PREDICTING THE OUTCOME OF HOLOTROPIC BREATHWORK USING THE HIGH RISK MODEL OF THREAT PERCEPTION

By

Patrick M. Hanratty

Submitted in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy in Psychology
Saybrook Graduate School and Research Center

January, 2002

San Francisco, California

Committee

Ian Wickramasekera, Ph.D., Chair

Stanley Krippner, Ph.D.

Arthur Bohart, Ph.D.

ACKNOWLEDGEMENTS

The author wishes to acknowledge all committee members. I wish to thank Ian Wickramasekera, Ph.D. (Chair), whose HRMTP will change the manner in which psychotherapy is conducted in the future. To Stanley Krippner, Ph.D. who is a leading authority on transpersonal psychology and one of the great pioneers in this field, thank you for your courage and support. Arthur Bohart, Ph.D., a highly respected researcher, was also extremely helpful. Thank you for going out of your way to provide vital support at a crucial time in formation of this paper. I would also like to thank and acknowledge a former committee member, Bela Banathy, Ph.D., a leading authority in the field of systems theory. Researchers Paul Havlik, M.A., and Marcie Zinn, M.A., M.S., and Ph.D. candidate, must also be acknowledged. Ms. Zinn was especially helpful due to her extensive knowledge of the HRMTP. A special acknowledgement goes to Stanislav Grof, M.D., who allowed me to conduct research on holotropic breathwork at one of his national workshops. Dr. Grof, a genius and a man of great stature in the field of transpersonal psychology, supported and encouraged me in this research. Finally, I would like to thank my wife of 27 years, Sue. As a double-boarded physician, Sue is a genius in her own right. Without her love and support, I could not have completed this seemingly endless task. To paraphrase Newton, if I have seen farther than some of my peers, it is because I have stood on the shoulder of giants.

Table of Contents

List of Tables

List of Figures

Abstract

PREDICTING THE OUTCOME OF HOLOTROPIC BREATHWORK USING THE HIGH RISK MODEL OF THREAT PERCEPTION

PATRICK M. HANRATTY

SAYBROOK GRADUATE SCHOOL AND RESEARCH CENTER

This study asked the research question: Is holotropic breathwork an efficacious form of psychotherapy, and, if so, what is the mechanism of efficacy? Selected risk factors from the High Risk Model of Threat Perception were used to evaluate the efficacy using outcome measures on the Brief Symptom Inventory, Positive Affect and Negative Affect Schedule, the Marlowe-Crowne Scale, and Templer's Death Anxiety Scale, as well as the Tellegen Absorption Scale, which correlates with hypnotic ability. Results indicated an overall significant reduction in symptoms from pretest to posttest after breathwork on negative affect and on the Brief Symptom Inventory.

Participants were volunteers, highly educated, and largely female in makeup with an openness to Eastern beliefs. They scored significantly higher than normal adults on trait absorption, repression, and endorsed general distress. Measures used in this study were orthogonal to each other. Predisposers of the High Risk Model, measured at pretest, predicted positive symptom scores at posttest, $R^2 = .41$ and at follow-up, $R^2 = .71$. This means that over 40% of the scores at posttest, and over 70% of the scores at follow-up, were predicted by this model at pretest.

At six-month follow-up, overall Brief Symptom Inventory results were significantly reduced compared to pretest. Negative affect scores rebounded at follow-up

to a non-significant level. Positive affect and death anxiety scores were not changed at posttest but were significantly reduced at follow-up when compared to pretest.

There was no significant correlation observed between absorption and outcome measures, probably due to the small sample size and the restricted range of absorption scores in this sample since there were only high and moderate scores found. The unique personality (trait absorption) and demographic subject composition makes these results difficult to generalize to the larger population. In addition, I tested less than a third of the workshop participants so I cannot even generalize these results to the workshop as a whole. The significant reductions found on psychometric clinical scales in this study suggest lasting beneficial effects as a result of holotropic breathwork for this highly select group of subjects; the mechanism of efficacy in this study was likely high trait absorption.

CHAPTER I

LITERATURE REVIEW

Introduction

This dissertation utilized the High Risk Model of Threat Perception (HRMTP) (Wickramasekera 1979, 1988, 1995, 1998) to study the mechanisms of efficacy of Holotropic Breathwork Psychotherapy (HBW), developed by psychiatrist Stanislav Grof, (1985, 1988, 1993, 1998, 2000). It asked the research questions, is holotropic breathwork an efficacious form of psychotherapy? And if so, what is the mechanism of efficacy?

This research was directed to find the impact of the psychotherapy on such variables as negative affect, general psychological distress, and death anxiety. Another area of interest was the mechanism of psychotherapy efficacy changes. A third interest area was type of subject—i.e., people high or low in trait hypnotic ability—who would be attracted to a psychotherapy that involved entering an altered state of consciousness (e.g., hypnotic state). The HRMTP was chosen because of its ability to test each of the topics under investigation (e.g., absorption, which correlates moderately with hypnotic ability, negative affect, repression, and death anxiety). These constructs will be discussed in separate sections of this dissertation.

Holotropic breathwork, the psychotherapy under investigation, is not considered by many to be a conventional form of psychotherapy. An entire section of this dissertation is devoted to holotropic breathwork and the transpersonal model that supports it. It is therefore important to warn the reader that Grof's transpersonal model is based on an expanded model of the human psyche not endorsed by mainstream science. I prefer to use the word "model" to describe Grof's conception of the human psyche. A theory can be tested and falsified; a model may or may not be falsified. Since Grof's

views of the psyche involve other alleged levels of existence, at the present time, it cannot be tested directly. Grof's model is, therefore, highly controversial.

Grof (1985) states that his breathwork technique can break through defenses and reduce psychological distress due to the powerful experiential nature of the psychotherapy. Indeed, the latter half of the 20th century has seen an increase in experientially oriented psychotherapies (Holmes, 1993). Many of the clinicians and theorists promoting these psychotherapies have described their development as arising out of a clinical recognition that intellectual understanding of the nature and manifestation of a psychological problem is often not sufficient to resolve it (Bohart, 1993; Perls, 1976). One of the most consistent criticisms of intellectually oriented psychotherapies, i.e., psychoanalysis and cognitive psychotherapy, is that they do not extend their focus to a broader realm of human experience (Watson, Greenberg, & Lietaer, 1998). As a result, according to Grof (1985), many "talk therapies" at best appear to minimize many aspects of experience such as physiological responses, internal emotional responses, and physical threats to the organism that appear to contribute to the development of various forms of psychopathology.

Certain proponents of experientially oriented psychotherapies maintain that deep healing, or the fullest possible resolution of the issues presented to the psychotherapeutic process, can be most effective when the therapeutic intervention accesses and deals with multiple levels of experience (Grof, 1988; Watson et al., 1998). These claims, however, often rest on clinical observations rather than hard empirical data. Grof, for instance, has conducted no "hard" research, prior to this particular study, on LSD psychotherapy or

holotropic breathwork, preferring to rely instead on anecdotal material from his patients. As a result, he is not taken seriously by mainstream investigators (Matlock, 1997).

It is important to note that Grof's (1975, 1980, 1985, 1988, 1993, 1998, 2000) transpersonal model lies beyond the scope of direct empirical investigation. It is certainly not possible to access various theorized levels of existence and study concrete, material data that would be accepted by mainstream scientists. Rather, it is a more productive approach to examine the breathwork psychotherapy that is supported by the model Grof proposes. By using the scientific method to carefully examine outcome scores on valid scientific measuring devices, both before and after the psychtherapy takes place, we can determine if the treatment produces positive effects. In addition, if we find that the psychotherapy produces lasting results—for example, after a 6-month follow-up investigation—we may conclude that the psychotherapy under examination may be effective.

It is also important to note that the transpersonal model, as proposed by Grof, is only one of several models of transpersonal psychology in existence. Grof emphasizes the attainment of non-ordinary states of consciousness as prerequisite to a transcendent experience (Taylor, 1999). The transpersonal model, as used in this paper, will refer to Stansilav Grof's version of it.

This investigation studied holotropic breathwork at one of Grof's national workshops on November 1-7, 1999. With the help of experienced researchers on my committee, I was able to devise a research project that would examine the breathwork psychotherapy using valid and reliable tests to determine the efficacy of this breathwork technique.

Following is a description of the High Risk Model of Threat Perception (HRMTP) (Wickramasekera, 1979, 1988, 1993, 1998) and the hypothesized theoretical mechanisms that may account for the reduction in psychopathology with HBW.

The High Risk Model of Threat Perception (HRMTP)

The HRMTP (Wickramasekera, 1979, 1988, 1993, 1998), postulates certain psychosocial variables which have been shown to predispose some individuals to psychological symptoms, to somatic complaints, and to organic disease. These risk factors include high and low trait hypnotic ability, negative affect (NA), and repression. Since the predisposing variables will be examined in this research study, it is important to review the literature supporting these constructs. Because hypnotic ability could not be tested directly in this study, absorption, a moderate correlate of hypnotic ability was used instead. In addition to absorption, NA, and repression, the effect of holotropic breathwork on death anxiety was measured. As such, research describing and supporting the construct of death anxiety was reviewed. In addition, Terror Management Theory (TMT), a social psychological theory that was developed to understand human behaviors that are influenced by the uniquely human knowledge of mortality, was also reviewed. Finally, holotropic breathwork psychotherapy will be presented as well as Grof's transpersonal model, which provides the theoretical framework for the breathwork psychotherapy. In this dissertation, the term "psychotherapy" will be defined as "the science or method of curing psychological abnormalities and disorders by psychological techniques" (Webster, 1992, p. 116.) Criticism of Grof's writings and prior research on HBW will also be provided so as to present a balanced picture of this work.

Absorption. Absorption, or the capacity for self-altering experiences (Roche & McConkey, 1990), is one of the constructs under consideration since it correlates

moderately (r = .44) with hypnotic ability. Wickramasekera (1988, 1993) postulates a non-linear relationship between stress-related disease and trait hypnotic ability or trait absorption ability. Individuals high on absorption and hypnotic ability appear to more easily access non-ordinary states of awareness (Council & Greyson, 1985; Lynn & Rhue, 1988; Tart, 1969). Since holotropic breathwork allegedly involves accessing altered states of experience, the ability to measure correlates of altered states of consciousness is deemed important. Thus, it was central to this study to determine what type of individual would be attracted to these workshops. Absorption is one construct that appeared to be useful to measure because of its hypothesized relationship to stress related disease (Wickramasekera, 1998; Wickramasekera & Price, 1997) and altered states of consciousness (Lynn & Rhue, 1988).

Repression. Another construct present in the HRMTP examined in this study was repression. Repression has been defined as the unconscious attempt to avoid threatening information (Hansen & Hansen, 1988). Research on repression has supported Wickramasekera's (1998) position that stress not experienced in explicit, or conscious, memory can manifest itself implicitly in the body (Weinberger, Schwartz, & Davidson, 1979) and behavior. If holotropic breathwork is a powerful psychotherapy as Grof (1988) proposes, it may alter repression in its contribution to psychopathology. Hence measures of psychological distress should temporarily increase and later decrease from pretest to posttest. An operational measure of repression was therefore examined in this study.

Negative Affectivity. Negative affectivity (NA), a primary measure of psychopathology (Watson & Clark, 1984), was also studied in this research. NA involves the physiological symptoms of hyper-arousal, a factor containing features specific to

anxiety and has been shown to be implicated in clinical depression (Clark & Watson, 1991). Individuals high on the construct of NA feel distressed independent of social context or objective reality; these individuals do not have to be in a potentially stressful situation to experience stress. If HBW psychotherapy can produce a significant change (decrease; 6-month follow-up) in NA, then, in regards to NA, HBW may show promise in its ability to contribute to successful psychotherapy.

Death Anxiety. Finally, death anxiety was examined. As the term implies, death anxiety is the underlying fear of death (Shell & Zinger, 1984). Research in the area of Terror Management Theory (TMT) suggests that death anxiety is a pervasive, underlying stress that influences our culture in a variety of ways (Greenberg, Pyszczynski & Solomon, 1986). For the purposes of our research, it is important to determine the effects of Grof's psychotherapy on death anxiety. This is because a central tenet of Grof's (1985) transpersonal model, and a specific claim for the therapeutic effects of holotropic breathwork, is that deep experiential work often involves an intimate encounter with and subsequent reduction in one's fear of death.

I will examine the model (HRMTP) I am using to investigate the mechanisms of efficacy of holotropic breathwork psychotherapy. This model assesses various psychosocial factors that have been shown to predispose, trigger, and buffer an individual to various forms of psychological and somatic complaints and, in some cases, physical disease. The premise of this theory is that disease can begin in the mind as threat perception, and secrets kept from the mind (repression) can manifest in the body and behavior or contribute other problems such as phobias, substance abuse, obesity, chronic

pain, PTSD, etc. (Kermit, Devine, & Tatman, 2000; Wickramasekera, 1979, 1986, 1995, 1998; Wickramasekera & Price, 1997).

Compared to Grof's transpersonal model (Grof, 1998), the HRMTP is conservative in that it is on the cutting edge of mainstream thinking and empirical research. In contrast, Grof's theories tend to transcend mainstream thought. Unlike Grof (1988, 1993, 1998), Wickramasekera neither postulates other levels of reality, nor does he state that human consciousness can exist independently of the physical brain. Wickramasekera (1988, 1993, 1997a,b, 1998) instead emphasizes the importance of being consciously aware of threatening emotional and psychological material the individual is exposed to. He also emphasizes that people with certain characteristics such as high and low hypnotic ability (trait hypnotic ability correlates with trait absorption), high negative affect, and high repression are at risk for serious somatic concerns and later, perhaps, physical disease. Wickramasekera (1993, 1998) also postulates, however, that certain triggers like major life changes, and minor hassles and buffers, such as social support systems and coping skills, can determine the risk of illness. Thus, the HRMTP is a multidimensional model of psychosocial factors that can trigger, amplify, and attenuate psychopathology and biological disease.

When patients present somatic symptoms to primary care physicians in the absence of any identifiable pathophysiology (e.g., brain tumor), it is assumed that the symptoms are caused by psychological factors. The patients presenting these symptoms are diagnosed as somatizers (Wickramasekera, 1993). Somatizers are estimated to constitute at least 50% of all patients who are seen by primary care physicians (Barsky & Klerman, 1983). The HRMTP (Wickramasekera, 1979, 1988) identifies psychosocial

factors in threat perception that are hypothesized to consciously or unconsciously drive psychological and somatic symptoms.

The HRMTP, which is supported by considerable empirical research, identifies specific psychosocial factors in threat perception that are hypothesized to induce, reduce, or amplify somatic and psychological symptoms. It proposes that individuals either high and low in hypnotic ability, or trait absorption, and persons who score high on the Marlowe-Crowne (Crowne & Marlowe, 1960), a measure of repression, can block their awareness of negative feelings or experiences (Wickramasekera, 1993). This can lead to the automatic generation of somatic symptoms, physical disease, and maladaptive behavior. In addition, the construct of negative affect (NA) can also drive somatic symptoms and psychopathology. The interaction of hypnotic ability, high or low, and NA is a sufficient condition for the development of stress related psychological, somatic, or organic symptoms. Catastrophizing is a learned cognitive tendency that can also amplify symptoms (Wickramasekera, 1979, 1988, 1993, 1995, 1998).

According to Wickramasekera (1979, 1988, 1993, 1994, 1998), people who are predisposed to the above tendencies may have their symptoms amplified by daily stress, or hassles, and major life changes. The routine pressure of a chronically frustrating job, or an unhappy marriage can actually be more damaging longitudinally than the sudden loss of a loved one. Both can be devastating to the emotional well being of an individual if not mitigated by buffers such as a good social support system and high satisfaction with social support.

Coping skills, such as good approach rather than avoidance coping skills, are important assets when dealing with stress. Having loved ones to lean on, whether friends,

relatives, or intimate connections with a partner, are good social supports that can buffer threatening or traumatic situations. The HRMTP thus proposes that it is not just the stress we are dealing with in life (and threat perception has a great deal to do with already mentioned predisposing factors), but how we are equipped to cope with it that is the determining factor as to whether or not we develop stress related psychological or somatic symptoms, or organic disease.

This model suggests that overt psychological distress is just one form of emotional dysphoria. It proposes that individuals who score high on the trait of absorption, for instance, can amplify symptoms of emotional distress and physical pain (Wickramasekera et al., 1996). Their feature of surplus pattern recognition, the tendency to find meaning in randomly distributed events and hypersensitivity and surplus empathy (poor boundaries), especially when combined with the above-mentioned trait of negative affect, can produce fear, panic, and depression (Wickramasekera, 1998). People who score low on this trait of absorption are more likely to look emotionally healthy but, because they are hyposensitive to threatening stimuli and repress it, can be even more prone to somatic symptomology or organic disease (Wickramasekera, 1993, 1998).

Wickramasekera (1979, 1988, 1993, 1994, 1995, 1996, 1997a,b, 1998), in his High Risk Model of Threat Perception (HRMTP), has proposed that NA is one of several predisposing factors that predisposes an individual to stress related diseases such as heart disease, cancer, and stroke. He identifies three important components, predisposers, triggers, and buffers, that determine if a person is vulnerable to threat. Predisposers are personality variables such as high and low absorption ability, catastrophizing, negative affectivity, and high Marlowe-Crowne scores. Triggers are situational variables that

include major life changes and minor hassles. Buffers interface with personality and situational variables and include social support and coping skills, approach or avoidance. In the HRMTP (Wickramasekera, 1993, 1994, 1995,1998), the internal predisposing factors increase the probability that external triggers will produce psychological or somatic symptoms unless they are buffered by social support or approach coping skills.

Wickramasekera and Price (1997), in a study of 70 morbidly obese patients who were candidates for gastric surgery, found that the bulk of these individuals were low in absorption and high on NA. Since individuals high on NA are hypothesized to be hypersensitive to threat, and therefore at greater risk for stress related psychobiological disorders, whereas persons low in absorption tend to have poor conscious perception of psychosocial threats, these lows develop a very restricted range of psychosocial methods for coping with such stress. It is proposed by Wickramasekera and Price (1997) that these obese individuals were restricted to behavioral methods of coping, such as feeding and drinking, to self-soothe unconscious stressful feelings. Their skeptical, rational, pragmatic cognitive style then drove them to seek concrete medical surgical solutions to their weight problem rather than psychosocial weight reduction programs which have low credibility for such skeptics.

Wickramasekera (1998) notes that most people who are low on hypnotic ability or absorption tend to be rigidly skeptical, critical, and analytical in their cognitive styles and often minimize subjective sources of information, particularly negative emotions, in favor of evidence that is objective. He proposes that lows, then, have a diminished sensitivity to subtle psychosocial threats, partly because of their rigidly rational-skeptical cognitive styles, and therefore are less able to recognize and cope with subtle cognitive emotional

threats than are people who approach their experience with a wider perception of emotional threats.

Another factor, a high (17+) score on the Marlowe-Crowne Scale, can identify individuals who are repressors or blocking negative feelings from conscious awareness, which produces a risk for the development of organic disease (Jensen, 1987). The Marlowe-Crowne is an orthogonal measure, unrelated to absorption. If one or more of these three risk factors is identified, it is possible that trauma or NA, blocked from conscious awareness, is present.

According to Wickramasekera (1993, 1994, 1997a, 1998), a repressive coping style, is an important variable that influences vulnerability to psychological or somatic problems. For instance, people who score high on the Marlowe-Crowne (Crowne & Marlowe, 1960) tend to avert their eyes from unpleasant events and experiences (Davis, 1987, 1995). They also appear to operate in ways that block threatening perspectives and memories from conscious awareness (Wickramasekera, 1993, 1995, 1997b). While these people may be verbally and subjectively unaware of threatening perceptions, memories, or moods, their negative emotions, such as fear and anger, result in avoidance behaviors (phobias, insomnia) or induce chronic sympathetic nervous system (SNS) activation, which can contribute to a disorder such as primary hypertension (Wickramasekera, 1998).

A number of theoretical dimensions, many of which were proposed by the HRMTP, were examined in this dissertation. Tests measuring these constructs were applied to the research under investigation. These constructs included negative affect, absorption, repression, and death anxiety. These will now be discussed.

