation in a cognitive-behavioral group (Kelly et al., 1993). Similarly, risk behaviors were reduced in a study of HIV-infected parents and their teenagers (Rotheram-Borus et al., 2001). Unsafe sexual practices were not diminished, however, among HIV-infected blood donors who had been randomized to a cognitive-behavioral group (Cleary et al., 1995).

HIV-related physical symptoms were reduced in two studies (Auerbach et al., 1992; Gifford et al., 1998), and self-reported healthcare visits were diminished in another investigation (Goodkin et al., 1998). Thus, findings for a number of important outcomes are limited but very promising.

One area that has commanded much greater attention concerns changes in immune and neuroendocrine activity. Sixteen studies were identified that evaluated biological parameters, and positive results were noted in 10; no group differences emerged in an additional study (Mulder et al., 1995), but CD4+ cells were better preserved among patients who experienced improved mood. Findings are summarized in Table 3.

In contrast to the cancer literature, very few HIV studies have examined potential links between groups and disease progression. Conceivably, group services might affect disease endpoints through changes in treatment adherence or self-care, or through alterations in stress-related bioregulatory mechanisms. In a small follow-up study by Ironson et al. (1994), gay men, who learned of their HIV seropositive status during the course of a cognitive-behavioral group, were reassessed two years later. At follow-up, group participants did not differ in disease status from controls. However, among patients in the group, progression to AIDS or to death was inversely

associated with session attendance, and with adherence to relaxation practice and homework, after controlling for baseline CD4+ count. Findings were less robust when the endpoint was progression to HIV symptoms as opposed to more severe outcomes (AIDS or death).

DISCUSSION: INTEGRATION OF FINDINGS ACROSS CANCER AND HIV DISEASE

State of the Evidence

Joseph Pratt, an oft-cited pioneer of group treatment (Allen, 1990; Barlow et al., 2000), was one of the first physicians to use groups in medical settings, employing them as a labor-saving device for the treatment of tuberculosis patients. The remarkable increase in the application of group interventions for medical patients over the past 100 years seems consistent with the value that he ascribed to them. For individuals confronted by cancer or HIV-infection, a growing database suggests that groups can play a useful role. Studies reported favorable findings, at least in the short-term, for individuals with various levels of disease risk or severity. At present, the data suggest the following conclusions:

- 1) Among healthy individuals at heightened risk, considerable evidence supports the use of culturally-informed, cognitive-behavioral services for reducing HIV-related sexual risk behaviors and attitudes. In some populations (e.g., minority group adolescents, women of color, gay men, individuals with mental illness), these services approximate criteria posited by Chambless and Hollon (1998) for "efficacious and specific" interventions, based on randomized comparison studies. More explicit mention of intervention manuals would allow for more definitive classification in this category. Evidence is more limited for prevention groups targeting other high-risk populations, such as chemically dependent individuals or heterosexual men from minority groups. Skills-oriented groups were among the programs deemed effective by the recent National Institutes of Health (NIH) Consensus Development Conference (NIH Consensus Development Conference Panel, 2000), which urged broad dissemination. A large number of group programs also met the CDC HIV/AIDS Prevention Research Synthesis Project criteria for effective interventions (2002a). In contrast to services for individuals at risk for HIV infection, work with individuals at heightened genetic risk for cancer has only recently begun.
- 2) For patients with limited disease (i.e., early-stage cancer or early-stage asymptomatic or symptomatic HIV-1 infection), the evidence is strongest concerning the value of brief, skills-oriented services for enhancing adjustment. These results approach criteria for "efficacious and specific" interventions (Chambless & Hollon, 1998). More specifically, in the cancer setting, benefits have been documented in randomized controlled trials and active treatment comparison studies. More explicit use of treatment manuals would allow greater confidence in designating these services as "efficacious and specific" (the most stringent classification) as opposed to "probably efficacious." For patients with early-stage HIV infection, short-term improvements have been demonstrated in manual-driven controlled trials. To satisfy criteria for "efficacious and specific" treatment (i.e., indicating that benefits are based on the particular intervention and not due solely to nonspecific factors such as attention from a clinician), these interventions would need to be compared to other active treatments or to "placebo" conditions, as opposed to wait-list control groups.⁴ The evidence would be further strengthened if more information were available about the durability of benefits. Overall, the finding that more structured interventions are associated with better outcomes is consistent with observations in the general group psychotherapy literature (Dies, 1994).
- 3) For individuals with advanced cancer, on the other hand, the evidence is more compelling for longer-term, existentially-oriented, less highly prescriptive interventions (e.g., supportive-expressive therapy). These findings appear consistent with criteria for "efficacious"

interventions (Chambless & Hollon, 1998). Here too, designation as "efficacious and specific" would require comparisons with other active treatments or with psychological placebo conditions.⁵ Patients with advanced cancer also have benefited from brief, highly structured interventions, at least in the short run. The evidence is not as strong for these services as for longer-term, semi-structured approaches.

4) Group interventions directed exclusively toward patients with AIDS await further study.

Chronic illness disrupts multiple spheres of functioning-- which areas are most enhanced by group services for cancer or HIV-1 patients? Emotional functioning has been the most extensively studied outcome. Gains also have been noted in physical symptoms. Among cancer patients, there are indications of improved QOL, medical knowledge, and social functioning; these areas have not yet been as carefully scrutinized in HIV settings. Among HIV patients, there are suggestions of improved health behaviors or reduced risky practices.

Less is known about the potential effects of groups on other important outcome domains. Preliminary findings point to heightened perceptions of illness-related benefits, personal growth, or optimism among cancer patients. Therapy might help patients explore the possibility of positive life changes in the aftermath of illness. Positive changes such as posttraumatic growth, benefit-finding, and spirituality merit greater attention in intervention research, which has focused almost exclusively on psychosocial morbidity and distress. Although few published studies are available, there is great interest in this area and research can be expected to grow. There is surprisingly little information concerning treatment adherence or healthcare utilization, despite their obvious importance. We found no quantitative data on cost-effectiveness for groups targeting patients with cancer or HIV disease. Nevertheless, research on HIV prevention groups demonstrated cost-effectiveness or cost savings (Holgrave & Kelly, 1996; Holtgrave & Kelly, 1997; Pinkerton et al., 1997), as have studies on group interventions for other medical populations, including patients with chronic pain (Caudill, Schnable, Zuttermeister, Benson, & Friedman, 1991), asthma (Deter & Albert, 1983; Deter, 1986), and arthritis (Lorig, Mazonson, & Holman, 1993; Lorig et al., 2001). Thus this is a very promising if challenging area of inquiry (Friedman, Sobel, Myers, Caudill, & Benson, 1995).

More provocatively, changes in an array of cellular immune and neuroendocrine parameters have been demonstrated in both populations. These findings have theoretical relevance for HIV-1 and cancer progression, but, for the most part, direct ties to clinical outcomes (e.g., disease progression, medication tolerance) have yet to be demonstrated. Future studies should seek to clarify the durability of these changes and their clinical significance, including, for example, their potential ties to infectious complications, interruption of treatment regimens, or response to experimental vaccines (Cohen et al., 2000). It also may be helpful to focus on subgroups at greater risk for immunosuppression (e.g., elderly patients, those receiving chemotherapy or radiotherapy). A recent meta-analysis, which reviewed studies across a range of healthy and ill populations, concluded that there is only very modest evidence of immunologic effects from psychological interventions, and that more precision is required in linking specific strategies (e.g., relaxation training, self-disclosure) to specific immune outcomes (e.g., functional vs. enumerative) and to the variables thought to mediate these relationships (e.g., negative affect, stress appraisal, coping) (Miller & Cohen, 2001). In the cancer setting, research on mortality remains an intriguing area following the pioneering work of Spiegel et al. (1989) and Fawzy et al. (1993), but most studies have not found significant effects. Future studies might shift focus from patients with metastatic cancer to those with less disseminated illness, for whom the biological imperatives of the disease may be less pronounced.

Methodological Considerations

The quality of research has become more sophisticated as these fields mature. All of the studies reviewed included validated assessment instruments, which was part of our inclusion criteria. Investigators have gravitated toward a more common core of instruments, especially in clinical settings, which facilitates comparisons across studies, and more homogenous samples, which enhances statistical power and offers more interpretable results. Growing efforts have been made to establish the theoretical underpinnings of the interventions.

On the other hand, limitations often included lack of information about whether participants differed on important variables from those who dropped out, and high or insufficiently reported rates of refusal, total attrition, and differential attrition across treatment conditions. Few studies used intent to treat analyses. Adjustment for multiple statistical comparisons was rare, even in studies that included a great many statistical tests. This observation is important because one or two positive findings embedded within a very large number of statistical comparisons may reflect random fluctuation rather than meaningful change, unless adjustments are made in the criteria for judging significance. A less common limitation was lack of clarity as to whether the instruments selected were sensitive to change; differential sensitivity of outcome measures can yield very different estimates of treatment effectiveness (Vermeesh, Lambert & Burlingame, 2000). More critically, follow-up assessments were absent in some studies with cancer patients and in most studies with HIV-1 infected individuals. In prevention settings, the duration of follow-up was variable but often was limited to 3 months. As is clear in the general psychotherapy literature, maintenance of gains over time is by no means assured (Burlingame & Fuhrman, 1994), and perhaps should not be expected among individuals with entrenched risk profiles or patients with progressive disease. Additional investigations should test the benefits of periodic booster sessions, which in the broader group treatment literature have been found to be useful for other types of conditions (e.g., eating disorders, social phobia; Burlingame, MacKenzie, & Strauss, in press). Repeated follow-up assessments may also shed light on delayed treatment effects, an intriguing finding that emerged in a number of clinical studies (Cain et al., 1986; Fawzy et al., 1990a; Spiegel et al., 1981; Spiegel et al. 1999; Van-Wegberg et al., 2000). As sometimes observed in the wider psychotherapy outcome literature, interventions that yield modest gains in the short run may demonstrate more robust effects over time. In addition to addressing these matters, it would be helpful for future efficacy studies to document use of manualized interventions.

In the primary prevention literature, basic information about the characteristics of the group leaders, or even their number, was sometimes missing. Moreover, comparisons across studies and populations would be facilitated by greater use of common measures. Finally, although concerns inevitably arise about reliance on self-reports of sexual risk behavior, most prevention studies took special care to enhance the reliability of these reports, they did not appear to be confounded with social desirability response bias, and they were sometimes corroborated by objective measures such as STD infections or pharmacy records of redemption of condom coupons. Thus, there is evidence to support the validity and reliability of self-reports (Coates et al., 1988; Weinhardt, Forsyth, Carey, Jaworski, & Durant, 1998).

In the clinical literature, studies were often limited by small samples, which obscure potential findings. Among HIV infected patients, most studies assessed only a narrow range of outcomes (i.e., emotional distress). In both the cancer and HIV settings, there was little use of disease-specific measures of health-related quality of life (e.g., FACIT, Cella, 1997; Medical Outcome Study-HIV, Wu et al., 1991). Future investigations might also consider the potential impact of "response shift" phenomena (the tendency of respondents to alter their judgements of QOL because of changes in internal standards or values) (Schwartz & Sprangers, 2000).

Tailoring Treatments to Participants

Aside from these methodological issues, the current review highlights a number of important gaps in our knowledge and priorities for future investigations. One area for further study concerns the differential effects of various treatment models. In the prevention literature, skills-focused, cognitive-behavioral groups have, for the most part, consistently outperformed educational groups. As cognitive-behavioral groups continue to evolve, might there be a role for other approaches as well? The fact that HIV risk-behavior occurs in a social context suggests that multiple couples or family groups might be useful forums for intervention (provided there is appropriate screening for instances of coercion or abuse; Fisher et al., 1996; Kelly, 1995).

As for patients with established disease, consistent with some practice models (e.g., Fawzy & Fawzy, 1998; Krupnick et al., 1993; Simonton & Sherman, 2000), the current literature generally supports brief, skills-oriented groups at early phases of cancer or HIV infection and longer-term, more interactive groups at later phases of cancer. Clearly, there are other ways of matching treatments and patients, but they haven't been as thoroughly evaluated. In particular, it would be helpful to further explore the value of theory-driven interactive groups (as opposed to peer-discussion meetings) for patients with early-stage disease. A sound foundation for this line of research can be found in several studies of less structured, more interactive groups for patients with early-stage cancer (Spiegel et al., 1999) and HIV disease (Kelly et al., 1993). Other group treatment models (e.g., family systems, interpersonal, psychodynamic) have yet to be examined in controlled trials. Additional research might expand the range of viable options.

A number of populations remain greatly underrepresented in group outcome research (e.g., men with cancer, women or heterosexual men with HIV infection, minority patients, ill children, rural individuals, long-term survivors). Moreover, there is limited information about other important characteristics of the participants (personality, social context) or the intervention (e.g., treatment duration, leader qualifications) that might influence outcomes, or about the processes through which groups are effective. We turn to these issues in Part II of our review.

