

The Effects of Two Types of Meditation Techniques on
Self-Efficacy Beliefs in Persons in
CDC Stages II and III of HIV Disease

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ABSTRACT

The purpose of this study was to investigate the short-term effects of two types of meditation, concentrative and mindfulness, on general, social and health behavior self-efficacy in men in CDC stages II and III of HIV disease.

The biopsychosocial model of health and illness suggests that a successful approach to address HIV disease is not through medical treatment alone, but through inclusion of the psychological resources, social interactions and health behaviors of the HIV seropositive person. Self-efficacy beliefs have been shown to affect quality of social interactions, health behavior and immune function and are a significant co-factor in living long with HIV. Self-efficacy can be enhanced and previous research suggests that the practice of meditation may be an effective method.

Participants were 78 males in either CDC Stage II or III of HIV disease, who had at least one-year previous meditation practice, had known their seropositive status for at least three months and were not taking psycho-affective drugs. They ranged in age from 21 to 52 years with a mean age of 38 years.

The study was conducted using a within-subjects design. Data were collected in single two and a half hour experimental sessions, with participants attending one session only. They were randomly assigned so that half received the mindfulness condition first and half received the concentrative condition first.

All participants completed two scales, the Self-efficacy Scale (consisting of General and Social Self-efficacy subscales) and the Health Behavior Self-efficacy Scale. Then the participants practiced the meditation they were assigned for 20 minutes. Immediately following the meditation, they took the same scales again. After a half hour break, they repeated the scales as a new baseline then practiced the second meditation for 20 minutes and took the scales once more.

The raw scores underwent analysis of variance and repeated measures of analysis of variance. Results show no significant difference in raw percentile scores by trial (baseline, concentrative meditation and mindfulness meditation) on the General Self-efficacy Subscale. There is significance in the Social Self-efficacy and Health Behavior Self-efficacy scores for each meditation method practiced.

There is a sequence effect on the Health Behavior Self-efficacy Scale with scores improved whenever concentrative meditation was practiced, even when mindfulness was practiced first, indicating concentrative meditation may have a more dynamic effect. There may be a stronger practice effect with concentrative meditation.

The study concludes that the short-term practice of either concentrative or mindfulness meditation significantly improves social and health behavior self-efficacy in men in CDC stages II and III of HIV disease, with no one method more effective than the other. Short-term practice of meditation has no significant effect on general self-efficacy. The short term practice of meditation as a therapeutic intervention to improve both social and health behavior self-efficacy in men in the early stages of HIV disease is supported.

Implications for the value of self-efficacy beliefs and the therapeutic application of meditation for persons with HIV disease are discussed.

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Chapter 1

PROBLEM FORMULATION

Introduction

The relationship between health and psychology has been of increasing interest over the past thirty years (Altman, 1990; Borysenko & Borysenko, 1983; Borysenko, 1984, 1987; Dillon, Baker & Minchoff, 1985; Engel, 1960, 1977; Kimball, 1983; Kiecolt-Glaser & Glaser, 1989; Pattishall, 1989; Pelletier & Herzing, 1988; Levy, 1988; Schwartz & Weiss, 1978; Solomon & Moos, 1964); and as a result there is in progress a major shift in the perspective on disease prevention and health recovery.

As early as 1964, Solomon and Moos found evidence that emotions play an important role in the pathogenesis of physical disease associated with immunological dysfunction. More than twenty years later Solomon and others continued to explore the possible biological mechanisms involved in immunity, emotions, and stress (Ader, 1981; Ader & Cohen, 1975, 1985; Solomon, Kay, & Morley, 1986; Levy, 1988).

The term psychoimmunology, coined by Solomon (Solomon & Moos, 1964), refers to the psychological influences of experience, stress, emotions, beliefs, traits, and coping on immune function and on the onset and course of immunologically resisted or mediated diseases (Solomon, 1987; Temoshok, 1988).

The premise that the immune system is influenced by psychosocial variables and can be affected through behavioral intervention underlies this rapidly expanding field.

There are two levels of research on the psychosocial determinants and mechanisms of health and illness (Bandura, 1991). The more basic level aims to elucidate the mechanisms through which psychosocial factors affects biological systems that mediate health and illness such as neurochemistry, blood chemistry, immune response and cell pathology. The second level of research concerns the exercise of behavioral control over modifiable aspects of health such as stress reduction, social support and cognitive training (Wiedenfeld et al., 1990). It is this second level of research that is the focus of this study.

Behavioral influences and the affects of emotions and beliefs on health have been studied along the dimensions of immune function (Kiecolt-Glaser & Glaser, 1988b; Levy, 1985; Levy, Herberman, Lippman, & D'Angelo, 1987); health outcomes (Antonovsky, 1979, 1984); preventive health behavior (Hallal, 1982; Langlie, 1977; Nagy & Nix, 1989; Oldridge & Streiner, 1990); self-efficacy (Bandura, Taylor, Williams, Mefford & Barchas, 1985; Bandura, 1991, O'Leary, 1990); and symptom reporting (Banks & Gannon, 1988; Woods, 1986, 1987; Woods & Lyons, 1990) in a variety of populations including persons with cancer (Simonton, 1992; Achterberg, Simonton & Matthews-Simonton, 1977; Fawzy, Kemeny, Elashoff, Morton, 1990a, 1990b; Fawzy et al., 1993; Spiegel, Bloom, Kraemer, Gottheil, 1989; Simonton & Matthews-Simonton, 1975, 1978); healthy male executives

(Kobasa, 1979, 1982); medical students (Kiecolt-Glaser et al., 1986); men with HIV disease (Blaney et al., 1991; Kiecolt-Glaser & Glaser, 1988d; Rabkin et al., 1991); person's with cardiovascular disease (Ornish, Gotto, Miller, 1979; Ornish, Brown, Scherwitz, 1990; Ornish et al., 1983; Gould et al., 1992); and women with rheumatoid arthritis (Lambert, Lambert, Klipple & Mewshaw, 1990).

The possible enhancement of immune function by behavioral strategies has generated considerable interest. Researchers have used a number of diverse strategies to modulate immune function, including relaxation, hypnosis, exercise, classical conditioning, self-disclosure, exposure to a phobic stressor to enhance perceived coping self-efficacy, and cognitive-behavioral interventions, and these interventions have generally produced positive changes. Although it is not yet clear to what extent these positive immunological changes translate into any concrete improvements in relevant aspects of health, that is, alterations in the incidence, severity, or duration of infectious or malignant disease, the preliminary evidence is promising (Kiecolt-Glaser & Glaser, 1992). Researchers have made correlations between health behavior interventions and long-term survival in individuals with HIV disease (Antoni et al., 1990; Remien, Rabkin, Katoff, & Williams, 1992; Solomon et al., 1987; Solomon & Temoshok, 1990) and cancer (Fawzy et al., 1990a, 1990b, 1993; Spiegel et al., 1989; Achterberg et al., 1977; Simonton & Matthews-Simonton, 1975).

Evidence from research on chronic and infectious diseases has demonstrated that psychosocial factors may reduce susceptibility to disease,

influence the course of the disease, and contribute to health-promoting or health-damaging behaviors (Coates, Temoshok, & Mandel, 1984; Glaser & Kiecolt-Glaser, 1987; Greer, Pettingale & Pettingale, 1979; Levy, 1988; Holden, 1991; Irwin, Daniels, Bloom, & Weiner, 1986; Jamner, Schwartz, & Leigh, 1988; Joseph, Kessler, Ostrow, Phair, & Chmiel, 1988; Kasl, 1974; Kiecolt-Glaser & Glaser, 1988a; Temoshok, 1983).

Applied to the problem of HIV disease, this evidence suggests that the health and well being of individuals affected by HIV are not solely dependent on the achievements of the biomedical approach (Kimball, 1983). The investigation of behaviorally modifiable aspects of health is particularly important at this time when there is no medical cure for AIDS (Temoshok & Baum, 1990).

Behavioral co-factors may have an effect on the course of infection in HIV infected individuals. These effects can be mediated by the immune system of the host, which, based on psychoneuroimmunologic findings, can be affected by some psychosocial factors (Mulder and Antoni, 1992).

Suggestive evidence has accrued associating psychosocial stress with the progression of HIV disease (Cecchi, 1984; Coates et al., 1984; Donlou, Wolcott, Gottlieb, & Landsverk, 1985; Temoshok, 1988, 1991; Temoshok et al., 1988; Temoshok, Zich, Solomon, & Stites, 1987). Data suggests that psychosocial factors may relate to clinical course, independent of those immunologic measures typically monitored in HIV infected populations (Mulder & Antoni, 1992).

In view of the current status of psychoneuroimmunologic research, there is reason to raise the possibility that behavioral factors may influence health outcomes in persons with HIV disease and that behavioral interventions such as aerobic exercise, (Fletcher et al., 1988); stress management, social support (Blaney et al., 1991); relaxation and imagery training (Auerbach, Oleson, & Solomon, 1991); cognitive training and efforts to enhance self-efficacy (Bandura et al., 1985) may provide some benefit, especially during the early stages of this chronic disease (Antoni et al., 1990; Glaser & Kiecolt-Glaser, 1988).

Once such behavioral intervention that merits investigation is meditation. Meditation has been used successfully as a psychotherapeutic method (Carrington & Ephron, 1975a; Delmonte, 1986; Gersten, 1978; Smith, 1975; Ellis, 1984), and has been demonstrated to influence psychological and emotional states (Delmonte & Kenny, 1985) such as depression (Kornfield, 1979); anxiety (Boswell & Murray, 1979; Delmonte, 1985; Shapiro, 1976); stress reactivity (Goleman & Schwartz, 1976); and self-esteem (Khalsa, 1990; Johnson, 1974). In addition, meditation has been used as a cognitive intervention technique in physical disease (Delmonte, 1989), specifically cancer, (Achterberg & Lawlis, 1980; Achterberg, et al., 1977; Meares, 1976, 1979, 1981a, 1982, 1983; Shapiro, 1981; Simonton & Matthews-Simonton, 1975, 1978; Simonton, 1992); pain control (Kabat-Zinn, Lipworth, Burney, & Sellers, 1986), and heart disease (Ornish et al., 1979, 1990, 1993; Gould et al., 1992).

The psychological dimension of self-efficacy--the belief that what one does makes a difference--plays a pivotal role in the enhancement of the immune system (Bandura, 1991; Bandura et al., 1985; Bandura et al., 1987; Wiedenfeld et al., 1990); in health behavior (O'Leary, 1985; Strecher, DeVellis, Becker, & Rosenstock, 1986; Hofstetter, Sallis, Hovell, 1990; Holden, 1991; Taylor et al, 1985), and in quality of life in cancer patients (Cunningham, Lockwood, & Cunningham, 1991). It seems essential to find effective tools for enhancing self-efficacy. Since self-efficacy and self-esteem are related constructs (Bandura, 1977, 1982a) and meditation has been shown to be an effective tool in enhancing self-esteem (Johnson, 1974; Khalsa, 1990; Shapiro & Giber, 1978); perhaps meditation may be useful in enhancing self-efficacy.

As a psychotherapist specializing in health recovery, I am interested in knowing the effects of meditation on self-efficacy beliefs so I may more effectively use meditation as an intervention in the therapeutic setting. Knowing which meditation type, concentrative or mindfulness, is more effective in enhancing self-efficacy in an HIV seropositive population can be of useful clinical value.

Statement of the Problem

The problem being investigated is which type of meditation, concentrative or mindfulness, is a more effective therapeutic intervention on a short term basis for improving self-efficacy in persons in the early stages of HIV disease.

Meditation has become an increasingly popular technique for self-control, self-awareness and personal development, as well as a cognitive intervention in the psychotherapeutic environment (Carrington & Ephron, 1975a, 1975b; Deikman, 1982; Delmonte, 1986; Delmonte & Braidwood, 1980; Delmonte 1989; Ellis 1984; Shapiro & Giber, 1978; Smith, 1975).

The need to study the specific effects of meditation has been stated by several researchers (Smith, 1975, 1978, 1984; Shapiro, 1980; 1982, 1984a, 1984b; Walsh, 1979). In 1977 the American Psychiatric Association called for a critical examination of meditation including a comparison of the various forms of meditation with one another and with other psychotherapeutic modalities. The comparison of various forms of meditation is of clinical importance. If those in the field of health psychology are going to make the best use of meditation as a therapeutic intervention, it is important to ascertain which meditation technique is most appropriate for a particular problem and with which clinical population (Shapiro, 1982).

When we know more about the differences in the effects of different types of meditations, then meditation can be used differentially in applications to psychological treatment conditions. This study is to further our knowledge regarding the effects of two different types of meditation on the psychological dimensions of self-efficacy in persons in the early stages of HIV disease.

Significance

Every fifteen minutes someone in the United States dies of the late stage of HIV disease, AIDS (Los Angeles Times, November 13, 1991). The Center for Disease Control reports that in 1990 AIDS had surpassed cancer, heart disease, and accidents to become the leading cause of death among men ages 25 to 44 in California and in 64 U.S. cities (Selik, Susan, & Buehler, 1993). It is likely that more than one million persons in the U.S. are infected with HIV, the probable cause of AIDS. At present, there is no vaccine and there is no cure.

The nation's medical bill for treating people at all stages of HIV disease reached \$5.8 billion in 1992. The cost could almost double to \$10.4 billion by 1994, including \$7.9 billion for treatment of AIDS and \$2.5 billion for treatment of HIV infection. Costs could go higher, depending on approval of new treatments and the success of efforts to encourage people to find out if they are infected with the virus. (AIDS treatment, Los Angeles Times, 1992, November 29, A38). Even more disturbing is the fact that the United States, which has more people with AIDS than any country in the world, is one of the few developed nations with no national plan (Cimons & Stewart, 1991).

The current call among health professionals in the field of HIV disease is for early intervention. Since psychological factors play a pivotal role early on in the HIV continuum, change in psychosocial factors and health behaviors may support staying well and thus extend the asymptomatic period of HIV disease (Remien et al., 1992; Solomon, 1985, 1987; Temoshok & Baum, 1990; Temoshok et al., 1987).

Paradoxically, clinical observations and some preliminary empirical data suggest that asymptomatic stages and the appearance of constitutional symptoms correlate with higher degree of agitation and stress than occur at the AIDS diagnosis stage (Solomon & Temoshok, 1990; Solomon et al., 1987).

Moreover, early psychological intervention may have a significant role in long-term survival in persons infected with HIV (Wu, 1989; Sheridan, Coates, Chesney, Beck, Morokoff, 1989; Solomon, et al., 1987; Solomon & Temoshok, 1990; Temoshok et al., 1988; Temoshok et al., 1987).

At a systems level, the consensus is that health care resources, including mental health resources, are dangerously inadequate to meet the present and anticipated needs of HIV infected persons. Cost-effective self-care and behavioral health interventions, particularly those involving alternatives to traditional medical inpatient care are needed (Sheridan, et al., 1989).

Those in the field of health psychology seem particularly poised to provide this urgently needed expertise. As HIV disease shifts from its original presentation as an acute, terminal illness (AIDS) (Center for Disease Control, 1981) to a longer term chronic condition, the role of psychological influences will increase. Although group approaches have become, de facto, the preferred cognitive-behavioral health intervention, little research has been generated toward systematic comparisons of intervention efficacy for use with HIV infected persons (Sheridan et al., 1989).

According to recent literature, self-efficacy seems to be an important factor in immune system functions, health behavior and quality of life. Finding an effective therapeutic intervention that improves self-efficacy in HIV seropositive persons is an intended outcome of this present study.

Meditation may be such an intervention. It is simple, quick, easy to learn, self-applied and there is no fee beyond the initial instruction. Furthermore, meditation has been shown to reduce medical utilization in a healthy population (Orme-Johnson, 1987).

Meditation has been used successfully with people with cancer (Meres, 1976, 1979, 1981a, 1983; Achterberg et al., 1977; Simonton & Matthews-Simonton, 1975, 1978; Simonton, 1992) and heart disease (Gould, et al., 1992; Ornish et al., 1979, 1990, 1993). Also, there are several researchers who have investigated the effects of methods similar to meditation (stress management, relaxation and imagery) on HIV seropositive males (Antoni et al., 1990; Auerbach et al., 1992; Fletcher et al., 1988).