Negative Affect

A number of investigators, particularly cognitive-behavioral theorists, have examined the relationship between fear and anxiety, hypothesizing a fight-or-flight mechanism as either fear (Barlow, 1988) or panic (Barlow, 1992). According to Zinbarg, Barlow, Brown, and Hertz (1992), fear involves a discharge of the fight-or-flight mechanism, anxiety implies preparation for discharging the fight-or-flight mechanism and depression may imply immobilizing or freezing of the fight-or-flight response and other coping responses. Zinbarg et al., (1992) write:

> Fear says: "A terrible event is happening and I need to take action right now to stop it." Anxiety says: "A terrible event may happen; I may not be able to deal with it, but I've got to be ready to try." Depression says, "A terrible event may happen; I won't be able to cope with it, so I won't bother trying." (p. 238)

From this theoretical perspective, it follows that anxiety's relationship with both depression and fear converges on emphasizing the role of action tendencies in defining anxiety, since a primary element of anxiety is preparation for fight or flight. To be more specific, anxiety is associated with a conflict between discharging the fight-or-flight response or inhibiting it (Zinbarg et al., 1992).

Depression appears to have the opposite effect on the individual. According to the DSM-IV (APA, 1994), depression is classified as one of several mood disorders. Major depression includes either a depressed mood or loss of interest or pleasure. Symptoms include fatigue or loss of energy, feelings of worthlessness or excessive or inappropriate guilt, diminished ability to think or concentrate, and recurrent thoughts of death. While some researchers suggest that anxiety and depression are expressions of the same

pathology, other investigators believe that the two involve different underlying processes (Zinbarg et al., 1992). Clark and Watson (1991) concluded, in a review of all relevant psychiatric literature, that both perspectives were accurate: The pattern of convergent and divergent validity coefficients suggested both overlap and differentiation between anxiety and depression.

These same authors postulated that anxiety and depressive syndromes share a nonspecific component of generalized affective distress which, after Zevon and Tellegen (1982), they labeled negative affect (NA). The other two symptoms in the tripartite model are: a) physiological symptoms of hyper-arousal, a factor containing features specific to anxiety; and b) lack of positive affect (PA), a factor specific to depression. Positive affect (PA) reflects the extent to which a person feels enthusiastic, active, and alert. High PA is a state of full energy, full concentration, and pleasurable engagement, whereas low PA is characterized by sadness and lethargy.

According to Vassend (1989), NA involves a negative mood state including subjective feelings of nervousness, tension, worry, and vulnerability. Trait anxiety is an important aspect of NA. Although a central feature of NA is anxiety and stress reactivity, this construct also represents a more general negative condition, including such affective states as aggression and alienation.

According to Watson and Clark (1984), NA is a very pervasive condition that manifests itself even in the absence of any overt stress. Individuals high in NA are particularly sensitive to minor failures, frustrations, and irritations of daily life, as shown by the likelihood, magnitude, and duration of their reactions. The poor self-esteem and

negative mood of high-NA individuals seem to be associated with their tendency to dwell upon and magnify mistakes, frustrations, disappointments, and threat.

Wickramasekera (1994) has defined NA as the high probability of experiencing negative or distressing emotions across situations and time, independent of objective stress. According to Matthews and MacLeod (1986) and Matthews, May, Mogg, and Eysenck (1990) people high on this construct have a pre-attentive and attentive bias towards threat in information processing and may have enhanced implicit or unconscious memory for threat (Matthews, Mogg, May, & Eysenck, 1989). Wickramasekera (1998) has hypothesized that high neuroticism, or negative affect, is a risk factor for threat related organic disorders because this negative bias in perception and memory can chronically alter the hypothalamic-pituitary-adrenal axis and impair immune function.

This may result from repressed feelings of threat existing in unconscious or implicit memory of high NA participants. Implicit (or procedural) memory refers to memories that we have which are not conscious in contrast to explicit (or declarative) memories of which we are aware (Anderson 1990). According to Wickramasekera (1994, 1997a, 1998), repressed memories do exist and can lead to psychological stress and/or physical distress. Repressed memories appear to be stored in what might be called "bodily memory" indefinitely, inducing somatic symptoms until they are retrieved and transferred into conscious awareness.

Researchers theorize that what the mind forgets, the body and behaviors (e.g., addictions, obesity) may remember, and these body or behavior memories may manifest as somatic or psychological problems (Wickramasekera, 1993). The transference of psychological pain onto the physical body can be viewed as a coping mechanism in

which repressed experiences may progress into elaborate derivative symptoms (Murray, 1998). For instance, a behavioral memory of NA may be reduced by a drink or a self-soothing meal.

Other researchers (Leckman, Weisman, Merikangas, Pauls, & Prusoff, 1983) believe that NA may account for the data from certain research on families, which suggests that anxiety and depression share a common vulnerability; it appears that negative affectivity may be an expression of a genetic constitutional predisposition to anxiety and depression. According to Wickramasekera (1994), NA is one of the broad constructs underlying many symptomatic specific clinical scales, such as the Minnesota Multi-Personality Inventory (MMPI), the Symptoms Checklist 90 (SCL-90-R), and the California Psychological Inventory (CPI). The construct has demonstrated high test-retest correlation coefficients (r = . 65, Clark & Watson, 1991).

Absorption

According to Roche and McConkey (1990), absorption is "a characteristic of the individual that involves an openness to experience emotional and cognitive alterations across a variety of situations" (p. 92). Absorption has been found to be partly genetically based in studies of monozygotic twins reared apart and together (Tellegen, Lykken, Bouchard, Wilcox, & Rich, 1988).

Shea, Burton, and Girgis (1993) define trait absorption as the capacity for focused attention. According to Roche and McConkey (1990) and Tellegen (1981), participants high on absorption tend to adopt an experiential set that is image-oriented and affectively toned and they generally process information in idiosyncratic ways. Tellegen (1982) reported that absorption was normally distributed and unrelated to sex.

According to Levin, Wickramasekera, and Hirshberg (1998), the characteristic of trait absorption (Tellegen & Atkinson, 1974) may help generate an internally focused state that enhances health and attenuates disease through self-soothing psychophysiological mechanisms. Trait absorption represents a disposition to enter into psychological states that are characterized by a dissociated or an integrative and peak-experience-like quality (Hirshberg & Barasch, 1995). Absorption appears to be a moderately correlated, non-intrusive measure of trait hypnotic ability (Wickramasekera, 1998).

Various researchers have found a moderate to strong correlation between absorption and belief in or verbal reports of mystical or paranormal experiences (Irwin, 1985; Mathes, 1982; Reid, Steggles, & Fehr 1982), and private (i.e., noninstitutional) and subjective religiousness (Levin, 1994). Nadon and Kihlstrom (1987) found a positive correlation ($r = .51$) between a self-report measure of absorption and paranormal experiences. Participants who reported out-of-body experiences tended to have a greater capacity for absorption (Irwin, 1981, 1985; Myers, Austrin, Grisso, & Nickeson, 1983). Tellegen and Atkinson (1974) concluded that high hypnotizable participants possessed this disposition to absorption, or openness to self-altering experiences.

Ring (1992) suggests that childhood abuse and trauma may also promote psychological absorption. Council and Greyson (1985) have found a relationship between psychological absorption and near-death experience status. Ring (1992), in his study of reported alien abduction, found that the quality of high absorption "seems to be the hallmark of the encounter-prone personality" (p. 145). Krippner and Welch (1992) suggested that shamans and psychic healers may be high on the dimension of fantasy-

proneness, one characteristic of absorption (Lynn & Rhue, 1988). These individuals also seemed to easily access altered states of consciousness, and holotropic breathwork involves accessing altered states of consciousness.

A great deal of research has been done on the disposition of trait absorption (Roche & McConkey, 1990). Absorption scores of male scientific personnel (e.g., physicists, biologists) were found to be appreciably higher shortly after a period of Antarctic isolation compared to immediately before it (Barabasz, Barabasz, & Mullin, 1983). Absorption was found to covary with hypnotic depth for meditators but not for nonmeditators (Spanos & McPeake, 1975). It also correlates with "reading trance" (Nell, 1988), music enjoyment (Rhodes, David, & Combs, 1988; Snodgrass & Lynn, 1989), and art appreciation (Combs et al., 1988).

From Wickramasekera's (1993, 1995, 1997b, 1998) perspective, because highs are more reactive to threat and are more aware of their feelings, they are reported to be more responsive to psychological stress than lows. As such, they have been shown to paradoxically block threat perception from consciousness as in post-hypnotic amnesia or surgical analgesia. Psychological symptomatology, such as anxiety and depression, is more likely to be present in these individuals together with somatic symptoms, if they abolish NA from consciousness (Wickramasekera, 1995, 1997, 1998).

Participants scoring low on absorption are generally more skeptical and reality-oriented (Tellegen, 1981; Wickramasekera, 1979, 1988), pragmatic (Roche & McConkey, 1990; Tellegen, 1981), and demonstrate a tendency to explicitly, but not implicitly, attenuate the perception of threat from consciousness (Wickramasekera,

1998). Threat perception, according to Wickramasekera (1993) can be reduced explicitly (i.e., verbal report), but not implicitly (i.e., physiological measures).

Research using trait absorption to study physiological states has demonstrated that absorption is related to immune responses (Shea et al., 1993), morbid obesity (Wickramasekera & Price, 1997), and anticipatory nausea and vomiting (Challis & Stam, 1992), somatoform disorders (Lynch, McGrady, Scherger, & Nagel, 1996), and non specific chest pain and other stress related disorders (Saxon & Wickramasekera, 1994; Wickramasekera, 1988, 1993). High absorption is also related to nightmare frequency and visual imagery (Belicki & Belicki, 1986), fantasy proneness (Lynn & Rhue, 1988; Wilson & Barber, 1982), attachment to pets and to nature (Brown & Katcher, 1997), and creativity (Bowers, 1971; Bowers & van der Meulen, 1970). As mentioned earlier, people who score low on absorption are hypothesized to be cognitively rigidly objective, rational, skeptical, and unable or unwilling to use fantasy or imagination (Wickramasekera & Price, 1997). They tend to deny or minimize psychosocial causation (e.g., loss, rejection, failure) and subtle psychosocial cues of threat perception (Wickramasekera, 1993).

According to Roche and McConkey (1990), absorption correlates moderately with the experience of hypnosis (r =.24 to .45). Tellegen and Atkinson (1974) found that high hypnotizable participants had a disposition to absorption, or an openness to self-altering experiences.

Hypnosis can be defined as a mode of information processing in which a suspension of peripheral attention and critical analytical cognition can lead to major changes in perception, memory and mood in high hypnotizables. These changes often are

experiences as “involuntary” and can have significant behavioral and biological consequences (Wickramasekera 1979, 1988, 1993, 1994). Hypnotizability is the trait ability to be hypnotized. Individuals who score high in hypnotic ability exhibit automatic changes in perception, memory, and mood both inside and outside of hypnosis (Bowers, 1982; Dixon, Brunet, & Laurence, 1990; Dixon & Laurence, 1992). High hypnotic individuals respond more rapidly to various types of short-term psychotherapy (Nace, Warwick, Kelly, & Evans, 1982).

People with high hypnotic ability would, therefore, benefit from hypnosis. There is growing empirical evidence that the addition of hypnosis to an established form of psychotherapy, such as CBT or behavior modification, may increase its long-term clinical efficacy even for more intractable problems like obesity (Levitt, 1993). Kirsch (1996) reported from a meta-analysis of eight studies that hypnosis cans double the clinical efficacy of CBT for obesity and that efficacy increases during long-term follow-up of two years.

As with trait absorption (Tellegen et al., 1988), hypnotic ability is a normally distributed, stable individual difference variable (Barber, 1969; Hilgard, 1965) that appears to be partly genetically based (Morgan, 1973; Morgan, Hilgard, & Davert, 1970). In a 25 year longitudinal study, Piccione, Hilgard, and Zimbardo (1989) found that hypnotizability stayed relatively stable over 25 years ($r = .71$).

Wickramasekera (1979, 1988, 1992, 1993, 1994, 1998) has hypothesized that individuals high in hypnotic ability (which correlates moderately with absorption) tend to be hypersensitive and prone to surplus pattern recognition in that they find meaning in events that seem randomly distributed to others. Some highs have the capacity to amplify

in fantasy (Lynn & Rhue, 1988; Wilson & Barber, 1982) or actively inhibit or erase threatening stimuli (Wickramasekera, 1979, 1986, 1988) from conscious awareness, as in hypnotic analgesia (Hilgard & Hilgard, 1975; Hilgard, 1977).

Low absorption is a personality feature that has been shown to contribute to increased risk of organic disease (Wickramasekera, 1979, 1988, 1993, 1998). For example, in a primary medical care setting, it was found that the majority of patients complaining of chest pain were low on absorption ($p = 0.005$), and that a subset of them had significant organic findings (Saxon & Wickramasekera, 1994). In another study of cardiac surgery patients, Greenleaf, Fisher, Miaskowski, and DuHamel (1992) found that low hypnotizable patients took longer to recover from cardiac surgery than did moderates or highs. This study also reported, but did not comment on, the fact that this sample of patients contained more lows ($N = 19$) than moderates ($N = 8$) or highs ($N = 5$). Because of the uneven sample size in each of the three conditions, this finding needs further investigation.

Repression

Repression is defined broadly as the warding off of perceived threat, resulting in the inaccessibility of cognitive or affective information (Bonanno & Singer, 1995). In repression, the perception of threat is hypothesized to occur at an unconscious level of awareness (Davis, & Schwartz, 1987; Hansen & Hansen, 1988).

According to a growing body of research to be discussed in this dissertation, repression may produce a discrepancy between an individual's awareness of emotional distress and his or her own physiological response to it (Weinberger et al., 1979). In this manner, the individual's body may be responding strongly in a stressful manner

according to physiological measures but the person may not be consciously aware of this. Repression has been called the "queen of defenses" (Singer, 1995, p. xii), the most salient form of avoidance of conscious representation of frightening memories, wishes, or unwanted emotions. The specific defense mechanisms of isolation, denial, rationalization, projection, reaction formation, intellectualization, and sublimation all serve to repress thought or affect.

Repression is currently a controversial term in psychology (Loftus, 1993). The evidence that a distinct personality style characterized by an emphasis on avoidance of either potentially psychologically threatening social encounters or extended lines of associative thought that might lead to conscious awareness of conflict or embarrassing experience has emerged in almost 30 years of psychometric and laboratory studies (Bonanno & Singer, 1995). The concept of repression in regards to personality style has been studied in recent literature (Mendolia, Moore, & Tesser, 1996; Schwartz, 1995). Investigation of the repressive pattern of coping has emerged largely because of research in the fields of behavioral medicine and health psychology (e.g., Bonanno, & Singer, 1995; Jammer, Schwartz, & Leigh, 1988; Jensen, 1987; Niaura, Herbert, & Sommerville, 1992; Schwartz, Gramling, & Mancini, 1994; Weinberger et al., 1979).

According to Weinberger and Davidson (1994), repressors tend to utilize a combination of strategies in an attempt to avoid threatening information. As a result, repressors are simply not aware of any emotional distress and do not report any psychological symptoms. Thus, although people manifesting repressive styles may not experience any psychological disturbance, unrecognized physiological dysfunction is likely to be present (Schwartz, 1983, 1995).

According to Davis (1987), the effects of repression may be most pronounced for negative experiences, but experiences that involve a wide range of different emotions can also be involved. There appears to be a link between the low accessibility of some emotionally tagged memories and repressive coping style characteristically exhibited by some individuals (Weinberger et al., 1979). Hansen and Hansen (1988) postulate that repression is fear motivated, and that the repressive architecture is directed toward the isolation of fearful memories by maintaining their inaccessibility. Davis (1986) concludes that the missing memories of repressors are available which suggests that the phenomenon of repression is real. According to Weinberger (1995), repressors often define themselves as individuals who do *not* become upset rather than as individuals who enjoy themselves and adjust to life as it unfolds. Thus, the experience of negative affect is often explicitly excluded from what they define as their central self-concept.

Other research has substantiated this phenomenon. Jensen (1987), for instance, has found that the spread of breast cancer in 52 women was associated with specific personality variables including a repressive coping style, reduced expression of negative affect, helplessness and hopelessness, and chronic stress. In fact, in the field of cancer research, clinical and prospective studies consistently suggest that persons characterized as repressors--that is, individuals whose self-reports reflect a combination of high defensiveness and low anxiety--are at greater risk for obtaining a diagnosis of cancer or, if diagnosed, for showing a poor course of treatment (Kneier & Temoshok, 1984).

Niaura et al. (1992) found that high cholesterol in men was significantly associated with a repressive coping style. This personality style has likewise been found to have difficulty in recalling personal, real life emotional experiences involving negative

emotions (Davis, 1995; Hansen & Hansen, 1988), and all emotional experiences in general (Davis & Schwartz, 1987). Researchers believe that repression is stressful for the body in that it exerts physiological demands on the autonomic nervous system (Pennebaker, Hughes, & O' Heeron, 1987).

According to Weinberger and his colleagues (1979), the repressors' preoccupation with mastering negative emotion and rigorously controlling their behavior is particularly striking. They clearly value a rational, non-emotional approach to life. The relative ineffectiveness of this coping style is further documented by four additional measures: heart rate, sweat gland activity, forehead muscle tension, and verbal interference. Repressors' claim of having less trait anxiety than low-anxious individuals is uniformly contradicted by both measures of behavior and physiology. These results are consistent with Levenson and Mades' (1980) report of repressors watching a stressful video. While viewing the third of a series of industrial accidents, the repressors in this study tended to have greater cardiovascular changes than the low anxious group at the time the accident scenes were shown. However, the low-anxious group was more likely to respond facially. The repressors' overt composure was discrepant with their physiological responses.

Other research has supported this discrepancy between repressors' self-reports and physiological measures. In a potentially anxiety arousing free-association task, repressors exhibited a discrepancy between low self-reported anxiety and high heart rate and facial anxiety (Asendorpf & Scherer, 1983). Newton and Contrada (1992) reported that repressors, compared to low-anxious and high-anxious participants, exhibited heart-rate elevations that were greater in magnitude than their self-reports of negative affect, but only in a public condition.

Consistent with Kiecolt-Glaser and Murray's (1980) data on assertiveness, repressors seem to lack social competence in interpersonal communication as well as self-knowledge in terms of being able to predict and accurately evaluate their own behavior. In addition, repressors' defensiveness seems to make it difficult to make use of social support (Weinberger, 1995).

Baumeister and Cairns (1992), in a study of threatening feedback in a public context, found that repressors showed superior recall for the few bits of threatening information embedded in a generally favorable evaluation, compared to nonrepressors, suggesting that they are especially sensitive when their defenses are down. This study was compared to a private experiment in which repressors spent less time reading an evaluation of them when it was unfavorable than when it was favorable. These researchers concluded that repressors may prefer to use an avoidant strategy when dealing with threatening material, but when public material is public knowledge, they pay close attention to it, and worry and ruminate about how other people perceive them. Other researchers view repression as a measure of defensiveness or self-deception and repressive coping, rather than other deception (Schwartz, 1983, 1995).

In another study, repressors and high-anxious participants demonstrated higher basal cortisol levels than low anxious participants (Brown, Tomarken, Orth, Loosen, Kalin, & Davidson, 1996). These findings suggest that both heightened distress and the inhibition of distress may be independently linked to relative elevations in cortisol. High levels of cortisol, the glucocorticoid hormone in humans, have modulatory effects on immunological, cardiovascular, and metabolic functioning (Cupps & Fauci, 1982; Mc Ewen et al., 1992).

Levine et al. (1987) reported that cardiac patients scoring high on denial are more likely than repressors to survive during the acute phase of inpatient intensive care following a heart attack but do worse on follow-up after leaving the hospital. It appears that repressing of information can be so basic and effective that it reduces or removes awareness of one's physical state and an individual's label(s) of their physical state (Schwartz, 1995).

According to Tublin, Bartholomew, and Weinberger (1987), there is now considerable evidence that repressors are attempting to live by high internal standards of appropriate behavior, and that these patterns begin at an early age. These researchers compared repressors to nonrepressors in a sample of 298 preadolescent boys. Classmates were significantly more likely to nominate repressors compared to other students as scoring high on self-restraint items and significantly less likely to nominate them as prone to misconduct. (Teachers' ratings agreed with this.) In sum, repressors were judged to be high in self-control and low in the expression of negative affect without being rated high in positive affect.