In sum, there is now considerable evidence to support the value of group interventions for individuals facing cancer or HIV-1 infection. These services may help reduce adverse health behaviors and beliefs among healthy individuals at heightened risk. And group interventions may offer meaningful benefits for patients whose lives have been disrupted by these harrowing illnesses. Our understanding of which interventions are effective, and which individuals might benefit most, has grown appreciably, notwithstanding the many important questions that remain. To date, little attention has focused on integrating findings across these two disease entities, or across prevention and clinical care, but it is clear that those working in each field have much to learn from the others. Appreciation of developments in each area may confirm common principles, introduce new possibilities, and accelerate progress, advancing the standard of care.

Notes

1. Use of more or less stringent methodological criteria may yield somewhat different impressions of efficacy. The Chambless and Hollon (1998) criteria were employed in this review because of their widespread use. Briefly, interventions deemed "efficacious" include those found to be statistically significantly superior to no treatment, placebo, or an alternative treatment in at least 2 independently conducted randomized controlled trials, using clear inclusion criteria, treatment manuals, and psychometrically sound outcome measures. "Efficacious and specific" interventions are those shown to be significantly superior to placebo or alternative treatment in at least 2 independent research settings. "Probably efficacious" interventions are demonstrated to be effective in one study. For additional details see the original text.

2. For purposes of this review, our definition of "group" services was a very broad one: formal meetings involving interactions among members (not simply didactic lectures), which had convened to pursue specific therapeutic goals under the guidance of trained group leaders.
3. These models highlight different determinants of health behaviors, such as perceived vulnerability to HIV, anticipated outcomes, perceived social norms regarding prevention practices, self-efficacy, emotional factors, and intentions to adopt safer practices. An NIMH-sponsored conference of theorists reviewed a number of relevant constructs and emphasized the importance of intentions, skills, and environmental constraints (Fishbein et al., 1992; Pequegnat & Stover, 2000).
4. A few comparison studies have contrasted brief, cognitive-behavioral approaches with pharmacological treatment for depressed individuals with HIV infection; however, findings were conflicting and the statistical power was too limited to allow for definitive conclusions (Targ et al., 1994; Zisook et al., 1998).
5. Notably, a large, multi-center study compared supportive-expressive therapy to a control condition that included mailed educational materials (Goodwin et al. 2001), which might be considered a "placebo" intervention; however, control patients did not receive any contact with a clinician or therapy group.

Group Interventions for Patients with Cancer and HIV Disease: Part II. Moderating Variables and Mechanisms of Action

American Group Psychotherapy Association
Task Force on Group Interventions for Medical Patients

Abstract

Growing evidence suggests that group interventions may be effective for individuals who are at risk for or have developed cancer or HIV-1 disease. However, information is more limited concerning how these services can be delivered in an optimal manner, and what mechanisms contribute to their benefits. Part I of this review examined the efficacy of different interventions for individuals at different phases of illness, ranging from primary prevention to late-stage disease. The current review examines some of the other factors that might influence group treatment effects (e.g., intervention parameters, participant characteristics), and explores mechanisms of action. In the primary prevention setting, results indicate that group outcomes are influenced by duration of the intervention and gender of the participants. In clinical settings, evidence suggests that outcomes are affected by participants' level of distress and their personal and social resources. Findings regarding mechanisms of action are more limited; theoretically important variables often changed in the hypothesized manner following prevention or clinical interventions, but few studies tested their mediating role using rigorous methodology. Gaps in the literature and recommendations for further research are discussed.

Group interventions in medical settings have drawn considerable attention in recent years (Burlingam, Fuhrman, & Mosier, in review). A growing database suggests that group services may play a useful role at varying phases of cancer and HIV-1 infection, spanning primary prevention through adjustment to established disease. As these fields mature, initial demonstrations of treatment efficacy have elicited more focused concerns regarding which types of interventions are most useful for which types of individuals, and what mechanisms underlie these changes.

Previous reviews have offered limited information about factors that might moderate treatment effects (Andersen, 2002; Helgeson, Cohen, Schulz, & Yasko, 2000; Meyer & Mark, 1995; Sheard & Macguire, 1999; Trijsburg, van Knippenberg, & Rijpma, 1992). In the cancer literature, a meta-analysis of diverse psychological interventions-- including individual and group treatments-- to reduce anxiety and depression noted stronger effects among more experienced clinicians (Sheard & Macguire, 1999). More equivocally, longer interventions seemed more helpful than briefer ones in addressing anxiety. Meyer and Mark (1995) detected no significant moderating effects (e.g., type of intervention, extent of disease) in their meta-analytic review; their analysis did not focus specifically on groups. Few systematic reviews have addressed moderators of group interventions for patients infected by or at risk for HIV (CDC, 2002b).

One of the factors that would be expected to have a strong impact on treatment efficacy is the participants' phase of illness (Andersen, 1992; Meyer & Mark, 1995). In Part I of this review, we examined the effects of different group interventions for individuals at different phases of treatment, ranging from healthy participants at elevated risk to patients confronted by advanced disease. Current findings offer some support for the use of different approaches at different points in the illness trajectory. In particular, evidence is strongest concerning skills-focused groups for primary prevention of HIV infection, structured psychoeducational groups at early phases of cancer or HIV disease, and more interactive groups at later phases, particularly for cancer. Clearly however, response to group services may be influenced by a host of other important factors. Differences in dose, duration, timing, and clinician competence may shape the efficacy of psychosocial interventions just as they do for medical treatments. Presumably, the personal qualities of the participants and the social context in which they are embedded play a decisive role as well. In Part II of our review, we examine selected characteristics of the intervention (e.g., treatment intensity, group leaders) and the participants (e.g., demographic and medical factors, personality and social variables) that might influence group outcomes. Although the database concerning the impact of these variables is limited in both the cancer and HIV settings, a review of the current literature, encompassing findings across these two different illnesses, may offer useful clinical information and pave the way toward more focused research.

The current review also considers group process variables and mechanisms of action-- areas that similarly have received little attention thus far. Although it is not critical to understand mechanisms of change in order to offer an effective intervention, an understanding of these factors obviously can contribute to more robust clinical services and more refined theoretical models. We survey findings concerning group processes/dynamics (e.g., cohesion, curative factors) and patient characteristics (e.g., altered self-efficacy, risk perceptions, coping, social support) that might illuminate mechanisms of change. Although qualitative studies can provide rich information about process variables, in this review we focus on data from quantitative investigations. Thus, Part II of this review seeks to summarize quantitative findings concerning some of the moderators and mediators of group interventions for both cancer and HIV, noting parallels across the two disease states that might provide useful direction for investigators in each area. Since methodological issues were addressed in Part I, this part of the review focuses more on conceptual considerations and areas in need of further inquiry.

METHODS

Inclusion criteria and details of the search strategy were delineated in Part I of this review. In brief, a systematic search strategy was used in which studies were drawn from peer-reviewed North American and English-language and German-language European journals if they evaluated group interventions administered by professional or trained leaders, using quantitative statistical analyses of validated outcome measures. Qualitative studies and abstracts were excluded. Standardized coding sheets and tables were used by the reviewers to insure consistency of data. 47 studies in the cancer setting and 70 studies in the HIV setting were identified that met inclusion criteria.

CANCER

Moderators of Treatment Effects

Treatment duration and frequency. The "dose" of an intervention might be expected to influence its benefits. 45 of 47 studies delineated the number of sessions in the program. Most groups convened weekly, sometimes followed by a few booster sessions. Group duration varied widely. The interventions in 37 (82.22%) studies lasted less than 14 sessions, while those in 4 (8.89%) studies extended more than 35 sessions. Long-term interventions were more common for patients with advanced disease. Two studies made use of weekend retreats (Edmonds, Lockwood, & Cunningham, 1999; Schwartz, Feinberg, Jilinskala, Appelgate, 1999).

Only one study directly compared treatments that differed in duration (Cunningham, Jenkins, Edmonds, & Lockwood, 1995). A structured 6-week intervention was compared with a more compressed weekend version. The program combined coping skills and support for patients with diverse sites and stages of cancer. At the end of treatment and at follow-up, improvements in emotional distress were roughly comparable. Improvements in quality of life (QOL) were somewhat more pronounced in the longer intervention. The extent to which other groups could be offered successfully in briefer formats remains unclear. However, in several studies of long-term supportive-expressive therapy for patients with advanced disease, gains were not evident until many months into treatment (Spiegel, Bloom, & Yalom, 1981), suggesting that the value of abbreviated formats may depend in part on the nature of the intervention and the population. Similarly, there are indications that very brief groups are inadequate for individuals with clinical levels of distress (Hosaka, 2000). Determining the optimal "dose" and timing of interventions for patients with different capacities and preferences remains an important area for further inquiry.

Group leaders. The effectiveness of group interventions would be expected to be influenced by the qualifications, experience and allegiance of the therapists or leaders. As highlighted by Chambless and Hollon (1998), investigations of this assumption in the general psychotherapy literature have offered mixed results (Christensen & Jacobson, 1994). Moreover, therapist effects are harder to detect in controlled efficacy trials compared with naturalistic investigations, in view of the additional training and support that therapists typically receive during controlled studies (Chambless & Hollon, 1998; Cristis-Christoph et al., 1991). Nevertheless, there is some evidence in the psychotherapy literature that stronger benefits are associated with more trained or seasoned clinicians (Lyons & Woods, 1991). In the current review, 39 of 47 studies (82.98%) presented information about the number and background of the group leaders. Most groups were led by co-therapists (32, 74.42%) rather than single leaders. The interventions were delivered by a range of professionals and trainees, including those from psychology, social work, nursing, and psychiatry. Educational groups sometimes included presentations by outside speakers (5 studies, 12.82%), most commonly oncologists and dieticians. Information about the leaders' training and experience in group therapy was infrequently presented, and few studies evaluated therapist effects. The few data available hint at fairly comparable benefits among trained professional leaders. Outcomes did not differ across sites or clinicians in several

multi-center studies of supportive-expressive therapy groups (Goodwin et al., 2001; Spiegel et al., 1999) or in studies of more structured psychoeducational groups (Antoni et al., 2001; Samarel, Fawcett, & Tulman, 1997). Another investigation retrospectively compared outcomes among 5 leaders who had administered a brief psychoeducational group for patients with diverse types of cancer (Cunningham, Lockwood, & Edmonds, 1993). There were indications that one leader, a clinical psychologist, was less effective in reducing distress relative to other doctoral- or masters-level clinicians and a nurse, but this finding emerged on only one outcome measure, the basis for these differences was unclear, and they dissipated by follow-up.

No studies used randomized, stratified designs to compare leaders who differed in group therapy experience or skill level. Nevertheless, a few projects sought to enhance leader competence through use of training modules and manuals (Antoni et al., 2001; Classen et al., 1997; Goodwin et al., 2001; Spiegel & Spira, 1991). A notable example is the work of Classen and colleagues (1997), who used workshops, manuals, and videotapes to train community-based clinicians to conduct supportive-expressive group therapy with breast cancer patients; preliminary data suggested that the program was effective in enhancing competence (see Part III of this review for additional discussion of training issues).

Adherence to the intervention. Most oncology studies have not found meaningful relationships between attendance at group sessions and treatment outcomes (Coward, 1998; Edmonds et al., 1999; Helgeson et al., 2000; Spiegel et al., 1999; Watson, Fenlon, McVey, & Fernandez-Marcos, 1996). However, in a study of a mindfulness meditation group for patients with mixed types of cancer, Speca and colleagues (2000) found that patients with higher attendance had fewer stress-related symptoms, and those who spent more time practicing meditation exercises reported less distress. (Similarly, in research concerning immune outcomes, frequency of imagery practice was associated with increased natural killer cell activity among breast cancer patients enrolled in an imagery group (Richardson et al., 1997)).

Demographic and medical characteristics. As frequently noted (Cella & Yellen, 1993; Taylor, Falke, Shoptaw, & Lichtman, 1986), most participants in group programs were white individuals, most commonly well-educated women. A few studies explored whether response to treatment is influenced by differences in demographic characteristics. No strong findings emerged in these post-hoc analyses. Older patients, particularly those age 50-59, demonstrated fewer improvements on some outcomes in one large study (Cunningham et al., 1993) but not in other investigations (Baider, Uziely, & Kaplan De-Nour, 1994; Helgeson et al., 2000; Johnson, 1982). Results concerning gender have been weak and contradictory (Baider et al., 1994; Forester, Kornfeld, & Fleiss, 1993) or nonsignificant (Cunningham et al., 1993). Neither education (Cunningham et al., 1993; Helgeson et al., 2000) nor income (Helgeson et al., 2000) has been tied to treatment response, though average socioeconomic status was fairly high in most of these studies, perhaps masking differences at the extremes of the distribution. These findings suggest that groups are useful for a broad range of patients, but methodologically stronger studies using larger, stratified samples would be more illuminating.