The researcher found no other study that examined the effects of meditation on self-efficacy. This present study would be the first to explore the effects of meditation on self-efficacy beliefs in HIV seropositive men and women.

Another significant aspect of this study is that it addresses the need to compare the various forms of meditation with one another. As Smith (1975) noted, to view meditation as a single state or say that meditation affects all participants similarly may be from a lack of specificity in the studies. Khalsa (1985) elaborates:

Meditation research began with anecdotes and with measures of gross physiological variables. It is now at a stage where elaborating the change in more subtle psychological dimensions is needed to develop the use of the techniques for the... therapeutic potential that current research has clearly indicated. (p.9).

This study may help add further specification to the body of research on meditation and health psychology and thus assist psychotherapists and health practitioners who wish to apply meditation in a therapeutic context with sophistication and responsiveness to individual needs (Khalsa, 1985).

The Center for Disease Control (1992b) estimates that the health of more than 100,000 women in the United States has been compromised by HIV infection. In 1992, over 27,000 women had been diagnosed with AIDS, the late stage of HIV disease, and the number of women with AIDS doubles every one to two years.

Between January 1987 and November 1991, the number of AIDS cases among women in the United States increased by more than 1000 percent (Centers for Disease Control, 1992b). It is notable that the total number of AIDS cases among women in December 1990 is equal to the total number of AIDS cases among men only five years earlier. Based on current rates of infection, there will be more HIV seropositive women than men in the U.S. by 1998 (Ickovics & Rodin, 1992).

In the United States in 1988, HIV-related disease was one of the ten leading causes of death among women ages 15 to 44; and by the end of 1991 AIDS became one of the five leading causes of death among women of

reproductive age. In New York City, AIDS is already the leading cause of death for women between the ages of 20-40. (For further reading see Chu, Buehler, & Berkelman 1990).

Although women have been identified with AIDS since the beginning of the epidemic, after more than a decade they are still excluded from most biomedical and psychological research. The study samples of early psychological and biomedical research have been limited to mostly gay men. However, recent epidemiologic shifts and projections raise questions about the generalizability of these findings to women with HIV disease and AIDS. One significance of this present study is the inclusion of HIV seropositive women.

Theoretical Rationale

Meditation

Meditation refers to a collection of diverse techniques that alter consciousness and change variables of self-awareness (Shapiro, 1976; White, 1974). The changes that meditation practices induce have gathered increasing attention by the psychological community as either a primary therapeutic technique or a useful adjunct to other therapy techniques (Smith, 1978; Delmonte, 1986). In 1977, the American Psychiatric Association issued an official action statement calling for research which "compares the various forms of meditation with one another" since meditative processes

seem to "facilitate the psychotherapeutic process, diminish the need for psychotropic medication, and assist restorative processes" (p. 720).

Shapiro (1982) states that although meditation is an approach valued by Eastern traditions for centuries, it is just beginning to gain favor within the Western scientific community.

Meditation research surveys (Smith, 1975; Walsh, 1979) note that many results seem ambiguous or contradictory. There is a critical need for accurate studies of the phenomenology of meditative states (Shapiro, 1980) and for an elaboration of results in terms of variables that are relevant for both meditation and psychological growth (Brown, 1977).

Some research has conceptualized meditation as a unitary relaxation state (Benson, 1975; Boswell & Murray, 1979) which is not different from any other form of relaxation. Smith (1975) states that the conclusion that meditation is a single state and that it effects all participants similarly may be from a lack of specificity in the studies. Other researchers (Brown, 1977; Naranjo & Ornstein, 1971) agree with Smith and indicate that there are many differences in the experience of meditation depending on the type of meditation and the depth of the meditative state.

Kornfield (1979) states that meditation can be seen as a series of mental exercises designed to effect certain changes in how a person sees or relates to the world. As such, we cannot study a meditative state, but only examine the kinds of states, experiences and changes produced by various meditative practices. Deikman (1982) concurs, "Western investigators agree

that more research is needed to determine the specific effects of meditation and how it should be applied" (p. 148)

There are two primary types of meditation: concentrative and mindfulness (Shapiro, 1980). In concentrative meditation "...An attempt is made to restrict awareness by the focusing of attention on a single object. Other stimuli in the environment are usually ignored, and complete attention is focused on the stimulus labeled the 'object of meditation'" (p. 15). In mindfulness meditation, "an attempt is made to be responsive to all stimuli in the internal and external environment, but not to dwell on any particular stimulus" (p. 18). There is indeed a clear distinction between concentrative and mindfulness meditation (Brown, 1977; Naranjo & Ornstein, 1971).

In addition to the type of meditation, the amount of meditation experience a subject has is an important experimental influence. There is a learning period where practitioners train their attention and their cognitive processes (Brown & Engler, 1980). Compton and Becker (1983) have demonstrated that many of the inconsistencies in research results on Zen meditation were due to measurements taken during this learning period. They recommend a length of one year to distinguish learning effects from meditation effects. Consequently, all participants in this present study were required to have at least one year of meditation training.

Morse and associates (Morse, Martin, Furst, & Dubin, 1977) found that there were no significant differences in physiological responses to three relaxation states, including meditation. They noted, however, that there were significant differences in the participants' evaluations of these states.

Charles Tart (1975) remarked that "in [the] subject's own estimate of his behavior, an internal state is a rich and promising source of data which some experimenters tend to ignore in their passionate search for objectivity".

The altered state of meditation can be disrupted by tests which require great effort and concentration (Shapiro, 1980). So test instruments used to measure the subjective state of meditation effects must be brief.

There have been claims for the efficacy of meditation in the treatment of health problems, including high blood pressure (Benson, Rosner, Marzetta, & Klemchuk, 1974), headache (Benson, Klemchuk, & Graham, 1974), and pain (Wallace & Benson, 1972; Kabat-Zinn et al., 1986). Bridge and associates (1988), Pelletier (1977), Simonton and Matthews-Simonton (1975, 1978), and Achterberg and associates (1977) report the successful use of meditation and imagery with cancer patients. Auerbach et al. (1992), found an increase in vigor and hardiness and a significant decrease in HIV related symptoms in AIDS/ARC diagnosed men following biofeedback and guided imagery techniques related to meditation practices. Meditation has been found helpful in such health related states as the reduction of anxiety (Delmonte, 1985; Boswell & Murray, 1979; Benson, et al., 1978) and the reduction of muscular tension (Zuroff & Schwartz, 1978). It has been found to reduce depression, anger, confusion, and fatigue and to increase vigor (Kutz, et al., 1985). Persons who meditate have also shown stronger recovery responses to stressful stimuli (Delmonte, 1984a, 1984b, 1984c).

Meditation has been shown to influence health behaviors including the reduction of drug and alcohol use (Benson, 1974) and cigarette smoking

(Lazar, Farwell, & Farrow, 1977; Cohen, 1984). Meditation practice has been included as a part of behavioral health programs shown to be effective in the reversal of heart disease (Gould et al., 1992; Ornish et al., 1979, 1990, 1993) and cancer (Simonton, 1992; Simonton & Matthews-Simonton, 1975, 1978; Achterberg et al., 1977; Meares, 1982, 1983).

Magarey (1981, 1983) noted that medical technology has not reduced the death rate from cancer in the past sixty years and suggests a broader, more holistic approach involving meditation.

Meares proposed a form of intensive meditation associated with the regression of cancer (1976, 1978, 1983), discussed the relationship between stress, meditation and cancer (1982), reported on a case of regression of recurrence of carcinoma of the breast at a mastectomy site associated with intensive meditation (1981), and analyzed meditation as a psychological approach to cancer treatment (1979). Meares was convinced that the cancer remissions were due to the development of a preoccupation with the positive aspects of life and death, which resulted from meditation practice (Meares, 1981b). Meares believed that perhaps it was the meditation that had changed the attitudes and beliefs of the patients from stoical, helpless and non-demanding to those of the denial of the negative connotations of cancer, and a "fighting spirit".

Meditation practice has been so effective in health care that noted researcher Herbert Benson states:

Meditation may aid in the prevention and treatment of that large portion of the world's illness that is behavior-related. Behavioral and

biomedical approaches to the treatment, prevention, and rehabilitation of disease are not mutually exclusive. Rather, they are complementary, and both should be used to the maximal advantage of the patient (Williams, Benson, & Follick, 1985).

How does meditation influence health? Schwartz (1983) sees the "self-attention" aspect of meditation as a means to interconnect the psychobiological processes involved in health maintenance. This, he argues, should manifest itself in terms of greater homeostasis and stability. He posits that self-attention may have automatic, self-regulatory, and homeostatic effects which increase the system's ability to engage in appropriate healing processes (Schwartz, 1983). He states:

Self-attention in various meditation techniques seems to have specific, automatic, self-regulatory, and stabilizing effects on physiological functioning. For example, respiration becomes deeper, slower, and more regular (ordered) especially in those meditation practices that involve attention to breathing. It is conceivable that self-attention can promote localized healing, especially if the self-attention is guided by relevant imagery that is targeted to the appropriate part(s) of the body (p. 114).

The body of meditation research cannot be dismissed lightly, and the effects of meditation on beliefs, and health outcomes deserve further study.

Beliefs, Health, and HIV Seropositive Persons

The biopsychosocial model of illness and health (Engel, 1960, 1977; Kimball, 1983) suggests that the resolution of HIV disease is not just through

medical treatment alone, but through inclusion of the psychological resources and social interactions of the HIV seropositive individual. Recovery from illness nearly always involves psychological aspects, both cognitive and affective in nature, and this may be especially the case in persons with HIV disease (Solomon, 1985).

Psychological distress may adversely impact the health of HIV-infected individuals, perhaps by influencing immune function. The need for supportive and/or therapeutic interventions is suggested throughout the literature (Joseph et al., 1988; Antoni et al., 1990; Auerbach et al., 1992; Namir, Wolcott, Fawzy, & Alumbaugh, 1987; Perry et al., 1990; Schechter et al., 1987; Sheridan et al., 1989; Temoshok, 1988; Temoshok & Baum, 1990; Temoshok et al., 1987, Solomon & Temoshok, 1990; Moulton, Sweet, Temoshok, 1990; Mulder & Antoni, 1992).

Several trends in medicine have suggested that cognitive factors likely play an important role in all areas along the health-disease continuum (Kendall & Turk, 1984). Leventhal and Nerenz (1983) pose a basic assumption in the study of cognition in health psychology. "People are active problem-solvers, not passive responders and their behavior is directed by their perceptions and interpretations...reflect(ing) an interaction of environmental events and a knowledge base that consists of both cognitive and emotional memory schemata."

The fundamental position of cognitive therapy is that cognitive processes lead to emotional and behavioral consequences (Ellis, 1962) and that there is a causal connection

between beliefs and symptoms and physical illness (Woods & Lyons, 1990, Woods, 1986, 1987).

Woods (1987) demonstrated that a reduction in symptoms and diagnosis of physical illness followed a reduction in irrational beliefs and proposed a detailed explanation on the relationship between stressful life events, beliefs, and biology. In addition, beliefs play a role in changing health behavior. Beliefs, or self-referent thought, mediate the relationship between knowledge and action.

Health behavior or self-regulation is not achieved by a feat of willpower. It operates through a set of (beliefs)...that must be developed and mobilized for self-directed change. Neither intention nor desire to change alone has much effect if people lack the means for exercising influence over their own behavior (Bandura, 1986, p. 336).

The cognitive processing of physiological information also figures prominently in psychological recovery from physical disorders (Ewart, Taylor, Reese, Debusk, 1983; Taylor et al., 1985; Taylor, Lichtman, Wood, 1984). Differential cognitive processing of physiological information can lead to quite different perceptions of one's physical capabilities. Bandura states:

In areas of functioning involving physical pursuits, physiological sources of efficacy information may take on special significance. The way in which such information is cognitively processed can affect how active a life people lead. Those who read their fatigue, aches, and lowered stamina as signs of declining physical capacity are likely to

curtail their activities more than those who regard such signs as the effects of sedentariness (Bandura, 1986, p 408).

He adds:

What people need is knowledge about how to regulate their behavior and firm belief in their personal efficacy to turn concerns about future maladies into effective preventive actions (Bandura, 1986, p. 439).

Beliefs are especially significant for persons living with HIV disease. In ground-breaking research conducted early in the epidemic, Solomon and his colleagues (1987) identified a cohort of characteristics common among long-term survivors of an AIDS diagnosis. Among other factors, men in their study had taken an active role in their medical care, had the ability to say no to an unwanted favor and had plans for the future. They believed that what they did for themselves and their well-being made a difference. Remien and his colleagues (1992) expanded Solomon's work and found:

- Long-term survivors are assertive and have the ability to say "no".
- Long-term survivors have the ability to withdraw from taxing involvements and to "nurture" themselves.
- Long-term survivors are sensitive to their bodies and their psychological/physical needs.
- Long-term survivors have the ability to communicate openly about their concerns, including their illness.

This is related to Solomon's observations on the beneficial effects of emotional expression, even of so-called "negative" emotions (Solomon,

Amkraut, & Kasper, 1974; Solomon, Kay, & Morley, 1986; Solomon & Moos, 1964).

Approximately one quarter of the men in Remien's study said that "personal resources" have kept them going, such as "a strong sense of self", "feeling in charge", "not being afraid to meet a challenge". Forty percent of the men described a refusal to give up. Fifteen percent stated their personal action was a significant factor in long term survival. Although not specifically identified, these self-attributions are consistent with the psychological construct of self-efficacy; the belief that what one does makes a difference. It is of interest to note that there was no single medical regime in common among these men. What was in common was a set of beliefs which contributed toward their good health and long life, far beyond medical prognosis.

Self-efficacy

Self-efficacy is the belief in one's ability to exercise control over specific events in life. It reflects confidence in one's ability to actually do things, a belief in one's ability to make things happen, even in the face of new, unpredictable, and stressful occurrences.

Self-efficacy is concerned with how people judge their capabilities and how their self-precepts of efficacy affect their motivation and behavior (Bandura, 1986).

Expectations of personal efficacy are derived from four principal sources of information: performance accomplishments, vicarious experience, verbal persuasion, and physiological states. The more

dependable the experiential sources, the greater are the changes in perceived self-efficacy (Bandura, 1977).

Self-efficacy is commonly used in studies of health behavior (O'Leary, 1985; Schunk & Carbonari, 1984) and the concept has been incorporated into other theoretical formulations such as the health belief model (Rosenstock, Strecher, & Becker, 1988).

In his meta-analysis, Holden (1991) found dozens of studies where subject ratings of self-efficacy were found to consistently predict subsequent health related outcomes. Strecher agrees that self-efficacy appears to be a consistent predictor of short and long-term success (Strecher et al., 1986).

In addition, a strong sense of self-efficacy is the best and most consistent predictor of positive health outcomes in many different medical situations. Several studies have employed the self-efficacy model in a variety of health relevant contexts including smoking cessation (Chamblis & Murray, 1979a; Candiotte & Lichtenstein, 1981); weight control (Chamblis & Murray, 1979b); treatment of chronic pain (Turk, Kearns, Bowen, Rennert, 1980; Bandura, O'Leary, Taylor, & Gauthier, 1987; Litt, 1988), treatment for asthma (Tobin, Wigal, Winder, Holroyd, Creer, 1987); strength gain in coronary artery disease recovery (Ewart et al., 1983; Ewart, Stewart, Gillilan, Keleman, 1986); and perceived physical status (Davis-Berman, 1990). Reese (1983) found that cognitive techniques and self-relaxation increase perceived self-efficacy to cope with and ameliorate pain. Bandura (1982b) found that simply a belief in coping efficacy similarly increases ability to withstand pain. In a study of immune response to self-efficacy, perceived

coping efficacy was associated with increases in the number of suppressor T-cells and with a decrease in the ratio of helper to suppressor T-cells in healthy people (Bandura, 1991).