In two diverse studies of college students, Bartholomew and Weinberger (1986) found that repressors were low relative to other groups in quantity and frequency of alcohol use and were especially low in using alcohol to facilitate positive mood. In a third sample, self-reports and independent reports of knowledgeable peers were completely consonant in describing the repressors as low in both drug and alcohol use.

Plante and Karpowitz (1987) have focused on the relation between the Marlowe-Crowne scale and anxiety scores and involvement in sports and hobbies. They found that repressors reported engaging in significantly more individual and solitary sports (e.g.,

running) and in significantly more individual and solitary hobbies (e.g., listening to music and reading). These same participants showed evidence of significantly higher heart-rate responses to laboratory stressors and significantly slower heart-rate recovery afterwards.

Galin (1974), Schwartz (1995), and Davidson (1983) all hypothesize that the discrepancy between repressors' verbal beliefs and their nonverbal physiological reactions is related to differential processing of the two cerebral hemispheres of the brain. According to Weinberger (1995), it appears that, for repressors, the left side of the body (controlled by the right hemisphere) expresses greater responsiveness than the right side of the body (controlled by the left brain). In addition, repressors appear to have specific deficits in transferring affective, but not nonaffective, information from the right hemisphere to the left.

Researchers have found that while repressors appear to have a lower risk for mental disorders, they may suffer from somatic symptoms (e.g., headache, irritable bowel, dizziness, sweating, respiratory allergies, sinus infection) of unexplained etiology (Wickramasekera, 1994, 1998; Wickramasekera, Pope & Kolm, 1996). Repressors also exhibit increased blood lipids (Niaura et al., 1992), increased resting and reactive systolic blood pressure (King, Taylor, Albright, & Haskell, 1990), decreased immune system functioning (Jammer, Schwartz, & Davidson, 1988; Shea et al., 1993), and organic disease (Schwartz, 1995; Weinberger, 1995; Wickramasekera, 1998; Wickramasekera,et al., 1996); and high defensiveness (Weinberger et al., 1979). Repressors are at greater risk for hypertension (Davies, 1970; Schwartz, 1995), asthma (Mathe & Knapp, 1971) and cancer (Jensen, 1987; Watson, Penngale, & Greer, 1984).

There is evidence that repressive coping may be associated with heightened release of stress-related hormones such as cortisol (Tennes & Kreye, 1985) and norepinephrine (Esler et al., 1977), and with suppression of the immune system (Jammer, Schwartz & Leigh, 1988). Repressors' tendency to avoid potential threats is associated with delays in seeking diagnostic information and appropriate treatment (Hill & Gardner, 1980).

The process of inhibiting thoughts and feelings entails physiological work, reflected in autonomic reactivity and, over time, in increased health problems (Pennebaker & Sussman, 1988; Shedler, Mayman, & Manis, 1993). Conversely, confronting painful thoughts and feelings can decrease autonomic arousal (Pennebaker & Beall, 1986), produce measurable changes in immune functioning, and reduce health care visits (Pennebaker, Kiecolt-Glaser, & Glaser, 1988). Stated alternatively, psychological defense appears to have physiological costs. It is associated with autonomic reactivity and may be a risk for medical illness (Shedler, Mayman, & Manis, 1993).

Repression and Body Memories

The premise behind Grof's transpersonal model (Grof, 1985), as outlined in a subsequent section, is that psychological symptoms can be transferred to the body. There is some evidence that authentic (independently documented by court records) repressed memories do exist and can lead to emotional and physical distress (Wickramesekera, 1994).

Pert, Ruff, Weber, and Herkenham (1985) hold that these memories may be imprinted in the cells and tissues by neuropeptides that travel through the central nervous system and carry messages through the brain and body tissues. Thus, according to these

researchers, memories do not reside solely in the brain. Wickramesekera (1994), suggests that repressed memories appear to be imprinted in the body indefinitely, inducing havoc in the form, for instance, of somatic symptoms, until they are retrieved and transferred into conscious memory.

Wickramesekera (1998) proposes that secrets can be kept from the mind but not from the body or behavior. He states that threatening psychological information is changed, or transduced, into physical symptoms or maladaptive behavior. Physical symptoms include chronic fatigue, chronic allergic reactions, chronic pain, muscular and vascular headache, low back pain, and primary hypertension. Estimates are that these somatizing patients represent half or more of patients seen in primary care (Quill, 1985).

The somatization of emotional distress can be viewed as a coping mechanism in which repressed experiences may progress into elaborate derivative symptoms (Wickramesekera, 1994). According to Wickramasekera (1988), memories, even false thoughts and fantasies, that are subjectively credible can result in somatic problems.

Repressed memories are extremely difficult to access. Since this research will examine the impact of holotropic breathwork on repression, it is important to mention Grof's view of this. Grof (1985) purports, that by applying this nonspecific therapy, "repressed unconscious material from childhood and infancy become easily available" (p.348). Grof claims that by integrating this repressed material into the psyche, a curative process is commenced, resulting in an emotionally healthier outlook.

Death Anxiety

According to Grof (1998): "The menacing specter of death that we harbor in our unconscious interferes with our everyday existence and makes our life in many ways

inauthentic" (p. 156). Grof believes that through an experiential contact with the transpersonal level (which he believes can be achieved through HBW) in which the consciousness of the individual transcends the boundaries of the physical body, a reduction in death anxiety can be achieved by the individual.

Neimeyer (1997) defines death anxiety as a cluster of death attitudes characterized by fear, threat, unease, discomfort, and similar emotional reactions, as well as anxiety in the psychodynamic sense as a kind of diffuse fear that has no clear object. Thanatological research has concluded that we live in a death-denying society (Kastenbaum, 1992). These researchers conclude that most people, most of the time, live in denial of their true attitude toward death, which involves a great deal of unconscious anxiety, dread, and fear (Firestone, 1994). Some researchers (e.g., Rosenblatt, Greenberg, Solomon, & Pyszczynski, 1989) argue that people would be immobilized by dread if they lived constantly with the awareness of their mortality. Consequently, societies develop cultural worldviews concerning the meaning of life and death as a way of ameliorating the uniquely human predicament of being able to anticipate our own eventual demise.

Fear of death, or death anxiety, is a complex factor which fluctuates with environmental events such as the death of a friend or relative (Lester & Kamm, 1971). It has been significantly correlated with gender (Davis, Martin, Wilee, & Voorhees, 1978; Koob & Davis, 1977; Shell & Zinger, 1984; Templer, Lester, & Ruff, 1974) with females having higher death anxiety than males. Death anxiety appears to be negatively related to self esteem (Cohen & Burdsal, 1978; Davis & Martin, 1978), and orthogonal to a belief in life after death (Shadinger, Hinninger, & Lester, 1999).

Research has also been conducted on various personality traits with respect to fear of death. Neufeldt and Holmes (1979) found that high death anxiety was reported in individuals who were less trusting, less self-assured, and more anxious than people with less death anxiety. Kuperman and Golden (1978) identified individuals who tended to be anxious in general and who looked to external stimuli as controlling factors in their lives as being high on death anxiety.

No significant statistical relationship exists between age and death anxiety scores (Templer, Ruff, & Franks, 1971). According to Neimeyer and Fortner (1995) although the elderly, as a group, experience less anxiety about the prospect of death than younger groups, aged individuals who are lower in life satisfaction, more external in their locus of control, and more physically ill report heightened fear of death and dying. Most death anxiety studies have primarily involved undergraduates (Combs, 1981; Davis et al., 1978; Templer, 1970), elderly persons (Trent, Glass, & McGee, 1981), nurses and nursing students (Combs, 1981; Murray, 1974), and psychiatric patients (Templer, 1970; Templer & Ruff, 1971). In other research, Shell and Zinger (1984) found that funeral directors appear to have lower death anxiety than college students. Likewise, individuals with lower levels of death threat were more likely to have made prudent arrangements for the disposal of their bodies after death (Rainey & Epting, 1977).

In the next section, the impact of death anxiety on the individual and the culture will be examined. This is encompassed by Terror Management Theory.

Terror Management Theory

Terror Management Theory (TMT) is a social psychological theory developed to contribute to a full understanding of a wide range of human behaviors that are influenced by the uniquely human knowledge of mortality (Greenberg, Pyszczynski & Solomon, 1986). This theory suggests that a wide range of normal and abnormal human behavior can be better

understood by recognizing that body-related problems arise from the anxiety generated by the knowledge that the human body is the vehicle through which life passes unto death (Goldberg, McCoy, Pyszcznski, Greenberg, & Solomon, 2000).

Becker (1973) argued that meeting cultural standards concerning the body and its functions serves to separate humankind from the animal kingdom, transforming our bodies from their flesh and blood reality to a higher level, as objects of beauty, dignity, and even spirituality. In Becker's view, the human species faces a unique existential dilemma. Humans have an innate instinct for self-preservation on the one hand; conversely, we are intelligent enough to be aware of our own eventual death. In addition, death may come at any time from a variety of sources. Becker argued that humans would be paralyzed with terror unless we developed some means of managing this problem.

TMT argues that human beings utilized the same unique cognitive capacities that provided the potential for terror to construct means of managing this terror through the development of death-denying cultural belief systems (Goldberg et al., 2000). Cultures allow a shared conception of reality that provides structure and meaning to the lives of its members (Berger & Luckmann, 1976). Another factor is self-esteem. Self-esteem is the sense that one is a valuable participant in a meaningful and eternal reality and is gained to the degree that one thinks that one is successfully meeting the value standards of one's culture. From the perspective of TMT, cultural world-views and self-esteem function to provide an anxiety-buffer that protects us from deep existential fears surrounding our vulnerability and mortality. This process starts at an early age. As children, we learn to control our distress and anxieties by embedding ourselves in the symbolic reality conveyed by our caregivers and other important members of our culture, and

by meeting standards which provide love, support, and protection from them (Solomon, Greenberg, & Pyszczynski, 1991).

Empirical research conducted on TMT has been focused on two basic hypotheses. The first hypothesis is called the mortality salience hypothesis. This hypothesis states that if a psychological structure (i.e., worldview or self-esteem) is maintained to provide protection from death-related concerns, then reminding individuals of their inevitable death should increase their need for that structure. Indeed, more than 75 studies have shown that reminding people of their own death leads them to cling more tenaciously to, and increases their defense of, their cultural worldviews. Research supports the notion that mortality salience leads to more positive evaluations of in-group members and those who are positive about one's culture. Conversely, it also tends to produce more negative evaluations of out-group members and those who are critical of one's culture (Greenberg et al., 1990), harsher punishment for moral transgressors (Florian & Mikulincer, 1997), and increased aggression against those who challenge one's beliefs (McGregor et al., 1998).

The second basic terror management hypothesis, the anxiety buffer hypothesis, holds that if a psychological structure (i.e., worldview or self-esteem) provides protection from mortality concerns, then strengthening that structure should reduce anxiety in response to stress and specific reminders of death. Certain research supports this hypothesis. Momentarily-enhanced self-esteem has been shown to reduce: self-reported anxiety after watching a gory video (Greenberg et al., 1992, Study 1), and physiological arousal while anticipating electrical shocks (Greenberg et al., 1992, Study 2 & 3). In addition, Harmon-Jones et al. (1997) found that high self-esteem reduced the effects of mortality salience on defense of the cultural worldview. These

and other studies demonstrate the general anxiety-buffering impact of self-esteem, as well as the specific role of high self-esteem in reducing concerns about death.

Holotropic Breathwork Psychotherapy

This research examined the efficacy of a relatively untested form of experiential psychotherapy, holotropic breathwork, in the treatment of psychological distress, death anxiety and repression. Knapp and VandeCreek (1994) state that psychological treatment procedures can be divided into three general categories according to whether they address the physiological (internal bodily reactions), cognitive/thinking, or interpersonal/environmental features of anxiety and other disorders. These authors report that outcome studies suggest that emotional disorders are most effectively treated by using cognitive, behavioral, or pharmacological therapies such as those espoused by Barlow (1992), Judd (1993), and Zinbarg et al., (1992). Thus, the use of holotropic breathwork, a type of experiential group psychotherapy, is not cited in the empirical literature for treatment of any type of emotional problem.

Based on a transpersonal model of the human psyche, holotropic breathwork is the innovation of Grof (1985), a psychiatrist from Prague, capital of the former Czechoslovakia. Grof (1980) was trained in psychoanalytic methods and applied these techniques using psychoactive substances, particularly LSD, in approximately 3,000 psychotherapy sessions, first in Europe and then in the United States. He also had access to more than 2,000 records of sessions conducted by his colleagues in the former Czechoslovakia and in the United States.

When LSD became illegal and could no longer be used as a clinical agent, Grof (1993) conducted over 20,000 hours of therapy sessions using holotropic breathing.

Holotropic breathwork is a therapeutic technique allegedly designed to access ordinary and non-ordinary states of human consciousness. It is Grof's belief that holotropic breathwork is an effective substitute for LSD psychotherapy. As with LSD psychotherapy (Grof, 1975, 1980), Grof reported beneficial changes in the psychological and spiritual status of participants (Grof, 1988).

It is important to mention that Grof did not conduct empirical research on either LSD or holotropic breathwork. He conducted clinical observations that involved the discussion of anecdotal material which fell into certain categories such as autobiographical, perinatal, or past life memories.

Grof (1985) developed the breathwork technique as a means of accessing deep, unconscious levels of experience and, he states, of resolving conflict rooted on those levels, which is based on a transpersonal model of the human psyche. According to Grof (1988), the main objective of holotropic breathwork, is to activate the unconscious, to "unblock the energy [that is] bound in emotional and psychosomatic symptoms, and to convert the stationary balance of this energy into a stream of experience" (p. 166). Grof, then, implies that emotional material stored on an unconscious (and possibly somatic) level can be transferred to consciousness. This assertion is consistent with the HRMTP in that Wickramasekera (1993, 1995, 1998) proposes that stress (negative affect) can be stored in the body and later transferred to conscious awareness. Grof's method of activating the unconscious appears to be new in Western psychotherapy, but Grof (1988) states it has been used for centuries or millennia in other parts of the world in the context of shamanic procedures, aboriginal healing ceremonies, rites of passage, meetings of various esoteric sects, and the ancient mysteries of death and rebirth.

Holotropic breathwork combines (a) controlled breathing, (b) evocative music, (c) other types of sound technology, and (d) body work (Grof, 1993). Bodywork involves an intervention from a trained breathwork facilitator, or Grof himself, when a breathwork participant is experiencing somatic discomfort. This process may, for example, take the form of massage or pressure on the area of the body that is tense or painful. Grof believes that bodywork is necessary in some situations. In Grof's (1988) words, the basic principle of focused bodywork is "to exteriorize the various forms of physical discomfort associated with emotional distress" (p. 195). This phenomenon usually occurs during the termination period of the breathwork session, or after about an hour and a half to two hours. This is because, in some cases, after continued breathing, "emotional and psychosomatic stress develops" (p. 194). Continued breathing, from Grof's perspective, brings about a good integration and resolution of the session. Occasionally, abreactive body work is indicated when the intensity of the reaction—spasms, physical pain, or anxiety—reaches such a degree that the person would not be able or willing to continue unless the discomfort was reduced.

It is important to mention that Grof emphasizes the integration and resolution of emotional material but also the "release" of blocked energy. According to Grof (1988), psychopathology seems to draw its dynamic power from:

> Deep repositories of pent-up emotional and physical energies…. In psychedelic and holotropic therapy, the release of these energies and their peripheral discharge play a very significant role. Traditionally, such a release is known as abreaction, if it is associated with specific biographical content. Discharge of more emotional and physical tension is usually referred to as catharsis. (p. 222)

Grof (1988) notes that early psychoanalysis employed this approach to psychotherapy in order to alleviate emotional distress. He indicates that since verbal therapies were not powerful enough to discharge these energies, however, this approach to therapy was abandoned in favor of analysis of transference material. This process is consistent with research in the field of psychology that indicates what looks like feeling release may involve complex cognitive-affective somatic change processes. According to Kennedy-Moore and Watson (1999), the process of release of affect is called the venting hypothesis and is not involved with anger:

> Research on the effects of anger expression does not support the venting hypothesis. In general, more intense anger expression is associated with greater anger experience and arousal. When anger expression helps, it involves some kind of resolution, in the form of new understanding or changes in other people's behavior. (p. 41)

It important to mention, however, Grof (1985, 1988) does not view the transformation that occurs within the individual experiencing the catharsis as simply occurring on an emotional level. In his view, there is a concomitant transformation in understanding what happens with the release of affective energy.

According to Grof (1988), it has been known for centuries that it is possible to induce profound changes of consciousness by techniques that involve breathing. For example, according to Grof, the original form of baptism as it was practiced by the Essenes, in the Middle East, involved forced submersion of the initiate under water, which typically brought the individual close to death by suffocation. Grof (1988) does not resort to measures this extreme in holotropic breathwork, choosing instead to ask the

experients to simply increase their rate and depth of breathing, with a "full concentration on and awareness of their inner process" (p. 171). He says that this typically loosens the psychological defenses and leads to release and emergence of the unconscious material.

Grof (1988) explains that like breathing, music, and other forms of sound technology, has been used for millennia as powerful mind-altering tools. "Good music" (p. 185), he states (although he doesn't define what "good music" is), appears to be of significant value in nonordinary states of consciousness, where it has several functions. He suggests that the music employed should be of superior technical quality and have sufficient volume to drive the experience.

Grof (1988) further notes: "The continuous flow of music creates a carrying wave that helps the subject move through difficult experiences and impasses, overcome psychological defenses, surrender, and let go" (p. 185). He proposes that in order to use music as a catalyst for deep self-exploration and experiential work, it is necessary to listen to it in a different way. Grof (1988) explains that it is important to suspend any intellectual activity and "surrender completely to the flow of music, [and] let it resonate in one's body" (p. 186).

The basic principle of focused bodywork, in Grof's perspective, is to exteriorize the various forms of physical discomfort associated with emotional distress, while taking clues from the client's bodily reactions. Grof (1988) states that physical tensions tend to develop during the breathing in certain specific areas of the body: "Far from being simple physiological reactions to hyperventilation, they have complex psychosomatic structure" (p. 177). For instance, on a deeper level, the dynamic conflicts underlying tensions in the arms, legs, and many other parts of the body are related to the hydraulic circumstances of

biological birth. The infant during birth is trapped for an extended period of time in a situation that involves pain and suffocation. According to Grof (1988):

> This generates an enormous amount of neuronal stimuli, for which there is no peripheral outlet, since the child does not have access to breathing, and cannot scream, move, or escape. Blocked energy that is thus stored in the organism involves equally the flexor and extensor muscles. When this dynamic conflict surfaces for belated discharge, it manifests as intense and often painful spasms. On occasion, deeper roots of the tensions in the arms and legs can be traced to the transpersonal experiential domain, particularly to various past life memories (p. 179).

What Grof (1988) calls "blocked energy" (p. 179) in the area of the head can be common to people with a history of tension or migraine headaches. This energy is expressed as a memory of their head, as a fetus, being wedged into the pelvic opening by the enormous pressure of uterine contractions, or head injuries suffered in this lifetime or experienced in the context of a purported past life memory. This "blockage of energy" in the heart center, which, according to Grof, is traditionally related to feelings of love, compassion, and spiritual birth, often involve a strong constriction around the chest, sometimes with cardiac discomfort. Grof explains that this problem is most frequently connected with memories of situations that have caused blocks in the free emotional flow between the individual and others. According to Grof, when this energy is released, the individual feels suddenly flooded with love, and has a sense of emotional liberation.

Grof (1985) coined the term *holotropic* to describe the mode of consciousness which aims toward wholeness and totality of existence, and characterizes certain

nonordinary psychological states, such as meditative, mystical, or psychedelic experiences. Grof (1988) contrasted this with the hylotropic mode of consciousness, our everyday way of perceiving the world around us:

> In the holotropic mode of consciousness, it is possible to reach, in addition, all the remaining aspects of existence. These include not only access to ones biological, psychological, social, and spiritual history and the past, present, and future of the phenomenal world, but access to many other levels and domains of reality described by the great mystical traditions of the world. (p. 39)

Grof (1985) believes that experiential forms of psychotherapy are more effective than verbal psychotherapies, such as behaviorism and psychodynamic psychotherapies, because they provide a more direct access to the psyche. This type of psychotherapy, he states, has the capacity to dissolve psychological resistances and loosen defense mechanisms in a more effective way than approaches limited to verbal exchange (Grof, 1988). According to Grof (1993), his technique circumvents experiences tied to language:

> Many experiences originating in farther domains of the psyche, such as mystical states, do not lend themselves to verbal descriptions; throughout the ages, the spiritual traditions referred to them as “ineffable”. So it stands to reason that one has to use approaches that allow people to access deeper levels of their psyches without having to depend on language. One of the reasons for this strategy is that much of what we experience in the deeper recesses of our minds are events that occurred before we developed our verbal skills--in the womb, at birth, and in early infancy--or are nonverbal by their very nature. (p. 19)

It is important to state again that mainstream theorists take a dim view of Grof's claims of being able to access experiences in the womb or on spiritual levels they do not believe exist. Beyerstein (1988), for instance, is critical of Grof's discussion of the alleged retrieval of perinatal memories, given the immaturity of the fetal brain. Grof, a medical doctor, is aware of these objections but cites numerous of his patients' comments to support his model.