With respect to medical characteristics, the importance of phase of illness was considered in Part I of this review. Other medical variables were explored in a few investigations. Current treatment (Baider et al., 1994; Edelman, Bell, & Kidman, 1999b), recurrent disease (Cunningham et al., 1993), and compromised performance status (Edelman et al., 1999b) were associated with more limited gains in some studies though not all (Johnson, 1982). Edelman et al. (1999b) reported that current chemotherapy primarily influenced changes in physical rather than emotional functioning during the course of group therapy, but Baider et al. (1994) noted that medical treatment inhibited improvements in distress. Cunningham et al. (1993) found that

short-term changes in overall QOL were tied to differences in disease site. Patients with melanoma improved most following a psychoeducational group, while those with colorectal cancer were least responsive; however, these differences were no longer evident by follow-up.

Personality and social factors. Response to group services may also be influenced by individual or contextual psychosocial variables. Investigators have begun to examine the level illness-related disruption that patients encounter, their personal and social resources, and their beliefs about their condition. One would anticipate that improvements would be more robust for patients who enroll with high levels of distress or impairment. This assumption was generally supported by five of six studies that assessed these effects in post-hoc analyses; participants with greater baseline distress (Baider et al., 1994; Classen et al., 2001; Goodwin et al., 2001; Spiegel et al., 1999) or pain (Goodwin et al., 2001) demonstrated greater gains on these outcomes than those who entered the program with fewer difficulties. Baseline depression did not influence response to group services in a study by Helgeson et al., (2000); however, there was a trend for patients with poorer mental health to respond better to an educational group. More favorable results for more depressed participants also emerged in an investigation of healthy women at heightened risk for breast cancer (Esplen et al., 2000). A study of Japanese breast cancer patients offered an exception to this general pattern (Hosaka, 2000)-- women with normative levels of distress displayed improved emotional functioning following a brief educational group, but those with adjustment disorders did not, implying the need for more intensive services. Overall, however, these findings mirror the results of a recent meta-analysis of psychological interventions for cancer patients; larger treatment effects seemed to emerge in studies that targeted patients with more intense symptoms (Sheard & Maguire, 1999).

Several other potential moderators of treatment outcome have been examined as well. Helgeson et al. (2000) evaluated the influence of social support (i.e., relationships with partner and physician) and personal resources (i.e., a composite of personal control, self-esteem, body image, and uncertainty about illness) among women with early-stage breast cancer. Patients in the control condition who experienced negative interactions with or limited support from their partners, or who received little informational support from their oncologists, displayed a worsening of physical functioning by the end of the treatment period. In contrast, those who participated in an educational group or in a peer discussion group were buffered from this deterioration. However, women who entered the program with closer, more supportive relationships with their partners or had more informative relationships with their oncologists were unaffected by the educational intervention, and were adversely affected by the peer discussion group. That is, these women experienced poorer physical functioning at the end of the discussion group. Responses also were colored by the personal resources that women brought to the experience. Those with few personal resources were protected from a deterioration in physical functioning if they attended the educational group. These resources did not influence responses to the peer discussion group. Thus, personal and social characteristics were associated with different short-term reactions to divergent types of groups. Those with the greatest needs profited the most. It is curious that these differences were evident for physical but not emotional functioning. Importantly, these patterns were less pronounced by the 6-month follow-up assessment, by which time baseline individual differences were less influential.

Several other studies point to the potential importance of patients' personal beliefs and appraisals. Among women with early-stage breast cancer, those with lower levels of optimism were more responsive to a stress management group than their more optimistic counterparts (Antoni et al., 2001). In particular, these women showed stronger gains in illness-related benefits or positive consequences, and in general optimism, as well as a trend toward improved depression. Thus, once again "the rich did not get richer," but rather those most in need

experienced the greatest improvements. In an evaluation of a psychoeducational group for patients with diverse sites/stages of cancer, individuals who had different expectations about the intervention experienced different QOL outcomes (Cunningham et al., 1993), although the importance of these expectations faded over time. Finally, individuals who reported being unaware of their cancer diagnosis demonstrated declines in emotional and physical functioning after a course of radiotherapy, while those who were familiar with their diagnosis improved (Forester et al., 1985). (Poorer outcomes for patients who deny or minimize their illness have been noted in other studies as well, prompting Fawzy et al. (1993) to offer the adage, "mobilize, don't minimize!") In this study, participation in a therapy group was helpful for both patient subgroups: it buffered deterioration for those who had been unaware or in denial of their diagnosis, and enhanced improvements for those who had been aware of it.

Process and Mediator Variables

Given growing evidence that group services may be helpful for cancer patients, what factors are responsible for these improvements? Mechanisms of action common to most of these groups might include, among others, enhanced social support, reassuring social comparisons, emotional disclosure, increased perceptions of control or self-efficacy, and a deeper sense of meaning. In addition, therapeutic gains associated with structured, cognitive-behavioral groups presumably would be tied to development of coping or self-management skills, while improvements associated with less structured, more interactive groups might be mediated by existential changes or deeper levels of emotional processing. Of course, some treatment models may encompass a broader range of these factors than others (e.g., supportive-expressive therapy).

Among the variables that might be construed as potential mediators, cancer investigators have begun to explore changes in coping, self-efficacy, purpose in life, social support, perceptions of control, and emotional processing. Usually these variables were viewed as *outcomes* rather than mechanisms of action, but positive findings would provide a first step in demonstrating a mediating or explanatory role. Improvements in coping¹ were noted in four of seven studies that assessed coping changes (Esplen et al., 2000; Fawzy et al., 1990a, Hosaka, 2000; Richardson et al., 1997; Roberts, Piper, Denny, & Cuddleback, 1997; Spiegel et al., 1981, Wenzel, Robinson, & Blake, 1995). Specific benefits included increased active-behavioral coping, active-cognitive coping (Fawzy et al., 1990a), positive reappraisal (Esplen et al., 2000), and seeking social support (Richardson et al., 1997), in conjunction with diminished reliance on poor health habits to manage stress (Spiegel et al., 1981). Findings regarding coping did not seem strongly tied to the nature of the intervention (structured vs. less structured).

Self-efficacy was examined in two studies (Cunningham et al., 1993; Telch & Telch, 1986); improvements were more pronounced following structured as opposed to less structured groups. More broadly, self esteem was assessed in four studies (Edelman, Bell, & Kidman, 1999a, Edelman et al., 1999b, Helgeson, Cohen, Schulz, & Yasko, 1999; Spiegel et al., 1981). Structured interventions led to positive changes (Edelman et al., 1999a, Edelman et al., 1999b, Helgeson et al., 1999) while less structured groups did not (Helgeson et al., 1999; Spiegel et al., 1981). In addition, a number of studies demonstrated alterations in perceived meaning or purpose in life (Antoni et al., 2001; Cunningham et al., 2000; De Vries et al., 1997; Johnson, 1982; see Coward, 1998 for mixed results); there was no clear patterning for type of intervention. Of course, altered perceptions of meaning and self-efficacy might stem from, and in turn influence, changes in coping (Bower, Kemeny, Taylor, & Fahey, 1998).

On the other hand, results were more negative for social support and locus of control (LOC). Somewhat surprisingly, only three (Esplen et al., 2000; Helgeson et al., 1999; Richardson et al.,

1997) of ten investigations (Bottomley, Hunton, Roberts, Jones, & Bradley, 1996; Coward, 1998; Edleman et al. 1999a, Edleman et al., 1999b, Edmonds et al., 1999; Evans & Connis, 1995; Gruber et al., 1993) reported improvements in various aspects of social support, and one of the studies that noted positive effects provided no data, leaving conclusions rather ambiguous (Richardson et al., 1997). Negative changes were noted as well. Whereas participants in an educational group reported enhanced communication, those enrolled in a peer discussion group displayed more negative interactions with others in their social network (Helgeson et al., 1999).

LOC was assessed in six studies, which varied in their focus on generic vs. illness-related perceptions of control (Baider et al., 1994; De Vries et al., 1997; Evans & Connis, 1995; Gruber et al., 1993; Illyckj, Farber, Cheang, & Weinerman, 1994; Spiegel et al., 1981). Significant findings emerged in only one investigation (Baider et al., 1994). Conceptually-related constructs and measures may prove more useful, however. Patients reported less uncertainty about illness and marginally stronger perceptions of personal control after participating in an educational group (Helgeson et al., 1999).

The studies noted above provide hints about connections between potential mediators and outcomes. However, very few investigations employed statistical analyses to formally test for mediation. In one of the few studies that pursued this line of inquiry, the effects of an educational group seemed to be explained by changes in self-esteem, body image, and intrusive thoughts (Helgeson et al., 1999).

Treatment outcomes might also be shaped by group processes or dynamics. Some processes characterize the functioning of the group-as-a-whole, such as "group work," avoidance, or conflict, while others are tied to the experience of individual participants, such as insight, catharsis, or belonging (Burlingame, MacKenzie, & Strauss, in press; MacKenzie & Tschuschke, 1993). Surprisingly few oncology studies have examined these variables (Simonton, Sherman, Fowler, Adams, & Suen, 2002), and no investigations meeting our inclusion criteria specifically tested their role in mediating outcomes.

A few studies asked participants to endorse components of the group experience that they found most helpful, using checklists of factors thought to be curative or therapeutic (Yalom, 1980). Following a support group for rural Scottish patients with metastatic cancer, participants reported that the most helpful factors included not being alone, talking about things that really matter, catharsis, and the opportunity to see others being helped (Llewelyn et al., 1999). Similar findings regarding the value of sharing concerns and receiving support from peers emerged in a few other investigations in our review (Cella, Sarafian, Snider, Yellen, & Winicour, 1993; Edelman et al., 1999a), and these results are consistent with data from a large number of qualitative and descriptive investigations (Cope, 1995; Feigin et al., 2000; Stevens & Duttlinger, 1998). As might be anticipated, the variables considered most helpful differed somewhat across different types of interventions, from more structured, psychoeducational groups (e.g., "learning stress management skills") to less structured, more interactive ones (e.g., "making new friends") (Edelman et al., 1999a). However, these studies used unvalidated, investigator-derived measures. In the broader group psychotherapy literature, researchers have gradually moved away from participant-rated therapeutic factors assessed on a single occasion toward repeated measures of more sophisticated, informative aspects of group process, assessed with validated instruments (Burlingame et al., in press); these might include observer-rated patterns of self-disclosure and feedback, self-reported engagement in the work of the group, or changes in relatedness or avoidance at different phases of group development.

HIV DISEASE

Moderators of Treatment Effects

Treatment duration and frequency. Groups in clinical settings were designed primarily to enhance adjustment and QOL for patients with varying stages of HIV-1 infection, while primary prevention programs were intended to alter risk behaviors and associated beliefs among healthy individuals at risk for infection. Most of the clinical evaluations focused on short-term groups, ranging from 6 to 24 sessions over the course of 6 to 12 weeks. One included a full-day retreat in the middle of the program (Mulder et al., 1994). None of the clinical studies directly compared the same intervention administered in different "doses" or durations.

Not surprisingly, primary prevention services were briefer, notwithstanding the growing focus on providing more intensive programs. Most groups ranged from 1 to 8 sessions, sometimes including an additional 1-2 booster sessions. Nine studies (18.00%) evaluated longer programs, spanning 9-20 sessions--these were usually clustered closely but sometimes included booster sessions spaced over longer intervals (Kelly, St. Lawrence, Hood, & Brasfield, 1989; Kirby, Barth, Leland, & Fetro, 1991; Main et al., 1994; Otto-Salag, Kelly, Stevenson, Hoffman, & Kalichman, 2001; Roffman et al., 1998; Rotheram-Borus, Koopman, Haignere, & Davies, 1991; Susser et al., 1998; Weeks et al., 1997; Weinhardt, Carey, Carey, & Verdecias, 1998).

Two prevention studies examined differences in program duration, using experimental designs. More intensive services were associated with stronger gains. In a project targeting African American gay men, three group sessions led to greater reductions in unprotected sex than a briefer one-session format (Peterson et al., 1996). Similarly, a group program for African American and Latino adolescents was more effective when it was administered over 7 sessions than when consolidated into 3, even though the total hours of intervention were the same (Rotheram-Borus, Gwadz, Fernandez, & Srinivasan, 1998). Other studies also found support for longer interventions (Rotheram-Borus et al., 1991; Rotheram-Borus, Murphy et al., 1998).

Group leaders. As in the cancer setting, most group programs were implemented by co-leaders rather than single leaders (13 of 15 [86.67%] clinical evaluations and 27 of 42 [64.29%] prevention studies² that provided this information). As might be expected, clinical studies relied on mental health professionals or trainees to deliver services (15 of 17 studies that provided these details). However, details about the identity and training of the group leaders were rarely provided in the primary prevention trials, which often noted use of "trained interventionists" without specifying their experience.