Perceived self-efficacy pertains to the belief that one can successfully carry out behaviors that produce desired outcomes, including gaining control over a symptom. Changes of perceived self-efficacy have often been found to result from experiences of successful control. Such increased perceived self-efficacy to reduce the symptom would be expected also to lead to actual reductions in symptomology (Bandura, 1986).

In their work with cancer patients, the Telchs found that regardless of the mode of treatment, increases in self-efficacy were associated with improvements on other indices of psychological distress (Telch & Telch, 1986). Cunningham and associates found perceived self-efficacy was significantly related to quality of life in cancer patients (Cunningham et al., 1991).

In studies where other psychosocial constructs are also examined (e.g. locus of control, anxiety), self-efficacy consistently emerges as a distinct and powerful predictor of behavior. The idea that active participation is more effective as a means of bringing about change than passive exposure to information has been investigated in many different areas of social psychology (Fishbein & Ajzen, 1975). Self-efficacy theory may provide a theoretical buttress for the notion of an "active" patient (Strecher, et al., 1986, p. 89).

Health behavior self-efficacy (Salovey & Birnbaum, 1989) is a cognitive activity that predicts engaging in health-promoting behavior by holding beliefs about one's capacity to engage successfully in such behaviors. These beliefs, termed "self-efficacy expectations" by Bandura (1977), are important correlates of diverse health behavior including adherence to preventative behavioral regimens (Bandura, 1991; O'Leary, 1985).

A survey of self-efficacy studies suggests strong associations between self-efficacy and progress in health behavior change and maintenance (Strecher et al., 1986).

People effect self-directed change when they understand how personal habits contribute to their well-being, are taught how to modify them, and have the self-belief in their capabilities to mobilize the necessary effort (Bandura, 1986).

The perceived inefficacy barrier to preventive health is all too familiar in people's resignation concerning different health risks over which they can exercise control (Bandura, 1986). Further, if self-efficacy is lacking, people tend to behave ineffectually, even though they may know what to do (Bandura, 1982a).

Experimental manipulations of self-efficacy suggest that efficacy can be enhanced and that this enhancement is related to subsequent health behavior change. The findings from these studies also suggest methods for modifying health practices. These methods diverge from many of the

current, traditional methods for changing health practices and warrant further study (Strecher et al., 1986).

Treatments that eliminate emotional arousal to subjective threats heighten perceived self-efficacy with corresponding improvements in performance (Bandura, 1986). One source of efficacy is physiological states. Since meditation reduces personal emotional arousal, perhaps it can heighten self-efficacy. A question, then is whether meditation significantly influences self-efficacy beliefs. This hypothesis has not yet been tested in the area of health, or in persons with HIV disease.

Since meditation is a subjective experience that influences beliefs and self-appraisals, and since meditation has been shown to improve self-esteem - a construct similar to self-efficacy - perhaps meditation practice can improve self-efficacy.

Self-efficacy is also a critical factor in health behavior and health outcomes, as is the practice of meditation. Further, self-efficacy is a belief common in long-term survivors of CDC stage IV of HIV disease (AIDS). Perhaps meditation can improve self-efficacy beliefs in HIV seropositive persons before they reach CDC Stage IV - while they are still in CDC Stages II and III of the disease.

Lastly, the question of which meditation technique, concentrative or mindfulness, is more effective in changing self-efficacy appraisals in this population deserves consideration.

Thus, this study will examine the effects of meditation on self-efficacy beliefs and whether there is a significant difference between the two types of

meditation - concentrative and mindfulness - on self-efficacy in men and women in CDC Stages II and III of HIV disease.

Purpose of the Study

The purpose of this study is to assess the short-term effects of two types of meditation, concentrative and mindfulness, on self-efficacy beliefs. By examining the results of the study, the question of which type of meditation is the treatment of choice for enhancing self-efficacy in women and men in the early stages of HIV disease can be discovered.

Hypotheses

The null hypotheses for this study were:

Hypothesis 1

There will be no significant difference in raw percentile scores by trial (baseline, concentrative meditation and mindfulness meditation) on the General Self-efficacy Scale and The Health-Behavior Self-efficacy Scale total scores.

Hypothesis 2

There will be no significant difference in raw percentile scores by trial (baseline, concentrative meditation, and mindfulness meditation) on the Social Self-efficacy sub-scale total scores.

Hypothesis 3

There will be no significant difference in raw percentile scores by trial (baseline, concentrative meditation, and mindfulness meditation) on the Health Behavior Self-efficacy scale total scores.

Hypothesis 4

There will be no significant interaction between type of meditation and General Self-efficacy sub-scale total scores.

Hypothesis 5

There will be no significant interaction between type of meditation and the Social Self-efficacy sub-scale total scores.

Hypothesis 6

There will be no significant interaction between type of meditation and the Health Behavior Self-efficacy scale total scores.

Scope and Limitations of the Study

This study will limit itself to the consideration of two meditations that are representative of the two different types of meditation: mindfulness and concentrative. The participants will be volunteers from support group membership of HIV seropositive women and men. These participants come from various HIV/AIDS service agencies in Los Angeles County and tend to be actively taking steps toward improving their well-being in the face of the diagnosis. This factor limits the generalizability of the study's results. However, since application in the therapeutic setting is the intention of this research, and since people who generally choose to engage in therapy tend also to be a motivated self-selected group of individuals willing to pay for improving behavioral health outcomes, this sample is a reasonable representation of the population to which the results of this study can be applied.

An additional limitation of this study is that the results are only applicable to people who choose to meditate. This point directly limits the generalizability of the study's results.

In the meditation literature there is concern that most meditation research does not address the question of traditional preparation for meditation practice (Brown, 1977; Deikman, 1982; Goleman, 1971; Shapiro, 1980).

These preparations range from the highly structured and complex--changing dietary habits, cultivating feelings of love and compassion, decreasing thoughts of selfishness and greed--to much less complex--preparatory lectures and instructional training (Shapiro, 1980, p. 214).

Since the intent of this study is to utilize the results in the therapeutic environment, and since most clients are not interested in changing their lifestyle in order to use a self-help technique, it makes little sense for the sake of this study to accommodate these preparations. If meditation is used for a single psychotherapeutic benefit, not adhering to preparations and cautions may be of little consequence (Deikman, 1982).

Although the treatment takes place in a limited time frame, if the results of this study are significant, meditation as a therapeutic intervention for improving self-efficacy on an immediate basis will be strongly supported.

Cauthen & Prymak (1977), Goleman & Schwartz (1976), Kohr (1977a), and Kornfield (1979, 1983) suggest that those meditating even for the first time show measurable affects. Certainly, the effectiveness of

meditation as a treatment is enhanced by steady and prolonged practice (Lazar et al., 1977; Marcus, 1975).

[Yet] most clients have difficulty sustaining a consistent discipline. If they can experience some positive effects on a short term basis, perhaps they may be more willing to put forth the effort that is needed to sustain a prolonged practice of meditation and thus gain the benefits from such a practice (Khalsa, 1990, p. 20).

Another limitation of this study is that of the internal validity variable of the test/retest practice effect with regard to the instruments used. The experiment uses a within-subjects balanced design. Each subject experiences both experimental conditions, with data collected at four times: two at baseline and two at post treatment.

If the meditations are done properly, they have a strong phenomenological effect (Morse et al., 1977; Shapiro, 1982). This effect of state tends to change the mental state of the meditator immediately following the meditation. If this state is strong enough, it should minimize the test/retest practice effect. However, there is still a possibility that the test/retest practice effect is a factor in this study.

Another variable is the factor of using volunteers. Some meditation researchers do express concern over the volunteer effect (Carrington, 1978; Shapiro, 1980). Those participants from the support groups who choose to participate may be different from those who do not. Though this factor is not considered a major issue, it is a specific limitation in the selection of this sample.

The present review suggests that there are no specific differences in response to meditation based on gender. Further, studies on self-efficacy show that men and women have essentially identical levels of self-efficacy (Bandura, 1977, 1982a, 1986). While there may be gender differences in progression of HIV disease (Minkoff & De DeHovitz, 1991; DesJarlais & Friedman, 1988; Ickovics & Rodin, 1992), there is no evidence that suggests that there are differences in psychological treatment outcomes between HIV seropositive men and women.

Finally, the last limitation is one shared by meditation research that is non-longitudinal.

We cannot know accurately the depth and quality of an individual's meditation experience in any particular session. The literature indicates that the depth and quality of meditation can vary greatly through time except possibly for the most advanced of masters. Choosing only two meditations increases the focus and clarity of the results, but it limits the generalization to other more diverse forms of meditation (Khalsa, 1985).

Definition of Key Terms

Self-efficacy refers to the belief that one is capable of mobilizing the motivation, cognitive resources and courses of action needed to meet the demand of given events (Bandura, 1991). Self-efficacy is the belief that one can successfully carry out behaviors that produce desired outcomes, or more simply, the belief that what one does makes a difference.

Meditation is "a family of techniques which have in common a conscious attempt to focus attention in a non-analytical way" (Shapiro, 1980, p. 14).

Concentrative Meditation: A specific meditation called Pauri Kriya, utilized in the Kundalini system of yoga designed to focus attention on a specific mantra and breath rhythm.

Mindfulness Meditation: Meditation designed to utilize an awareness of all stimuli in the internal and external environment without a specific focus of attention.

CHAPTER 2

REVIEW OF THE LITERATURE

This study investigates the effects of two types of meditation techniques on self-efficacy beliefs in persons in CDC stages II and III of HIV disease. To understand the premise and direction of this study, there are five subsections to this literature review: self-efficacy beliefs, meditation, short and long term practice of meditation, clinical applications of meditation, and psychological co-factors in progression of HIV disease.

Self-efficacy Beliefs

Self-efficacy is based on the belief that what one does makes a difference. Developed as a construct by sociologist Albert Bandura (1977a), self-efficacy is concerned with people's belief in their capabilities to mobilize the motivation, cognitive resources and courses of action needed to exercise control over given events that contain many ambiguous, unpredictable and often stressful elements (Bandura, 1991). Simply stated, self-efficacy is "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, p. 193).

Although similar in concept to self-esteem, personal efficacy is one factor which contributes to self-esteem. Self-efficacy concerns beliefs about one's abilities while self-esteem represents an attitude about one's self-worth (Sherer et al., 1982). It is important to understand that the concept of self-efficacy relates to beliefs about capabilities of performing specific behaviors in particular situations. Self-efficacy does not refer to a personality characteristic or a global trait that operates independent of context (Bandura,

1977). This means that an individual's efficacy expectations will vary greatly depending on the particular task and context which confronts him or her. It is therefore inappropriate to characterize a person as having "high" or "low" self-efficacy without reference to the specific behavior and circumstance with which the efficacy judgment is associated.

Bandura argues that perceived self-efficacy influences all aspects of behavior, including the acquisition of new behaviors (e.g., a sexually-active HIV seropositive adult learning how to practice "safer" sex), inhibition of existing behaviors (e.g., decreasing or stopping cigarette smoking), and disinhibition of behaviors (e.g., resuming exercise after a myocardial infarction). Self-efficacy also affects people's choices of behavioral settings, the amount of effort they will expend on a task, and the length of time they will persist in the effect of obstacles. Finally, self-efficacy affects people's emotional reactions, such as anxiety and distress, and thought patterns. Thus, individuals with low self-efficacy about a particular task may ruminate about their personal deficiencies rather than thinking about accomplishing or attending to the task at hand; this, in turn, impedes successful performance of the task.

Self-efficacy beliefs regulate psychosocial functioning in diverse ways. They affect what people choose to do, how much effort they will mobilize in a given endeavor, how long they will persevere in the face of difficulties and setbacks, whether their thought patterns are self-hindering or self-aiding, and the amount of stress and despondency they experience in coping with environmental demand (Bandura, 1991).

People rely partly on inferences from their physiological state in judging their capabilities. They read their autonomic arousal and tension as signs of vulnerability to dysfunction. For example, in activities involving strength and stamina, people may interpret their fatigue, windedness, aches, and pains as indicants of physical inefficacy.

Self-efficacy as a psychological construct has wide influence.

Bandura (1977a) states:

The assessment of efficacy expectations should be valuable in the investigations of the role of cognitive factors to mediate behavior change. To the extent that cognitive factors influence behavior change, as is postulated in the cognitive-behavioral perspective, successful interventions should be associated with an increase in efficacy expectations related to the individual's ability to perform adaptive or avoid the performance of maladaptive behaviors.

Moreover, the degree, strength, and generality of these altered expectations should predict the maintenance of treatment gains.

Experimental manipulations of self-efficacy suggest that efficacy may be enhanced (Strecher et al., 1986). One way of modifying self-efficacy beliefs is to equip people with skills to reduce aversive physiological reactions and to alter how they interpret somatic information (Bandura, 1991).

Meditation

In the experimental literature, the term "meditation" has many meanings and is often defined in relation to its effects on a variety of variables.

Meditation has been defined in terms of certain physiological effects such as measuring EEG (Banquet, 1973; Benson, Malhotra, Goldman, Jacobs, & Hopkins, 1990) by certain changes in arousal (Davidson & Schwartz, 1976), by more specific autonomic variables (Woolfolk, 1975; Walrath & Hamilton, 1975), and by muscular tension/relaxation (Zuroff & Schwartz, 1978). Meditation has also been defined by its application for changing physiological problems such as high blood pressure, headaches, pain, and tension (Benson, Klemchuk et al., 1974; Benson, Rosner et al., 1974; Benson et al., 1978; Wallace & Benson, 1972; Benson, Klemchuk & Graham, 1974; Kabat-Zinn et al., 1986), the treatment of cancer (Meares, 1976; Achterberg et al., 1977; Simonton & Matthews-Simonton, 1975, 1978) and the treatment of heart disease (Gould et al., 1992; Ornish et al., 1979, 1990, 1993).

Others have defined meditation more in terms of changing health behaviors such as cigarette smoking and alcohol intake (Lazar et al., 1977; Cohen, 1984; Benson, 1974). Meditation has been defined by its cognitive control mechanisms (Shapiro, 1976; Shapiro & Zifferblatt, 1984), ego control mechanisms (Maupin, 1965), or by enhancing self-concept (Johnson, 1974; Nystul & Garde, 1977; Khalsa, 1990; Shapiro & Giber 1978).

One of the consistent claims made by practitioners of meditation is a reduction of cognitive intrusions (Davidson & Goleman, 1984); that meditation is a form of attention training (Naranjo & Ornstein, 1971).

Meditation can be seen as a shift towards self-observation which has been shown by itself to bring about changes in behavior (Shapiro & Zifferblatt, 1984).

Meditation is often viewed as a self-regulation strategy and as a technique for inducing altered states of consciousness (Shapiro & Giber, 1978).

Still others have defined meditation more as a process of therapy, with resultant significant changes in affective and trait variables (Davidson & Goleman, 1984; Davidson, Goleman, & Schwartz, 1976; Goleman, 1971). There are a number of papers that focus on the psychological dimensions of meditation practice (Brown, 1977; Delmonte & Kenny, 1985; Shapiro, 1980), including psychological & physiological dimensions of anxiety (Delmonte, 1985; Boswell & Murray, 1979; Benson et al., 1978).

White (1974) summarized the changes a person can experience through meditation by saying:

By meditating, a person can improve himself physically, psychologically, and socially. Physical illnesses and ailments are usually improved and sometimes even cured. Anxiety, tension, and aggressiveness decrease while stamina and ability to work are increased, along with inner-directed self-control and a general improvement in health. Mental functioning becomes clear, alert,

integrated, and creative. And as the meditator grows in self-knowledge, as he finds his intrapersonal life becoming more harmonious and fulfilled, his family and social relations also tend to improve. (p.xii)

Smith (1975) says that meditation is quite likely a heterogeneous phenomenon, producing effects ranging from sleep to enlightenment, and incorporating such diverse processes as insight, desensitization, and suggestion.

To encompass these differences in a definition, the author accepts Shapiro's (1984a) description of meditation as "a family of techniques which have in common a conscious attempt to focus attention in a non-analytical way," (p.41).