The effectiveness of holotropic breathwork is supported by other observers. Tarnas (1991), for instance, states that as director of programs at the Esalen Institute in Big Sur, California, he saw many psychotherapies demonstrated there. However:

> In terms of therapeutic effectiveness, Grof's was by far the most powerful; there was no comparison. Yet the price was dear--in a sense the price was absolute: the reliving of one's birth was experienced in a context of profound existential and spiritual crisis, with great physical agony, unbearable constriction and pressure, extreme narrowing of mental horizons, a sense of hopeless alienation and the ultimate meaninglessness of life, a feeling of going irrevocably insane, and finally a shattering experiential encounter with death--with losing everything, physically, psychologically, intellectually, spiritually. Yet after integrating this long experiential sequence, participants regularly reported experiencing a dramatic expansion of horizons, a radical change of perspective as to the nature of reality, a sense of sudden awakening, a feeling of being reconnected to the universe, all accompanied by a profound sense of psychological healing and spiritual liberation. (pp. 426-427)

Grof (1993) believes that by reliving past events on an experiential level, the individual can purge emotional material that has been troubling him or her . The reader can see the application of a transpersonal perspective in this form of psychotherapy. The next section will examine the transpersonal model of Stanislav Grof, upon which holotropic breathwork is based.

Grof's Transpersonal Model

Holotropic breathwork is based on Grof's transpersonal model of the human psyche. According to Krippner and Villoldo (1986), an underlying assumption of mechanistic science is that people are their bodies and nothing more. In addition, perception, both internal and external, is limited by the usual spatial and temporal boundaries (Grof, 1985). Grof's transpersonal model goes beyond this phenomenon. During transpersonal experiences, which often takes place in an nonordinary state of consciousness as described by Grof (1988), there is, according to Grof, an "extension of consciousness beyond the usual boundaries of the [physical] body... and beyond the limitations of time and space" (p. 38). Grof (1985) states:

> This expanded cartography of the unconscious is of critical importance for any approach to such phenomena as psychedelic states, shamanism, religion, mysticism, rites of passage, parapsychology, and schizophrenia. This is not simply a matter of academic interest…. it has deep and revolutionary implications for the understanding of psychopathology and offers new therapeutic possibilities undreamed of by traditional psychiatry. (p. 131)

Grof (1998) suggests that "in our ordinary state of consciousness, we are not really 'whole'; we are 'fragmented' and identify with only a small portion of who we

really are" (p. 5). By accessing "non-ordinary states of consciousness", especially by integrating other parts of our psyche, a healing process is commenced which profoundly changes our view of reality. For instance, a central tenet of Grof's transpersonal model is that deep experiential work often involves an intimate encounter with, and subsequent reduction in, one's fear of death (Grof, 1985, 1988, 1993, 1998). In fact, at one time Grof worked with terminal cancer patients, using psychedelic substances, in order to alleviate, so he stated, their fear of death (Grof & Halifax, 1977).

Grof (1985) believes that consciousness exists independently of the physical brain but is mediated by it (also see Grof & Halifax, 1977). Thus, he alleges, consciousness can transcend the physical body. This belief is one reason why the transpersonal model is not accepted by mainstream science.

It is important to note that non-ordinary states of consciousness were reportedly accessed by visionaries and mystics throughout human history (Smith, 1986). In fact, according to Grof (2000), at the cradle of all great religions were powerful personal experiences of the visionaries who initiated and sustained these creeds. For instance, Mohammed's "miraculous journey", a powerful visionary state during which archangel Gabriel escorted Mohammed through the seven Moslem heavens, Paradise, and Hell, was an inspiration for the Koran and for the Islamic religion. Grof (1998) adds: "These experiences revealing the existence of sacred dimensions of reality, were the vital source of all religious movements" (p. 251). He notes that there does not exist a single ancient or pre-industrial culture in which ritual and spiritual life did not play a pivotal role. Grof states that Western industrialized civilization, through its agents representing psychiatry

and psychology, pathologizes not only the spiritual life but also the cultural life of these societies because they do not share the materialistic worldview.

Grof (1985) postulates three levels in his cartography of the human psyche. These include the biographical-recollective, the perinatal, and the transpersonal. The biographical-recollective level includes both conscious and repressed cognitive, physical, and affective memories of our postnatal experiences. The perinatal level involves experiences with the birth process itself. The transpersonal level involves accessing realms that are outside the level of direct ordinary human experience. The transpersonal experience may involve identification with or experience of other cultures, other historical eras, or elements of nature which differ from the particular individual experiencing this level of consciousness. Each of these levels will be explored extensively in the following sections.

The Biographical Level.

According to Grof (1988), the biographical level is the one most focused on by mainstream psychology since it includes all the experiences one has had since birth. Of particular importance to Grof are those events which involve actual or feared threats to the physical integrity of the individual, particularly pertaining to birth and death. From Grof's perspective, by re-experiencing these events on a cognitive, emotional, physical, or spiritual level, an individual may resolve deeply rooted problems situated in this area and may experience a profound personality transformation. This is described by Grof (1985):

> A deep experiential encounter with birth and death is regularly associated with an existential crisis of extraordinary proportions, during which the individual

> seriously questions the meaning of existence, as well as his or her basic values and life strategies. This crisis can be resolved only by connecting with deep, intrinsic, spiritual dimensions of the psyche and elements of the collective unconscious. The resulting personality transformation seems to be comparable to the changes that have been described as having come about from participation in ancient temple mysteries, initiation rites, or aboriginal rites of passage. (p. 100)

The biographical level is said to be the first that usually emerges during the breathwork experience. This is likely because it is usually the most easily accessible since it is in this realm where we find memories from our infancy and childhood (Grof, 1993).

According to Grof (1985), going back and re-experiencing these memories has a much more profound effect upon the psyche than verbal exchange would produce. The experiential process seems to "find" the pertinent emotional material and facilitate its emergence into consciousness. Thus, the therapist does not have to decide which experiences to select since the unconscious finds the material with the strongest charge and emotional significance.

Grof (1985) suggests that in deep experiential psychotherapy, biographical material is not just remembered or reconstructed, but actually relived: "This involves not only emotions but also physical sensations, pictorial elements of the material involved, as well as data from other senses. This happens typically in complete age regression to the stage of development when the event happened" (p. 96).

Grof (1985) believes that relatively few emotional problems are rooted solely in the biographical level. The exception to this is where memories of physical traumas appear to be of great importance, especially where the individuals life is put at risk:

> Reliving life-threatening diseases, injuries, operations, or situations of near drowning are extremely common and their significance clearly far exceeds that of the usual psycho-traumas. The residual emotions and physical sensations from situations that threatened survival or the integrity of the organism appear to have a significant role in the development of various forms of psychopathology. (p. 98)

The biographical material is rooted in the next level called the perinatal.

The Perinatal Level.

Disturbing biographical experiences often have their origin in the perinatal level or beyond. According to Grof (1985), the birth process itself involves an intimate encounter with death:

> Experiential confrontation with death at this depth of self-exploration tends to be intimately interwoven with a variety of phenomena related to the birth process. Not only do individuals involved in experiences of this kind have the feeling of struggling to be born and/or of delivering, but many of the accompanying physiological changes that take place make sense as typical concomitants of birth. The element of death can also be represented by simultaneous or alternating identification with aging, ailing, and dying individuals. (p. 99)

Here various physiological and emotional experiences during the various stages of birth leave indelible traces on the psyche. These perinatal experiences generally occur in clusters whose characteristics are related to the four clinical stages of birth which Grof (1975, 1980, 1985, 1988, 1993, 1998, 2000) has mapped out. These clusters, which Grof labels basic perinatal matrices, or BPMs, become organizing principles for materials from other levels of the unconscious and each have specific somatic and emotional content.

The perinatal experiences form the core of what Grof (1975, 1980, 1985, 1988, 1993, 1998, 2000) calls systems of condensed experience, or COEX systems, in which many psychological disturbances originate. A COEX system is a dynamic constellation of memories (and associated fantasy material) from different periods of the individual's life or the perinatal or transpersonal level, whose common denominator is a strong emotional charge of the same quality, intense physical sensation of a particular kind, or shared additional important elements. According to Grof (1975), each COEX system has a basic theme that permeates all its layers and represents their common denominator:

> Various layers of a particular system can, for example, contain all memories of the past exposure of an individual to humiliating and degrading situations that have damaged his self-esteem. In other instances, the common element can be anxiety experienced in regard to shocking and frightening events, claustrophobic and suffocating feelings evoked by various oppressive and restricting circumstances where there was no possibility of fighting back and defending oneself or escaping, as well as an intense sense of guilt and moral failure triggered by a number of specific situations. (p. 47)

The excessive emotional charge which is attached to COEX systems appears to represent an accumulation of the emotions belonging to all the constituent memories of a particular kind. Of particular importance are COEX systems that epitomize and condense the person's encounters with situations endangering survival, health, and integrity of the body (Grof, 1975).

According to Grof (1985), most biographical COEX systems are dynamically connected with specific facets of the birth process. In addition, perinatal themes often

have specific associations with related experiential material on the transpersonal level: "It is not uncommon for a dynamic constellation to comprise material from several biographical periods, from biological birth, and from certain areas of the transpersonal realm, such as memories of a past incarnation, animal identification, and mythological sequences" (p. 97).

So, according to Grof (1985), by reliving things during the birth process, the individual can integrate and resolve material from other levels. Thus, an individual's claustrophobia can be triggered by an event in childhood, be connected to a protracted birth process and may even have a transpersonal connection. By reliving these experiences on these deeper levels, a more profound sense of resolution and integration is experienced (Grof, 1988).

While doing research with LSD, Grof (1980) discovered that much of the material presented by patients during psychotherapy sessions corresponded to events and sensations experienced during one or more of the four stages of the birth process. These stages include symbiotic unity prior to the onset of delivery, the onset of contractions prior to dilation of the cervix, movement through the birth canal, and the actual delivery of the infant.

Each stage has its own type of experiences, separate and distinguishable from other stages, and each stage has specific themes which may be expressed repeatedly in subsequent postnatal experiences (Grof, 1985). In situations where the individual incurs protracted, difficult, or life threatening events in one or more of these stages, it would follow that the particular themes would be repeatedly encountered or reactivated throughout the individual's postnatal life, and would then form the core of various

psychological and emotional difficulties (COEX systems) experienced by that person (Grof, 1988).

In the first phase of the birth process, or basic perinatal matrix one (BPM I), the biological basis of this matrix corresponds to the intrauterine state prior to the onset of labor (Grof, 1975, 1980, 1985, 1988, 1993, 1998, 2000). In ideal situations, the condition of the child can be close to sublime. However, if the fetus is disturbed by being exposed to various factors of a physical, chemical, biological or emotional nature, this sublime state can be quickly compromised.

Through the application of holotropic breathwork, access to memories of this stage of fetal life, with regards to its physical and emotional components, can be achieved. Holmes (1993) has divided these experiences into three distinct areas: literal, symbolic, or archetypal. The images from each of these levels may be different, depending on whether the intrauterine state is disturbed or undisturbed.

During the undisturbed intrauterine state, an example of a literal or concrete experience could be the fetus meeting occasional resistance when moving or kicking. A symbolic example may be represented by the experience of consciousness of the ocean or interstellar space. Archetypal images which may arise on this level might involve feeling connected to the heavens or paradises of different cultures of the world (Grof, 1985).

When the intrauterine state is disturbed, a literal example of the experiences evoked may involve realistic recollections of threatening events such as the mother's ingestion of harmful drugs or alcohol. Symbolic experiences might include such things as feelings of inexplicable disgust or the sense that one is being poisoned. Archetypal experiences could involve encounters with demonic forces or evil spirits (Grof, 1985).

The second phase of the birth process, BPM II, includes experiences rooted in the onset of biological delivery and its first clinical stage. During this stage, contractions commence and the state of equilibrium is disturbed; in addition, the cervix is still closed. Therefore, the primary theme associated with BPM II is a life-threatening struggle with no way out (Grof, 1985).

A literal experience associated with this stage might include sensations associated with being pushed and cramped into a pelvic opening accompanied by feelings of overwhelming anxiety and threat. A symbolic experience could involve being swept into a turbulent whirlpool or being trapped with no way to escape in a claustrophobic, nightmarish world and experiencing incredible psychological and physical tortures (Grof, 1985). An archetypal experience could include being at the beginning of the hero's journey.

Grof notes that while under the influence of BPM II, the subject experiences negative feelings of metaphysical loneliness, helplessness, inferiority, and despair. With regards to the organizing factors, this particular matrix resonates with COEX systems that involve memories of situations in which they were victimized by an overwhelming destructive force in which they had no chance of escaping. BPM II demonstrates affinity to similar qualities in transpersonal themes.

During BPM III, the second clinical stage of biological delivery, the uterine contractions continue, although the cervix is now dilated and allows a gradual propulsion of the fetus through the birth canal (Grof, 1985). The major theme of COEX systems grounded in this particular matrix is the death-rebirth struggle. Grof notes that the

situation here does not seem hopeless and the subject is not helpless since the individual is actively involved and believes the suffering has a definite goal.

A very literal struggle for the fetus ensues due to crushing mechanical pressures and often a high degree of anoxia and suffocation. As this stage draws to completion, the fetus may experience immediate contact with a variety of biological materials, such as blood, mucus, fecal liquid, urine and feces (Grof, 1980). Symbolically, themes at this stage often involve titanic battles and natural catastrophes such as exploding volcanoes, earthquakes, and tornadoes. Grof (1985) indicates that, archetypally, themes may include purifying fire (pyrocatharsis), "that seems to destroy whatever is corrupted and rotten in the individual, preparing him or her for spiritual rebirth" (p. 118). Grof suggests that the experience of fire accompanies the ego death, after which the individual identifies philosophically with patterns of energy rather than solid matter.

The final phase, or BPM IV, is related to the third clinical stage of delivery in which the agonizing struggle of the birth process is completed. The buildup of enormous pain, tension, and sexual arousal is followed by a sudden relief and relaxation. The symbolic counterpart of this matrix is the death-rebirth experience: it represents the completion and resolution of this struggle (Grof, 1980). Archetypal images may be associated with displays of divine entities or intricate and strikingly colorful designs (Grof, 1985).

With this comes the experience of what Grof (1985) calls "ego death" (p. 123), or the disintegration of all previous points of reference in a person's life. The individual may experience spiritual liberation with concomitant freedom from anxiety, depression,

and guilt. Feelings of transcendence or union with the universe are often reported as well as with the divine.

Grof (1998) notes that the reliving of birth in holotropic states is typically accompanied by images of inconceivable violence, both individual and collective. This includes experiences of mutilation, murder, and rape, as well as scenes of bloody wars, revolutions, racial riots, and concentration camps. A pioneer in psychohistory—a discipline that applies the methods of depth psychology to sociopolitical events— de Mause (1975) studied speeches of political and military leaders, and also posters and caricatures during the time of wars and revolutions. He was struck by the abundance of figures of speech, metaphors, and images related to biological birth.

Grof (1998) notes that military leaders and politicians of all ages, referring to a critical situation or declaring war, typically use terms that describe various aspects of perinatal distress:

> They accuse the enemy of choking and strangling us, squeezing the last breath out of our lungs, or confining us, and not giving us enough space to live (Hitler's *Lebensraum*). Equally frequent are allusions to quicksand, dark caves, tunnels, and confusing labyrinths, dangerous abysses into which we might be pushed, the threat of engulfment or drowning. Similarly, the leaders promises of victory tend to come in the form of perinatal images. They pledge that they will rescue us from the darkness of the treacherous labyrinth and guide us to the light at the other side of the tunnel. They vow that after the enemy is overcome, everyone will again breathe freely. (p. 204)

In the next section, we will examine the third level of the psyche as theorized by Grof. This is the transpersonal level.

The Transpersonal Level.

Grof (1988) perceives the perinatal level of the unconscious experience functioning as a bridge between the biographical and transpersonal levels. He defines transpersonal experiences as the "experiential expansion or extension of consciousness beyond the usual boundaries of the body ego and beyond the limitations of time and space" (p. 38). By "body ego" Grof (1988) is referring to the individual's identification with the physical body as the seat of consciousness.

According to Grof (1985), to understand the transpersonal level we must begin perceiving consciousness in a different manner than we would in normal waking consciousness. It is then that people can begin to free themselves from the pre-conception that consciousness is something created within the human brain and thus contained in the box represented by the bony structure of our heads. This is the level where the experient looks beyond the belief that consciousness exists only as a result of one's individual life process (Grof, 1993). Grof (1998) found that his breathwork clients' reporting of archetypal figures on the transpersonal level was independent of the participants racial, cultural, and educational background and previous intellectual knowledge of the mythologies.

As individuals come to terms with the concept of the transpersonal level, they begin thinking of consciousness as something that may exist outside and independent of themselves, something that in its essence is not bound to matter (Grof, 1993). Contrary to our everyday experience, it is independent of our physical senses, although it is mediated

by them in our everyday perception of life (Grof, 1988). As discussed earlier, this model of consciousness is not accepted by mainstream science, which views human consciousness as an epiphenomenon of the evolving physical brain (Coveney & Highfield, 1995), yet it is supported by other research, that will not be discussed here, such as out-of-body experiences (Monroe, 1985), near death experiences, (e.g., Moody, 1975; Morse & Perry, 1990; Ring, 1980, 1984, 1992), and children's' reports of a past life (Stevenson, 1987, 1997).

Grof (1993) acknowledges that while this perception of consciousness encased in a human skull may appear to be accurate when dealing with our everyday world, it fails to explain what happens when an individual enters a non-ordinary state of consciousness, e.g.:

> states such as trance states, and spontaneous psychospiritual crises, or those states achieved through meditation, hypnosis, psychedelic sessions, and experiential psychotherapy. The amazingly broad spectrum of experiences that become available under these circumstances clearly suggests that the human psyche has the potential for transcending what we ordinarily consider the limitations of time and space. Modern consciousness research reveals that our psyches have no real and absolute boundaries; on the contrary, we are part of an infinite field of consciousness that encompasses all there is-beyond space and time and into realities we have yet to explore. (p. 202)

Grof (1988) divides transpersonal experiences into three extensive categories. The first group includes those experiences which transcend spatial boundaries. Examples of this may include identification, or a feeling of oneness, with other persons, with animals,

with cellular consciousness (for instance, a sperm cell), oneness with life and all creation, planetary consciousness, or identification with the entire physical universe (Grof, 1985). According to Grof (1975), these experiences of oneness also include concomitant feelings of being separate, that is, dual unity: "In spite of feeling totally fused with the interpersonal partner, the individual always retains simultaneously the awareness of his own identity" (p. 179).

The second group involves those experiences which involve transcendence of the boundaries of linear time (Grof, 1988). Examples of this might include experiences as one's own ancestor, reliving of another racial groups struggle in an earlier historical time, or experiencing a past life as a different person in a previous time period. While the belief in reincarnation, the idea that some essential element or soul in each person incarnates successively in a physical body, as indicated by Stevenson (1987), is still unacceptable to mainstream science, Grof (1975, 1980, 1985, 1988, 1993, 1998, 2000) indicates that his clients have often reported what they describe as past life experiences.

The third category of transpersonal experiences deals with experiential extensions of consciousness beyond consensus reality (Grof, 1988). Clients report visiting other universes and meeting with their inhabitants, encounters with what they believe are their spirit guides, and the experience of "cosmic consciousness" (p. 235). In addition, according to Grof (1975), human consciousness can achieve unity with the Universal Mind, also referred to as the Supracosmic Void, which is "The mysterious primordial emptiness and nothingness that is conscious of itself and contains all of existence in germinal form" (p. 131).