A few prevention studies examined therapist or leader effects; thus far there is little evidence of meaningful differences among trained facilitators who administer these highly structured programs. In a prevention project for male African American adolescents, those who had a male group leader displayed greater gains in HIV knowledge, while those who had a female leader reported reduced risky sexual behaviors and improved attitudes toward prevention (Jemmott, Jemmott, & Fong, 1992). However, in subsequent research by the same team, results were not strongly influenced by the gender of the facilitators, nor by matching the gender or race of the facilitators with the characteristics of the participants (Jemmott, Jemmott, & Fong, 1998; Jemmott, Jemmott, Fong, McCaffree, 1999). Single-gender groups were not more effective than mixed-gender groups (Jemmott et al., 1999), and outcomes did not differ according to whether they were led by trained adult facilitators or by trained adolescent peers (Jemmott et al., 1998). Similarly, in other groups directed toward high school students (Walter & Vaughan, 1993) and college students (Sanderson & Jemmott, 1996), results were not influenced by the particular leader who delivered the service or by ratings of leader competence. Thus, trained leaders using formalized interventions seem to yield comparable results in prevention programs, at least among adolescents; whether therapist effects would be more

pronounced in other populations at risk or in clinical venues remains to be determined.

Adherence to the intervention. In contrast to the cancer literature, adherence was more consistently associated with outcomes in the HIV setting. Among patients with HIV-1 infection, those who practiced relaxation exercises more frequently (Antoni et al., 1991; McCain, Zeller, Cella, Urbanski, & Novak, 1996) or consistently (Lutgendorf et al., 1997) during the course of stress management groups generally experienced greater improvements in distress than their less adherent companions. (Stronger alterations in neuroendocrine or immune activity also were associated with more frequent session attendance (Goodkin et al., 1998) or relaxation practice (Antoni et al., 1991; Antoni, Cruess, Cruess et al., 2000; Cruess, Antoni, Kumar & Schneiderman, 2000)). Similarly, in primary prevention studies, participants who attended a greater number of sessions showed greater benefits (Branson, Peterman, Cannon, Ransom, & Zaidi, 1998; NIMH Multisite HIV Prevention Trial Group, 1998; Rotheram-Borus et al., 1991; Stanton et al., 1996; see Rotheram-Borus, Murphy et al., 1998 for an exception).

Demographic and medical characteristics. Group interventions for HIV-1 infected patients were directed predominantly toward gay men. Most were well-educated white or Hispanic patients. No information is available concerning whether subgroups of patients with varying demographic backgrounds (e.g., different levels of education, income, ethnicity, age) would respond differently to the services offered. Moreover, to date we are aware of no studies that have formally examined whether differences in medical characteristics (e.g., performance status, extent or duration of antiretroviral treatment, time since diagnosis or emergence of active symptoms) might influence response to group interventions for HIV-infected patients.

Primary prevention studies, as a group, reflected much greater ethnic, cultural, and socio-economic diversity compared with clinical studies. Through formative research, investigators sought to lower practical barriers to participation, employ culturally sensitive materials, and induce a sense of group pride. Most interventions targeted a specific population at risk. Nevertheless, some samples were more heterogeneous than others, and there have been preliminary efforts to explore whether different demographic subgroups respond differently to a given intervention. Findings have been mixed. A group program for gay Asian men noted that Chinese and Filipino participants benefited more (i.e., showed greater reductions in unprotected sex) than other Asian groups (Choi et al., 1996). Group outcomes did not differ by ethnicity (Cohen, Dent, & MacKinnon, 1991; Rotheram-Barus et al., 1991; Walter & Vaughan, 1993) or age (Cohen et al., 1991; Rotheram-Barus et al., 1991; Stanton et al., 1996; Walter & Vaughan, 1993) in the few other studies that examined these variables. Similarly, the large NIMH Multisite Prevention Trial (1998), which targeted patients at urban STD clinics, did not find differential effects with respect to ethnicity, age, education, recent substance abuse, engaging in commercial or survival sex, or recent use of mental health services, implying that highly structured, culturally-sensitive prevention services might have broad applicability (see also Jemmott et al., 1999).

Stronger findings emerged for gender, reflecting the different needs that men and women sometimes experience in negotiating about sexual practices, accommodating culturally defined sex roles and assumptions about fidelity, and managing power inequities. Gender differences were reported in some prevention studies (Cohen, Dent, MacKinnon, & Hahn, 1992; Cohen, MacKinnon, Dent, Mason, & Sullivan, 1992; Kirby, Barth, Leland, & Fetro, 1991; Otto-Salag et al., 2001; Stanton et al., 1996; St. Lawrence, Brasfield et al., 1995) though not others (NIMH Multisite HIV Prevention Trial Group, 1998; O'Donnell, San Doval, Duran, & O'Donnell, 1995; Sanderson & Jemmott, 1996; Walter & Vaughan, 1993). For example, women reported greater risk reduction behaviors than men following a skills-training group for individuals with chronic

mental illness (Otto-Salag et al., 2001). Women may have experienced more pronounced gains because the strong focus on assertive communication was more helpful for them, or because men in the sample struggled with higher rates of substance abuse and schizophrenia. In other settings, on the other hand, men but not women benefited from very brief services offered in the waiting rooms of STD clinics (Cohen, Dent et al, 1992). However, outcomes for women were no different from those of men in STD clinic studies which offered more intensive interventions in more private settings, and which offered separate groups by gender (NIHM Multisite HIV Prevention Trial Group, 1998; O'Donnell et al., 1995). Clearly, it will be important for investigators to continue to explore how needs may differ for women and men.

Personality and social factors. In general, the cultural context in which participants live (e.g., homophobia, racism, unemployment) received considerable emphasis in the planning and pilot testing of interventions for individuals at risk for or infected by HIV. However, other individual differences received little attention. Thus, the potential importance of personality (e.g., optimism) or social (e.g., social constraints, perceived support) factors is unclear.

Consistent with the cancer literature, however, there are indications that HIV-infected patients with varying levels of distress respond differently to group services. Following participation in a cognitive-behavioral group for gay men with symptomatic disease, improvements were most pronounced for those who had enrolled with the greatest distress (Lutgendorf et al., 1997). In this study, as in many others, patients with severe levels of distress were screened out. On the other hand, a study by Zisook et al. (1998) focused on patients with major depressive disorders. Those who presented with more severe levels of depression responded better to combined treatment with group therapy and pharmacotherapy (fluoxetine, up to 60 mg), relative to group treatment alone. In contrast, patients with major depression of more mild severity did not seem to require the antidepressant to obtain comparable relief (Zisook et al., 1998).

Process and Mediator Variables

What factors might help explain the beneficial effects of group interventions for individuals with HIV-infection? As is the case in the cancer setting, groups for patients with HIV disease are presumed to be helpful, in part, because of their role in bolstering coping resources, perceived control, social support, emotional expression, or a sense of meaning. Most groups for HIV-infected patients were grounded in cognitive-behavioral models, which might be expected to have a particularly salient impact on participants' coping efforts. Five studies (Chesney, Folkman, & Chambers, 1996; Lutgendorf et al., 1998; Mulder et al., 1994; Rotheram-Borus, Lee, Gwadz, & Draimin, 2001; Targ et al., 1994), most involving fairly structured interventions, assessed changes in coping. Positive findings were noted in three of these studies (Chesney et al., 1996; Lutgendorf et al., 1998; Targ et al., 1994), which pointed to enhanced coping self-efficacy, diminished avoidance, and increased use of cognitive coping strategies such as positive reframing and acceptance. Changes in social support were evaluated in five investigations (Chesney et al., 1996; Cruess, Antoni, Cruess et al., 2000; Kelly et al., 1993; Lutgendorf et al., 1998; Mulder et al., 1994). In two studies, patients reported significant improvements in at least some aspects of perceived support after participating in a cognitive-behavioral group (Cruess, Antoni, Cruess et al, 2000; Lutgendorf et al., 1998), while another study noted marginally increased perceptions of support for participants in a support group but not in a cognitive-behavioral group (Kelly et al., 1993). Less compellingly, Chesney et al. (1996) reported that social support increased from baseline levels for participants in a coping group but also for those in an HIV-information comparison group and in a wait-list control condition. With respect to other potential mediators, there were no changes in emotional expression for individuals who participated in either a cognitive-behavioral group or a support group (Mulder et al., 1994). However, as predicted, self-efficacy for managing physical symptoms was increased

in a program that focused on helping patients to control these symptoms (Gifford et al., 1998).

These investigations indicate that, among gay men with HIV-1 disease, some group interventions lead to expected changes in coping and social support; however, these studies did not include statistical tests of mediation. Lutgendorf and colleagues (1998) specifically examined whether these variables might play an explanatory role, using a series of multiple regression analyses (Baron & Kenney, 1986); as anticipated, results suggested that improvements in mood disturbance were mediated by changes in coping (acceptance and positive reframing) and social support (attachment, reliable alliance, and guidance). The importance of these mediators varied across different outcomes (e.g., total mood disturbance, depression, anxiety). Chesney et al. (1996) similarly reported that, as predicted, changes in coping self-efficacy were correlated with changes in measures of emotional distress.

Primary prevention studies, on the other hand, have posited a different set of mediating or explanatory variables that are deemed important in order for group programs to succeed. Although the specific factors vary with different conceptual models (e.g., Social Cognitive Theory, Health Beliefs Model, Information-Motivation-Behaviors model, etc.), changes in HIV risk behaviors are thought to stem from alterations in important beliefs and skills, such as knowledge about HIV transmission, perceived vulnerability to infection, perceived social norms concerning safer practices, self-efficacy, intentions regarding sex-risk behaviors, and behavioral skills with respect to sexual communication and correct condom use. A comparison of the different models is beyond the scope of this paper. However, most prevention studies demonstrated positive changes in some of these variables; thus a large body of investigations offers partial support for the underlying models. Rarely, however, were there significant changes in the full set of variables hypothesized to be important, and rarely were multivariate analyses (e.g., regression analyses, path analyses, structural equation modeling, etc.) used to specifically test their mediating role. Mechanisms of change might be expected to differ among different settings and populations. Among patients at an urban STD clinic, the benefits of a brief group intervention appeared due in part to increased perceptions of personal vulnerability and increased self-efficacy (O'Donnell et al., 1995). In contrast, a study among college students highlighted the mediating role of intentions to use condoms (Sanderson & Jemmott, 1996).

Very little quantitative data are available concerning group process variables. A few studies reported post-treatment ratings of patient satisfaction or group cohesion (Rotheram-Borus et al., 2001; Sikkema, Winett, & Lombard, 1995), but more substantive measures of group process variables, their change over time, and their potential role in mediating outcomes, was not assessed in either clinical or primary prevention settings.

DISCUSSION

Information about "what works for whom" enables clinicians and program managers to better tailor their services, and helps investigators prioritize areas in greatest need of research. Although data are limited, the current review offers initial indications regarding how group services can be optimized, and which interventions are best suited for which individuals. Part I considered the efficacy of different types of interventions at different phases of illness, so here we focused on other salient characteristics of the intervention and the participant. In the primary prevention arena, more intensive interventions spaced over longer periods appear to be more effective than briefer, less intensive ones in reducing HIV risk behavior (Peterson et al., 1996; Rotheram-Borus, Gwadz et al., 1998). The type of leaders who administer these highly formalized, culturally-tailored curricula appears to be less critical. Among high-risk teenagers, benefits were comparable across group leaders who differed in their demographic background (e.g., matched or mismatched to participant gender and ethnicity) and in whether they were

trained peers or adults (Jemmott et al., 1998; Jemmott et al., 1999). Further research might explore leader effects in other populations at risk, and in particular, might examine more closely the leaders' skill level or expertise. In clinical settings, research on these treatment parameters is quite limited. In a recent meta-analysis of diverse interventions for cancer patients, there were indications that longer interventions administered by more experienced clinicians were more effective (Sheard & Macguire, 1999). Comparison studies would help clarify the incremental effects of differences in the training and expertise of the group leaders, the intensity or duration of the intervention, reliance on closed vs. open membership, the inclusion of booster sessions, and the use of pre-group training for participants (i.e., orientation as to how best to make use of groups). Recent efforts to develop modules for training and evaluating clinicians who administer supportive-expressive groups for cancer patients represent an important step forward in this area (Classen et al., 1997).

Treatment effects are influenced by characteristics of the participants as well as the interventions. Not surprisingly, better adherence to the intervention was associated with stronger gains among individuals infected by or at risk for HIV disease; findings concerning adherence were less consistent among cancer patients.

Women responded differently than men to some primary prevention programs; important features of successful groups for women included an intervention of sufficient duration (e.g., more than 15-20 minutes), convened in a private setting (e.g., not waiting rooms), which had a strong focus on communication and negotiation skills. Gender effects were reported more rarely in clinical settings, as one might anticipate since groups for HIV-infected patients were directed predominantly to gay men while those for cancer patients enrolled mostly women. Many investigators have noted that men are less likely to participate in support services (Berglund, Bolund, Gustafsson, & Sjoden, 1997; Cella et al., 1993; Cunningham et al., 1993; Taylor et al., 1986), and that educational formats may be more appealing for them than emotional support (Berglund et al., 1997); once enrolled, however, there are indications that they value the same features and remain involved as long as women do (Krizek, Roberts, Ragan, Ferrara, & Lord, 1999). For the most part, other demographic factors were not strongly tied to outcomes in either prevention or clinical settings. Clearly, however, these data don't capture the full story, since very few studies were designed to test their potential impact. In general, prevention studies have been much more deliberative about addressing these factors.