It is clear that the conceptualization of meditation as a relaxation technique has outlived its usefulness. Boals (1978) proposes reconceptualization of meditation from a cognitive perspective and suggests implications for psychotherapy and future research be explored.

Not only is there wide range of definitions for meditation, but there is also a wide variety of specific techniques.

Some researchers seem concerned with trying to find a commonalty between different kinds of meditation (Benson, 1975; Boswell & Murray, 1979). These researchers claim that all meditations elicit the same basic physiological response. Benson (1975, 1979) has labeled this the relaxation response. Yet most meditation practitioners and researchers disagree.

Smith (1975) and others (Khalsa, 1985; Khalsa, 1990) suggests that such a conclusion may be the result of lack of specificity in the studies .

The classical meditation literature (Brown, 1977) claim there are many differences in the experience of meditation depending on the type of meditation and the depth of the meditative state. Yogi Bhajan (1976) says, "Don't think that every meditation works for you in the same manner. That is a prevalent but incorrect thought" (p. 4).

Swami Rama (1976) in his text addressing psychotherapy and meditation techniques indicates that meditations vary widely in their effects, depending on which breath, posture, and sound is used to construct the meditation. He says there are common effects from the practice but that the more refined practitioner will notice great differences between techniques.

Most writers on the subject of meditation divide the many meditation techniques into two principal categories: concentrative and mindfulness.

Shapiro (1980) notes that in the classic texts there is a clear distinction made between fixed concentrative meditation (focus on a single object) and mindfulness (momentary concentration).

In all types of concentrative meditation, Shapiro (1980) says "...an attempt is made to restrict awareness by the focusing of attention on a single object. Other stimuli in the environment are usually ignored, and complete attention is focused on the stimulus labeled the 'object of meditation.'" (p. 15).

In mindfulness meditation, "an attempt is made to be responsive to all stimuli in the internal and external environment, but not to dwell on any particular stimulus." (p. 18)

Deikman (1982) made a clear distinction between the experience of the two meditative types with regard to attaining the highest goal of meditation when he said:

The main activity of meditation is to develop the observing self. Concentrative meditation does this by focusing attention on a single content of consciousness--usually sensory--and then proceeding to discard, layer by layer, the mental state that underlie it, until what remains is the light of awareness only. Mindfulness or insight meditation takes a different approach by establishing this distinction between the observer and the observed from the very beginning.

Thus, the two principal forms of meditation, concentrative and mindfulness, can be understood as employing different means to achieve the same goal. (p. 137-138)

Meditation may be conceptualized, then, as a process of attentional restructuring wherein the mind can be trained both in concentration, the ability to rest undisturbed on a single object, and in mindfulness, the ability to observe its own moment to moment nature, to pay attention undistractedly to a series of changing objects. This perceptual retraining allows a finely honed investigation of the rapidly changing self-concepts that perpetuate the sense of self (Epstein & Lieff, 1981).

Concentrative and mindfulness meditation definitely seem to involve a different kind of effort in order to experience the ultimate effects of the two types of meditation. Initially, the concentrative kind is said to require a great deal more effort on the part of the meditator. However, its not easy, for most people, to refrain from focusing on thoughts, sensations and perceptions so that they do not persist as is required of certain kinds of mindfulness practice. Brown (1977) suggests that there are three kinds of variables that can be separated out for the purposes of meditation research:

(a) nonspecific variables, common to all meditation systems; (b) specific variables, limited to specific types of meditation practice; and (c) time-dependent variables, changing over the course of meditation practice. The latter, time-dependent variables comprise the majority of meditation variables. (p. 236)

Shapiro (1980) points out that although meditation research has resulted in powerful subjective experiences and physiological changes in the participants, it is not yet clear what variance of the effect of meditation is attributable to which type of meditation technique.

His remarks speak to Brown's second kind of variable for meditative research, variables specific to types of meditation.

One of the few studies to compare the efficacy of different meditation techniques was done in 1973 (Shapiro & Giber, 1978). Fifteen years ago Smith (1978) declared it is time that meditation researchers examine the question of who experiences what state and trait changes with which

technique. The distinction between the practice of concentrative and mindfulness meditation still needs to be researched.

Effects of Short and Long-term Meditation Practice

Meditators seem to vary widely in their subjective reports of how rapidly they experience effects of the practice of meditation, although almost all report that their experience deepens with continued practice over time (Kornfield, 1979). Prolonged practice does seem to produce more marked effects, Shapiro states (1980), "...the nature of the learning curve is quite unclear, and with few exceptions have had amounts of experience which would be considered only beginning level by most meditation systems."

Meditation studies suggest that the effectiveness of meditation as a treatment depends on both steady and prolonged practice of the technique (Lazar et al., 1977; Marcus, 1975).

As Walsh (1979) explains, "Most effects of meditation represent the end product of a chain of reactions or mechanisms which extend from the first brain response through chemical, physiological, and behavioral links." (p. 168) In other words, the outcome depends a great deal on the individual person and the extent of that chain (length of meditation). Still, there does seem to be some consistency in effect with a wide variety of people.

Kornfield (1979) reports, based on follow-up questionnaires sent to him after a three-month retreat, that although:

...most altered state changes and unusual perception or concentration effects were short-lived, and had vanished by the time of the follow-up study, students reported more positive, long-lasting changes in the

area of such traits as openness, equanimity, and a relaxed attitude toward life.

Davidson, Goleman, and Schwartz (1976) found that long-term meditators reported that they had greater absorption in non-analytic pursuits than did short-term meditators. Longer-term meditators seem to have a better developed ability to voluntarily control attention (Shapiro, 1980).

Perhaps the most significant thing that was said about the effects of meditation over time was, "Meditators came to perceive their actual-selves as being increasingly similar to their ideal--and social--selves and that they developed a more strongly defined concept of their actual-selves" (Turnbull & Norris, 1982, p. 57).

Yet, studies by Goleman and Schwartz (1976), Delmonte (1984a), and Shapiro (1984a, 1984b) suggest that even first-timers show measurable effects.

The studies in Shapiro and Giber's (1978) review have tested short-term, mostly in-state effects of meditation. They conclude that all of these studies report that even short-term meditators change more than control groups in the direction of positive mental health, and positive personality change.

In looking at the short-term and long-term effects of meditation, Davidson (1976) states: "Meditation...produces in the short-term the promotion of personality growth and mental health."(p. 346)

In meditation research, it clearly seems important to distinguish between short and long-term meditation practice.

Clinical Applications of Meditation

The beneficial effects of meditation as a treatment modality have been documented (Carrington & Ephron, 1975a, 1975b; Davidson, 1976; Delmonte & Braidwood, 1980; Shapiro & Giber, 1978; Smith, 1975; Woolfolk, 1975). Meditation has been shown to act as an effective therapeutic intervention tool for self-regulation in a variety of clinical applications: alcohol and drug abuse (Benson, 1974; Zuroff & Schwartz, 1978); anxiety (Benson, 1975; Benson et al., 1978; Boswell & Murray, 1979; Smith, 1975); headaches (Benson, Klemchuk et al., 1974); hypertension (Benson, Rosner et al., 1974; Gersten, 1978); smoking cessation (Cohen, 1984); cancer recovery (Meares, 1976; Achterberg et al., 1977; Simonton & Matthews-Simonton 1975, 1978), phobias (Shapiro & Giber, 1978); recovery from cardiovascular disease (Gould et al., 1992; Ornish et al., 1979, 1990, 1993) and retarded ejaculation (Delmonte & Braidwood, 1980). Meditation has also been beneficial in developing a sense of personal meaning (Goleman, 1971; Kohr, 1977b); and for improving self-esteem (Johnson, 1974; Khalsa, 1990; Nystul & Garde, 1977; Shapiro & Giber, 1978).

Specifically, with regard to psychotherapy, meditation is being used more and more as a self-mastery and growth technique as well as an adjunct to psychotherapeutic intervention in the clinical setting (Boals, 1978; Delmonte, 1984a, 1984b; Delmonte & Braidwood, 1980; Schwartz, Davidson, & Goleman, 1978; West, 1980). Indeed, meditation seems to be a promising adjunct to therapy when it is accompanied by other psychotherapeutic methods (Carrington & Ephron, 1975a).

When meditation is used in conjunction with psychotherapy, meditation seems to contribute to the therapy by fostering an indefinable, deeply convincing, non-verbal experience of self in the client.

"This sense of self may be evidenced in meditation patients in many ways. They frequently report that they have become more aware of their own opinions, less likely to be influenced by others, more able to sense their own needs, and better able to stand up for their 'own rights'" (Carrington & Ephron, 1975a, p. 103).

To make the best use of meditation as a therapeutic intervention in health psychology, some important considerations must be addressed. Some researchers have expressed concern over the possible deleterious side effects of meditation for certain participants (Morse, 1984). Carrington (1978) feels that psychotics and borderline patients may have unsettling subconscious material come into awareness during meditation. She recommends close supervision by a therapist in these cases. The common position in the field is that meditation needs to be taught with clear instruction and support because of the many changes it can induce (Epstein & Lieff, 1981).

There is concern by Deikman (1982) with the use of meditation for what he calls secondary purposes. That is, focusing the practice of meditation with the intended outcome to be that of lowered blood pressure, increased calm, improved physical health or enrichment of associative thinking, is missing the primary purpose of meditation. He believes this intention for secondary purposes could hinder a meditator from reaching the

ultimate goal of meditation. Deikman warns that these problems should be considered when suggesting the use of meditation for psychotherapeutic, physical or health purposes.

This researcher disagrees with Deikman's view. The secondary purposes he describes are simple steps along the path of evolving as a meditator, offering many benefits and need not conflict with the attainment of the primary purpose of meditation: awareness (Yogi Bhajan, 1971).

The clinically relevant question is not whether a technique 'works', but when is that technique the treatment of choice for which patient.

Shapiro (1980) says, "...from a clinical standpoint,...questions of primary importance include the following: for which clinical populations, under what conditions, for what clinical problems, are what meditations treatments effective" (p. 258)

By comparing concentrative meditation with mindfulness meditation with regard to a standardized measure of self-efficacy, this study may help to define which type of meditation is more beneficial on a short-term basis in a therapeutic setting.

Psychological Co-factors in Progression of HIV Disease

Based on empirical research, relatively little can be said definitively about the role of psychosocial factors in HIV disease progression in women and men (Coates et al., 1987; Temoshok & Baum, 1990). Some empirical research has documented, among seropositive gay men, an association between psychological well-being and high levels of perceived control (Moulton, Sweet, Temoshok, & Mandel, 1987; Solomon et al., 1987), social

support (Hays, Chauncey, & Tobey, 1990; Mandel, 1985), and health-enhancing behaviors (LaPerriere, Schneiderman, Antoni, & Fletcher, 1990; Moulton et al., 1987). These variables, as well as psychosocial stress, have been associated with changes in host resistance and immune function (Cohen, 1990; Kiecolt-Glaser & Glaser, 1988d; Rodin, 1986; Solomon & Temoshok, 1990).

Psychosocial stress has been associated with the progression of HIV-related disease in a number of studies (Cecchi, 1984; Coates et al., 1984; Donlou et al., 1985; Solomon & Temoshok, 1990). Although it is unknown which psychosocial stressors have an impact on the modulation of HIV, Glaser and Kiecolt-Glaser (1987) identified parallel methods for reactivating latent HIV in vitro. HIV replication has been enhanced in laboratory cell cultures with the addition of stress-related hormones. Moreover, in a study of seropositive men, higher anxiety predicted a one-week decline in Natural Killer cell cytotoxicity. These results are striking given that the men in this study were asymptomatic and therefore likely to be early in the disease process (Mulder & Antoni, 1992).

Over and above biological factors, a certain constellation of psychosocial factors appears to be associated with "adaptive" immune functioning that may, in turn, influence the progression of HIV disease (Temoshok, et al., 1988). Co-factors such as health habits, health beliefs, nutrition, social support, and management of psychosocial stress may influence health outcomes (Coates et al., 1987).

The psychological distress associated with having HIV infection at any stage is as important a health factor as the obvious physical distress caused by the disease (Moulton et al., 1990). Living with HIV infection is often experienced as a long term continuous stress. There may be a ten to twelve year period without HIV related symptoms where the individual is ever vigilant for signs of illness. Under standard medical care, the person may watch her CD4 count progressively drop over the years with an increasing sense that time is running out. There are frequent conflicts in medical opinion regarding treatment and prognosis.

Living with HIV infection demands skills that may involve a reassessment of the situation in terms that are less stress producing. Within a stress and coping model, it is not stress per se, but how one copes with stress which determines health outcome. Within this model, coping is defined as a person's "constantly changing cognitive and behavioral efforts to manage specific external or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984).

Stress arises from a relational condition in which perceived task demands strain or exceed coping capabilities in areas of personal import (Bandura, 1991). It is the thought component--the arousal generated by repetitive perturbing ideation--that accounts for much of human distress.

Psychological "hardiness" is a factor in long-term survival of HIV disease (Temoshok, et al, 1987; Blaney et al., 1991). People's beliefs about their coping efficacy affect their emotional reactions in taxing situations as well as their motivation and behavioral functioning. Psychosocial

interventions can be designed to enhance healthy beliefs and change unhealthy ones, and to change health-damaging behaviors in persons with HIV infection (Solomon & Temoshok, 1990).

Treatment often combines relaxation techniques with cognitive modification. Cognitive/behavioral therapy may be used to supply the patient with a repertory of methods for stress and symptom control. These methods may include mental techniques, such as thought suspension, or reframing of exaggerated pessimistic thoughts in more realistic terms. They may also include physical techniques, such as progressive relaxation and meditation (Tross, 1989).

Rationale for this approach is provided by Schachter (1966), who suggests a process model for stressful events in which physiological arousal and cognition interact to determine the nature and severity of the reaction to stress. Together, relaxation techniques and cognitive strategies enhance each others' effectiveness in reducing physiological arousal and altering inappropriate cognition (Decker, Williams, & Hall, 1982).

Cumulative empirical evidence suggests that perceived self-efficacy and a sense of control can profoundly affect emotional and physical health--possibly by influencing stress resistance, physiological response, and health behaviors (Bandura, 1991; Rodin, 1986).

In studies of gay and bisexual men, high self-efficacy has been associated with lower risk sexual activity (Coates et al., 1989; McKusick, Wiley, Coates, Morin, 1986; Moulton et al., 1990; Joseph et al., 1987). Perceived self-efficacy seems to enable men to make the behavioral

changes needed to reduce their risk of HIV transmission. This is in line with other research suggesting that individuals with more perceived control take greater responsibility for their own health--in part by engaging in more health-promoting behavior (Candiotte & Lichtenstein, 1981).

Earlier research has shown that people with AIDS who improve their health-care behaviors tend to make personal attributions for their improved health (Moulton et al., 1987). More recent research shows that self-efficacy beliefs are common among long-term survivors of HIV disease.

Two research teams on opposite coasts have published ground-breaking research that correlates psychological factors with delay in progression of HIV disease (Solomon et al., 1987; Solomon & Temoshok, 1990; Remien et al., 1992). Both teams studied men in CDC Stage IV (AIDS or ARC diagnosed) who lived in relative good health well beyond the eighteen months to two years standard prognosis. They were expected by their physicians to be dead, but were instead healthy and active. Such persons are considered "long-term survivors" and are only minimally researched.

Medical treatment was not in common among these men. What they all shared was a set of psychological characteristics, certain beliefs and behaviors.

It seems that the long-term survivors were extremely practical and realistic in their health beliefs. They recognized the importance of good medical care, and did not believe that their doctors necessarily had the power to keep them healthy. They were active in their medical treatment,

had supportive health behaviors, a healthy social network, a purpose in life, and plans for the future (Remien et al., 1992). They had the ability to say no to an unwanted favor (Solomon et al., 1987), and had the belief that what they did made a difference (Solomon et al., 1987; Solomon et al., 1990; Remien et al., 1992), also known as self-efficacy.