While the existence of these phenomena are not accepted by mainstream science, Grof (1985) believes that:

> Most of the material from deep experiential therapy, although quite puzzling and incomprehensible from the point of view of mechanistic science, presents far less difficulty when approached in the spirit of quantum-relativistic physics, systems theory, cybernetics, or recent discoveries in neuro-physiology and biology. (p. 51)

Grof's transpersonal model of the human psyche goes well beyond the mainstream theory of current researchers in the field of psychology. However, this model is based on empirical data (even if said data rests on a consistent pattern of patient reports), first with LSD (Grof, 1975, 1980) and later with holotropic breathwork (Grof, 1985, 1988, 1993, 1998, 2000). According to Krippner and Villodo (1986), "Abstract theories tend to be arrogant, dogmatic, and are usually presented as unchangeable truths. Empirical theories tend to be humble; they change as new information becomes available" (p. 141).

Grof (1998) goes on to say that, in actuality, there exists no scientific proof that other spiritual dimensions do not exist. The refutation of their existence is, according to Grof, essentially a metaphysical assumption of Western science based on an incorrect application of an outdated paradigm.

Criticism of Grof

According to Pressman (1993), no formal empirical research has been conducted on holotropic breathwork to determine its effectiveness. Morrock (1986), in a book review of Beyond the Brain, argues that Grof (1985) does not provide documentation to support his claims of reduced psychological distress in his patients as a result of

breathwork or LSD psychotherapies. Morrock wonders how many of Grof's patients are cured of specific symptoms, as opposed to those who are not, or who develop new ones.

Beyerstein (1988) is critical of Grof's (1985) claim of perinatal memories, given the immaturity of the fetal brain. Grof (1988) proposes that since consciousness exists independently of the brain, an individual can retrieve experiences that occur while in the womb. He bases this assertion on a consistent pattern of patient reports.

The most scathing criticism of Grof, however, comes from Edwards (1996), whose main attacks are directed at the subject of LSD psychotherapy as well as Grof's transpersonal model. Edwards devotes an entire chapter in his book to Grof.

The central topic of criticism for Edwards in his book: Reincarnation: A Critical Perspective (1996), is the subject of reincarnation. Edwards is critical of leading writers who support the belief in reincarnation, including Grof. In the opinion of Bache (1999), Edwards is a highly regarded philosopher who recognizes the importance of his argument against reincarnation: "If reincarnation can be proven to be true, then the modern Western philosophical paradigm will crumble because rebirth contradicts the core assumptions of that worldview" (p. 35). The same can be said about Grof's transpersonal model.

The tone of this book is condescending. According to Matlock (1997), "Edwards is not beyond putting others down, sometimes to the point of slander" (p. 572). Edwards (1996) states, for instance, "My own impression is that Grof has no talent for any kind of psychotherapy" (p. 203). In another place, Edwards calls Grof "the [second] most credulous person who has ever lived" (p. 195). (The most credulous person alive, according to Edwards, is thanatologist Kubler-Ross. Some other researchers are equally

critical of Kubler-Ross for her failure to provide documentation for her claims; see, for instance, Ring & Cooper, 1999).

Edwards, however, is justifiably critical of Grof for not being more specific about the beneficial emotional and psychological effects derived from the experience of nonordinary states of consciousness. Grof relies heavily on anecdotal material instead of "harder" scientific evidence—i.e., objective scientific measures--to support his position. Grof (1975, 1980, 1985, 1988, 1993, 1998, 2000) does not provide objective scientific data—e.g., such as the research provided in this study—to support his claims for the clinical efficacy of holotropic breathwork. Even researchers partial to the study of anomalous phenomena—e.g., reincarnation—speculate that Grof's viewpoints are ones which "no serious researcher [would give] much attention" (Matlock, 1997, p. 573).

Edwards (1996) questions some of the claims made by Grof. For instance, Grof's (1975) claim that a person can "experience expanding to encompass every member of the human race—indeed, all of humanity" (p. 180)--is called "utterly incredible" (p. 208), since "even allowing for changes in time scales, it would take the patient much too long to experience the tenderness of every tender mother who ever lived" (p. 208). Edward's views are consistent with those of mainstream science (Capra, 1988) which does not accept Grof's (1975, 1980, 1985, 1988, 1993, 1998, 2000) statements that during non-ordinary states of consciousness, persons may experience other levels of reality, and do so in a different way. (On these other levels, some individuals have reported--during a rapid life-review during a near-death experience, or NDE—a difference in how time is experienced, see Greyson, 1993). As discussed earlier, Grof does not provide any rigorous clinical evidence to support his claims that experiencing non-ordinary states are

clinically curative. By not doing this, he has left himself open to criticism from mainstream theorists by providing a model with is not supported directly by the literature. (Ring, 1984, for instance, has found beneficial effects as a result of the experience of a NDE and provides exhaustive documentation to support his claims.)

Edwards is highly critical of Grof's claims of mystical experience. Edwards (1996) writes:

> The inability of Grof and other privileged participants to communicate any of the answers [of life from the mystical level] produces a feeling of being let down in me…. It is always the same with these prophets of the ultimate: they make grandiose claims, but when we press them for something concrete, we are left empty-handed. (p. 206)

Edwards is equally critical of Grof's (1975) claims of karmic patterns in Grof's personal life being resolved acausually.[1] Edwards (1996) notes that such claims are only found in Hollywood movies and the tabloids, suggesting that "if the information were supplied [by Grof], it would be found either the events in question did not occur or that they were not really so peculiar and that they can be quite easily explained" (p. 213). Here Edwards is basically calling Grof a liar. While this type of treatment by Edwards is not fair to Grof, it should again be mentioned that Grof has left himself open to this kind of criticism by providing a clinically unsupported model.

Much of the rest of the chapter is focused on Grof and Halifax's (1977) work with dying patients through the use of LSD. Edwards called them "voracious birds" (p. 200)

[1] When Grof changed his feelings about his protagonists, although they were separated by hundreds of miles, these individuals, Grof reports, communicated similar changed feelings towards him. This happened, according to Grof, without the parties coming in physical contact.

who are trying to convert these dying people to their religious views. He implies that Grof and Halifax are insensitive to the situation that the dying patients are experiencing.

Edwards spends much time reviewing Grof's view of ego-death and his claim of a subsequent reduction in death-anxiety. He doesn't criticize this idea of ego-death directly. Instead, he attacks Grof's (1975) suggestion that individuals should be aware that death is a transition of consciousness to a different level and that therefore people in our culture should prepare themselves for this. Aside from ridiculing Grof, Edwards does little to offer any substantive argument in opposition to Grof's claims. According to Matlock (1997) Edward's book is disappointing: "Edwards mostly rehearses the arguments of others, makes few original points, and does not closely examine any issue" (p. 572).

Previous Research on Grof's Psychotherapy.

To date, a paucity of empirical research has been performed on holotropic breathwork. Three unpublished doctoral dissertations have been conducted on this type of psychotherapy. Holmes (1993) found that beneficial effects can be obtained through the use of holotropic breathwork as an adjunct to psychodynamic psychotherapy, particularly with regards to death anxiety and self-esteem. For instance, Holmes found that experienced breathwork participants (N = 24), with 6 to 23 breathwork sessions, demonstrated higher levels of self-esteem ($p = .053$) than novice breathers (N = 24) who had experienced only 1 to 4 breathwork sessions. She also found a borderline significant reduction in 6 month posttest scores on death anxiety, using the DAS, compared to pretest ($p = .052$).[2] Pressman (1993) found that holotropic breathwork has strong psychological benefits, as shown by the attainment of significant results on the Profile of

[2] Holmes tested at pretest, posttest, 3 months into the group and at the end of the 6 months. Her group met once monthly for 6 months.

Mood States when breathwork was compared to music therapy used to induce relaxation among members of a control group. La Flamme (1994) found that holotropic breathwork experients entered into an altered state of consciousness (ASC) more often than did observers, which supports Grof's assertions.

Hanratty (1998, 1999), in 1 day workshops with Grof-trained breathwork facilitators, found a reduction in anxiety symptoms in two studies examining holotropic breathwork participants. In the first study (Hanratty, 1998), two small groups were tested. In the first group (N = 6), mean scores on the State-Trait Anxiety Inventory (Derogatis, 1993), or STAI, decreased from 36.8 to 26.8, and, in the second group (N = 5), from 34.6 to 33.4. In the second study (Hanratty (1999), testing only 7 participants, STAI scores decreased from 34.6 to 25.5 ($p = .05$). In addition, Hanratty (1998), in the first study, found a low negative relationship, and a low positive relationship in the second study (Hanratty, 1999) between hypnotic ability, as measured by the Wickram Experience Inventory (Wickramasekera, 1988) and reduction in anxiety. These low correlations likely resulted because of the small number of participants participating in these studies, which produced a restricted range of scores. Subjective reports on clinical questionnaires supported objective measures of lower anxiety scores on psychometric tests at posttest.

CHAPTER II

METHODS

Participants.

The investigator attempted to recruit as many breathwork volunteer participants as possible to determine the efficacy of holotropic breathwork. Approximately 150 English speaking individuals attended the one-week conference, and 44 of those individuals elected to participate in the research. This national workshop was facilitated by Stanislav Grof.

The average age of the volunteers was 48.7 years; 73% of participants (N = 32) were female. Educational level of 43 of the 44 participating participants was available (See Table 1).

Table 1. College Education of Participating Participants (n=43)*

	Less than 2 Years of College	Junior College	Bachelor's Degree	Master's Degree	Doctor of Philosophy	Juris Doctorate	Medical Degree
n	0	2	19	17	2	1	2
%	0	4.5	44	40	4.5	2.5	4.5

* One subject did not provide this information.

Setting. I was invited by Dr. Grof to attend and do research during a 7-day breathwork workshop, November 1-7, 1999, at a retreat in Yucca Valley, California. I made a short announcement the first evening of the workshop, and the day before breathwork sessions commenced, explaining that I wanted to test the effectiveness of holotropic breathwork and asked for volunteers. I requested that Dr. Grof to make a supportive statement prior to introducing me, and he did.

Grof's breathwork groups are structured so that breathwork experients split into pairs, taking turns breathing and sitting. Breathers participated in approximately 4 or more hours of deep, rapid breathing while listening to loud, evocative music. Sitters, on the following day, involved themselves in the breathwork exercise while the former breathers helped their partners by providing water and walking them to the bathroom, when necessary--i.e., acted as sitters. These breathwork sessions generally ran from mid-morning to mid-afternoon. Afterwards, breathers drew "what ever came up" on a mandala, a blank sheet of paper except for a circle drawn in the middle. According to Grof (1988) the mandala can be used as a unique device documenting unusual experiences and helping in their integration. The participants later processed their experiences in a group context.

The first breathwork session took place on the second day of the conference. On the third day, the breathers and sitters switched: the former sitters became breathers for this day, and the former breathers became sitters. The mandalas and group therapy sessions were handled in the same manner as the previous evening.

To gather pretest data, I asked the breathers to fill out the questionnaires before breathwork commenced and indicated my preference as being the first night of the

workshop. The breathers were asked to fill out the post breathwork forms on the evening of the breathwork session or the following morning. For the purpose of simplicity, I provided a packet of information for each of the research participants. The packets were divided into "Pretest Forms" (left-hand pocket) and "Posttest Forms" (right-hand pocket). All measures were identified, e.g., the Marlowe-Crowne, TAS (pretest only), PANAS, Templer DAS, and the BSI, which were to be given at both pretest and posttest with an "E" in the upper left hand corner of the page.

Since this was a repeated measures design with each subject serving as their own control, I tested only individuals who volunteered and participated in the breathwork. Volunteers were tested who breathed on the second or third day of the workshop. Since a pretest and posttest was administered, this portion of the data collection can be classified as a one-group, pretest posttest (repeated measures) design (Campbell & Stanley, 1963). Follow-up research was later obtained, extending the number of times of testing to three. Between-subjects data, experience in breathing, was also collected for later analysis. Absorption data was collected for predictive purposes in multiple regression analysis and as another between subjects' variable (low, moderate and high).

Since Grof wished to have participants take part in a 6-month follow-up research project, I waited to provide volunteers with written feedback on each of their test scores at the end of the 6-month follow-up period (May 1, 2000). At follow-up, I mailed the measures used during the posttest to all 44 participating participants. These included the Marlowe-Crowne Scale, the Brief Symptom Inventory, the Positive Affect and Negative Affect Schedule, and the Death Anxiety Scale. A clinical follow-up questionnaire was also included in the follow-up packet. The Tellegen Absorption Scale was not included

in this follow-up packet. After allowing 30 days for the participants to return their follow-up materials (22 participants), I provided all participants with a written summary of the study results, as well as individual feedback on each of the tests.

Limitations and Issues

This study had several limitations. First, the participants were recruited from a group of volunteers, making random assignment not possible. In a quasi-experimental design such as this (Campbell & Stanley, 1963), people are not randomly assigned to groups. Instead, the groups are pre-existing, or intact (Aron & Aron, 1994.) According to Borg and Gall (1989), volunteer participants are likely to be a biased sample of the target population. Bias is a statistical concept that simply means that the acquired data will systematically distort the data, compromising external validity (Campbell & Stanley, 1963; Kirk, 1995). Volunteers have been shown in many studies to differ from non-volunteers. Compared to non-volunteers, volunteers tend to be better educated, have a higher social-class status, have a higher need for approval, are more sociable, more arousal-seeking, more female in composition, more interested in religion, more altruistic and self-disclosing, more maladjusted, have a higher need for achievement, and tend to be more anxious and extraverted (Rosenthal & Rosnow, 1975). Thus, for instance, the high level of education as well as the higher percentage of female participants found among participants in this study, may be a function of sampling bias, which would in turn, bias the outcome.

However, use of a repeated-measures design was a strength of the study. It is the best possible of all designs in terms of power (Kirk, 1995). In this design, idiosyncratic sources of error become part of the error term. In other words, individual differences and

other uncontrolled sources are treated as error variance, which makes the error term large. The larger the error term, the smaller the experimental effect, which in turn decreases a smaller significant effect.

In a repeated-measures design, the random variation that is part of individual differences is part of the participant effect, rather than counting it as error. A repeated measures design observes each subject under each treatment level in the experiment. Then, potential sources of confound, such as educational level, gender, etc., can be removed statistically before the results are computed. By controlling in this fashion, there is less error variance in the error term, making the experimental effect larger. This is the reason that a repeated-measures (or within-subjects design) is generally more powerful than a between-subjects design.

Since holotropic breathwork has not been studied in this context before (in a Grof-facilitated national workshop), this research is exploratory and preliminary, creating a possibility of a type I error (false positive). I therefore set the significance level at the .05 level ($p = .05$). As a result of the preliminary nature of this research, future research is needed. Replication and peer review are the hallmarks of the scientific process (Aron & Aron, 1994).

According to Wickramasekera (1998), psychological research in general tends to attract individuals high on trait absorption and hypnotic ability. People low in trait hypnotic ability tend to avoid participation in psychological investigation due to a skeptical, practical cognitive style (Wickramasekera, 1993). This phenomenon may explain the absence of people low in trait hypnotic ability in this study. Therefore, a potential source of confound of this study may be sampling bias. The possible

confounding variable is the type of psychotherapy; it may attract individuals high in hypnotic ability. Finally, I did not measure psycho-physiological responses, relying instead on paper and pencil tests.

Taylor (1999) has described the "shadow culture" (p. 9), or those persons who do not prescribe to mainstream religious beliefs, as being composed of a vast unorganized array of discrete individuals who live and think differently from the mainstream, particularly in their search for spirituality. Participants who volunteered for this research may be members of this shadow culture, particularly because of their Eastern beliefs and high absorption scores. Taylor (1999) notes that the shadow culture is: "still largely white, middle class, and slightly overeducated. It is probably made up more of women than of men…" (p. 11). Thus, participants who participated in this research may be different from members of mainstream society.

As already mentioned, the response rate of the entire workshop was 30%, which can compromise the external validity of this data. Since Grof's (1985, 1993, 1998, 2000) work is considered by many to be controversial, extreme care in generalizing these results must be exercised.

Instruments.

In addition to the consent form (see Appendix B), the following psychometric instruments were used in this study dependent measures, or outcome scores. The Tellegen Absorption Scale (TAS) and Marlowe-Crowne (MC) self-report tests used to identify repressors (Weinberger, 1995; Wickramasekera, 1988, 1998). In addition, the TAS, since it correlates moderately with hypnotic ability, was used as an approximate measure of hypnotizability and was especially used to identify high and low absorption ability. The

Positive and Negative Affect Schedule (PANAS) was selected to identify both positive affect (PA) and negative affect (NA). Templer's Death Anxiety Scale (DAS) is a concise measure of death anxiety and was used to measure any change in this construct from pretest to posttest. The Brief Symptom Inventory (BSI) is a shorter version of the Symptom Checklist-90-R (SCL-90-R) and was chosen to identify psychological distress as well as somatic symptoms. Two brief clinical questionnaires were used by participants to provide feedback regarding their subjective experiences. The selection of tests used in this study was largely determined by measures normally utilized to test risk factors from the High Risk Model of Threat Perception (Wickramasekera, 1988, 1993, 1994, 1998).

Tellegen Absorption Scale (TAS) (Tellegen & Atkinson, 1974). There was utilized to discern a possible relationship between absorption scores, a construct which correlates moderately with hypnotic ability as measured by the Tellegen Absorption Scale (Tellegen & Atkinson, 1974), and outcome measures, i.e., changes in other test scores, which will be discussed below. The TAS correlates positively but moderately (r = .33 to .57) with other behavioral scales of hypnotizability (Kihlstrom, 1989; Roche & McConkey, 1990). This scale correlates moderately (r = .46) with the Stanford Hypnotic Susceptibility Scale, Form C (Weitzenhoffer & Hilgard, 1962), which is considered by many to be the "gold standard" measure of hypnotic ability (Roche & McConkey, 1990; Tellegen & Atkinson, 1974). According to Tellegen and Atkinson (1974), correlations were found ranging from .27 to .42 (on two samples) between the TAS and the Harvard Group Scale of Hypnotic Susceptibility (Shor & Orne, 1962), which is the "silver standard" measure of hypnotic ability.

The TAS is the most widely used measure of absorption (Tellegen, 1981, 1982; Tellegen & Atkinson, 1974). The TAS is a 34-item, true-false scale developed from a questionnaire that derived items from inventories of hypnotic-like experiences (Roche & McConkey, 1990). Tellegen (1982) reported an internal reliability of r = .88 and a 30 day test-retest reliability of r = .91. Kihlstrom (1989) reported a test-retest reliability of r =.85 for this scale.

There are several lines of research which demonstrate that absorption correlates moderately with the experience of hypnosis (r = .24-.45) (Council, Kirsch, & Hafner, 1986; Council, Kirsch, Vickery, & Carlson, 1983; Spanos, Steggles, Radtke-Bodorik, & Rivers, 1979; Tellegen & Atkinson, 1974). Absorption, as measured by the TAS, correlates modestly with hypnotizability (r = .13-.89) (Ashton & McDonald, 1985; Bowers, 1978, 1982; Council et al., 1986; Crawford, 1982; Hoyt et al., 1989; Kihlstrom, 1989; McConkey & Nogrady, 1986; Spanos, Brett, Menary, & Cross, 1987; Spanos & McPeake, 1975; Tellegen & Atkinson, 1974; Yanchar & Johnson, 1981) and with suggestibility (r = .35-.55) (Council & Lodge, 1988; Hilgard, Sheenan, Monteiro, & MacDonald, 1981; Monteiro, MacDonald, & Hilgard, 1980; Spanos et al., 1983). The TAS is also known to correlate moderately with hypnotic ability independent of context effects (Nadon, Holt, Register, & Kihlstrom, 1991).

According to Roche and McConkey (1990), the reason for the shared variation between hypnotizability and absorption studies is not clear. Possible contributing factors may include the variability that exists in the number and type of subject in the studies, the differing emphasis of the studies, and the rigor with which the studies have been conducted.

The TAS also identifies participants with low and high measures of absorption, which are two of the four predisposing risk factors for the development of psychosomatic illness in the HRMTP (Wickramasekera, 1998, 1997). This measure is unique because, unlike conventional measures of hypnotic ability, it measures a subject's subjective experiences whereas other measures rely on overt behavior. For instance, the Stanford and Harvard Scales are direct behavioral measures of hypnotic ability whereas the Tellegen Absorption Scale is an indirect and verbal report (non-behavioral) measure of hypnotic ability.