A number of other participant characteristics appear to influence response to group interventions, particularly among patients with established disease. Echoing findings in the general group psychotherapy literature (Brown, Burlingame, Lambert, Jones & Vaccaro, 2001), data from cancer patients (Baider et al., 1994; Classen et al., 2001; Goodwin et al., 2001; Sheard & Maguire, 1999; Spiegel et al., 1999) and HIV-infected patients (Lutgendorf et al., 1997) suggest that those with the highest levels of distress often demonstrate the strongest improvements. These findings cannot always be accounted for simply by regression to the mean, though floor effects may play a role. Among cancer patients, these findings are consistent with hints from recent meta-analyses of individual and group interventions, which reported nonsignificantly stronger effect sizes for patients with greater distress (Meyer & Mark, 1995; Sheard & Maguire, 1999). Similarly, research with cancer patients suggests that those with the fewest social and personal resources (e.g., lack of partner support, poor self-esteem, pessimism, perceptions of limited control and predictability) may experience greater gains on some outcomes (Antoni et al., 2001; Helgeson et al., 2000). Additional studies are needed to confirm these results, and to examine a wider range of other individual and situational factors that might influence response to services, such as attachment style (Ciechanowski et al., 2001) and interpersonal relatedness (Piper & Joyce, 1996). In particular, greater attention should be

paid to the more physically debilitated and more seriously distressed patient populations, for whom participation in routine psychosocial interventions may be prohibitively taxing (Coyne, Duan, Barg, Plamer, & Kagee, 2001), and who may require modified approaches (e.g., group meetings via telephone or interactive video, briefer formats, etc.). Such explorations would help clinicians more effectively tailor services to particular subgroups of patients.

In the interim, preliminary findings offer support for the basic premise that clinical services should be prioritized for those in greatest need (Andersen, 2002). Nevertheless, it seems clear that a wide range of participants benefit from group interventions, including those who are not greatly distressed. The nature of these gains may become even clearer as investigators move beyond narrow measures of emotional distress to examine a broader range of relevant outcomes (e.g., health behaviors, treatment adherence, hospital days, physical symptoms, family functioning, personal growth, benefit-finding). Therefore, suggestions to limit services to patients screened for elevated distress (Sheard & Maguire, 1999) seem overly restrictive, in our judgement, notwithstanding the press of limited healthcare resources.

Mechanisms of Action

The movement toward integrative, multimodal approaches that is evident in the general psychotherapy literature can be seen in the cancer and HIV fields as well, as typified by supportive-expressive group therapy (Spiegel & Spira, 1991) and cognitive-behavioral stress management (Antoni 2000; Antoni et al., 2001), among others. These models seek to capitalize on a range of diverse therapeutic factors within a cohesive theoretical framework. What processes help explain why these and other group services are effective for many participants?

Unfortunately, research on mechanisms of action is in its infancy. In clinical settings, the few investigations that have tested mediating variables suggest that changes in self-esteem (Helgeson et al., 1999), coping (Lutgendorff et al., 1998), and social support (Lutgendorf et al., 1998) may be some of the relevant pathways. These findings receive additional support from studies that documented treatment-related changes in these variables, although they did not specifically test their mediating role. In particular, a number of investigations demonstrated that group services are associated with enhanced coping for individuals with cancer (Esplen et al., 2000; Fawzy et al., 1990a, Richardson et al., 1997; Spiegel et al., 1981) and HIV disease (Chesney et al., 1996; Lutgendorf et al., 1998, Targ et al., 1994). These findings, though not universal, are consistent with theoretical models (Lazarus & Folkman, 1984) and a large body of descriptive research that highlights the important role of coping. Improvements in social support are presumed to be another important mechanism of change, particularly among patients confronted by illness-related stigmatization, alienation, or withdrawal. The few studies that examined social support yielded mixed results among patients with cancer (Bottomley et al., 1996; Edelman et al., 1999a, Edelman et al., 1999b, Edmonds et al., 1999; Esplen et al., 2000; Evans & Connis, 1995; Gruber et al., 1993; Helgeson et al., 1999; Richardson et al., 1997) or HIV-1 (Chesney et al., 1996; Cruess, Antoni, Cruess et al., 2000; Kelly, Murphy et al., 1993; Lutgendorf et al., 1998). It is unclear whether these discrepancies reflect differences in measures, interventions, or patient populations. The ambiguity is compounded by the fact that none of these studies specifically assessed support *within* the group (as opposed to more generic perceptions of social support). Support *within* the group might be more strongly tied to outcomes. In particular, there are hints in the general psychotherapy literature that support ascribed to the group is more strongly linked with improvements in interpersonal functioning than with improvement in symptoms (Braaten, 1989; Burlingame, Johnson, & MacKenzie, 2002).

Changes in emotional expression (Mulder et al., 1994), existential meaning (Coward, 1998; Cunningham et al., 2000; De Vries et al., 1997; Johnson, 1982; Antoni et al., 2001; Spira, 1997) or social comparison processes (Stanton, Danoff-Burg, Snider, Cameron, & Kirk, 1999) received little attention as potential mediating variables, despite their conceptual relevance. In assessing their role, it would be important for investigators to insure that measures of these constructs are not confounded with outcomes (e.g., that measures of emotional processing do not overlap strongly with distress or that indices of meaning in life are not confounded by well-being) (Stanton & Franz, 1999; Sherman & Simonton, 2001). Finally, there is a striking lack of data on group processes or dynamics in cancer or HIV settings. In the few instances in which group processes were reported, they were generally construed as a manipulation check (e.g., "was the group reasonably cohesive?") assessed at the end of the group (Rotheram-Borus et al., 2001; Sikkema et al., 1995). Among those in our review, we found no systematic studies of how group processes change over the life of the group or how they relate to outcomes (Burlingame et al., in press; Simonton et al., 2002). Greater familiarity with available self-report (e.g., Group Climate Questionnaire, MacKenzie, 1981; Curative Climate Instrument, Fuhrman, Drescher, Hanson, Henrie, & Rybicki, 1986) and observer-rating (e.g., Hill Interaction Matrix; Hill, 1973) measures may help health investigators examine these processes more closely.

Additional studies are needed to extend our understanding of the individual- and group-level variables that promote adaptive change during group interventions. Ideally, as the field advances, investigators might pursue comparison studies that encompass both process and outcome measures, thus allowing an examination of which process variables are most important for which types of interventions (e.g., cognitive-behavioral, existential-experiential, educational).

Relative to clinical programs, primary prevention projects have made better use of small pilot or formative studies to identify and modulate important process variables (e.g., matching of patient and therapist gender, incorporating cultural values) prior to beginning the primary investigation. They also have done a better job of clearly specifying mediating variables thought to be important (e.g., perceived risk, self-efficacy, sexual communication skills) and measuring these variables over the course of the intervention. Beliefs and attitudes tend to change in the expected directions following participation in skills-focused groups. However, additional work is needed to test these mediating pathways explicitly, using appropriate statistical models.

Recently, Folkman and Greer (2000) offered a conceptual model that might help guide future research on mediating pathways. They proposed that different treatment approaches might lead to improved outcomes by activating different types of coping strategies (i.e., problem-focused, emotion-focused, and meaning-focused). The interventions we reviewed seemed to encompass each of these coping domains, though with differences in emphasis. For medical patients, problem-focused coping might be promoted by recognition of personal needs and limits, healthy self-advocacy with medical providers, and development of communication and problem-solving skills-- processes that are especially emphasized in cognitive-behavioral interventions. Emotion-focused coping might be enhanced by social support, authentic expression of emotions, and development of self-soothing or relaxation strategies-- processes that are evident in both cognitive-behavioral and less-structured, more interactive groups (e.g., supportive-expressive therapy). Finally, meaning-focused coping might be enriched by a reevaluation of life priorities, efforts to find opportunities or benefits in tragedy, and development of hope and altruism-- processes that are especially nurtured in longer-term, existentially-oriented groups (e.g., supportive-expressive therapy, existential-experiential therapy).

In sum, initial progress has been made in determining which participants might benefit from various group interventions, and more tentatively, what processes might contribute to

these benefits. Given the prodigious difficulties inherent in studying these factors (e.g., the need for large, stratified samples to examine subgroup differences), it seems evident that investigators and service providers in one disease area may profit from attending to the advances of their counterparts in another area. Parallel results across the different medical conditions (e.g., the influence of phase of illness or baseline distress) help underscore basic properties, while unique or divergent findings may help point investigators in promising directions. Thus, for example, HIV researchers might profitably examine some of the individual difference variables that have emerged in the cancer literature (e.g., optimism, perceived control, negative interactions or "social constraints"), while cancer investigators might benefit from the expertise acquired in the HIV setting concerning culturally-tailored services. At a time of increasing specialization, such collaboration may accelerate progress in each of these areas.

Notes.

1. Assessments based on the Mental Adjustment to Cancer scale (Watson, Greer, Young, Inayat, Burgess, 1988) were not included in this section. Though these subscales sometimes have been viewed as measuring coping styles, the items overlap with psychological distress and well-being (e.g., helplessness), thereby confounding coping efforts with coping outcomes. The instrument seems better understood as a measure of psychological adjustment to illness, as posited by the authors.
2. An additional prevention study employed both peer co-leaders and adult single leaders (Jemmott, Jemmott, & Fong, 1998).

**Group Interventions for Patients with Cancer and HIV Disease: Part III. Clinical and
Policy Recommendations**

American Group Psychotherapy Association
Task Force on Group Interventions for Medical Patients

ABSTRACT

Group interventions have assumed a growing role in primary prevention and supportive care for cancer and HIV disease. Earlier sections of this review examined empirical findings for these interventions and provided recommendations for future research. The current section offers brief recommendations for service providers, policy-makers, and stakeholders.

Group services have occupied an increasingly prominent place in primary prevention programs and medical settings. In previous sections of this review we examined the efficacy of different group interventions at different phases of cancer or HIV disease (Part I), considered characteristics of the intervention and the participants that might influence outcomes, and discussed mechanisms of action (Part II). Methodological challenges and priorities for future research were highlighted. In this final section we offer brief recommendations for service providers, policy-makers, and stake-holders. We consider some of the barriers that constrain use of empirically-based group interventions, and note how these programs might be implemented more widely and effectively.

Disseminating services and reducing barriers to care:

Despite the mounting database supporting the efficacy of group interventions for individuals who are at risk for or have developed cancer or HIV infection, by all accounts these services are greatly underutilized. In many areas, particularly outside of large academic treatment centers, research-based prevention and clinical services are simply not available. In the primary prevention setting, the implementation of skills-oriented groups to reduce HIV-1 infection depends largely on the efforts of local AIDS service organizations and health departments (Kelly et al., 2000). A national survey of these community-based agencies indicated that there is support for group services; directors and front-line staff were favorably disposed toward research-based interventions (DiFranceisco et al., 1999). However, insufficient resources were a frequently cited barrier, particularly since skills-oriented groups are more intensive and expensive than the brief educational services that are commonly used (Somlai et al., 1999). Smaller agencies and those with less experience with group services expressed lower confidence in their ability to provide these interventions. The time and motivation required from participants, especially in longer interventions, is an additional obstacle (Kelly, Sogolow, & Neumann, 2000). Moreover, staff in the field are usually unaware of abstruse research findings published in scientific journals, and they lack the specific information needed to adapt and implement group programs (Goldstein, Wrubel, Faigeles, & DelCarlo, 1998; Kelly et al., 2000). A recent study found that group interventions were more likely to be adopted by local AIDS service organizations when they received more comprehensive assistance (Kelly et al., 2000). More specifically, agencies that received a program manual in conjunction with a staff training workshop and subsequent telephone consultation were more likely to implement these programs than agencies that received a manual alone. These results suggest that research-based interventions can be disseminated to the community successfully provided that there is sufficient collaboration and information exchange between academicians and community providers. Clearly, this stream of information needs to flow in both directions (Kelly, Sogolow, & Neumann, 2000). Recent efforts by the Centers for Disease Control and Prevention (CDC, 2000a) to identify empirically-supported interventions (HIV/AIDS Prevention Research Synthesis project) and to increase the availability of technical assistance, training, and intervention materials (Replicating Effective Programs) represent important steps forward in disseminating effective prevention programs. As suggested by Kelly, Sogolow, and Neumann (2000), these efforts might be further advanced if smaller community agencies partnered with larger ones that had already implemented these services, and that had already mastered some of the practical challenges of adapting them to local needs.