CHAPTER 3

RESEARCH METHODS

Research Design

Health psychology research poses some particular challenges regarding design. To begin with, no category of participants with a given medical diagnosis is homogeneous. Effects of a diagnosis can vary widely from person to person due to the length and extent of illness, the amount of personal distress and individual characteristics such as health level before illness, health behaviors, medical compliance, psychological state and social support. To accommodate this, researchers Leventhal & Nerenz (1983) recommend a "middle ground of controlled variation" of participants to take advantage of variations and similarities between participants.

Accordingly, the participants in this study were men and women all in the same stages of HIV disease (CDC II and CDC III) and had known their seropositive status for at least three months.

Several systems have been used to classify the clinical aspects of HIV infection sequelae (e.g., Walter Reed Staging system: Redfield, Wright, & Tramont, 1986; the staging of Zolla-Pazner et al., 1987; CDC, 1986). The Center for Disease Control criteria was chosen because this was the classification system utilized in the majority of studies reviewed.

Table 1

CDC Classification of HIV Infection

Group	Classification
I	Acute infection
II	Asymptomatic infection
III	Persistent generalized lymphadenopathy also HIV symptomatic
IVa	Constitutional disease (AIDS)
IVb	Neurological Disease
IVc-1	Secondary infectious diseases, listed in the CDC definition of AIDS
IVc-2	Other secondary infectious diseases
IVd	Secondary Cancers
IVe	Other Conditions

Data collection began in August, 1992, and continued through April, 1993. On January 1, 1993, the Center for Disease Control changed the definition of various stages, especially what comprises CDC Stage III and CDC Stage IV. For continuity of the study, participants after January 1, 1993 were screened according to the 1992 stage definition of HIV disease.

Temoshok (1990) addresses the problem of subject homogeneity by recommending that health psychology researchers consider using less traditional analytic techniques, such as within subject correlations. In a matched within groups design all participants experience both experimental conditions, each participant acting as his or her own control. Thus, the degree of individual variability is minimized.

Meditation researchers also favor this design since a participants expectations (Shapiro, 1980; Delmonte, 1981), degree of training (Brown, 1977; Fling, Thomas & Gallaher, 1981; Maupin, 1965), and personal characteristics and interests (Beiman, Johnson, Puente, Majestic, Graham, 1984) can affect the experience.

Carrington (1978) says of the within-subjects design:

An increasingly popular research approach compares regular meditators with themselves...This is in many ways an ideal method for studying meditation...A "before and after" study which is completed in a single experimental session [where]...a subject is tested before he or she meditates, again right after the session...is a highly desirable way of doing research (p. 65).

Since the meditative state shifts as other activities evoke a new state (Tart, 1975), the dependent variables of self-efficacy and health behavior self-efficacy should be measured quickly. Therefore, the instruments selected are brief. Little carry-over effect is expected between the two states since there is a half hour break between the meditations invoking the two states. The testing procedure itself will aid in initiating a separation from the previous state.

The within-subjects matched group design is presented in the following diagram:



1	T1, T2		C	T1, T2
2	•		M	•
3	•		M	•
4	•		C	•
5	•		M	•
•	•		•	•
•	•		•	•
38	T1, T2	C		T1, T2

BLOCK & SUBJECT NUMBER	PRE TESTS		MED 2	POST TESTS
1	T1, T2	M		T1, T2
2	•		C	•
3	•		C	•
4	•		M	•
5	•		C	•
•	•		•	•
•	•		•	•
38	T1, T2	M		T1, T2

Each participant experienced both meditation conditions. The "C" indicates the experimental condition of concentrative meditation. The "M" is the experimental condition of mindfulness meditation. Each meditation was performed by one-half of the male and one-half of the female participants with half receiving the mindfulness condition first and half receiving the concentrative condition first. This balanced the possible effects from the order of presentation. The two test instruments were given immediately before and after each meditation. In addition to this experimental data, participant information was gathered before the experimental session. Participants were in groups of 8-10 people.

Participants

Participants were one hundred seven men and women who had volunteered in response to announcements and presentations made to various support groups and AIDS social service agencies for persons who are HIV seropositive. Of these, thirty-eight men fit design criteria: (a) HIV CDC Stage II or III, (b) not on psychoaffective drugs, (c) have known their seropositive status at least three months, and (d) have meditated before for at least one year. Only these participants' data was used in the analysis. The age range of these men was 21 to 52 years with a mean age of 38 years. Twenty experimental sessions were required to collect the data.

Even though this researcher was committed to including women in the study, only eight women who met study criteria participated. Their data was not included in this study.

It is known that participants with the same medical diagnosis are not necessarily a homogeneous group (Leventhal & Nerenz, 1983). An attempt to control for participant variation was made by using the experimental design previously described and by participant selection.

Temoshok et al., (1987) reported greater emotional distress among persons with HIV related symptoms or ARC than among persons who were AIDS diagnosed. Ragsdale & Morrow (1990) indicate that quality of life, including disruption in psychosocial aspects, varies as a result of HIV classification. To keep participant variations to a minimum, all participants in this study were in either CDC Stage II or III of HIV disease.

Participants knew their seropositive status for at least three months prior to entering the study, ranging from three months to eight years with a mean of four and a half years prior knowledge. The traumatic period of the first hundred days following a medical diagnosis of a life-threatening disorder is well documented (Tross, 1989; Lustig, 1988; Moulton et al., in press; Perry et al., 1990; Simonton, 1992). It is characterized by vulnerability often taking the form of adjustment, depressive or anxiety disorders. Symptoms of Post Traumatic Stress Disorder are not uncommon. Most distress is transient and situational to the diagnosis of being HIV seropositive. Usually after three months the person has stabilized.

Previous meditation experience is a factor in experimental outcome. There seems to be a learning period where those beginning meditation train their attention and cognitive processes (Brown & Engler, 1980). Compton & Becker (1983) recommend participants have at least one year of meditation practice to reduce inconsistencies in research results.

All participants in this study had at least one year of meditation experience prior to the experimental session. Prior experience ranged from one year to eight years with a mean of three years. Participants learned meditation from a variety of traditions. This is not a disruptive factor since most meditation researchers expect attention training to be a transferable skill (Khalsa, 1985).

Participants were screened over the phone to determine that they met the above criteria and to ascertain any physical or medical conditions that might interfere with his/her ability to participate in the study.

The conditions that were considered as possibly interfering with a participant's ability to participate in the study were: 1) physical inability to sit comfortably in a chair for 20 minutes, 2) inability to touch the thumb to the fingers alternatively (on both hands simultaneously, while the hands rested on the knees of both legs). The participants had to be able to repeat this sequence in a steady manner for twenty minutes, 3) anyone unable to hear and repeat sounds due to physical impairment and 4) anyone currently taking psychoaffective medically prescribed drugs or recreational drugs since drugs of this nature can interfere with the meditative experience.

Twenty-one participants were taking medication prescribed for prevention or treatment of symptoms related to HIV infection, such as AZT or bactrim. Since these drugs are not known to be specifically psychoaffective, it was not expected that they would affect the meditation experience. These participants were included.

Potential participants were then randomly assigned to an experimental session.

Instrumentation

The psychological effects of one session of meditation are often transitory and always subjective. Therefore the instruments used must be simple and brief, and still be reliable and valid for research standards. The researcher wants to record the effects of the meditative state and not the memory later. Shapiro (1980) pointed out that the effects of meditation can be disrupted if the instrument requires a great deal of time or effort.

The Self-efficacy Scale was selected for this study because with just 30 items, it meets the above criterion and has been used to measure changes in self-efficacy with valid and reliable results (Sherer & Adams, 1983; Sherer et al., 1987; Sherer et al., 1982).

The Self-efficacy Scale has two subscales, the General Self-efficacy subscale and the Social Self-Efficacy subscale. Both subscales have adequate reliability and internal consistency. Cronbach alpha is .86 for the General subscale and .71 for the Social subscale (Sherer & Adams, 1983).

The Self-efficacy Scale measures generalized self-efficacy beliefs dependent on past experiences and on tendencies to attribute success to personal resources as opposed to chance. Self-efficacy beliefs are likely to manifest themselves in general patterns of behavior and in responses to situations about which the individual has little or no information. Thus, the Self-efficacy Scale, particularly the Social Self-efficacy subscale, may be a useful measure in determining the success of a health psychology intervention (Sherer et al., 1982).

To assess health behavior self-efficacy, participants were presented with the Health Behavior Self-Efficacy Scale. This scale consists of 22 one-sentence health-promoting and illness-alleviating behaviors. Participants are asked to rate their confidence that they could successfully carry out each, on a scale ranging from 0 (not at all confident) to 100 (very confident). This instrument was designed by Salovey & Birnbaum (1989) and was based on Bandura (1977a). It has good internal consistency with Cronbach alpha .88 (Salovey & Birnbaum, 1989).

Procedure of Data Collection

Research was conducted according to criteria set by the American Psychological Association (1990), for research with human participants. The experimental sessions took place in the office of the researcher. Participants were welcomed and given a consent form (Appendix A), a Participant Information Sheet (Appendix B), Procedure Sheets (Appendix C), and a response sheet for each of the instruments (Appendix D).

According to Smith (1975), experimenters should attempt to standardize expectation effects by having written instructions read to all groups participating in the experiment. In Smith's view, this method is a systematic effort to increase control of participants' expectations. Accordingly, to reduce bias and expectation effects, written instructions were given to each participant (Appendix C). The proctor read the instructions aloud while the participants followed along on their written copy.

After the experimental procedure and directions for the meditations were read aloud, questions were answered. Participants were then led through the design procedure of pre-test, meditation 1, post-test, break, pre-test, meditation 2, and post-test. Data sheets were collected and assigned numbers for analysis. Each participant who completed the experimental session was given \$10 for their participation.

Three research assistants hand scored the responses. All of the participant information was kept confidential and the responses remained coded and therefore, anonymous.

CHAPTER 4

RESULTS AND DATA ANALYSIS

Introduction

Data for this study were obtained from thirty-eight men in CDC Stage II or II of HIV disease from the Los Angeles County area. The participants ranged in age from 21 to 52 years, with the mean age of 38 years. All had practiced meditation at least one year in the past, were not taking psychoaffective drugs and had known their HIV seropositive status for at least three months prior to participating in the study.

The original intent of this study was to include an equal number of women as men, but after a year of intensive outreach, data was collected on only eight women who met research criteria. Their data was not included in this study, but was retained for later research.

The study was conducted in single two and a half hour experimental sessions over ten months. Participants attended one session only. They were randomly assigned so that half received the mindfulness meditation condition first and half received the concentrative condition first.

Data were collected on the thirty-eight participants by administering a Background Information Sheet (Appendix B), the Self-efficacy Scale (which includes the General Self-efficacy and Social Self-efficacy subscales) and the Health Behavior Self-efficacy Scale (Appendix D).

The Self-efficacy Scale and the Health Behavior Self-efficacy Scale were hand scored by three research assistants. Scores for the General Self-

efficacy subscale and the Social Self-efficacy subscale were separated out for analysis. Scores for each scale were transferred to coded sheets devoid of personal identifying markers. All the identifying information was kept confidential by the researcher; the research assistants worked from coded testing and data record sheets and did not know the identity of any of the study participants.

The Proctor Observation Sheets (Appendix E) were examined for any valuable anecdotal information. According to the Proctor Observation Sheet, all of the participants in all of the experimental sessions actively participated in the concentrative meditation condition. That is, they were observed rhythmically moving their fingers and repeating aloud SA TA NA MA. They also appeared to be inhaling in eight equal parts during that portion of the meditation. In the mindfulness condition, all of the participants appeared to be consciously breathing and awake. Only one participant in the concentrative meditation experimental condition required assistance and none of the participants in the mindfulness condition required assistance once the meditation had begun.

Data for each of the two subscales and one scale underwent two analyses, analysis of variance (ANOVA) and analysis of variance for repeated measures (repeated measures ANOVA). All the analyses for this study were set at the .05 level of significance.

Preparatory Analysis

The design of the study attempted to reduce the possibility of sequence effects by having half the participants receive the mindfulness

condition first and half the participants receive the concentrative condition first. The first segment of data analysis was to determine if indeed there was a sequence effect for the two conditions.

The results of the repeated measures ANOVA indicate there is no significant interaction between pre and post-test scores and sequence for the General Self-efficacy subscale, $[F(1, 38) = .93, P > .05]$.

The results of the repeated measures ANOVA indicate there is no significant interaction between pre and post-test scores and sequence for the Social Self-Efficacy subscale, $[F(1,38) = 2.38, P > .05]$.

The results of the repeated measures ANOVA indicate there is a significant interaction between pre and post-test scores and sequence for the Health Behavior Self-Efficacy Scale, $[F(1,38) = 7.68, P > .05]$.

Sequence is therefore a variable in the analysis of the Health Behavior Self-efficacy Scale data, but not for General or Social self-efficacy subscales data. By necessity, the experimental sessions were done in batches over a ten month period, always on the same times and days of the week. Yet, the time of day or day of the week one meditates may influence the experience. A meditation practiced mid-week in the evening may give a different experience than when practiced on a Saturday morning. To minimize time of day effects, half the participants were randomly assigned to a Wednesday evening experimental session, half were assigned to a Saturday morning session. Data analysis for time of day effects follow.

The results of the repeated measures ANOVA indicate there is no significant interaction between method, pre and post-test scores, or time of day for the General Self-efficacy subscale, $[F(1,38) = .53, P > .05]$.

The results of the repeated measures ANOVA indicate no significant interaction between method, pre and post-test scores, or time of day for the Social Self-efficacy subscale, $[F(1,38) = 1.98, P > .05]$.

The results of the repeated measures ANOVA indicate no significant interaction between method, pre and post-test scores, time of day, or sequence for the Health Behavior Self-Efficacy Scale, $[F(1,38) = 1.04, P > .05]$.

During the first meditation of the first session that data was collected, August 5, 1992, there was an earthquake of 4.7 magnitude. The epicenter was within twelve miles from site of data collection, (Reich, 1992) and participants felt the tremor. This batch of data was kept separate and analysis was done to determine if the earthquake proved to be a confounding variable. Since data collected in this batch was not significantly different from other batches, this data was then incorporated into the aggregate.

The results of the repeated measures of ANOVA indicate no significant interaction between method, pre-post, or batch for the General Self-efficacy subscale, $[F(1,38) = 2.61, P > .05]$.

The results of the repeated measures ANOVA indicate no significant interaction between method, pre and post-test scores, or batch for the Social Self-efficacy subscale, $[F(1,38) = 1.89, P > .05]$.

There are no data for concentrative meditation given first because all participants in this batch received mindfulness condition first. There were too few participants in the earthquake batch for repeated measures ANOVA for method, pre and post-test scores, or earthquake effects for the Health Behavior Self-efficacy Scale. It is assumed there was no influence due to the batch.