High scorers on this test are hypothesized to be hypersensitive to emotional stimuli which can lead to psychological symptomology as well as threat related disease, whereas low scorers, since they are hypo-sensitive to emotional stimuli, are more prone to develop somatic symptoms and disease (Wickramasekera, 1993, 1994, 1998). I hypothesized that high scorers should benefit more from the breathwork therapy and this would be reflected in reduction in measures of psychological distress from pretest to posttest.

The TAS in particular measures the ability of individuals to experience altered states of consciousness (Roche & McConkey, 1990), which is pertinent for this research on Holotropic Breathwork. According to Grof (1985), the accessing of non-ordinary states of consciousness is prerequisite to healing. High absorption scorers have the capacity to vividly re-experience the past and to think in vivid images. The TAS took about 5 minutes to administer (Wickramasekera, 1997), see Appendix B.

Marlowe-Crowne Scale (Crowne & Marlowe, 1960). The Marlowe-Crowne Scale, a 33-item self-report measure, was initially designed as a measure of social

approval. That is, it measured the tendency of participants to present themselves in a positive light, or in culturally sanctioned ways, to gain social approval. According to Assendorpf and Scherer (1983), the more recent interpretation of high scores on the MC suggest an individual who attempts to maintain an idealized self-concept, particularly by the defensive avoidance of negative affect such as anxiety or anger.

The Marlowe-Crowne contains 33 true-false items relating to personal attitudes and traits that do not tap into psychopathology (Crown & Marlowe, 1960). Eighteen of the test items represent positive behaviors that most people are not likely to demonstrate (i.e., the socially desirable answer is true), and 15 items that represent negative behaviors likely to be true of the general public, and in which the socially desirable answer is false. Crowne and Marlowe (1964) found that the MC has excellent reliability based on internal consistency and test-retest coefficients--e.g., internal consistency coefficient (Kuder-Richardson 20) for the MC was found to be .88. The MC correlates well with the K validity scale (r = .40) and the L validity scale (r = .54) of the Minnesota Multiphasic Personality Inventory or MMPI. In studies of repressive coping, the raw score cutoff used by researchers has varied from 17 (Jammer et al., 1988; Wickramasekera, 1994) to 19 (Niaura et al., 1992; Weinberger et al., 1979). Other researchers have used a cutoff based on the total sample mean (Davis & Schwartz, 1987) or median (Baumeister & Cairns, 1992), see Appendix B.

Costa and McCrae (1983) recognized that the individuals scoring high on the construct of social desirability also tended to score high on measures of adjustment, conscientiousness, agreeableness and other socially desirable traits. According to Weinberger (1995), high scorers on the MC generally believe what they are reporting to

be true and attempt to behave accordingly. Close friends of high scorers corroborate that these individuals actually try to conform to the rigid standards of self-control reflected in the items.

Weinberger et al. (1979) found that the MC may provide a major step toward discriminating truly low anxious people from repressors. It actually assesses repressive defensiveness as a dimension separate from the one measured by trait anxiety scores. Mendolia, Moore, and Terrer (1996) identified dispositional repressors as individuals who report feeling little or no anxiety, as shown by low scores on an anxiety scale, but who are also very defensive and protective of their self-esteem, as shown by elevated scores on the MC.

In a study of the relationship between Marlowe-Crowne scores and systolic blood pressure reactivity in cardiac patients, Warrenburg et al. (1990) found that the MC correlated positively not only with systolic blood pressure reactivity but also with increases in levels of physiological activity during the baselines as the experiment progressed--i.e., high MC patients experienced more sympathetic nervous system arousal and/or less parasympathetic nervous system arousal as the experiment proceeded. In a study of breast cancer patients, Jensen (1987) used the Marlowe-Crowne and the Taylor Manifest Anxiety Scores to classify repressors and three other groups. Jensen found that repressors reported significantly less negative emotion, yet their time in clinical remission was 46 percent lower than non-repressors--1,755 days for non-repressors vs. 1,204 days for repressors. In addition, repressors died sooner than non-repressors from breast cancer.

High Marlowe-Crowne scores generally inhibit aggressive impulses (Conn & Crowne, 1964; Schwartz, 1995). Marlowe-Crowne scores have also been found to

correlate significantly and negatively with spouses' ratings of proneness to hostility and impulsiveness as well as to anxiety and depression (McCrae & Costa, 1983). Lane, Merikangas, Schwartz, Huang, and Prusoff (1990) report that the MC has come to be considered a measure of self-deception and repressive coping, rather than other deception (Schwartz, 1983; 1995). These researchers propose that high MC scores are indicative of unconscious psychological defensiveness rather than an overt desire to deceive others.

Lane et al. (1990) found an inverse correlation between the Symptoms Checklist-90 (SCL-90) and the MC ($r = -.35$), and between the Marlowe-Crowne and lifetime prevalence and psychiatric disorders as defined by the Research Diagnostic Criteria (Spitzer, Endicott, & Robbins, 1978) and measured by the Schedule for Affective Disorders-Lifetime Version (Spitzer & Endicott, 1979). The Marlowe-Crowne has been used in conjunction with measures of absorption (Gick, McLeod, & Hulihan, 1997; Jensen, 1987;) and hypnotizability (Wickramasekera, 1993, 1995) and anxiety (Brown, et al., 1996; Weinberger, 1979), in the study of repressive tendencies (Murray, 1998) in addition to somatization.

According to predictions from the HRMTP, the TAS and MC, when combined, show the following combinations of mild to super repression (Murray, 1998; Wickramasekera, 1998).

Table 2. Hypothesized (HRMTP) Combined Effects of the Tellegen Absorption Scale (TAS) and the Marlowe-Crowne Social Desirability Scale (MC) on Repression*

	High TAS	Moderate TAS	Low TAS
High MC	Moderate Repressors	Mild Repressors	Super Repressors
Low MC	Mild Repressors	Non-repressors	Mild Repressors

*Source: Murray (1998); Wickramasekera (1998).

Positive and Negative Affect Schedule (PANAS). The PANAS is a short, 20 item mood scale, asking participants to score items on a 5 point scale to the extent to which they had experienced each mood during a specific time frame (Watson, Clark, & Tellegen, 1988). This scale also has the advantage of providing several different time instructions: the test provider can choose to ask when the participants feel or felt a certain way. Choices, for instance, include feeling this way now, or at the present moment, having felt this way for the past few days, during the past few weeks, during the past year, or how one feels generally. Since I used a pretest-posttest format, I instructed participants to tell me how they felt at the time of testing.

Briefly, positive affect (PA) reflects the extent to which a person feels enthusiastic, active, and alert. High PA is a state of full energy, full concentration, and pleasurable engagement, whereas low PA is characterized by sadness and lethargy. In contrast, negative affect (NA) is a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness, with low NA being a state of calmness and serenity (Watson et al., 1988). These two factors represent independent or orthogonal affective state dimensions, but Tellegen (1985) and Watson and Clark (1984)

have shown that they are related to corresponding affective trait dimensions of positive and negative emotionality, or individual differences in positive and negative reactivity (Watson, et al., 1988). Tellegen (1985) has also suggested that low PA and high NA, both state and trait, are major distinguishing features of depression and anxiety, respectively.

According to Zevon and Tellegen (1982), both PA and NA involve a high state of emotionality. They characterize emotions as being associated with some degree of arousal. Since they define emotions as aroused or engaged states, positive affect (PA) and negative affect (NA) are best characterized as descriptively bipolar but affectively unipolar dimensions. They are orthogonal dimensions of mood. A person can be up or down on both at the same time. PA and NA are independent dimensions of mood related respectively to the left and right frontal lobes (Tomarkin & Davidson, 1994; Brown et al., 1996).

The basic psychometric data were gathered primarily from undergraduate students at Southern Methodist University (SMU). The PANAS scale inter-correlations and internal consistency reliabilities are acceptably high, ranging from .86 to .90 for PA and from .84 to .87 for NA. The correlation between the NA and PA scales is very low, because they are orthogonal or unrelated, ranging from -.12 to -.23, so the two scales share approximately 1% to 5% of their variance. Test re-test reliabilities, using an 8-week test-retest interval, were also moderate to high, ranging from .39 to .71.

An important step in evaluating the PANAS is to determine its validity or if it measures what it is supposed to measure. To determine this, 60 mood descriptors (Zevon & Tellegen, 1982) were subjected to ratings as a result of a factor analysis. Two dominant factors emerged, accounting for roughly two-thirds of the common variance,

ranging from 62.8% in the moment solution to 68.7% in the general ratings. Each of the two factors were then correlated with the PA and NA factors. The results demonstrate the expected convergent/discriminant pattern (Watson et al., 1988). These factors ranged from -.15 to .93.

The PANAS was also compared with other psychometric instruments to determine if there was agreement or disagreement among these tests. Watson and his colleagues (1988) used the PANAS in conjunction with a number of other commonly used measures of general distress and dysfunction: The Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Cox, 1974), the Beck Depression Inventory or BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and the State-Trait Anxiety Inventory or STAI (A-State; Spielberger, Gorsuch, & Lushene, 1970). The PANAS, NA scale, correlated moderately to high with each of these tests, ranging from .51 to .74, whereas the PA scale showed low-to-moderate negative correlations, ranging from -.19 to -.36. This supports both convergent and discriminant validity of the PANAS, see Appendix B.

Templer's Death Anxiety Scale (DAS) (Templer, 1970). It was essential to include a measure of death anxiety in this study. A central tenet of Grof's transpersonal model is that deep experiential work often involves an intimate encounter with and subsequent reduction in one's fear of death. Thus, the DAS was used to measure death anxiety.

The DAS is a forced choice instrument consistent of 15 items reflecting concerns, attitudes, and beliefs about death. Several studies (Lucas, 1974; Mc Mordie, 1982) have indicated that the DAS has acceptable levels of reliability. In one study, 37 college

students were administered the DAS on two separate occasions. This test has acceptable test-retest reliability as shown by a Pearson product moment correlation of .83 between the two sets of scores (Templer, 1970). The Kuder-Richardson Formula 20 was used to analyze the same data and indicated a moderate level of internal consistency, with an obtained coefficient of .76.

The DAS has also demonstrated construct validity in two separate studies (Templer, 1970). In the first study, the DAS was given to 21 psychiatric patients who had been identified as verbalizing high levels of death anxiety, and based on feedback from nursing staff, counselors, and the hospital chaplain. Twenty-one control participants from the same hospital population, who had evidenced no death anxiety, were matched with the high death anxiety participants based on age, gender, and diagnosis. A mean DAS score of 11.62 was obtained from the high death anxiety participants, while scores on the DAS given to controls showed a mean of 6.77, showing a statistical significance: p=. 01.

Another study compared the scores of 77 college students on the DAS, the MMPI (Hathaway & McKinley, 1940), Boyar's Fear of Death Scale (FODS, Boyar, 1964), and a word association task which had previously been correlated with death anxiety. The results showed modest correlations between the DAS and three separate anxiety scales of the MMPI, showing that the DAS measures something more than anxiety. A correlation of .74 (p = .01) was found between the FODS and the DAS (Templer, 1970). A correlation of .25 (p = .05) was found between the DAS and the word association task. This supports claims for the convergent and discriminant validity of the DAS. The DAS correlated with the Welsch Anxiety Scale at r = .39 (p = .01). A moderately high correlation (r =. 74, p = .01) was made between the DAS and FODS. In addition, a

modest correlation (r = 25, p =.05) was found between the DAS and the word association task. This suggests that the DAS has convergent validity with measures of the same construct (Templer, 1970).

Other research has also found that elevated scores on the DAS are positively correlated with measures of anxiety (Kuperman & Golden, 1978; Neufelt & Holmes, 1979), depression (Koocher, O'Malley, Foster, & Groger, 1976), and low self-esteem (Aronow, Rauchway, Peller, & de Vito, 1980; Cohen & Burdsal, 1978; Davis, Martin, Wilee, & Voorhees, 1978; Davis & Martin, 1978) and, as mentioned earlier, the DAS has been significantly correlated with gender (Davis et al., 1978; Koob & Davis, 1977; Shell & Zinger, 1984; Templer et al., 1974) with females having higher death anxiety than males. Scores on the DAS have also been shown to be negatively correlated with positive general psychological adjustment as defined by existential criteria (Vargo & Batsel, 1984). With respect to this study, it should be noted that a high Marlowe-Crowne score could indicate that a low DAS is incorrect since the MC has been found to be inversely correlated with other measures of psychological distress (Lane, Merikangas, Schwartz, Huang, & Prusoff, 1990).

Some investigators (Lucas, 1974: Mc Mordie, 1982) have suggested the Templer DAS is the most reliable and valid measure of death anxiety. According to Neimeyer (1997), Templer's DAS remains the most popular measure of death attitudes in the literature. While the DAS has a range of scores from zero to 15 (Templer, 1970), means of participants generally range from 4.5 to 7.0 (Shell & Zinger, 1984), see Appendix B.

The Brief Symptom Inventory (BSI) (Derogatis, 1993; Derogatis & Cleary, 1977). The BSI is a shorter version of the Symptom Checklist-90 or SCL-90-R. The BSI

is a measure of psychological distress. It includes nine primary dimensions including somatization (SOM), obsessive-compulsive (O-C), interpersonal sensitivity (I-S), depression (DEP), anxiety (ANX), hostility (HOS), phobic anxiety (PHOB), paranoid ideation (PAR), and psychoticism (PSY). The SCL-90 and the BSI measure the same symptom constructs as shown by the high correlations, ranging from .92 to .99, between them (Derogatis, 1993; Derogatis, Rickels, & Rock, 1976).

In addition to the nine symptom dimensions already mentioned, other dimensions of the BSI are two global indices, which have been developed to provide more information about the patient's symptomology, and are global indices of distress. They have been demonstrated to reflect distinct aspects of psychological disorder (Wood, 1986). The Global Symptom Index is a measure of the depth of any existing psychological distress. The Positive Symptom Total is a measure of the total number of symptoms endorsed, showing symptom breadth.

Internal consistency reliability coefficients were established on a sample of 719 psychiatric outpatients, using Cronbach's coefficient alpha. Coefficient Alpha is a multipoint variation of the Kuder-Richardson 20 formula (Nunnally, 1970). Alpha coefficients for all nine dimensions were robust, ranging from .71 on the Psychoticism dimension to a high of .85 for Depression. Several other investigators have reported robust internal consistency coefficients for the BSI. Croog et al. (1986) reported coefficients ranging from .73 to .86 based on a sample of 626 males with mild to moderate hypertension. Aroian and Patsdaughter (1989) reported internal consistency coefficients primarily above .80 in a small sample (N = 25) using a Polish version of the

BSI. Test-retest reliability was reported to be high on the BSI, ranging from .68 for Somatization to .91 for Phobic Anxiety.

A study showing convergent validity for the BSI with the MMPI involved the reanalysis of an earlier study comparing the SCL-90-R with the MMPI (Derogatis et al., 1976) on a sample of 209 symptomatic volunteers. Because the 53 items of the BSI also appear on the SCL-90-R, the data set was reanalyzed, scoring for the BSI instead of the SCL-90-R. The magnitude of maximal correlation coefficients for Interpersonal Sensitivity, Depression, and Anxiety were almost identical to those of the SCL-90-R. For Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism, magnitudes of correlations were reduced by about .10. With the Somatization and Obsessive-Compulsive dimensions, although patterns of correlations were retained, coefficients decreased by about .15. The authors concluded that reduction of the length of the SCL-90-R dimensions has not had a significant effect on validity, these tests measure the same symptom constructs.

The somatization scale of the BSI, since it provides a measure of somatic distress, is of particular interest in this study. This test has been used in specific applications of somatizing patients. Katon et al. (1990) used the measure to identify high distressed, high utilizers in primary care practices. Katon and colleagues found linear increases in mean scores for the scales of somatization, depression, and anxiety from low to high among some subgroups. Thus, this measure has been useful as a measure of somatic distress.

Wickramasekera's (1993, 1994, 1998) HRMTP proposes that psychological or somatic symptoms can occur, because of the interaction of (1) high or (2) low hypnotic ability, and/or (3) repression with negative affect, (Hypnotizability per se is not a risk

factor until it interacts with negative affect.) This predictor is supported by numerous research studies in the field (Wickramasekera, 1993, 1998). For instance, Lane et al. (1990) found an inverse correlation between scores on the MC and SCL-90-R, and lifetime prevalence of psychiatric disorders. Wickramasekera (1994) found that in a controlled case study of a client presenting with numerous somatic symptoms, this individual's scores on the SCL-90-R, the longer version of the BSI, were nonremarkable. However, following psychotherapy, in which repressed trauma was brought into conscious awareness, all somatic symptoms remitted but the client's SCL-90-R scores were very significantly increased. Thus, this suggests that when these measures are combined with measures of repressive tendencies (e.g., the MC), important interactions may be observed, see Appendix A, Supplementary Table 2. Also Wickramasekera (1996) showed that high hypnotic ability interacted with negative affect and skin conductance was amplified and was delayed in recovery.

Clinical Questionnaires. The clinical questionnaires garner information regarding such variables as gender, educational level, previous breathwork experience, and religious or spiritual belief system, educational level obtained, as well as qualitative experiences of breathwork participants. These instruments allowed participants to freely discuss, in their own words, subjective experiences they have had at pretest, posttest, and follow-up, see Appendix B.

Hypotheses

This study proposed to evaluate the following hypotheses:

(1) There will be significantly (p =.05) less negative affect on posttest measures of the PANAS than on pretest scores (p = .05) for all participants.

(2) There will be significantly less (p = .05) psychological distress on posttest measures of the BSI than on pretest measures of the BSI for all participants.

(3) Participants who score high on the TAS (a raw score of 25 or greater) would show significantly less (p = .05) psychological distress, from pretest to posttest, as measured on the BSI and NA scale of the PANAS, than participants who score low on the TAS (0-9).

(4) Participants who score high on the MC (a raw score of 17 or greater) and low (a raw score of 10 or less) on the TAS (super repressors) would show no change in NA scores, BSI scores, and DAS scores from pretest to posttest.

(5) Death anxiety scores, as measured by the DAS, would decrease significantly (p = .05) from pretest to posttest.

(6) Experienced breathwork volunteers (those who had undergone 5 or more breathwork sessions (N = 13), would have significantly (p =.05) lower measures of psychological distress as recorded on the BSI, the PANAS scale, NA dimension, and the DAS than novice breathwork volunteers (N = 11) at pretest.

(7) The predisposers of the HRMTP, measured at pretest, will predict positive symptom scores both at posttest and follow-up (p =.05)

Data Analysis

Pretest and posttest scores, means and standard deviations are shown in Table 3 for the entire sample, N = 44. Table 4 lists means and standard deviations for the subset

of the sample, N = 22, who remained in the study and participated in follow-up research. Table 5 is a correlation matrix of the pretest scores on the Marlowe-Crowne, PANAS scales, BSI and Death Anxiety scales. Pretest and posttest scores were analyzed using the Repeated Measures ANOVA using experience vs no experience in holotropic breathwork as the between subjects variable. The predisposers of the HRMTP were entered into a Multiple Regression procedure to evaluate how well the predisposers of the HRMTP predicted reported symptoms as measured by the BSI at posttest and again at follow-up.