Group programs in clinical settings face additional barriers. Even where research-based group services are accessible, only a small proportion of patients who might benefit make use of them (Bauman, Gerverey, Siegel, 1992; Ford et al., 1990; Kalichman et al., 1997; Taylor et al., 1986). Among those who decline to participate, it remains unclear how many individuals are without perceived need as opposed to without hope of assistance (Berghlund et al., 1997; Leszcz & Goodwin, 1998). The stigmatization associated with psychosocial services and the lack of

advocacy by medical providers are important obstacles. While physicians usually support adjuvant psychosocial services, there are indications that they rarely recommend them to patients or provide referrals for them as part of their practice patterns (Del Giudice, Leszcz, Pritchard, & Goodwin, 1997). Rather, as highlighted by Cunningham (2000; Cunningham & Edmonds, 1996), such services are regarded by physicians and institutions as "extra" and not an intrinsic component of medical management.

A thorough discussion of barriers to care is beyond the scope of this paper. However, both accessibility and utilization might be improved if these interventions were promoted as a routine part of comprehensive care and if medical providers proactively recommended their use, (consistent with their approach to other supportive care needs, such as anemia, fatigue, lymphedema, or pain). Federal funding for translational projects that focus specifically on exploring barriers to care (descriptive research) and overcoming these barriers (translation and transfer research) would make an important contribution. Programs to educate medical providers and administrators about the scope of psychosocial morbidity (e.g., prevalence rates of depression, anxiety, disrupted functioning) and, more specifically, the efficacy of professionally-led group interventions, would be helpful. Such efforts should distinguish clearly between peer-led support groups (which have high public visibility) and the types of evidence-based, professionally-conducted interventions that were the focus of the present review. Finally, efforts to reach underserved populations would be enhanced by crafting programs that are culturally sensitive, that accommodate practical obstacles (e.g., transportation, child/elderly care), and that are supported by outreach to important community resources (e.g., churches, neighborhood centers, housing projects).

The "Group Competency Program" developed by Burlingame et al. (2002) illustrates a comprehensive approach to transferring effective group services beyond an academic treatment setting. Changes were introduced systematically at each level of the target organization to support group services. These included clearly communicating the hospital administration's commitment to group therapy (e.g., creation of a new Group Competency Task Force), creating an infrastructure to support group work (e.g., selecting a group "champion" or advocate to coordinate group services on each treatment unit), and developing hospital-wide standards for group programs and leader competency. Considerable attention was devoted to enhancing staff proficiency and morale (e.g., workshops, in-service training, supervision by consultants and peers). Although this project targeted a psychiatric hospital, elements of this model may prove helpful in medical settings as well.

Staff training

Efforts to disseminate effective group programs depend in part on the quality of training that staff receive. Limited familiarity with groups can contribute to staff resistance and low morale (Burlingame et al., 2002; Markus & Abernathy, 2001). And of course, inadequately prepared leaders will have difficulty adhering to the intervention model and delivering effective services. Large, multicenter trials have highlighted the importance of ensuring that the group intervention that is actually delivered in the field is the same as the one that was intended (Goodwin et al., 2001; NIMH Multisite HIV Prevention Trial Group, 1997; Spiegel et al., 1999). Assuring that the quality of an intervention is not eroded because of poor application is as critical in psychosocial care as is ensuring adequate dosing of a pharmacological agent in medical care.

Groups encompass both common therapeutic elements (e.g., cohesion, universality) as well as features that are specific to a given model (e.g., risk reduction skills, emotional processing). Developing the competence to use these elements effectively requires careful

training and continued development over time. Even in highly structured interventions, leaders need to address group dynamics and processes adeptly (e.g., establishing safe boundaries, ensuring equitable participation, tracking different tasks at different phases of group development). Leaders must be able to anticipate and manage the common challenges and opportunities that arise naturally within the group in order to maximize effectiveness and reduce negative outcomes. The research literature on HIV primary prevention underscores the importance of adequate training for providers. Such training goes well beyond written guidelines or packaged materials (e.g., NIMH Multisite HIV Prevention Trial Group, 1997). As illustrated by the Kelly et al. (2000) study noted above, community-based AIDS service organizations were more successful in implementing new programs when staff received more comprehensive training and follow-up.

Groups that focus on adjustment to illness or psychological comorbidity rather than primary prevention require other areas of clinical proficiency. A study by Helgeson, Cohen, Schulz, and Yasko (1999, 2001) implied that even peer support groups (which often are regarded as the least technically demanding for clinicians) can have deleterious effects if they are not adroitly facilitated, and if they elicit more affectively charged material than can be contained or worked through. Data from the Community Clinical Oncology Program (Classen et al., 1997; Spiegel et al., 1999) suggested that therapy groups for cancer patients can be conducted successfully by leaders who are not mental health professionals (e.g., nurses, physicians), but the training is intensive and goes beyond reading textbooks or guidelines. Training for group interventions should emphasize conceptual depth as well as technical or practical skills. In other words, efforts should be directed toward developing leaders who are "engineers" rather than only "draftsmen." Ongoing supervision within a peer or supervisory setting can help ensure that the competency standards achieved at the completion of training are maintained or enhanced over time. The Group Competency Program developed by Burlingame et al. (2002) focused on building skills for staff who were largely inexperienced with group therapy. Initial training emphasized basic group therapy principles, and was followed by workshops concerning specific group treatment models (e.g., multi-family groups; cognitive rehabilitation, etc.). Staff also were provided with ongoing group consultation with outside experts and with peers, and they received access to a centralized resource library of group materials.

Matching services to patients

The data examined in earlier sections of this review (see Parts I and II) offer some indications about which group interventions are effective for which individuals. The value of skills-oriented groups for prevention of HIV infection among healthy individuals at risk is now well established (NIH Consensus Development Conference Panel, 2000; CDC Compendium of HIV Prevention Interventions with Evidence of Effectiveness, 2002a). These groups are tailored to the needs of specific target populations (e.g., adolescents, women of color, men who have sex with men, individuals with mental illness). For patients with established disease, Cunningham and Edmonds (1996) offered a useful hierarchical framework to help guide decisions about which services should be offered to whom. Though designed for cancer patients, the model seems applicable for HIV-infected patients as well. The framework is predicated on the notion that psychosocial interventions are a basic component of comprehensive care and should be offered routinely to all patients, at least at the introductory educational level. In this clinical algorithm, treatment intensity is tailored to patient needs, readiness, and motivation. Brief educational classes are directed to newly diagnosed patients; these provide helpful information and require little commitment from participants. Short-term psychoeducational groups are offered to patients with greater needs or interests; these are designed to provide support, improve health behaviors, and develop a foundation of coping

skills. Finally, long-term, less directive therapy groups are available for patients needing or wishing more intensive interventions, particularly those facing the ongoing challenges of advanced disease. These groups provide continued support as well as a forum to explore emotional, relational, and existential changes. Similar suggestions have been offered in other conceptual models (e.g., Fawzy & Fawzy, 1998; Krupnick et al, 1993; Simonton & Sherman, 2000). This formulation is not intended to preclude the use or timing of other approaches, but it highlights the importance of tailoring treatment to patients' needs, interests, and capacities. For example, patients who are unable to participate in conventional weekly meetings due to distance from the clinic, physical impairment, or limited motivation, might be accommodated by brief workshops.

For clinicians attempting to match interventions with individual needs, group composition is another factor that requires careful consideration. In general, cohesion and identity are strongest in closed-membership groups that are homogeneous with respect to disease characteristics and demographic background. Sometimes individuals are reluctant to participate in groups with others whom they perceive as different or not sharing their particular concerns. For example, Kelly and Murphy (1992) noted hesitation among gay men with HIV infection to enroll in a group with heterosexual IV drug users, and similar reluctance among HIV seropositive women to participate in a group with men. Homogeneous groups help minimize the possibility that patients with limited disease will feel overwhelmed by the experience of those with advanced illness, or that patients with late-stage disease will feel poorly understood by their healthier peers. Regrettably, the reality in many treatment centers, where resources are limited or the number of participants available is small, is that groups often must accommodate a greater range of diversity. Narrowly targeted interventions are probably easier to implement in prevention programs, where services are briefer and the number of participants larger. In clinical settings, group leaders generally try to match participants as best they can, often differentiating by disease type or severity, gender, or ethnicity. Fortunately, despite the clear advantages of homogenous groups, more heterogeneous groups have much to offer as well; differences can open the way to rich therapeutic opportunities, provided that they are sensitively acknowledged and carefully addressed (Simonton & Sherman, 2000). Within both the cancer and the HIV literatures, positive findings emerged from many studies that included patients with mixed types or stages of disease, offering a measure of reassurance for clinicians required to work with more diverse groups (e.g., Kelly et al., 1993; Speca, Carlson, Goodey, & Angen, 2002).

Building better interventions

In Part II of this review, we considered findings regarding other basic parameters of group interventions, such as minimal expertise of the leaders, optimal duration of treatment, and methods to enhance maintenance of treatment gains. As noted, in primary prevention programs there is a general consensus that interventions should move beyond the 1-to-3 session formats that commonly have been used. Booster sessions were frequently recommended for both prevention and clinical programs, although rarely have they been tested empirically (relative to no booster sessions). Generating sufficient motivation among participants to enroll in these longer interventions may be challenging. Additional guidelines for clinicians and program planners regarding successful prevention services can be found in the CDC's (2002b) "Intervention Checklist;" these include clearly defined intervention goals, a theoretical foundation, adequate staff training, appropriate administrative support, and cultural competence, among others.

Attrition from the group can be highly demoralizing for the participants who remain (Yalom, 1995). Burlingame et al. (in press) underscore the importance of attending carefully to

group dynamics and employing strategies that promote group cohesion and engagement. Given the nature of the work, group interventions can be taxing for group leaders as well, especially those dealing with repeated losses among patients with advanced disease. Issues of mortality and loss are universal features of the human condition and foster strong identifications between clinicians and group participants. Common emotional reactions among leaders (e.g., feelings of loss and vulnerability) should be anticipated and addressed. The experience of leader burn-out, emotional depletion, or overidentification has been little studied in medical settings, but helpful strategies include regularly scheduled peer supervision/support, attention to personal limits and therapeutic boundaries, and recognition of and support for normal grieving.

Group interventions represent one component in a spectrum of psychosocial services, and they are likely to be most effective when they are integrated with other types of patient care. For patients with cancer or HIV disease, other important resources include evaluation of comorbid psychiatric, cognitive, and substance abuse disorders; individual therapy; family services; psychopharmacological consultation; and pastoral care (Simonton & Sherman, 2000). Similarly, lessons learned from primary prevention studies, both those that were successful as well as those that were not, highlight the importance of addressing a range of basic service needs (e.g., health care, job training, substance abuse services, Rotheram-Borus et al., 1991; Kalichman et al., 1997). Thus, programs with ready access to a network of relevant service agencies or health providers may offer more effective care than programs that function in relative isolation.

Addressing financial viability

Another important set of barriers, ever present but little addressed, concerns funding or reimbursement for group services. In the US, insurance coverage for medical patients who receive these services is marked by considerable constraints. Primary prevention services of any type are rarely reimbursed by third party payers; additional federal and state funding is required to disseminate group programs whose efficacy and cost-effectiveness have been established. Program cost was the primary barrier to use of research-based interventions cited in a national survey of AIDS service organizations (DiFranceis et al., 1999). Empirically supported interventions require staff training and infrastructure to support them. Nevertheless, as noted by Kelly, Sogolow, and Neumann (2000), "...the support of effective programs at higher cost may be a wiser investment than the support of lower-cost programs of less or unknown effectiveness" (p. 139). Initiatives such as the CDC's Replicating Effective Programs (CDC, 2002a) are contributing to broader availability of services, but there remain many underserved areas.

Among patients with established disease, coverage for behavioral or psychosocial interventions by third-party payers traditionally has been limited to mental health rather than medical benefits, which require submission of a DSM-IV psychiatric diagnosis. Often this seems inappropriate for services geared toward medical patients, many of whom lack a psychiatric diagnosis and who seek more focused assistance with illness-related adjustment, medical knowledge, health practices, lifestyle factors, symptom management, and coping. If insurance companies are persuaded to accept newly revised CPT codes (96150--96155; American Medical Association, 2002), which now include provisions for health and behavioral services administered to medical patients, then some group interventions might be reimbursed as part of medical rather than mental health services, without requiring a psychiatric diagnosis or inappropriately depleting mental health benefits. Of course, services for patients with more prominent psychiatric difficulties, such as major depression or cognitive impairment, would be billed in the traditional manner. Advocacy by federal agencies such as the Center for Mental Health Services (CMHS) could play a meaningful role in supporting this transition and insuring

that these changes are actually implemented. The large number of uninsured patients, and those with Medicaid, obviously face additional obstacles. Dedicated funding to treatment centers for provision of adjuvant psychosocial services might help address the needs of a great many medical patients who are currently unserved. It is possible that such services would demonstrate a medical cost offset associated with reduced complications and expensive inpatient care later in the course of treatment (Caudill, Schnable, Zuttermeister, Benson, & Friedman, 1991; Deter, 1986; Lorig, Mazonson, & Holman, 1993; Lorig et al., 2001).