Test for Sequence Effects
ANOVA General Self-Efficacy Subscale

	Pre-test		Post-test	
	Mean	SD	Mean	SD
Concentrative	69.53	10.63	68.05	16.05
Mindfulness	63.05	11.11	64.26	11.25

Test for Sequence Effects
Repeated Measures ANOVA General Self-efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F
Pre-Post*Sequence	1	34.22	34.22	0.93	0.3424

Test for Sequence Effects
ANOVA Social Self-Efficacy Subscale

	Pre-test		Post-test	
	Mean	SD	Mean	SD
Concentrative	20.37	5.21	20.42	6.77
Mindfulness	21.00	4.91	22.53	5.47

Test for Sequence Effects
Repeated Measures ANOVA Social Self-Efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F
Pre-Post*Sequence	1	10.32	10.32	2.38	0.1314

Test for Sequence Effects
ANOVA Health Behavior Self-Efficacy Scale

	Pre-test		Post-test	
	Mean	SD	Mean	SD
Concentrative	81.30	13.36	82.21	12.68

Mindfulness 72.19 14.49 76.49 14.62

Test for Sequence Effects
Repeated Measures ANOVA Health Behavior S-E Scale

	DF	Anova SS	Mean Square	F Value	Pr > F
Pre-Post*Sequence	1	58.07	58.07	7.68	0.0088

Test for Time of Day Effects
ANOVA Health Behavior Self-Efficacy Subscale

	Mindfulness				Concentrative			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Saturday	65.59	11.38	66.88	11.45	64.94	9.69	67.29	11.18
Wednesday	66.16	11.45	64.58	16.15	62.37	12.20	65.26	13.61

Test for Time of Day Effects
Repeated Measures ANOVA General Self-efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F	Method*Pre-
Post*Day	1	26.16	26.16	0.53	0.4731	

Test for Time of Day Effects
ANOVA Social Self-Efficacy Subscale

	Mindfulness				Concentrative			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Saturday	22.12	4.36	23.29	4.61	22.82	4.35	23.29	4.36
Wednesday	19.47	5.40	19.84	7.07	19.74	5.88	22.21	5.14

Test for Time of Day Effects
Repeated Measures ANOVA General Self-efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F
Method*Pre-Post*Day	1	17.73	17.73	1.98	0.1681

Test for Time of Day Effects
ANOVA Health Behavior Self-Efficacy Scale

	Mindfulness				Concentrative			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sat. (C)	86.71	11.20	87.96	12.77	85.74	10.23	87.05	12.92

Sat. (M)	66.77	19.37	71.36	19.27	68.96	17.95	71.64	18.67
Wed. (C)	76.50	14.33	77.72	11.97	75.19	13.43	80.41	16.86

Wed. (M)	76.81	6.07	80.93	7.28	79.03	7.05	80.75	7.22

Test for Time of Day Effects
Repeated Measures ANOVA Health Behavior S-E Scale

	DF	Anova SS	Mean Square	F Value	Pr > F
Method*Pre-Post*Day	1	8.89	8.89	1.04	0.3160
Sequence					

Test for Earthquake Effects
ANOVA for General Self-Efficacy Subscale

	Mindfulness				Concentrative			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
All Others	66.15	11.41	65.68	14.29	63.53	11.39	66.97	12.71
Earthquake	67.50	10.85	70.25	9.00	69.75	5.44	65.00	9.20

Test for Earthquake Effects
Repeated Measures ANOVA General Self-Efficacy Subscale

DF	Anova SS	Mean Square	F Value	Pr > F
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Method*Pre-Post*Batch 1 116.52 116.52 2.61 0.1150

Test for Earthquake Effects
ANOVA Social Self-Efficacy Subscale

	Mindfulness				Concentrative			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
All Others	20.53	5.13	21.15	6.30	20.74	5.53	22.59	4.92
Earthquake	22.00	4.08	24.25	4.50	23.75	2.63	23.00	4.76

Test for Earthquake Effects
Repeated Measures ANOVA Social Self-Efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F
Method*Pre-Post*Batch 1	16.05		16.05	1.89	0.1776

Test for Earthquake Effects
ANOVA Health Behavior Self-Efficacy Scale

	Mindfulness				Concentrative			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
All Others (C)	81.30	13.36	82.21	12.68	79.56	12.66	83.14	14.80

All Others (M)	70.07	15.50	74.84	15.63	72.40	14.78	74.37	15.00
E-quake(C)	-	-	-	-	-	-	-	-

E-quake(M)	79.65	6.52	82.67	8.82	81.93	6.94	84.90	6.68

Analysis

It has been established that there are no time of day or batch effects for any of the scales. There is no sequence effect for the General or Social Self-efficacy subscales, there is for the Health Behavior Self-efficacy Scale.

The data is now ready to be tested against the null hypotheses, which follow. The implications of these results are discussed more fully in Chapter 5.

Hypothesis 1

There will be no significant difference in raw percentile scores by trial (baseline, concentrative meditation and mindfulness meditation) on the General Self-efficacy subscale total scores.

The null hypothesis was accepted. There was no significant difference in the General Self-efficacy subscale scores as a result of either concentrative or mindfulness meditation, [$F(1,38) = 1.74, P > .05$].

Hypothesis 2

There will be no significant difference in raw percentile scores by trial (baseline, concentrative meditation, and mindfulness meditation) on the Social Self-efficacy subscale total scores.

The null hypothesis was rejected. There was a significant increase in the Social Self-efficacy subscale scores following practice of both mindfulness and concentrative meditation, [$F(1,38) = 16.97, P > .05$]. Social Self-efficacy scores are significantly improved pre to post-test, regardless of the method of meditation practiced.

Hypothesis 3

There will be no significant difference in raw percentile scores by trial (baseline, concentrative meditation, and mindfulness meditation) on the Health Behavior Self-efficacy Scale total scores.

The null hypothesis was rejected. Health Behavior Self-efficacy scores increased significantly following practice of both mindfulness and

concentrative meditation, [$F(1,38) = 21.20, P > .05$]. Health Behavior Self-efficacy scores are significantly improved pre to post-test, regardless of the method of meditation practiced.

Hypothesis 4

There will be no significant interaction between type of meditation and the General Self-efficacy subscale total scores.

The null hypothesis was accepted. There was no significant interaction between method of meditation and pre and post-test scores, [$F(1,38) = 1.50, P > .05$], for the General Self-efficacy subscale.

Hypothesis 5

There will be no significant interaction between type of meditation and the Social Self-efficacy subscale total scores.

The null hypothesis was accepted. While the results of Hypothesis 2 confirms there is a significant difference between pre and post-test scores, regardless of method, for the Social Self-efficacy subscale, there is no significant difference between methods for this scale, [$F(1,38) = .68, P > .05$]. The change in pre to post-test score did not interact with the method of meditation received. Social Self-efficacy scores are significantly increased pre to post-test, regardless of the method of meditation practiced.

Hypothesis 6

There will be no significant interaction between type of meditation and the Health Behavior Self-efficacy Scale total scores.

Previous data analysis showed there is a sequence effect for the Health Behavior Self-efficacy Scale. To assess if method of meditation

interacted with resulting scores and still incorporate sequence effect, a change score for each subject was generated (the difference between pre and post-test scores). The change score was then used to generate the mean and standard deviation figures.

The null hypothesis was rejected. The sequence in which the meditations were practiced interacted with the change in score from one method to another, on the Health Behavior Self-efficacy Scale, [$F(1,38) = 6.65, P > .05$].

As shown in the results of Hypothesis 3, Health Behavior Self-efficacy scores increased significantly following meditation practice, regardless of method. However, the method of meditation used and the sequence participants received it interacted with the results. Those who did mindfulness meditation first had an increase in both mindfulness and concentrative condition post-test scores. Those who did concentrative meditation first had an increased post-test score following the concentrative condition, but a decreased post-test score after the mindfulness condition.

Test for Pre-Post Effects
ANOVA General Self-Efficacy Subscale

Pre-test		Post-test	
Mean	SD	Mean	SD
65.24	10.49	66.46	12.03

Test for Pre-Post Effects
Repeated Measures ANOVA General Self-Efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F
Pre-Post	1	56.90	56.90	1.74	0.1949

Test for Method Pre-Post Effects
ANOVA General Self-Efficacy Subscale

	Pre-test		Post-test	
	Mean	SD	Mean	SD
Concentrative	64.18	11.04	66.76	12.30
Mindfulness	66.29	11.22	66.15	13.81

Test for Method by Pre-Post Effects
Repeated Measures ANOVA General Self-Efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F
Method*Pre-Post	1	69.80	69.80	1.50	0.2287

Test for Pre-Post Effects
ANOVA Social Self-Efficacy Subscale

Pre-test		Post-test	
Mean	SD	Mean	SD
20.87	5.0	22.05	4.94

Test for Pre-Post Effects
Repeated Measures ANOVA Social Self-Efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F
Pre-Post	1	53.29	53.29	16.97	0.0002

Test for Method by Pre-Post Effects
ANOVA Social Self-Efficacy Subscale

	Pre-test		Post-test	
	Mean	SD	Mean	SD
Concentrative	21.05	5.36	22.63	4.84
Mindfulness	20.68	5.00	21.47	6.16

Test for Method by Pre-Post Effects
Repeated Measures ANOVA Social Self-Efficacy Subscale

	DF	Anova SS	Mean Square	F Value	Pr > F
Pre-Post	1	5.92	5.92	0.68	0.4144

Test for Pre-Post Effects
ANOVA Health Behavior Self-Efficacy Scale

Pre-test		Post-test	
Mean	SD	Mean	SD
76.84	13.77	79.61	14.05

Test for Pre-Post Effects
Repeated Measures ANOVA Health Behavior S-E Scale

	DF	Anova SS	Mean Square	F Value	Pr > F
Pre-Post	1	290.85	290.85	21.20	0.0001

Test for Method and Sequence Effects
ANOVA Health Behavior Self-Efficacy Scale

	Mindfulness		Concentrative	
	Mean	SD	Mean	SD
Concentrative 1st	0.91	3.77	3.58	6.38
Mindfulness 1st	4.40	4.00	2.18	4.25

Test for Method and Sequence Effects
Repeated Measures ANOVA Health Behavior S-E Scale

	DF	Anova SS	Mean Square	F Value	Pr > F
Method*Sequence	1	113.56	113.56	6.65	0.0141

CHAPTER 5

SUMMARY, CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

Summary

The purpose of this study was to assess the short-term effects of two types of meditation, concentrative and mindfulness, on self-efficacy beliefs in persons in CDC Stages II and III of HIV disease. By examining the results of this study, the questions of whether meditation is effective in changing self-efficacy beliefs, and if so, which type of meditation is the treatment of choice for enhancing self-efficacy in persons in the early stages of HIV disease can be determined.

Although the original intent of this study was to include as many men as women, after a year of intensive outreach, only eight women meeting research criteria had volunteered. Their data was not included in this study, but was retained for later research.

The study sample comprised 38 males who were either in CDC Stage II or III of HIV disease. All participants selected for this study were given a background questionnaire to screen for psychoaffective drug use, previous meditation experience of at least one year and knowledge of their HIV seropositive status for at least three months.

Participants were given written and oral instructions in the procedure to be followed, in the measurements to be used and in the meditations to be practiced. They were aware that the tests measured certain psychological

characteristics, but were not aware self-efficacy beliefs were being examined, nor were they informed of any of the research hypotheses.

In order to gather data on the number of participants needed for the study, data collection was conducted in twenty batches of a single experimental session over a ten month period. Half of the participants were randomly assigned to begin with one meditation condition and half were assigned to begin with the other. Each group was asked to complete the Self-efficacy Scale and the Health Behavior Self-efficacy Scale. Then the participants performed the meditation they were assigned for twenty minutes. Immediately after the meditation they took the two tests again.

After a half hour break, the participants repeated the tests as a new baseline. Then they did the second meditation for twenty minutes. Immediately afterwards, they repeated the tests.

Participants were give \$10.00 for their participation and then debriefed.

The Proctor's Observation Sheet (Appendix E) indicated that none of the participants needed assistance during the mindfulness meditation and all appeared to remain alert for the duration of the meditation. Thus, it appeared from the proctor's point of view that the participants were doing the mindfulness meditation.

The Proctor's Observation Sheet indicated that only one participant needed assistance during the concentrative meditation. He began the meditation by moving his fingers in reverse of the sequence given in the instructions. This was corrected within the first minute of the twenty minute

meditation. All participants were rhythmically moving their fingers, inhaling in eight parts and chanting aloud SA TA NA MA throughout the meditation. Thus, it appeared from the proctor's point of view, that the participants were doing the concentrative meditation.

Six hypotheses were examined:

Hypothesis 1

There will be a significant difference in raw percentile scores by trial (baseline, concentrative meditation, and mindfulness meditation) on the General Self-efficacy subscale total scores.

Hypothesis 2

There will be a significant difference in raw percentile scores by trial (baseline, concentrative meditation, and mindfulness meditation) on the Social Self-efficacy subscale total scores.

Hypothesis 3

There will be a significant difference in raw percentile scores by trial (baseline, concentrative meditation, and mindfulness meditation) on the Health Behavior Self-efficacy scale total scores.

Hypothesis 4

There will be a significant interaction between type of meditation and the General Self-efficacy subscale total scores.

Hypothesis 5

There will be a significant interaction between type of meditation and the Social Self-efficacy subscale total scores.

Hypothesis 6

There will be a significant interaction between type of meditation and the Health Behavior Self-efficacy scale total scores.

The first hypothesis was not supported by the data, $[F(1,38) = 1.74, P > .05]$. The null hypothesis was accepted. There was no significant difference in the General Self-efficacy subscale scores as a result of either concentrative or mindfulness meditation.

The second hypothesis was supported by the data, $[F(1,38) = 16.97, P > .05]$. The null hypothesis was rejected. There was a significant increase in the Social Self-efficacy subscale scores following practice of both mindfulness and concentrative meditation.

The third hypothesis was supported by the data $[F(1,38) = 21.20, P > .05]$. The null hypothesis was rejected. Health Behavior Self-efficacy scores increased significantly following practice of both mindfulness and concentrative meditation.

The fourth hypothesis was not supported by the data, $[F(1,38) = 1.50, P > .05]$. The null hypothesis was accepted. There was no significant interaction between type of meditation and the General Self-efficacy subscale scores. In fact, as shown in the results of Hypothesis 1, neither concentrative nor mindfulness meditation significantly affected post-test scores on the General Self-efficacy subscale.

The fifth hypothesis was not supported by the data, $[F(1,38) = .68, P > .05]$. The null hypothesis was accepted. Although there is significant

increase in scores on the Social Self-efficacy subscale following both mindfulness and concentrative meditation (as shown in the results of Hypothesis 2), there is no significant difference between methods. Social Self-efficacy scores are significantly increased regardless of meditation method practiced.

The sixth hypothesis was supported by the data, albeit in an unexpected way. There was a sequence effect in that the sequence in which the meditations were practiced interacted with the change in score from one method to another, $[F(1,38) = 6.65, P > .05]$. Therefore, the null hypothesis was rejected.

As shown in the results of Hypothesis 3, Health Behavior Self-efficacy scores increased significantly following meditation practice, regardless of method. Still, there was an effect related to sequence. Those who did mindfulness meditation first had an increase in both mindfulness and concentrative condition post-test scores. Those who did concentrative meditation first had an increased post-test score following the concentrative condition, but a decreased post-test score after the mindfulness condition.

Conclusion

The conclusions of this study are:

1. The short-term practice of either concentrative or mindfulness meditation significantly improves social self-efficacy in men in CDC Stages II and III of HIV disease.

2. The short-term practice of either concentrative or mindfulness meditation significantly improves health behavior self-efficacy in men in CDC Stages II and III of HIV disease.

3. The short-term practice of either concentrative or mindfulness meditation does not significantly improve general self-efficacy in men in CDC Stages II and III of HIV disease.

The overall conclusion as a result of this study is that the short-term practice of meditation significantly improves social and health behavior self-efficacy, regardless of method, either concentrative or mindfulness, in men in the early stages of HIV disease. Both methods of meditation are effective with no one method more effective than the other.

The short-term practice of meditation as a therapeutic intervention to improve both social and health behavior self-efficacy in men in the early stages of HIV disease is supported.

Discussion

The short-term practice of meditation significantly increased social and health behavior self-efficacy scores but not general self-efficacy scores. One explanation for this finding may be in the difference between the degree of coherence of the statements for each subscale. The General Self-efficacy subscale items are not as similar to each other as the Social Self-efficacy subscale items are to each other or as similar to each other as the items in the Health Behavior Self-efficacy scale are to each other. In addition, the Social Self-efficacy subscale and the Health Behavior Self-efficacy scale

items are focused and specific, the General Self-efficacy subscale items are more vague and broad.

Another explanation for this finding is in the nature of the population responding to the scales. Jeanne Achterberg (1993), notes that in her psychosocial intervention studies with people with cancer, she and co-researcher Frank Lawlis found that they never got significance with any of the generalized scales they used, including a scale of a construct similar to self-efficacy, locus of control. For this reason, they had long ago stopped using generalized scales in their studies with people with cancer. Achterberg attributes this to the effects of a diagnosis of a life-threatening illness on the psychology of such individuals. After diagnosis, they become more concerned about specifics, about concrete personal changes. General concerns become less important.