Table 3. Means and Standard Deviations for Variables Used in the Study

	Marlowe-Crowne (Total N)	BSI (Total N)	PANAS, PA (Total N)	PANAS, NA (Total N)	DAS (Total N)	Absorption (Total N) Pretest only
Pretest	M=13.52 SD=5.65 (44)	M=19.88 SD =11.85 (42)	M=35.07 SD d=7.27 (44)	M=15.55 SD =5.36 (44)	M=5.18 SD =2.9 (38)	M=23.55, SD =5.61 (44)
Posttest	M=13.40 SD =6.36 (44)	M=15.49 SD =10.63 (43)	M=33.98 SD =8.84 (43)	M=12.75 SD =5.53 (43)	M=5.45 SD =2.73 (31)	-------

Table 4. Means and Standard Deviations for Variables Used in the Study at Follow-up

	Marlowe-Crowne (Total N)	BSI (Total N)	PANAS, PA (Total N)	PANAS, NA (Total N)	DAS (Total N)	Absorption (Total N) Pretest only
Pretest	M=12.9 SD=6.51 (22)	M=21.67 SD =55.16 (22)	M=34.5 SD=7.97 (22)	M=15.13 SD =4.26 (22)	M=5.89 SD =3.18 (19)	M=23.55, SD =5.61 (44)
Posttest	M=13.4 SD=6.3 (22)	M=15.91 SD=8.86 (22)	M=34.64 SD=9.5 (22)	M=11.68 SD=2.4 (22)	M=6.19 SD=3.19 (16)	-------
Follow-up	M=13.05 SD =5.82 (21)	M=17.27 SD =10.53 (12)	M=30.6 SD =8.2 (20)	M=13.2 SD =3.77 (20)	M=4.76 SD =2.61 (21)	-------

Table 5. Correlation Matrix of Pretest Scores

Measures	MC	BSI	PANAS PA	PANAS NA	DAS	TAS
	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)
MC						
BSI	-.401** (.008)					
PANAS, PA	.203 (.186)	-.224 (.154)				
PANAS, NA	-.295 (.052)	.638** (.000)	-.157 (.309)			
DAS	-.495** (.002)	.227 (.176)	-.248 (.134)	.082 (.624)		
TAS	.025 (.875)	.046 (.774)	.416** (.005)	-.029 (849)	.033 (.846)	

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Chapter III

Results

In this study, statistical techniques were primarily based on within-groups (repeated measures) comparisons at Time 1, Time 2, and Time 3. This approach was consistent with the stated hypotheses, i.e., contrasts between the pretest and the posttest variables at the beginning and the end of the workshop. A multivariate approach was used as the dependent variables were considered components of an underlying construct (Aron & Aron, 1994). A multiple regression analysis was selected for analysis of the final hypothesis related to predicted co-variation in scores as a function of underlying constructs measured by the HRMTP.

The presentation of results that follows begins with a series of data analyses that specify findings.

Preliminary Data Analyses

Missing values were found primarily in the DAS. The missing data was excluded case by case, compromising the internal and external validity of the findings. This will be talked about in the discussion section.

Several univariate techniques were utilized to test the hypotheses of this study, all of which have several underlying assumptions in common. The first assumption states that the test variable should be normally distributed in each of the populations defined by the grouping variable. This is necessary to test the difference between experienced and non-experienced breathers in some of the analyses. For the entire set of data, to test this, frequency distributions for each of the variables within the study were examined for normality at all times of testing. All variables except one were normally distributed and

were either positively or negatively skewed. The second assumption, that the variances of the dependent variable are the same for each population (i.e., homogeneity of variance), is routinely tested with Levene's test of the homogeneity of variance. Homogeneity of variance is related to the assumption of normality. The homogeneity of variance assumption was not violated in this data set for the analyses performed.

The third assumption is that cases should represent a random sample from the population and scores on the test variable should be independent of each other. Testing participants individually is one way to achieve independent observations (Aron & Aron, 1994). This was accomplished in this study. Participants should also be randomly assigned to each condition. Due to the nature of this study, participants were not randomly assigned to different comparison groups. This can introduce systematic bias, or error variance, in the dependent variables and can affect the interpretability of a study (Aron & Aron, 1994). One way to diminish the effect of systematic differences between groups is to adjust for them statistically (Howell, 1992). Individual differences can be measured as covariates and analysis of covariance (ANCOVA) can be used to provide the adjustment. In this study, the only individual difference measured was experienced vs. novice breathing. This difference was treated as a between subjects variable instead of a covariate.

Selected risk factors from the HRMTP were used to evaluate the efficacy of HBW using outcome measures on the Brief Symptom Inventory, Positive Affect and Negative Affect Schedule, the Marlowe-Crowne Scale, and Templer's Death Anxiety Scale. Results indicated an overall significant reduction in symptoms from pretest to posttest ($p = .05$, $N = 29$) after HBW. One data set, the DAS, contained a large number of missing

data points. When the entire data set was analyzed without the DAS, the overall significance level was decreased to .p = 016, N = 42.

Hypothesis 1

It was hypothesized that there would be significantly less (p = .05) negative affect (NA) on posttest measures of the PANAS than on pretest scores. This prediction was verified.

A repeated measures ANOVA was conducted to evaluate the hypothesis that there would be significantly (p = .05) less negative affect on posttest measures of the PANAS than on pretest scores. For the entire sample of 44 participants, there was a significant difference between pretest (time 1) and posttest (time 2) measures of negative affect as measured by the PANAS, F (1, 43) = 13.56, p = .005. Pretest NA mean (M = 15.3) was observed to show a significant decrease from pretest to posttest (M = 12.7). The power, or the ability of a statistical test to reject a null hypothesis when it is false, was .949. A power estimate of .8 is considered very high; therefore the likelihood that this statistic occurred by chance is very small.

Hypothesis 2

It was hypothesized that there would be significantly less (p = .05) psychological distress on posttest measures of the Brief Symptom Inventory (BSI) than on pretest scores as a whole. This prediction was verified.

A repeated-measures ANOVA was conducted. There are 9 scales of distress plus two global indicators of distress. All 11 scales were included in the analysis. The time main effect as well as the measures by time interaction effects were evaluated using the multivariate criterion of Wilkes' Lambda (Λ). The time main effect was significant,

. $\Lambda = .908$, $F(1, 41) = 13.89$, $p = .000$, as well as the measures by time interaction effect, $\Lambda = .487$, $F(10, 32) = 3.36$, $p = .004$. In addition, the sphericity assumption was met, so no corrections are necessary. This data supports the hypothesis that there was an overall significant decrease in symptoms pretest to posttest.

Since there are two scales on the BSI which present global information, the Positive Symptom Total and the Global Symptom Inventory, these two scales were evaluated together with a repeated measures ANOVA. The results of this analysis likewise supports the hypothesis that there was a significant decrease in symptoms pretest to posttest, (a significant main effect of time), $\Lambda = .882$, $F(1, 41) = 5.49$, $p = .024$.

Another finding was that participating subjects were found to have a significantly higher Positive Symptom Total (PST), or number of items endorsed as being stressful, on the BSI compared to normal adults (Derogatis, 1993) at pretest ($N = 42$), $p = .000$, at posttest ($N = 43$), $p = .017$, and at follow-up, $p = .023$ ($N = 22$).

Hypothesis 3

Based on the High Risk Model of Threat Perception (Wickramasekera, 1993, 1998), it was hypothesized that subjects who scored high on the Tellegen Absorption Scale (TAS) would show significantly ($p = .05$) reduced levels of psychological distress from pretest to posttest, as measured by the (1) Brief Symptom Inventory, and (2) the negative affect, NA, dimension of the PANAS compared to subjects who scored low on the TAS. Because there were no low scorers found in this sample of the TAS, this evaluation could not be performed.

A one-sample chi-square statistic was computed to determine whether the proportions of data in each quartile of this sample were significantly different from

hypothesized values of 25%, 50% (2^{nd} & 3^{rd} quartiles), 25%, χ^2 (34, N = 44) = 91.227, p = .000. The results indicate that the observed number of scores in each category differ significantly from the expected number the category. See table 6 for the results of the chi-square test.

A one-sample t test was conducted on absorption data to evaluate whether the mean was significantly different than absorption scores of the general population. The sample mean of 23.55 (SD = 5.61) was significantly different from the absorption mean of 20, t (43) = 4.19, p = .000. Therefore the sample was drawn from another population of scores that is significantly higher than normals. To test normality, the Kolmogorov-Smirnov test, which quantified the difference between the obtained distribution and the hypothesized population distribution, was performed (Z =.799, p =.547). The results indicated that the distribution of absorption scores in this sample is normal. The skewness of the distribution is -.382, indicating that the distribution has a non-significant negative skew.

Another finding was that female (N = 32) subjects (M = 25.0, SD = 5.0) had a significantly higher (p = .001, F = 12.02, 41, 1) mean score than male (N = 12) subjects (M = 19.2, SD = 4.7) on the TAS.

Hypothesis 4.

Based on the High Risk Model of Threat Perception (Wickramasekera, 1993, 1998), it was hypothesized that subjects who scored high (raw score of 17 or greater) on the Marlowe-Crowne Social Desirability Scale (MC) and low (raw score of 10 or less) on the Tellegen Absorption Scale (super repressors) would show no change in NA of the PANAS, the Death Anxiety Scale, and the Brief Symptom Inventory scores from pretest

to posttest. This combination of low TAS and high MC scores (super repressors) was not observed in this subject sample. Therefore it was not possible to conduct this statistical analysis.

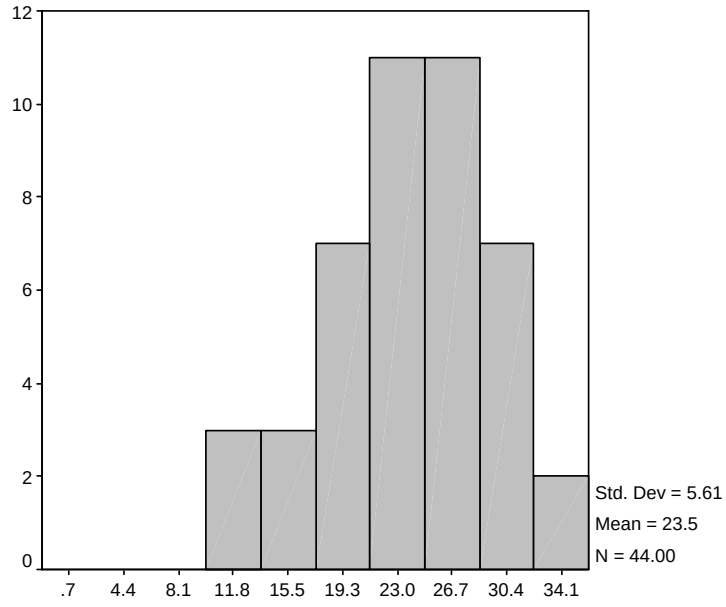


Figure 1. Histogram of Absorption Scores

Table 6. Results of Chi-Square Analysis of Absorption Data

	Observed N	Expected N
Scores 0 – 10 (25th percentile and below)	0	11
Scores 11 – 24 (26th percentile to 75th percentile)	22	22
Scores 25 – 34 (75th percentile and above)	22	11

Because there were no data points at the 25th percentile and below on the TAS, hypotheses 3 and 4 could not be evaluated. The Marlowe-Crowne scores in this study were not significantly different pretest to posttest (t = 292, p = 772), see Table 8. The two times of testing were highly correlated (r = .912, p =.000). However, the Marlowe-Crowne scores in this study were significantly greater than normal (t =.296, p =.005), meaning that these scores are not representative of the entire population as a whole. The Marlowe-Crowne scores were normally distributed in both times of testing, pretest (Z =.093, p =.200, n = 43) and posttest (Z =.090, p =.200, n=43). The two distributions have a non-significant positive skew, .465 and .199 respectively, see figures 2 and 3.

Figure 2. Marlowe Crowne scores at pretest

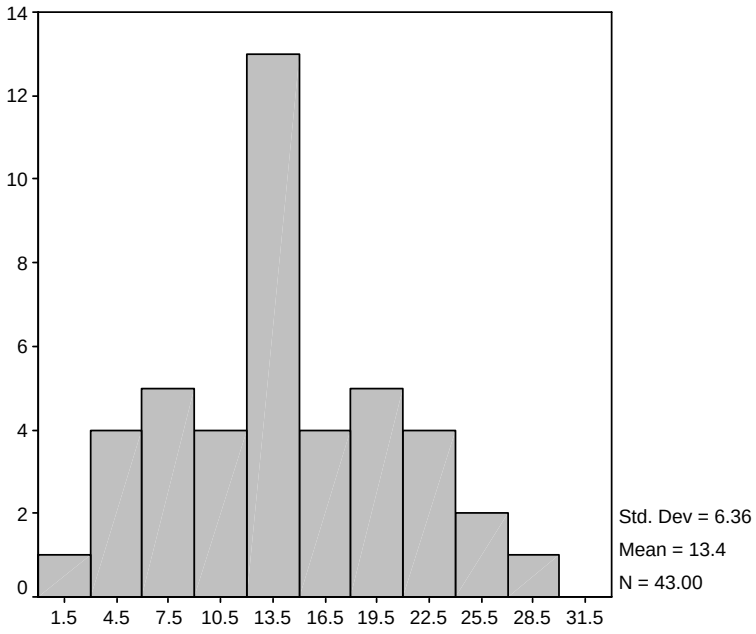


Figure 3. Marlowe Crowne scores at posttest.

Table 7. Descriptive Statistics for Marlowe-Crowne Scores, Pre- and Posttest

Measure	Mean	N	SD
Marlowe-Crowne Pretest	13.51	43	5.72
Marlowe-Crowne Posttest	13.4	43	6.36

The Marlowe-Crowne scores and Absorption scores at pretest in this study were orthogonal ($r = .025$, $p = .875$), which supports the prediction from the HRMTP that the

constructs measured by these measures are unrelated (Wickramasekera, 1998). Additional support of the predictions from the model were likewise found with a significant negative correlation between the anxiety measure (DAS) and Marlowe-Crowne scores, (r =-.495, p =.002) and a near-significant negative relationship between the negative affect scale of the PANAS and the Marlowe-Crowne Scores (r =-.295, p = 052).

Hypothesis 5.

It was hypothesized that death anxiety scores as measured on Templer's Death Anxiety Scale (DAS) would decrease significantly (p = .05) from pretest to posttest. DAS scores were not interpretable due to a number of missing data points. DAS scores (N = 30) were therefore analyzed with the missing data by elimination of the cases with the missing data. A paired-samples t-test was then conducted to evaluate whether there was a significant difference between pretest and posttest. The results indicated that there was no significant difference between the mean of the pretest (M = 5.27, SD = 2.89) and the posttest (M = 5.20, SD = 2.38). Thus, this hypothesis was not supported by the empirical findings of this study.

Hypothesis 6.

It was hypothesized that experienced breathwork volunteers (five or more previous breathwork sessions, N = 13) would have significantly (p = .05) lower measures of psychological distress as recorded on the (1) Brief Symptom Inventory (BSI), (2) the PANAS, negative affect (NA) dimension, as well as (3) death anxiety as recorded on Templer's Death Anxiety Scale (DAS) than novice breathwork volunteers (N = 11) at pretest.

A one-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of group membership (experienced vs. non-experienced breathers) on the dependent variables, Positive Symptom Total from the BSI, the two PANAS scales and the DAS scale. No significant effect was found between the two groups, Wilks' $\Lambda = .879$, $F\ (4, 17) = .587$, $p = .677$.

Experienced breathers ($\underline{M} = 13.54$) had lower, but not significantly lower, mean scores in NA than novice breathers ($\underline{M} = 17.27$). On the test measuring repression (MC), experienced breathers ($\underline{M} = 12.77$) had lower, but not significantly lower, means than novice breathers ($\underline{M} = 15.18$).

Table 8. Descriptive Statistics for DAS, PANAS Scales and BSI

	Mean	Standard Deviation	N
DAS, pretest	5.27	2.89	30
DAS, posttest	5.20	2.38	30
PANAS Positive Affect, pretest	35.05	7.35	43
PANAS Positive Affect, posttest	33.98	8.84	43
PANAS, Negative Affect, pretest	15.56	5.42	43
PANAS, Negative Affect, posttest	12.74	5.53	43

BSI, pretest	19.89	1.85	42
BSI, posttest	15.17	10.53	42

Hypothesis 7.

It was hypothesized that the predisposers (DAS, PANAS, NA dimension, MC, and TAS) of the HRMTP, measured at pretest, will predict positive symptom scores both at posttest and follow-up ($p = .05$). Two multiple regression analyses were therefore conducted to evaluate how well the predisposers of the HRMTP predict the overall symptom index of the BSI at posttest, and again at 6 months' follow-up. The predictors were the scales used to operationalize the predictors of the model, while the criterion was the overall symptom index (PST) of the BSI. The linear combination of the four predictors, DAS, NA, MC, and TAS, measured at pretest, was significantly related to the PST at posttest, $R^2 = .41$, $F (4, 39) = 6.515$, $p = .000$ and at 6 months follow-up, $R^2 = .71$, $F (4, 17) = 10.428$, $p = .000$. Based on these results, it appears that the HRMTP is a viable predictor of symptoms in this sample.

Subjective Interpretation: Responses in Breathwork Questionnaires

Many people reported feeling calm, peaceful, relaxed, energized, or "cleared out" after their breathwork session. Several individuals said they felt exhausted.

One individual reported experiencing being burned to death in a past life in medieval France; several people reported past life experiences as Native Americans, Africans, Incas, and Mayans. One subject had processed through being stuck in the birth canal with the resulting pains in her head being "unreal". Another saw herself as a corpse in a coffin after what she thought was the completion of a past life.

Several individuals reported what may have been transpersonal experiences. One person stated: “The whole room was undulating, and it appeared to dissolve and become just multi-colored energy, filled with a peculiar luminosity… Only later was I distilled out of it to become a separate entity.” Several people reported feeling the pain and suffering of the world. A number of participants reported seeing beautiful spiritual realms. One individual noted: “My body began vibrating inside, beginning at the feet and moving up. I could feel a constriction in my throat which blocked the energy… The top of my head was pulsing, just under the top of the skull… It’s painful/pleasant, almost orgasmic.”

Another breather experienced being a warrior in a battlefield scene. A mystical cloud engulfed the entire battlefield, absorbing and purifying all the suffering that had taken place. Several people noted having experiences as animals-, e. g., a wolf or bear. Other people experienced the grief over loss of loved ones. An older woman, after having lost her two children by death six months earlier, entered the breathwork experience wanting to die. Instead she had a beautiful dream in which she was held gently in what she described as a sort of spiritual sling. She felt safe and stated she knew it wasn’t time to die. Another individual found comfort in the breathwork while grieving the death of two other family members.

One subject saw the breathwork as spiritual work since it “cleanses the chakras, [and] blows the senses into some unknown dimension.” This individual reported having experienced pure bliss as well as rage. She further stated: “I have discovered that I am all, simultaneously, the tortured and the torturer, the one who loves deeply and the one who despises, the one who kills and the one who gives birth.”

Out of the 150 or so individuals who participated in the breathwork workshop, approximately 50% (N = 76) of the breath-work experients initially took the test packets provided by this researcher and 29.3% (N = 44) of the total breathwork participants completed all or part of the test packets provided and returned them to me. Participants tended to complete nearly all tests in the packet with the exception of the Death Anxiety Scale; only 68.2% (N = 30) of the participants that completed the packets filled out this scale.

Nearly all participants reported participating in the workshop for the purpose of personal and/or spiritual growth, four people indicated an interest in exploring altered states of consciousness, and 12 participants sought a healing experience. In addition, some participants (40.9%) tended to present a belief in Eastern religions, which is consistent with Grof's transpersonal model, see Table 9.

Table 9. Religious/Spiritual Orientation of Participants

	N	Percent of Total
No Particular Orientation	4	9
Agnostic	2	5
Traditional Christian	0*	0
Spiritual	9**	20.5
Eastern	18***	40.5

Did not Provide Feedback	11	25

*No subject mentioned "traditional Christian" without some mention of mysticism or spirituality.
**These participants emphasized "non-religious" but spiritual.
***Buddhism was particularly mentioned with the Eastern teachings.

Follow-up Research

Six-month follow-up research was conducted to determine any type of longer-term effects. Of the 44 breathwork participants to whom tests were mailed, half (N = 22) were returned partly or fully completed. These scores were then analyzed with pretest and posttest scores from the workshop. The means for this group, therefore, will differ slightly from the larger group.

It is important to mention that between the posttest and follow-up research, at least one subject reported attending other breathwork workshops.

Repeated measures ANOVA's were conducted for all the measures in the study with the exception of the DAS (because of missing data), all of the subtests of the BSI at once, then for each measure in the study separately. These analyses allowed an overall view of the data trend when taken together and allowed for more finite interpretation when taken separately. The overall test indicated a significant effect of time of testing ($p = .003$) and a significant overall interaction effect of time by measures ($p = .003$) with the Greenhouse-Geisser correction for sphericity. See table 10 for the results of these ANOVA's.

The DAS was evaluated separately because of the missing data problem associated with this data. The results indicate a significant difference between pretest and follow-up ($p = .033$), see figures 4, 5 and 6 and table 10.

Table 10. Results of follow-up research compared with pretest and posttest data. Table 10 continued on next page.