Conclusion

For individuals facing cancer or HIV disease, group interventions represent an important component of primary prevention and supportive care. Efforts are underway to refine these services and tailor them to the needs of different populations. Priorities for service providers and stakeholders include: (1) improving strategies for dissemination of effective services from academic institutions to community providers, (2) assuring that research is informed by the needs and experiences of community providers, (3) educating administrators and health providers about the value of group services, (4) providing adequate staff training and support (e.g., training modules), (5) strengthening outreach to underserved communities and ensuring that interventions are culturally appropriate, (6) activating mechanisms for health insurance coverage for services that fall outside of mental health, (7) ensuring adequate federal funding for technology transfer and dissemination efforts, (8) securing funding for services to uninsured segments of the population, and (9) identifying additional barriers to care.

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Table 1. Immune and neuroendocrine outcomes among cancer patients

Study	Sample	Intervention	Group Leaders	Measures	Design ^a	Major Results
Cruess et al., 2000	34 patients with newly dx-ed stage I or II breast cancer 67.7% white, 17.6% Hispanic	10 weekly sessions of Cognitive-Behavioral Stress Management group vs. Control condition (one-day seminar re: topics covered in the tx group)	Co-leaders, (post-doctoral fellows or graduate students in clinical psychology)	Cortisol Benefit-Finding, Abbreviated POMS	RA to Alt tx no f/u	Tx group demonstrated sign. lower cortisol (and greater benefit finding) relative to controls, after controlling for covariates. Path analysis suggested that the impact of the intervention on cortisol was partially mediated by its effects on benefit finding.
De Vries et al., 1997	24 patients with progressive cancer who were no longer eligible for curative tx 58% female, no info on ethnicity (Dutch study)	12 sessions of individual counseling and biweekly group sessions, using experiential/existential therapy	Co-leaders, (psychotherapists, supervised)	NK activity Adapted Zung Depression scale, Loneliness Inventory, Cancer LOC	NCPP No f/u	No sign. changes in NK activity, (though those with arrested tumor growth appeared to have high NK activity at baseline or to increase it over course of intervention.) Change in NK activity not sign. correlated with changes in psychological measures. (69.6% attrition, excluding ineligible patients)
Fawzy et al., 1990b	61 patients with recently dx-ed early-stage malignant melanoma 54.10% female, 99% white	6 weekly sessions of cognitive-behavioral group vs. control condition	Co-leaders, (psychiatrist and a cancer survivor)	NK activity, interferon-augmented NK activity, large granular lymphocytes (LGLs), CD3, CD8, CD38 activation marker	RC F/u at 6 months Adjusted for age, sex, cohort, baseline immune values	Relative to controls, tx group displayed sign. greater increase in LGLs at post-tx, and sign. greater increase in LGLs, NK cells (CD56 and CD16), and interferon-augmented NK activity at f/u. CD4 cells decreased for these patients. For sample as a whole, changes in immune activity correlated with changes in anxiety, depression, and anger but not coping.
Gruber et al., 1993	13 patients with lymph-node negative breast	15 group sessions over 9 weeks involving training in relaxation, guided	No info on group leader(s)	NK activity, con-A, mixed lymphocyte	RawC + cross-over	Sign. group differences in con-A, MLR, WBC, lymphocytes, IgG, and cortisol.

	cancer, with no adjuvant therapy	imagery, EMG biofeedback		responsiveness (MLR), IL-2, IgG, IgA, IgM, WBC, lymphocytes, plasma cortisol	design	Within-group analyses (pooling the 2 groups after tx) yielded sign. effects for NK activity, con-A, MLR, PBL.
	No info on ethnicity	Monthly booster sessions over the 15 months of the project Tried to minimize group therapeutic effects and retain focus on self-regulation skills		MMPI; MBHI; Sarason Social Support Scale; Rotter LOC; ABS; MAC		No sign change in psychological measures.
Richardson et al., 1997	47 patients who had completed tx for non-metastatic breast cancer, average of 11 months post-tx 70% white	Six weekly 1-hr group sessions: 1. Imagery/relaxation group: included imagery, relaxation, goal-setting, journaling. Also received 1 individual session 2. Support group 3. Standard care	Co-leaders (SW and hypno-therapist for imagery group, and 2 SW's for support group)	NK activity, IL-1 α , IL-1 β , IL-2, IFN- γ , neopterin, Beta endorphins FACT-B, Brief POMS, Ways of Coping-Cancer, Duke UNC Functional Social Support, Life Attitude Profile	RA to Alt tx No f/u Adjusted for baseline score, age, stage, months post-tx	No sign. group differences in immune or endocrine measures.
Schedlowski et al., 1994	24 women with stage I or II breast cancer, average of 21-25 months post-surgery No info on ethnicity (German study)	10 weekly sessions of behavioral group (including relaxation training, health educ, and coping skills) vs. wait-list control condition	No info on group leader(s)	WBC, lymphocyte, and monocyte counts, plasma cortisol, assessed before and after session 2 and 10 Coping scale (FEKB)	Nonrand omized parallel group study No f/u	Relative to controls, tx group showed sign. acute reductions in cortisol and increases in lymphocyte count from before to after 2 nd session, but not from before to after 10 th session. Longer-term changes from start to end of tx were marginally sign. No correlation between cortisol and lymphocyte changes.
Van der Pompe, Antoni et al.,	22 women with lymph node positive or	13 weekly sessions of Experiential-existential group therapy vs.	Co-leaders (experienced therapists)	Response to brief lab stressor:	RC No f/u	Relative to controls, tx group demonstrated reduced number of NK cells and reduced NK activity (even

2001	metastatic breast cancer No info on ethnicity (Dutch study)	Wait-list control		CD3, CD4, CD8, CD16/56, CD19, NK activity, response to PHA and pokeweed, plasma NE, E, HR, DBP, SBP		after adjusting for NK cell numbers) following exposure to lab stressor. Smaller stress-induced increases in NK cells or NK activity were associated with greater increases in emotional expression over the course of the intervention. Post-tx emotional expression correlated negatively with changes in NE during and after the lab stressor.
Van der Pompe et al., 1997	23 patients with lymph node-positive or metastatic breast cancer No info on ethnicity (Dutch study)	13 weekly sessions of Experiential-existential group vs. Wait-list control	Co-leaders (experienced therapists)	Cortisol; ACTH; prolactin; % of total lymphocytes, CD3, CD4, CD8, NK cells; NK activity; response to PHA, pokeweed BDI, State-Trait Anxiety Inventory, POMS	RC (plus matched comparison group of healthy women) No f/u	Among patients with high baseline levels of prolactin, cortisol, and pokeweed response, those in the tx group demonstrated lower levels at post-tx than those in control condition. Among patients with high baseline levels of CD4, CD8, and NK cells, those in the tx group had lower percentages at post-tx than did those in the control condition. Changes in trait anxiety were associated with changes in CD4 and pokeweed response; changes in depression were associated with changes in NK cell %; and changes in POMS were associated with changes in pokeweed response.

^aNcPP = no control group, pre-post design, RA to Act Tx = random assignment to active treatments, RC = random assignment with control

ABS= Affects Balance Scale, DBP = diastolic blood pressure, E = epinephrine, IFN = interferon, IL = interleukin, HR = heart rate, LOC= locus of control, MAC = Mental Adjustment to Cancer; MBHI= Millon Behavioral Health Inventory, NE= norepinephrine, NK= natural killer, POMS= Profile of Mood States, SBP= systolic blood pressure, Sign. = significance, SW = social worker, tx = treatment, WBC= white blood cells

Table 2. Recurrence and survival outcomes among cancer patients

Study	Sample	Intervention	Group Leaders	Design ^a	Results
Cunningham et al., 1998	66 patients with metastatic breast cancer Mostly white but no ethnicity data presented	35 or more weekly sessions of supportive/cognitive-behavioral group, plus weekend coping skills course, vs. Control (both conditions received workbook and tapes)	Co-leaders (psychologist and a doctoral student in psychology and/or a social worker all with clinical experience)	RC, stratified for age and site of metastases Assessed survival 5 years after study initiated Intent to treat analysis At baseline, tx patients had higher education and lower fighting spirit. Education was not associated with survival and controlling for it did not alter results	No group differences in survival, whether analyzed time from enrollment, time from first metastasis, or time from initial dx to death.
Cunningham et al., 2000	22 patients with incurable, mostly metastatic cancer Diverse sites and time since dx 77.3% female, no info on ethnicity	Participants completed an initial 6-session psycho-educational program followed by a weekly group for 12 months. Monthly support group was also available to graduates	Co-leaders (experienced group clinicians)	Non-randomized correlational study Survival assessed up to 5.6 years after enrollment Used qualitative data to derive ratings of 6 dimensions of engagement in therapeutic work; patients also completed standardized measures (POMS, FLIC, Purpose in Life, Sense of Coherence, Expectancies)	In Cox regressions, observer ratings for all of the 6 themes but 1, and for the total score, were sign. related to survival, even after controlling for oncologists' survival predictions. All 11 patients scoring below median on a summary rating of these themes died within the study period, while only 5 of 11 patients scoring above the median died. Most of the standardized psychological tests were not associated with survival.
De Vries et al., 1997	96 patients with progressive cancer, no longer eligible for curative treatment	12 sessions of individual counseling and biweekly group sessions, using experiential/existential therapy	Co-leaders (psychotherapists, supervised)	NCPP Assessed tumor progression at post-tx (see Table 1 for immune	In 5 of 35 evaluable patients, tumor growth stopped for a period of 3 months to 2 years. These patients demonstrated "excellent" or "relatively good" psychological change on clinical interviews,

	Diverse site and time since dx			outcomes)	according to post-hoc qualitative analysis, and seemed to be among best adjusted prior to intervention.
	58% female, no ethnicity data (Dutch study)				(55.7% attrition, excluding ineligible patients)
Edelman et al., 1999c	121 patients with metastatic breast cancer No ethnicity data	8 weekly sessions of Cognitive-Behavioral group plus a family meeting and 3 monthly booster sessions vs. Control	Co-leaders (experienced therapists, at least one a registered psychologist)	RC Assessed survival at 2-5 years after enrollment (70.2% had died) Intent to treat analysis	No sign. group differences in survival, whether assessed time from recruitment to death or time from dx of recurrence.
Fawzy et al., 1993	68 patients with recently dx-ed stage 1 malignant melanoma 51% female, almost all white	6 weekly sessions of Cognitive-Behavioral group vs. Control	Co-leaders, (psychiatrist and a cancer survivor)	RC Assessed death, recurrence at 5-6 year f/u Adjusted for age, sex, Breslow depth, tumor site, baseline POMS, baseline active-behavioral coping, baseline NK activity	At 5-6 year f/u, tx group experienced sign. fewer deaths and marginally fewer recurrences, after controlling for Breslow depth (which was only other sign. predictor). Controlling for Breslow depth, higher baseline active-behavioral coping was associated with lower recurrence and death, and <i>higher</i> baseline distress (POMS) was marginally associated with lower death and recurrence. Increased active-behavioral coping over 6 months was associated with sign. better survival and marginally less recurrence. Higher baseline NK activity was related to lower recurrence.
Gellert et al., 1993	136 breast cancer patients (24 participants, 102 matched controls) Diverse stages	Weekly meetings involving peer group support as well as individual/family counseling. Duration of participation highly variable (i.e., extending to over 40	No info about group leader(s)	MC, matched on race, age at dx, stage, surgery, disease status, date of dx Assessed survival at 10 year f/u	No sign. group differences in survival. Absence of findings remained when controlled for time lag between dx and enrollment (which had been confounded in a prior study.)

	and phase of tx 100% white	sessions)			
Goodwin et al., 2001	235 patients with metastatic breast cancer No info on ethnicity	1 year of weekly Supportive-Expressive group therapy vs. Control (both conditions received educational materials every 4-6 months)	Co-leaders (experienced psychiatrists, psychologists, social workers, or nurse clinicians, trained and supervised by D. Spiegel's team)	RC, stratified by tx center and site of metastases Intent to treat analysis At baseline, tx group was sign younger at dx, with more nodal involvement at dx, more PR+, and more adjuvant chemotx. These variables were controlled in the analyses	No group differences in survival
Illyckj et al., 1994	127 patients with diverse sites/ stages of disease and phases of tx (28% classified as poor, 71% good prognosis) 71.4% female, no info about ethnicity	4 conditions, involving 6 months of weekly unstructured discussion group meetings: 1. Professionally led 2. Professionally led for 1 st 3 months but unled for 3 months when leader withdrew 3. Unled for 6 months 4. Control	Single leader (social workers led the groups in conditions 1 & 2)	RC, stratified by gender, performance status, disease status High attrition in the unled group; therefore an additional 21 patients were assigned (not randomized) to this group for 3 months only; analyses were conducted with and without these additional patients Intent-to-treat analyses. Conditions 1 & 2 were combined for analysis	Relative to controls, no survival differences for either led or unled groups. No survival differences among patients attending >10 vs <10 sessions (i.e., adherence). Effects of intervention on survival did not differ by gender, disease status, or psychological outcomes. No effect on psychological measures.
Spiegel et al., 1989	86 patients with metastatic breast cancer No info on ethnicity	1 year of weekly Supportive-Expressive group therapy vs. Control	Co-leaders (psychiatrist or social worker and a counselor who was a cancer survivor)	RC Survival assessed at 10-years (83 of 86 patients had died) Intent to treat analysis	Patients in tx group survived sign. longer than those in the control condition, whether assessed time from randomization to death or time from first metastasis to death.