Self-efficacy is challenged and shaken in a population of people given a diagnosis of a life-threatening illness. Such news may decrease one's appraisals of ability to be effective. This may be one reason the present study showed more measurable change in the effects of meditation than in a previous study involving healthy college students and the effects of the same meditations on self-esteem, a construct related to self-efficacy (Khalsa, 1990).

Results of the self-esteem study showed that concentrative meditation was significantly more effective in improving self-esteem than was mindfulness, which showed no significant effect. Based on these results, the researcher in the present study expected a change in pre and post-test

scores and a difference between methods, with concentrative meditation significantly more effective than mindfulness in improving self-efficacy. Results indicated, however, that while concentrative meditation did significantly improve self-efficacy appraisals on two scales, mindfulness meditation did also. Moreover, there was almost no difference in effectiveness between method of meditation.

The difference in results between the self-esteem and the self-efficacy studies may be due to the difference in populations, or due to the structures of the different measuring instruments, or due to differences in experimental design.

The participants in the self-esteem study were all healthy college age students with a mean age of 19 years. The participants in the self-efficacy study were in CDC Stages II or III of HIV disease, with a mean age of 38 years. One third of the participants in the self-esteem study had never meditated before participation in the study. Nearly all of the remaining participants had meditated for only three weeks prior to the study. Participants in the self-efficacy study all had at least one year prior meditation experience. These differences in health status, mean age and meditation experience may have been factors in the differing results.

In the self-esteem study, the experimental session was conducted in three parts over six weeks. In the present study on self-efficacy, the experimental session was conducted in a single two and a half hour sitting. Perhaps there were confounding variables during the six week duration of the self-esteem study which would account for the differences in results.

There was no sequence effect in two other meditation studies of similar design and meditations as this one (Khalsa, 1985; Khalsa, 1990). Perhaps this is due to characteristics of the Health Behavior Self-efficacy scale, or differences in populations studied.

In this study, those who did mindfulness meditation first had an increase in both mindfulness and concentrative condition, but a decreased post-test score after the mindfulness condition.

In other words, scores were improved whenever concentrative meditation was practiced, even if mindfulness was practiced first. However, scores following mindfulness condition improved only when mindfulness was practiced first. Mindfulness scores dropped when concentrative meditation was practiced first.

One explanation for this result is that concentrative meditation is often experienced as more dynamic in effect; that it is more immediately transformational than the mindfulness technique. The mindfulness method, while effective, has more immediate tranquilizing benefits, with change effects cumulative and coming after years of practice (Brown, 1977).

The sequence effect of a more transformational technique (concentrative meditation) may have overtaken the effects of the mindfulness meditation which followed it. There may be an even stronger practice effect with concentrative meditation. It appears that repeated practice of concentrative meditation may give maximum benefits, perhaps cumulative effects.

Clinically oriented behavioral health studies are of value when the results are meaningful to the client. This is the first study to demonstrate that the practice of meditation, even once, improves social and health behavior self-efficacy. An individual in CDC stage II or III of HIV disease may find these results meaningful in that social and health behavior self-efficacy are frequently cited as a characteristic in common among long-term survivors of HIV infection. This study demonstrates that an individual can improve these characteristics in himself in just twenty minutes through a self-applied intervention at no cost beyond initial instruction and with no side effects.

The findings encourages the HIV seropositive person who wants to participate in staying well and, in one way, resolves the question of how by offering an effective method. The finding that meditation improves social and health behavior self-efficacy both affirms previous actions of those HIV seropositive men who practice meditation and defines the benefits of a new behavior for those who have not meditated previously, but who may want to.

The results of this study may clarify meaning and provide further explanation of results of related research, perhaps reducing the frustration of apparently conflicting findings. It has been concluded by O'Leary, (1985), Strecher et al., (1986), and Bandura (1991) that self-efficacy demonstrates a positive relationship with subsequent health outcomes. Kiecolt-Glaser and Glaser (1992) determined in their meta-analysis of health related psychosocial intervention research that greater relaxation practice and great willingness to comply with the intervention were associated with greater

change. Jeff Auerbach (Auerbach et al., 1992) found similar results in his study on the effects of guided imagery on HIV seropositive men.

Yet, past research has produced mixed evidence for the effectiveness of psychosocial interventions specifically for HIV seropositive individuals (Kiecolt-Glaser & Glaser, 1988d, 1987; Coates et al., 1989). One explanation for this involves the cultural and medical messages give to HIV seropositive persons that there is nothing they can do for their condition, that HIV infection is invariably fatal and the nature of self-efficacy itself.

The belief that what one does makes a difference goes a long way toward the practice of relaxation and willingness to adhere to any intervention. Kaplan (Kaplan et al., 1984) suggests that the relationship between self-efficacy appraisals and behavior may be stronger for those who hold the general belief that there is a relationship between their behavior and their health. In addition, perceived self-efficacy may convey a more generalized sense of coping capability. Perhaps self-efficacy was low in those persons involved in the poor results studies. It could be predicted that lower self-efficacy preceding the intervention would effect the outcome of the various health related psychosocial studies of HIV seropositive persons.

Specific clinical implications of the present findings include the use of meditation to strengthen the ability of an HIV positive person to form a network of social support and to improve health behavior. A variety of previous studies have shown these two skills as co-factors in healthy HIV seropositives staying well (Antoni et al., 1990; Aspinwall, Kemeny, Taylor, Schneider, Dudley, 1991; Blaney et al., 1991; Coates et al., 1984, Coates et

al., 1987; Donlou et al., 1985; Glaser & Kiecolt-Glaser, 1988; Hays et al., 1990; Moulton et al., 1990; Strecher et al., 1986; Joseph et al., 1988; Kiecolt-Glaser & Glaser, 1989; Mulder & Antoni, 1992; Sheridan et al., 1989) and in developing sexual behaviors which reduce the risk of further spreading HIV infection (Coates et al., 1989; McKusick et al., 1986; Joseph et al., 1987; Moulton et al., 1990).

Self-efficacy beliefs in themselves have been shown to be a crucial element in long-term survival with HIV infection (Solomon et al., 1987; Temoshok et al., 1987; Remien et al., 1992) and have beneficial immunological effects as well (Bandura, 1991; Bandura et al., 1985; Solomon et al., 1987; Wiedenfeld et al., 1990). It would seem that the practice of meditation to improve self-efficacy would have important health and well-being benefits for persons in CDC Stages II or III of HIV disease.

How we identify, measure, improve and sustain self-efficacy are important questions for health psychologists providing services to persons in the early stages of HIV disease. It is often difficult to change beliefs and self-appraisals. If an individual can experience an immediate difference in his self-efficacy appraisals from a single meditation session, then meditation is a valuable therapeutic technique. Assisting HIV seropositive clients in improving social and health behavior self-efficacy through meditation practice is a practical application of the results of this study.

Therapists in the field of health psychology and behavioral medicine know that the more a client with any illness can assume responsibility for his or her own health and well-being, the more likely it is that the client will make

the changes they want. Further, social psychology literature states that change attributed to self is more likely to be maintained than change attributed to external agents (Karoly, 1985).

An important determinant of adherence may be patients' precepts of self-efficacy to carry out the prescribed procedures and thus affect their own health. This was demonstrated by Kaplan, Atkins, and Reinsch (1984), who found that perceived self-efficacy to conduct a program of exercise was a better predictor of actual behavior change than was a general health locus of control measure. Adherence to treatment regimens, particularly if they require a great deal of patient participation, may be determined, in part, by beliefs about one's ability to successfully carry it out or that it will do any good if they did.

By offering meditation, an effective self-applied method for change, the therapist supports further personal development in the client. And since meditation has been shown to improve both social and health behavior self-efficacy in HIV seropositive men, the practice of meditation by such persons supports further change in two areas vital to their long term well-being.

Moreover, since the use of a meditation technique--even once--improves health behavior self-efficacy, clients may well be more motivated to continue meditation practice as a health behavior.

What is it about meditation that lends it to improve social self-efficacy and health behavior self-efficacy in men in the early stages of HIV disease after only one twenty minute meditation experience?

In concentrative meditation, the yogi is reported to go through distinct levels of practice, each level being some major altering in cognitive organization and functioning. These levels appear to have a logical order much in the same way that child development has been conceptualized. They appear to demonstrate an invariant sequence. Mindfulness meditation, on the other hand, does not have well defined levels. After many years of practice, there is a sudden and dramatic reorganization of cognition (Brown, 1977, p. 243).

Kornfield (1979) agrees that meditation is not necessarily a linear learning or developmental process. He points out that mindfulness meditation in particular seems to include periods of regression, restructuring and reintegration as part of the basic experimental growth pattern.

Perhaps the fact that concentrative meditation is said to have these distinct levels of experience, concentrative meditation lends itself to effectively improving social and health behavior self-efficacy in persons in early stages of HIV disease with short-term practice. Since the benefits of concentrative meditation are gained more quickly and steadily, this style of meditation may be more suited to those who want active, apparent change. Since the benefits of mindfulness meditation come more slowly, creating gradual change, this style of meditation may be more suited to those uncomfortable with change or who want change more slowly.

There is often an automatic disassociative response accompanying coping with the myriad emotions following a diagnosis of a life-threatening illness. Keeping in mind Jeanne Achterberg's observation of the need for

concreteness among newly diagnosed persons (1993), it may be that the concreteness of the concentrative meditation technique more closely matches these individuals cognitive style. The mindfulness meditation technique may be too vague for such persons to find it meaningful.

Time is another crucial variable for a person diagnosed with a life-threatening illness. Suddenly one's sense of time is shortened, pressed: this radical temporal shift is a key structuring element of cognitive adjustment. Previous research (Khalsa, 1985) indicates meditation practice can alter one's experience of temporal rate, and that different meditation techniques are more appropriate than others for persons who need a slower sense of time passing with less anxiety about the future and more emphasis on the present.

Improved social and health behavior self-efficacy as a result of one twenty minute meditation session, regardless of the method of meditation, may be an indication of the commonalty of meditation that Benson (1975, 1979) and Boswell and Murray (1979) pointed out. This may be so, even though there are affects distinct to each meditation technique.

The results of this and other meditation studies demonstrate that meditation practice offers powerful cognitive and physiological effects. Yet, meditation is no panacea--while it can be enormously helpful for most people, it is contraindicated for some. In addition, self-efficacy is only one variable in a multivariate of co-factors related to health outcomes in HIV seropositive persons. A good clinician will not limit herself to a single technique or co-factor.

Awareness of multiple influences can lead to the development of multiple interventions. When one intervention is underutilized by a given client, alternatives are available. More importantly, the additional interventions may augment the effectiveness of the primary intervention, becoming complementary instead of competitive. It has been this researcher's clinical experience that at times the use of complimentary interventions make the difference between recovery or decline. Clinical flexibility and a repertoire of effective procedures on the part of the practitioner is suggested.

Recommendations

It is sometimes assumed that changes in psychological parameters and/or in immune function result in changes in health. It is not known what affect interventions that produce small changes actually have on the incidence, severity or duration of infectious or malignant disease. The answer likely depends on a variety of co-factors including the type and intensity of the intervention, the degree and pervasiveness of the effects of the intervention, and the individual's prior and current health status (Kiecolt-Glaser & Glaser, 1992). In addition, individual differences in perceptions of personal internal resources and responses, degree of use of the intervention and such factors as mood and symptom experience are variables that could affect the outcome.

In regard to HIV infection, it must be noted that immune system surrogate markers--such as CD4 cell count--do not necessarily have a correlation to disease progression in and of themselves. It is essential,

therefore, to perform intervention studies that measure changes in psychological, behavioral and psychosocial parameters along with assessing physical health status.

Studying the effects of such interventions can provide important information on possible causal relationships, which cannot be obtained from psychoimmunologic correlation studies alone. In addition, by studying participants over longer periods of time, the clinical relevance of these interventions can be evaluated (Mulder & Antoni, 1992).

Specifically, longitudinal research could explore the effects of continued practice of meditation of self-efficacy beliefs of HIV seropositive individuals and correlate this to measurable changes in health behavior, social support and health status.

Immune function is benefited by improvement in self-efficacy (Bandura et al., 1985; Wiedenfeld et al., 1990). Wiedenfeld found that the direction and magnitude of immunological change is related to the rate of growth of perceived self-efficacy. Further, the increase in immunological benefit was sustained over time. Since meditation practice improves self-efficacy in persons in CDC Stage II or III of HIV disease, does meditation practice improve immune function in this population? At what length of practice? How long do the immunologic effects last after meditation practice ends? What, if any, are the related health outcomes? These and other meditation/immune response questions warrant further research.

Gary Holden points out in his meta analysis (1991) that the predictive strength of self-efficacy appraisals decline with time. Weight loss research

indicates the capacity of self-efficacy assertions to predict subsequent behavior to be slightly more than one week, smoking cessation research indicates up to six months (Hurley, 1992). It would be instructive to explore the duration of the predictive strength of social and health behavior self-efficacy appraisals following the practice of meditation. Follow-up could be done after a single practice session as in this study, and for continued, long-term regular meditation practice. What is the optimum scheduling of practice to maximize gains? Can the extent of the duration be increased or reversed by other therapeutic methods? As long as these questions remain unresearched, they remain unanswered.

There is solid evidence that use of mental health services, including meditation, is associated with fewer medical visits, fewer days of hospitalization, and lower overall medical costs (Rosen & Wiens, 1979; Orme-Johnson, 1987; Jones & Vischi, 1980; Mumford, Schlesinger, & Glass, 1981). There is also solid evidence that meditation plays a role in reversal of clinical illness, specifically heart disease (Gould et al., 1992; Ornish et al., 1979, 1990, 1993 and cancer (Simonton & Matthews-Simonton, 1975, 1978; Simonton, 1992; Achterberg et. al., 1977; Meares, 1976, 1981(a), 1983). Although none of these studies provide specific information regarding HIV disease or its various stages, it is certainly possible that interventions such as meditation could reduce medical utilization by HIV seropositive persons. Further study in this area could yield results that would have implications for the entire health care industry.

Possibilities of other research questions arise. What are the differences and similarities in meditation effects on self-efficacy between HIV seropositive men and women? Between those who have previous meditation practice (as in this study) and those who have never meditated before? Between persons in the early stages of HIV disease and those in the later stages? What are the differences between those HIV seropositive persons who meditate regularly over the long term and those who don't? Between those with HIV disease and those without? Between those with HIV disease and those with cancer or other life-threatening condition?

Future research could compare the effects of different types of meditation with other self-regulatory strategies such as biofeedback on self-efficacy.

There is also the question of duration of meditation practice to explore. Because most all meditation research surveyed involves practice of meditation for twenty minutes at a sitting, this duration was chosen for this study. However, some meditation traditions recommend practice in increments of three, seven, eleven, twenty-two, thirty-one, sixty-two and one-hundred-fifty minute segments. It would be interesting to test meditation participants for changes in self-efficacy appraisals at different durations of meditation practice.

Informally, this researcher invited participants to describe and evaluate their subjective experiences of the two meditations following the experimental session. While their comments were informative, it would be more effective to have a well-designed questionnaire that better elicits

participants' responses. More information from the meditators themselves would be helpful in exploring what participants experience on a mental, emotional, and physical basis and how that stays the same or changes during the duration of the meditation. This phenomenological factor is what differentiates one meditation from another and is a relatively unexplored area of meditation research.

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Appendix A

Consent Form

You are invited to participate in a research study to measure the affects of two kinds of meditation.

The study has been designed by a graduate student of psychology from Columbia Pacific University, Shanti Shanti Kaur Khalsa, MA, MFCC. If you are willing to participate, you will be asked to devote approximately two hours to the experimental session.

The experimental session is comprised of two segments. Each segment consists of a ten minute pre-test, a twenty minute meditation, and a ten minute post-test. You will receive written instructions for each test and meditation. The proctor will also read the instructions aloud to you. There will be a half hour break between the two segments.

The experimental session will take place in a room with adequate space and ventilation. There may be up to ten other people in the same experimental session as you.

The possible risks involved in this study are very slight. They would arise from doing a breathing technique that you are unfamiliar with or from unexpected emotions or thoughts that sometimes arise during meditation. You may stop if there is unacceptable discomfort, or you may indicate that you need assistance and the proctor will help you.

Your participation in this research study is on a volunteer basis and you are free to refuse to participate at any time.

The possible benefits are the contributions you make to the understanding and application of meditation and the personal benefits of experiencing the meditations themselves.

All the information about individual identity will be kept confidential. All the pre- and post-test data sheets are coded and, therefore, anonymous. All the reports of the research will be in the form of aggregated data and devoid of any "identifiers."

All testing materials will be supplied by the researcher at no cost to you. A ten dollar remuneration is being offered to you upon your completion of the experimental session.

If you have read and understood the above statements and you agree to participate and allow the use of the data obtained for research purposes, please sign your name below.

Signature of participant: _____

Date: _____

Appendix B

Background Information Sheet

Code # _____

Today's Date _____

Participant Information Sheet

All information is kept confidential

Name: _____
First Last

Address: _____

City, Zip: _____

Telephone: (____) _____ Age: ____ Gender M ____ F ____

Date learned HIV positive _____

If applicable, date AIDS diagnosed _____

Are you currently taking any psychoaffective medically prescribed drugs
(such as prozac, valium or xanax) or recreational drugs ? Y ____ N ____

Are you currently taking any medically prescribed drugs for prevention or
treatment of HIV? (such as AZT, bactrim, etc.) Y ____ N ____

Have you practiced meditation anytime in the past? Y ____ N ____

If so, how long ago did you first practice meditation? _____.

Do you currently practice meditation? Y ____ N ____

If so, what kind? _____

If you do practice meditation, which of these frequencies is closest to your
regular practice?

once or more per day _____

3 to 5 times a week _____

1 to 3 times a week _____

once every 2 weeks _____

once or less per month _____

How long do you meditate each time that you practice? _____ minutes

Which other forms or traditions of meditation have you been trained in?

Insight _____ TM _____ Zen _____ Taoist _____

Imagery _____ Relaxation Response _____

Other, please describe _____

Appendix C

Experimental Session Procedure Packet

In this experimental session you will have an opportunity to experience two types of meditation, concentrative and mindfulness. In addition to the written instructions included in this packet, you will be given specific oral instructions at the time that you are to do these meditations.

The Two Types Of Meditations

The difference between these two types of meditation is in the focus of the meditation.

In concentrative meditation, the meditator attempts to restrict her/his awareness by focusing attention on a single stimulus specified by the meditation. This stimulus may be a sound (mantra), a place on the body (tip of the nose), a mental image (a color or an object), or an actual object (a candle). If other stimuli are noticed, attention is brought back to the focus of the meditation.

In mindfulness meditation, the meditator attends to all stimuli in the internal and external environment, not dwelling on any one stimulus.

Experimental Procedure

The experimental session is comprised of two segments. Each segment consists of a ten minute pre-test, a twenty minute meditation and a ten minute post-test. You will receive written instructions for each test and meditation. The proctor will also read the instructions aloud to you and answer any questions. There will be a half hour break between the two segments. Water is allowed, but please do not eat during the break.

Pre-test 1

There is not time limit on the pre-test. The average time for completion is approximately ten minutes. Please use the #2 pencil provided to mark your answers. If you want to change an answer, please erase it thoroughly and mark the choice you want. The proctor will answer any questions. Please begin when the proctor indicates. When you have finished, please sit quietly until everyone else has completed the pre-test.

The proctor will read the instructions for the first meditation while you follow along on your written copy. The proctor will answer any questions and indicate when to begin and end the meditation.

Mindfulness Meditation

- 1) Sit comfortably with a straight spine. Rest your hands on your knees in gyan mudra (the tip of the thumb is pressed to the tip of the index finger, like an "OK" sign. The other fingers remain straight, palms facing up). Close your eyes.
- 2) Sit steady in this posture. Be mindful of your breath and remain aware.
- 3) You may notice your mind wandering. You may notice images of scenes, thoughts or feelings about yourself or others. This often occurs in meditation practice. Simply be aware of it. Allow yourself to be aware of all stimuli in the internal and external environment, without focusing on any particular stimulus. Continue for 20 minutes.

4) At the end of the meditation, inhale, hold your breath briefly, and exhale. Relax your posture and open your eyes. You can stop the meditation if you experience unacceptable discomfort, or just raise your hand and the proctor will help you.

Post-test 1

Immediately following the meditation, please fill in your responses to the post-test. This will take about ten minutes. The proctor will indicate when to begin.

When you have finished the post-test, please wait quietly until everyone has completed their responses and the proctor dismisses the group.

There will be a break for half an hour. You may drink water, but please do not eat during the break.

Thank you.

Pre-test 2

There is no time limit on the pre-test. The average time for completion is approximately ten minutes. Please use the #2 pencil provided to mark your answers. If you want to change an answer, please erase it thoroughly and mark the choice you want. The proctor will answer any questions. Please begin when the proctor indicates. When you have finished, please sit quietly until everyone else has completed the pre-test.

The proctor will read the instructions for the second meditation while you follow along on your written copy. The proctor will answer any questions and indicate when to begin and end the meditation.

Concentrative Meditation

The name for this particular concentrative meditation is Pauri Kriya.

1) Sit comfortably with a straight spine. Rest your hands on your knees, palms facing up, elbows straight. Close your eyes.

2) Inhale by dividing the breath into eight equal, separate parts. On the first segment of the eight parts silently repeat SA, on the second silently repeat TA, on the third repeat NA, on the fourth repeat MA. Silently repeat SA on the fifth, TA on the sixth, NA on the seventh and MA on the eight part of the inhalation.

While you breathe and silently repeat the sounds, the fingers of each hand will move in the following sequence: On SA press the index finger and thumb tips firmly together, on TA press the middle finger and thumb tips, on NA press the ring finger and thumb tips and on MA press the little finger and thumb tips.

To exhale the breath, recite aloud, SA TA NA MA, SA TA NA MA, in a monotone. Coordinate the pressing of the finger tips to the thumb with the corresponding sounds, just as you did during the silent eight part inhalation. Continue the entire sequence for twenty minutes.

3) You may notice your mind wandering. You may notice images of scenes, thoughts or feelings about yourself or others. This often occurs in meditation practice. Bring your focus back to the breath, sound and finger sequence of the meditation. Do your best to concentrate your attention on the practice of the meditation.

4) At the end of the meditation, inhale in one long breath, hold your breath briefly, and exhale. Relax your breath, relax your posture and open your eyes.

You can stop the meditation if you experience unacceptable discomfort, or just raise your hand and the proctor will help you.

Post-test 2

Immediately following the meditation, please fill in your responses to the post-test. This will take about ten minutes. The proctor will indicate when to begin. When you have finished the post-test, please wait quietly until everyone has completed their responses. The proctor will then give you \$10.00 in cash in appreciation for your participation. Thank you.

Appendix D

Code# _____

Pre-test 1__ Pre-test 2__ C1st__ W__ M__
 Post-test 1__ Post-test 2__ M 1st__ S__ F__

Instructions
 General S-E Scale

This questionnaire is a series of statements about your personal attitudes and traits. Each statement represents a commonly held belief. Read each statement and decide to what extent it describes you. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others.

Please indicate your own personal feelings about each statement below by marking the letter that best describes your attitude or feeling. Please be very truthful and describe yourself as you really are, not as you would like to be. Your answer sheet is coded, and therefore, anonymous.

MARK:

- A If you DISAGREE STRONGLY with the statement
- B If you DISAGREE MODERATELY with the statement
- C If you neither agree nor disagree with the statement
- D If you AGREE MODERATELY with the statement
- E If you AGREE STRONGLY with the statement

- ___ 1. I like to grow house plants.
- ___ 2. When I make plans, I am certain I can make them work.
- ___ 3. One of my problems is that I cannot get down to work when I should.
- ___ 4. If I can't do a job the first time, I keep trying until I can.
- ___ 5. Heredity plays the major role in determining one's personality.

Code# _____

Pre-test 1__ Pre-test 2__ C1st__ W__ M__
 Post-test 1__ Post-test 2__ M 1st__ S__ F__

MARK:

- A If you DISAGREE STRONGLY with the statement
 B If you DISAGREE MODERATELY with the statement
 C If you neither agree nor disagree with the statement
 D If you AGREE MODERATELY with the statement
 E If you AGREE STRONGLY with the statement

- ___ 6. It is difficult for me to make new friends.
- ___ 7. When I set important goals for myself, I rarely achieve them.
- ___ 8. I give up on things before completing them.
- ___ 9. I like to cook.
- ___ 10. If I see someone I would like to meet, I go to that person instead of waiting for him or her to come to me.
- ___ 11. I avoid facing difficulties.
- ___ 12. If something looks too complicated, I will not even bother to try it.
- ___ 13. There is some good in everybody.
- ___ 14. If I meet someone interesting who is very hard to make friends with, I'll soon stop trying to make friends with that person.
- ___ 15. When I have something unpleasant to do, I stick with it until I finish it.
- ___ 16. When I decide to do something, I go right to work on it.

Code# _____

Pre-test 1__ Pre-test 2__ C1st__ W__ M__
 Post-test 1__ Post-test 2__ M 1st__ S__ F__

MARK:

- A If you DISAGREE STRONGLY with the statement
- B If you DISAGREE MODERATELY with the statement
- C If you neither agree nor disagree with the statement
- D If you AGREE MODERATELY with the statement
- E If you AGREE STRONGLY with the statement

- ___ 17. I like science.
- ___ 18. When trying to learn something new, I soon give up if I am not initially successful.
- ___ 19. When I'm trying to become friends with someone who seems uninterested at first, I don't give up very easily.
- ___ 20. When unexpected problems occur, I don't handle them very well.
- ___ 21. If I were an artist, I would like to draw children.
- ___ 22. I avoid trying to learn new things when they look too difficult for me.
- ___ 23. Failure just makes me try harder.
- ___ 24. I do not handle myself well in social gatherings.
- ___ 25. I very much like to ride horses.
- ___ 26. I feel insecure about my ability to do things.
- ___ 27. I am a self-reliant person.

Code# _____

Pre-test 1__ Pre-test 2__ C1st__ W__ M__
Post-test 1__ Post-test 2__ M 1st__ S__ F__

MARK:

- A If you DISAGREE STRONGLY with the statement
- B If you DISAGREE MODERATELY with the statement
- C If you neither agree nor disagree with the statement
- D If you AGREE MODERATELY with the statement
- E If you AGREE STRONGLY with the statement

- ___ 28. I have acquired my friends through my personal abilities at making friends.
- ___ 29. I give up easily.
- ___ 30. I do not seem capable of dealing with most problems that come up in my life.

Code# _____

Pre-test 1__ Pre-test 2__ C1st__ W__ M__
 Post-test 1__ Post-test 2__ M 1st__ S__ F__

Instructions Health S-E Scale

This questionnaire describes various health related behaviors. Indicate in the column marked Confidence how confident you are that you could perform each of these behaviors if you were asked to them right now. There are no right or wrong answers. Please be as honest as you can. Your answer sheet is coded, and therefore, anonymous.

Rate your degree of confidence by entering a number from 0 to 100 using the scale below:

0	10	20	30	40	50	60	70	80	90	100
not					moderately				very	
at all				confident			confident			
confident										

How confident are you that if you were in each of the following situations right now, you could:

	<u>Confidence</u>
1. Eat sensibly	_____
2. Get enough exercise	_____
3. Get enough sleep	_____
4. Get enough relaxation	_____
5. Watch your weight	_____
6. Not smoke cigarettes	_____
7. See a doctor for a regular check-up	_____

8. Do things in moderation _____

Code# _____

Pre-test 1__ Pre-test 2__ C1st__ W__ M__
 Post-test 1__ Post-test 2__ M 1st__ S__ F__

0	10	20	30	40	50	60	70	80	90	100
not					moderately				very	
at all			confident				confident			
confident										

9. Avoid overworking _____

10. Limit certain kinds of foods that contain
 fats, sugar, etc. _____

11. Not let things "get you down" _____

12. Take a weekly sauna or other method to rid
 you body of toxins _____

13. Follow illness prevention methods recommended
 by your doctor, pharmacist or other health
 care practitioner _____

14. Keep health remedies around the house _____

15. Use health protective information provided
 by health writers (in books, newsletters,
 magazine or newspaper articles) _____

16. Avoid getting chilled _____

17. Adhere to a diet recommended by a health
 care practitioner _____

18. Avoid drinking alcoholic beverages or _____

partying too much _____

19. Take vitamins or other nutritional supplements daily _____

20. Follow the advice of a friend who knows more about health than you do _____

Code# _____

Pre-test 1__ Pre-test 2__ C1st__ W__ M__
Post-test 1__ Post-test 2__ M 1st__ S__ F__

0	10	20	30	40	50	60	70	80	90	100
not					moderately				very	
at all			confident				confident			
confident										

21. Pray and live by spiritual principles _____

22. Avoid areas with high pollution _____

Appendix E

Proctor's Observation Sheet

Group #1:

Mindfulness meditation:

- 1) Number of participants that appeared to be consciously breathing:_____
- 2) Number of participants that appeared to be sleeping:_____
- 3) Number of participants that appeared to stop doing the meditation:_____
- 4) Number of participants that needed assistance:_____

Group #2 Concentrative meditation:

- 1) Number of participants that continued to rhythmically move their fingers, one after the other throughout the meditation:_____
- 2) Number of participants that chanted aloud SA, TA, NA, MA on the exhalation throughout the meditation:_____
- 3) Number of participants that appeared to inhale in eight equal parts on the inhalation throughout the meditation:_____
- 4) Number of participants that stopped #1 above:_____
- 5) Number of participants that stopped #2 above:_____
- 6) Number of participants that stopped #3 above:_____
- 7) Number of participants that appeared to stop doing the meditation:_____

8) Number of participants that needed assistance:_____

Appendix F

Pauri Kriya

Sit comfortably with your spine aligned. Rest your hands on your knees, palms facing up, with elbows straight. Close your eyes.

Inhale by dividing the breath into eight equal, separate parts, like sniffs. On the first segment of the eight parts, silently repeat the sound of SA, on the second silently repeat TA, on the third repeat NA, on the fourth repeat MA. Silently repeat SA on the fifth, TA on the sixth, NA on the seventh and MA on the eighth part of the eight-part inhalation.

While you breathe and silently repeat the sounds, move the fingers of each hand in the following sequence: On SA press the tips of the index finger and thumb firmly together, on TA press the middle finger and thumb tips, on NA press the ring finger and thumb tips and on MA press the little finger and thumb tips together.

To exhale the breath, recite aloud, SA TA NA MA, SA TA NA MA, in a monotone. Coordinate the pressing of the thumb tips to the fingers with the corresponding sounds, just as you did during the silent eight-part inhalation. Continue this sequence for 3 to 11 minutes. You may build your practice up to 62 minutes.

If you notice your mind wandering, simply return your attention to the breath, sound and finger sequence of the meditation.

At the end of the meditation, inhale in one long breath, retain your breath briefly, and exhale in one long breath. Relax your posture and open your eyes.

Questions? Reach us at 505/753-4692, at healthnow@grdceter.org or by post at PO Box 1926, Espanola, NM 87532. c LYF. Used by permission.

Mindfulness Meditation

- 1) Sit comfortably with a straight spine. Rest your hands on your knees in gyan mudra (the tip of the thumb is pressed to the tip of the index finger,

like an "OK" sign. The other fingers remain straight, palms facing up). Close your eyes.

2) Sit steady in this posture. Be mindful of your breath and remain aware.

3) You may notice your mind wandering. You may notice images of scenes, thoughts or feelings about yourself or others. This often occurs in meditation practice. Simply be aware of it. Allow yourself to be aware of all stimuli in the internal and external environment, without focusing on any particular stimulus. Continue for 20 minutes.

4) At the end of the meditation, inhale, hold your breath briefly, and exhale. Relax your posture and open your eyes.