Tx group had sign. lower stage at initial dx, and higher SES at baseline (noted in Spiegel et al., '81). Initial stage was not sign. associated with survival, and was controlled in analysis

^aNcPP= no control group, pre-post design, RC= random assignment with control, MC= matched control group

Dx= diagnosis, FLIC= Functional Living Index-Cancer, POMS= Profile of Mood States, Sign.= significantly, Tx= treatment

Table 3. Immune and neuroendocrine outcomes among HIV-1 patients

Study	Sample	Intervention	Group Leaders	Measures	Design ^a	Major Results
Antoni et al., 1991	47 gay men enrolled prior to HIV-1 serostatus testing and notification No info on ethnicity	20 semi-weekly sessions of Cognitive-Behavioral Stress Management group vs. Control condition	Co-leaders (graduate students in clinical psychology)	CD4, NK (CD56) counts; response to PHA and pokeweed; NK activity POMS anxiety, depression	RC No f/u	Following serostatus notification, HIV+ patients in the group demonstrated sign. less depression, higher NK counts, higher response to PHA, and marginally higher CD4 count than HIV+ controls. Increases in NK activity were correlated with decreases in anxiety and depression.
Antoni et al., 2000.	69 gay/bisexual men with symptomatic HIV 55.1% white, 36.2% Hispanic	10 weekly sessions of Cognitive-Behavioral Stress Management group vs. Wait-list control	Co-leaders (psychology postdoctoral fellows or doctoral students, supervised)	24-hr urinary free cortisol POMS (4 subscales)	RC, with blocking for extent of anti-retroviral use. No f/u	Relative to controls, tx group demonstrated sign. reduction in urinary free cortisol, after controlling for potential confounding factors. Improved depression was correlated with reduced cortisol levels, for the sample as a whole.
Antoni, Cruess, Cruess et al., 2000	73 gay/bisexual men with symptomatic HIV 53% white, 38% Hispanic	10 weekly sessions of Cognitive-Behavioral Stress Management Group vs. Wait-list Control	Co-leaders (psychology postdoctoral fellows or doctoral students, supervised)	24-hr urinary E & NE; CD3+CD4+ and CD3+CD8+ counts POMS anxiety, anger scales; Perceived Stress Scale	RC, blocked for use of antiretroviral meds No f/u for endocrine measures, f/u at 6-12 months for immune measures for 1/2 the sample	Relative to controls, tx group displayed sign. reduction in urinary NE at post-tx, and increased CD3+CD8+ cell counts at f/u. Effect of the group on NE was partially mediated by reductions in anxiety. Moreover, changes in immune activity at f/u were partially mediated by changes in NE during the intervention.
Antoni,	25 gay men with	10 weekly sessions	No info on	transitional naïve	RC	Tx group demonstrated sign. greater

Cruess, Klimos et al., 2002	either non-AIDS-defining sx's or CD3+CD4+ count of 200-700 No info on ethnicity	of Cognitive-Behavioral Stress Management group vs. Wait-list Control	group leader(s)	T cells (CD4+CD45RA+ CD29+ cells)	6-12 month f/u	number of transitional naïve T cells at follow-up, relative to controls. (These differences were not accounted for by baseline differences in HIV viral load.)
Auerbach, Oleson, & Solomon, 1992	26 gay men with symptomatic HIV 90% white	8 weekly group sessions focusing on biofeedback, imagery, and hypnosis, vs. Wait-list control	No info on group leader(s)	CD4 count POMS, BDI, Hardiness, HIV-related sx's	RC No f/u	No sign. group differences in CD4 cell count.
Cleary et al., 1995	271 individuals with HIV infection detected at donation to blood bank 22% female, 31% Af Am, 20% Hispanic	6 weekly sessions of Cognitive-Behavioral group vs. encouragement to use community referrals	Co-leaders (SW and psychiatric nurse)	CD4 count, CD4:CD8 CES-D, MHLOC, Rosenberg Self-Esteem, Social Network Index, ISEL, Coping, Sexual behavior	RA Alt Tx. Assessed at baseline and 1-year f/u	No sign. group differences in immune measures at 1 year f/u (Only 51 of 135 participants randomized to group actually attended any sessions.)
Coates et al., 1989	64 gay men with HIV disease No info on ethnicity	8 weekly sessions of Stress Management group plus an all-day retreat vs. Control	No info on group leader(s)	CD4 count; CD4:CD8; NK activity; response to ConA, Candida antigen, and CMV; serum IgA # sexual partners; safe sex practices	RC No f/u	No sign. group differences in immune measures
Cruess, Antoni, Cruess et al., 2000	62 gay men with symptomatic HIV 61% white, 32% Hispanic	10 weekly sessions of Cognitive-Behavioral Stress Management Group vs. Wait-list control	Co-leaders (postdoctoral fellows or doctoral students in psychology, supervised)	HSV-2 antibody titers; ratio of plasma cortisol to DHEA-S (a gonadal hormone linked with HIV replication and	RC No f/u	Relative to controls, tx group displayed sign. reduction in HSV-2 IGA antibodies (implying better cellular control over the virus). Also showed no sign. change in cortisol/DHES-S ratio, while controls showed a sign. increase.

				latent viral reactivation)		Change in HSV-2 antibodies was correlated with change in cortisol/DHEA-S ratio.
				POMS; Social Provisions Scale (guidance and reliable alliance subscales)		The effect of the group on HSV-2 levels was partially mediated by its effects on guidance (1 of 2 measures of social support).
Cruess, Antoni, Kumar et al., 2000	54 HIV gay men with symptomatic HIV 40% white, 40% Hispanic	10 weekly sessions of Cognitive-Behavioral Stress Management Group vs. Wait-list control	Co-leaders (postdoctoral fellows or doctoral students in psychology, supervised)	Salivary cortisol, assessed before and after each session, and averaged for 3 segments of the group that focused on PMR, autogenics/imagery, and meditation, respectively	RC No f/u	Within the tx group, there was a sign. reduction in salivary cortisol during period 1 (PMR), with trend for period 3 (meditation). Also, pre-session cortisol levels decreased sign. from period 1 to 3. Decrease in cortisol over course of intervention was tied to improvement in mood. (No association between within-session changes in cortisol and mood measures.)
				POMS, Incredibly Short POMS		
Cruess, Antoni, Schneidman et al., 2000	65 gay men with symptomatic HIV or CD4 cell count between 200-700 66% white, 29% Hispanic	10 weekly sessions of Cognitive-Behavioral Stress Management Group vs. Wait-list control	Co-leaders (postdoctoral fellows or doctoral students in psychology, supervised)	Serum levels of free testosterone and cortisol POMS; Self-reported HIV sx's	RC, balanced for antiretroviral meds No f/u	Relative to controls, tx group displayed sign. increase in free testosterone. Increases in free testosterone were sign. associated with decreases in distress (POMS).
Esterling et al., 1992	65 gay men recruited prior to HIV testing No info on ethnicity (See Antoni et al.,	10 week intervention period: 1) Cognitive-Behavioral Stress Management Group (met 2x/week)	No info on group leader(s)	Epstein-Barr virus viral capsid antigen (EBV-VCA), and human herpesvirus type-6 antibody titers	RA Alt Tx and Control No f/u	In contrast to controls, those in the CBSM group or the exercise condition demonstrated sign. reductions in antibody titers to EBV-VCA over the course of the intervention, suggesting better cellular control over the latent virus. This was true for patients who

	1991)			POMS anxiety and depression scales.		were found to be HIV+ as well as those who were HIV-.
		2) Aerobic Exercise Group: (Met 3x/week)				
		1) Control				Similarly, HIV- patients in both tx conditions showed sign. reduced antibody titers to HHV-6, relative to controls; HIV+ patients in the CBSM group (but not the exercise condition) displayed the same changes.
		Patients were tested for HIV at week 5. 23 of 65 pts (35.38%) tested positive.				Changes in EBV or HHV-6 antibodies were not associated with changes in mood or other immune parameters (CD4, CD8, CD4:CD8, PHA).
Goodkin, et al., 1998	119 gay men who had lost a close friend or partner to AIDS within past 6 months. 74 (62.18%) were HIV+ (with diverse stages of disease)	10 weekly sessions of Bereavement Support group (combining cognitive-behavioral and social support elements) vs. Control condition	Co-leaders (therapists experienced in supportive group tx for bereavement and terminal illness)	CD3+CD4+ count, CD3+CD8+ count, CD4:CD8, CD3+ (total mature T-cell) count, total lymphocyte count, plasma cortisol	RC 6 month f/u	At f/u, relative to controls, tx group showed sign. higher CD4 counts and lower plasma cortisol, among HIV+ as well as HIV- patients. Also showed reduced self-reported healthcare visits.
	71.4% white	Open enrollment		Self-reported healthcare visits		There were indications of favorable effects on total T-lymphocyte and total lymphocyte counts in analyses that controlled for baseline values, but not in analyses that controlled for additional covariates.
Lutgendorf et al., 1997	40 gay men with symptomatic HIV 62.5% white, 35.0% Hispanic	10 weekly sessions of Cognitive-Behavioral Stress Management Group vs. Wait-list control	Co-leaders (doctoral students in psychology, supervised)	CD4+, CD8+ counts, IgG antibody titers to HSV-1 and HSV-2	RC, with blocking for antiretroviral use	Relative to controls, tx group demonstrated sign. decrease in HSV-2 antibodies (suggesting improved cellular control over the latent virus).
				BDI, POMS	No f/u	Lower depression at post-tx was associated with lower HSV-2 levels, after controlling for baseline values.
McCain, Zeller, Cella,	36 predominantly gay/bisexual men with diverse stages	6 weekly sessions of Stress-Management group vs. Control	Single leader (nurse)	CD4+ count, %, CD4+:CD8+ ratio	Nonrandomized parallel	At 6-month f/u, no sign. group differences in immune activity. (CD4+ remained stable for group participants

Urbanski, & Novak, 1996	of HIV 83.3% white, 13.3% Af Am	condition		DWI, FAHI, Brief POMS, IES, Uncertainty in Illness Scale	groups 6-month f/u	and modestly decreased for controls)
Mulder et al., 1995	26 gay men with asymptomatic HIV No info on ethnicity (Dutch study)	17 sessions over 15 weeks of Cognitive-Behavioral group vs. Experiential Therapy group Also included non-randomized control patients (n = 139)	Co-leaders (gay male therapists chosen for experience in the respective type of tx)	CD4+ count, T-cell proliferative response to anti-CD3 monoclonal antibodies Distress composite score (POMS, BDI, GHQ)	RA to Act Tx, plus nonrandomized controls 2 year f/u	No differences in rate of decline of CD4 or T-cell proliferative response between the two tx groups, or between the 2 tx groups combined vs. nonrandomized comparison patients. However, among patents in the intervention groups, reductions in distress were correlated with smaller decline in CD4 cells.
Targ et al., 1994	20 gay men with asymptomatic HIV and major depression or adjustment disorder with depressed mood 84% white, 16% Latino	12-week structured group + fluoxetine 20mg vs. group + placebo	Unclear if single or co-leaders (4 th year psychiatry residents, supervised)	CD4+, CD3+ counts; NK %; B2-microglobulin; neopterin SCID Depression, Ham Dep, DWI, Trail-Making Tests A & B, ROCF, WLGT, DSS	RA to Alt Tx No f/u	No sign. group differences in immune measures. In within-group analyses, Fluoxetine group demonstrated small sign. <i>decrease</i> in CD4 counts, and marginally higher B2-microglobulin and neopterin.

^aRA to Act Tx = Random assignment to active treatments, RC = Random assignment with control condition

BDI= Beck Depression Inventory; CES-D= Center for Epidemiologic Studies Depression; DSS= Digit Symbol Substitution, DWI= Dealing with Illness; E= epinephrine, FAHI= Functional Assessment of HIV Infection; GHQ= General Health Questionnaire; HAM Dep= Hamilton Depression, IES= Impact of Events, ISEL= Interpersonal Support Evaluation List; MHLOC= Multidimensional Health Locus of Control; NE= norepinephrine, NK= natural killer, POMS= Profile of Mood States, ROCF= Rey-Osterrieth Complex Figure, Sign. = significantly, SW= social worker, tx= treatment, WLGT= Word List Generation Test