Measures	Overall test; sig. Effect of time	M, SD, pretest	M, SD, posttest	M, SD, follow-up	Pretest–Posttest sig.	Posttes–Follow-up sig.	Pretest–Follow-up sig.
	F (df), N, (p)	M SD	M SD	M SD	p	p	p
All scales, including DAS	F(2, 10) = 7.57 N = 12 p =.010*	M = 9.5 SD=.87	M = 7.9 SD=.62	M = 8.2 SD=1.0	.032*	1.00	.04*
All scales, excluding DAS	F(2, 16) = 6.05, N = 18 p =.000*	M=10.2 SD=.83	M=8.42 SD=.52	M=8.4 SD=.75	.026*	.011*	1.0
All BSI scales	F(2, 19) = 7.12 N = 21 p =.005*	M=7.5 SD=1.0	M= 5 SD= .7	M=5.4 SD= .9	.005*	1.00	.007*
GSI & PST (BSI)	F(2, 19) = 7.95, N = 21 p = .001*	M=26.6 SD=3.5	M=17.7 SD=2.3	M=19.3 SD=3.0	.002*	.995	.005*
Somati-zation (BSI)	F(2, 19) = 3.55, N = 21 p =.049*	M=3.2 SD=2.7	M= 1.9 SD=1.7	M= 1.9 SD=1.8	.05*	1.0	.09
O-C (BSI)	F(2, 19) = 3.4, N = 21 p =.055	M=6.48 SD=4.7	M=4.8 SD=4.2	M=5.1 SD=3.8	.054	.183	1.0
I-S (BSI)	F(2, 19) = 3.63, N = 21 p =.105	M=3.05 SD=2.7	M= 2.1 SD=1.8	M=2.1 SD=2.6	.079	1.00	.214
Dep. (BSI)	F(2, 19) = 5.31, N = 21 p = .015	M= 4.5 SD=3.7	M= 2.9 SD=2.6	M= 3.2 SD=3.3	.015*	.605	.129

Table 10, continued. Results of follow-up research compared with pretest and posttest data.

Measures	Overall test; sig. effect of time	M, SD, pretest	M, SD, posttest	M, SD, follow-up	Pretest–Posttest sig.	Postest–Follow-up sig.	Pretest–Follow-up sig.
	F (df), N, (p)	M SD	M SD	M SD	p	p	p
Anxiety (BSI)	F(2, 19) = 2.54 N = 21 p =.105	M = 3.8 SD=3.0	M = 2.9 SD=3.2	M = 2.7 SD=3.1	.808	1.00	.133
Hostility (BSI)	F(2, 19) = 3.84, N = 21 p =.040*	M= 1.9 SD=2.1	M= .76 SD=1.1	M= 1.7 SD=2.1	.031*	.094	1.0
Phobic Anxiety (BSI)	F(2, 19) = 2.13 N = 21 p =.146	M=1.1 SD=1.9	M= .47 SD=.90	M= .67 SD=1.7	.184	1.00	.801
Paranoid Ideation (BSI)	F(2, 19) = 3.00, N = 21 p = .074	M=2.29 SD=2.1	M=1.24 SD=1.4	M=1.52 SD=1.6	.081	1.00	.149
Psycho-ticism (BSI)	F(2, 19) = 5.11, N = 21 p =.017*	M=2.9 SD=2.8	M= 2.6 SD=2.2	M= 1.6 SD=2.1	1.00	.038*	.016*
GSI (BSI)	F(2, 19) = 7.21, N = 21 p =.005*	M=31.6 SD= 21.1	M=20.1 SD= 12.8	M=21.0 SD= 17.0	.005*	.890	.016*
PST (BSI)	F(2, 19) = 8.61, N = 21 p =.002*	M=21.7 SD= 11.2	M=15.3 SD=8.6	M=16.7 SD= 10.5	.001*	.870	.011*

*statistically significant

Table 10, cont. Results of follow-up research compared with pretest and post-test data.

Measures	Overall test; sig. effect of time	M, SD, pretest	M, SD, post-test	M, SD, follow-up	Pretest–Post-test sig.	Post-test–Follow-up sig.	Pretest–Follow-up sig.
	F (df), N, (p)	M SD	M SD	M SD	p	p	p
PANAS, NA	F(2, 18) = 6.51, N = 20 p =.007*	M = 15 SD= 4.4	M =11.8 SD=2.5	M =13.2 SD=3.8	.005*	.338	.076
PANAS, PA	F(2, 18) = 4.19, N = 20 p =.019*	M= 34.9 SD=8.3	M= 34.7 SD=9.9	M= 30.6 SD= 8.2	1.00	.126	.022*
DAS	F(1,18) = 5.37, N = 19 p = .033*	M= 5.89 SD=3.2	N / A	M= 4.6 SD=2.7	N / A	N / A	.033*

*statistically significant

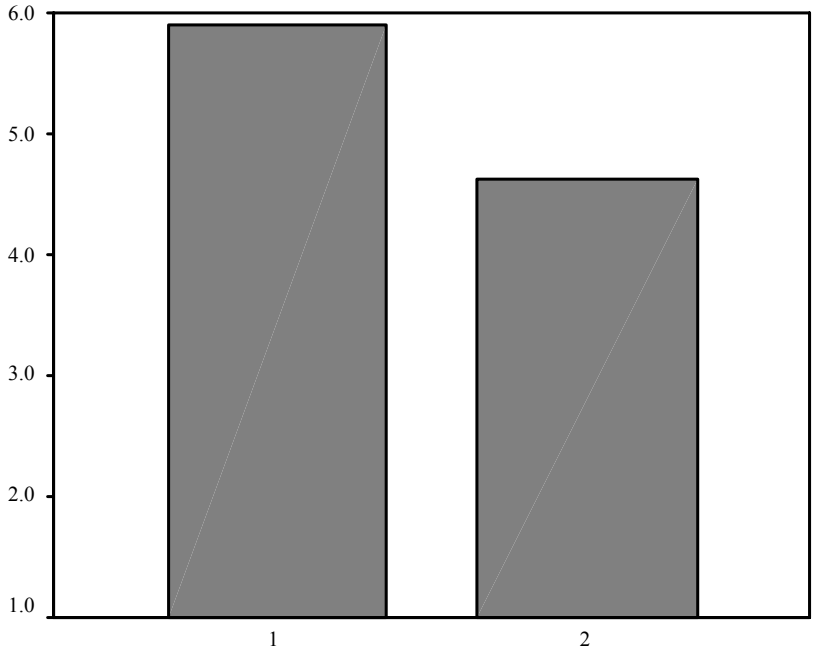


Figure 4. Results of the DAS, pretest and follow-up

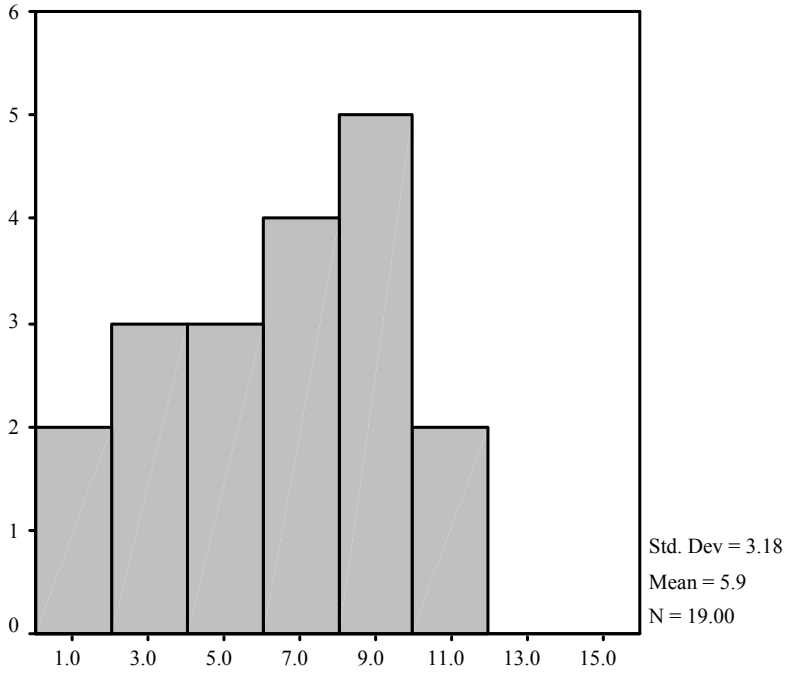


Figure 5. Histogram of DAS, Pretest

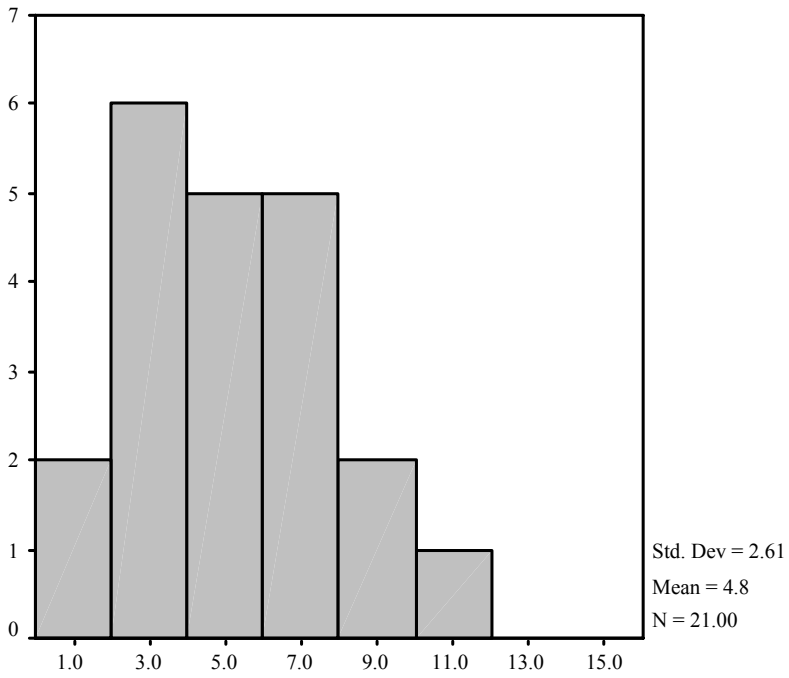


Figure 6. Histogram of DAS, Follow-up

Chapter IV

Discussion

Results of the demographic data suggest that this subject sample was composed of highly educated individuals (M = 17.4 years of education) who, as a group, had a mean at the 68th percentile on the trait of absorption. Because this subject sample did not possess any low absorption scores (TAS) (25^{th} percentile and below), it was impossible to test hypotheses 3 and 4. This fact indicates that most of these participants could easily access altered states of consciousness that, according to Grof (1993), is prerequisite for healing. It is likely, therefore, that this psychotherapy tends to attract only a select group of highly educated and high trait absorption participants from the general population. This can only be true to the extent that the final sample of participants who returned their tests are representative of all the participants at the workshop. There is a tendency for low absorption participants to refuse participation in psychological studies, as predicted by the HRMTP (Wickramasekera, 1988, 1998.). It is possible that the ease of accessing nonordinary states of consciousness likely attracted these participants to the mode of psychotherapy tested in this study. Conversely, it is not likely that individuals who score low on absorption would be interested in this kind of experience, and they were not found in this tested sample.

A small sub-set (29.3%) of all participants at the breathwork workshop were studied. At follow-up, only half (N = 22) of the original 44 subjects (14.7%) participated in this section of the study. In addition, a recent review of the literature indicated that this type of psychotherapy has not been empirically tested until this study. Therefore, caution needs to be exercised in interpretation of the results.

Subject characteristics such as people with Eastern belief systems, including an acceptance of reincarnation, would be more accepting of Grof's transpersonal model and attracted to the workshop. Another potential confounding subject variable is level of education. People educated beyond high school may find it easier to conceptualize this complex model of the psyche and integrate experiences involved in the breathwork experience. In the pilot study, the only person experiencing a negative result from the breathwork therapy had the lowest reported educational level of any breathwork participant, a high school diploma.

It could be argued that this population does not represent the average highly educated person. However, in my small process group at the workshop (N = 12) there was a neurologist, a microbiologist, and a physician from Europe. One of my roommates was an administrative law judge, another a doctoral level psychologist, and I had discussions with several corporation CEOs as well as a stockbroker, who lectured me on chakras, or alleged energy points, in the human body. A "No Talk" rule at the workshop prevented me from talking to more people. At other workshops I had attended, however, I had met and conversed with doctors, lawyers, and accountants. Many of these people reported having experienced non-ordinary states of consciousness both during the breathwork sessions and in their personal lives, some even prior to learning about this mode of therapy. For instance, people talked of having experienced near-death and out-of-body experiences, as well as having experienced meaningful coincidences, or synchronicity.

Individuals from mainstream professions are not ordinarily associated with this type of a workshop. It would be accurate to say that these participants high absorption

scores set them apart from their peers in each of their professions, possibly making them more creative and sensitive members of their professions. This may have sensitized them to have these experiences, and their high level of education allowed them to pursue and understand, and eventually internalize, a more inclusive philosophy that incorporated these experiences into their belief systems.

Hypothesis 1.

It was hypothesized that there would be significantly less ($p = .05$) negative affect (NA) on posttest measures of the PANAS than on pretest scores. This, in fact, was found, at a high level of significance ($p = .005$) with this relatively small group of participants suggesting a powerful psychotherapy effect on this construct (NA) with these participants. The power estimate of .949 suggests that this did not occur by chance. This research suggests that negative affect, an important predisposing risk factor for the production of threat related illness (both psychological and somatic) in the HRMTP, can be dramatically reduced in the short-term by this form of psychotherapy in participants who are high or moderate on the absorption scale. The follow-up research, however, showed some rebound effect ($p = .076$). But the lack of low absorption participants make it impossible to determine if NA can also be reduced in low absorption participants by this method of psychotherapy.

Positive affect scores were hypothesized to increase on posttest measures compared to pretest measures. The opposite actually happened, with a significant drop in PA scores occurring ($p = .022$) at follow-up. If this form of psychotherapy takes a person close to "enlightenment," it is understandable why confronting the suffering in the world does not amplify positive affect.

According to Zevon and Tellegen (1982), both PA and NA involve a high state of emotionality. They characterize emotions as being associated with some degree of arousal and engagement. Taken together, the reduction in both of these measures suggests that the arousal component of the PANAS is attenuated by the breathwork. Put more simply, the breathwork may exhaust the person physically, thus reducing arousal. (This is supported by comments made on the breathwork questionnaire.) For instance, if a subject is physically tired, or even just feeling calm, after several hours of deep breathing, screaming and thrashing around, they more not endorse items such as "excited", "enthusiastic", "hostile", and "upset" to the fullest.

However, the more powerful impact on, and drastic reduction in, NA implies that another more curative factor is at work in the breathwork psychotherapy impacting psychological distress. This is particularly interesting when considering that research suggests that NA is very stable and partially genetically driven (Clark & Watson, 1991). Some rebound effect on the follow-up research suggests that not all gains are maintained, although some certainly are. It is likely that the physiological or arousal component of NA rebounds at 6 months. (There is still almost a significant statistical difference between pretest and follow-up scores, $p = .076$).

Another thought is that the reduction in both NA and PA suggests that the participants may be coming more realistic in seeing the world--experiencing less distress but also not seeing the world through rose-colored glasses. This is particularly relevant because the PANAS, PA pretest scores only, were positively correlated with the TAS ($r = .416$, $p = .01$). This means that people who were high on absorption were also high on

the construct of positive affect, but only before the breathwork treatment--i.e., at pretest. This positive correlation between TAS and PA was not shown at posttest.

Hypothesis 2.

It was hypothesized that there would be significantly less psychological distress on posttest measures of the Brief Symptom Inventory than on pretest measures as a whole. This prediction was verified and continued through the six-month follow-up. A repeated-measures ANOVA was conducted. There are 9 scales of distress on the BSI plus two global indicators of distress. All 11 scales were included in the analysis. The time main effect as well as the measures by time interaction effects were evaluated using the multivariate criterion of Wilkes' Lambda (Λ). The time main effect was significant, $\Lambda = .908$, $F(1, 41) = 13.89$, $p = .000$, as well as the measures by time interaction effect, $\Lambda = .487$, $F(10, 32) = 3.36$, $p = .004$. Measures by time interaction indicates that the various test scores changed together--in this case, the scores tended to decrease at posttest compared to pretest. This data supports the hypothesis that there was an overall significant decrease in symptoms pretest to posttest.

In addition, many of these results were maintained in the 6-month follow-up portion of the test ($\underline{M} = 16.7$, $p = .005$), see Table 10. These results occurred with people high or moderate on absorption, were highly educated, and open to an Eastern belief system. After removing subject #34's scores from the data, an even greater decrease in psychological distress was found, see Table 11. This suggests a significant impact of the breathwork psychotherapy.

When we factor in the limited number of participating participants in this research ($N = 44$), and the short duration of the treatment, the impact of this experiential

psychotherapy becomes even more impressive, even for this highly select group of participants. We must, however, as discussed earlier, be careful not to attempt to generalize the impact of this form of psychotherapy to all participants in holotropic breathwork until we have studied at least one or two more samples of all participants who participate in these workshops. Particularly, we need to know if holotropic breathwork is equally effective for people of low and moderate trait absorption.

When we consider the small number of participants who participated in the follow-up portion of the test (N = 22), the results are even more impressive. Significant results were still found on the two BSI global scales, see Table 10, although several of the clinical scales were no longer statistically significant. This suggests long-term benefit in the reduction of psychological distress as a result of holotropic breathwork for at least this subset of high to moderate absorption volunteers who stayed with the research project. (Keep in mind that individuals with high hypnotic ability, which correlates with trait absorption, have been found previously to respond more rapidly to various types of short-term psychotherapy—see Nace et al., 1982.)

It was found that participating subjects had a significantly higher Positive Symptom Total (PST), or number of items endorsed as being stressful, on the BSI compared to normal adults (Derogatis, 1993). At pretest (N = 42), $p = .000$, at posttest (N = 43), $p = .017$, and at follow-up, $p = .023$. The fact that there were only moderate and high TAS scorers who volunteered for this research may be the reason for the higher level of distress among these individuals. This is predicted from the HRMTP (Wickramasekera, 1993, 1998).

Hypothesis 3.

It was hypothesized that participants who scored high on the Tellegen Absorption Scale (TAS) would show significantly reduced levels of psychological distress, from pretest to posttest, as measured on the Brief Symptom Inventory (BSI), and NA scale of the PANAS, compared to subjects who scored low on the TAS. All of the scores were clustered in the high to moderate range, producing a mean of 24.0 (68th percentile) that skewed the scores to the high end of the distribution, see Table 6. (This may imply that high absorption scorers are attracted to this type of psychotherapy. However, it is important to be cautious about drawing conclusions since I could not test 70% of the breathwork participants.) The absence of low scorers produced a restricted range of scores that did not allow me to test the hypothesis predicting a positive correlation between trait absorption and clinical improvement. It is likely that lows in the group simply refused to participate in the study since they tend to be critical and skeptical and hence avoid psychological studies (Wickramasekera, 1998). I simply don't know.

TAS scores in this group of subjects were found to be significantly higher than scores drawn from the general population, see Table 6. Therefore, the sample was drawn from another population of scores that is significantly higher than normal. In fact, there were no true low scorers in this sample of volunteers, which is predicted by the HRMTP.

Females participating in this research were found to have significantly higher mean scores than male participants on the TAS. This difference has not been found in the general population (Tellegen & Atkinson, 1974).

Hypothesis 4.

It was hypothesized that participants who scored high on the Marlowe-Crowne (17 or higher) and low (raw score of 10 or lower) on the Tellegen Absorption Scale (i.e.,

super repressors) would show no change in negative affect (NA) scores, Brief Symptom Inventory (BSI) scores, and Death Anxiety Scores (DAS) from pretest to posttest. Since there were no true low scorers on the TAS, this hypothesis could not be made in this study. Since there were no low TAS scores observed in this sample, it was not possible to conduct this statistical analysis.

High (N = 12) and low (N = 32) MC pretest scores were compared on measures of the PANAS, DAS, and BSI from pretest to posttest--see Supplementary Table 2. These scores were compared using a Mann-Whitney U Test, a correlation measure. High scorers on the MC, compared to lows, were found to have lower mean scores on all measures but PA. In addition, repressors scored significantly lower on 7 clinical and 2 global dimensions of the BSI at pretest but on only 4 clinical and 2 global dimensions at posttest. This suggests that repressors (high Marlowe-Crowne scoring subjects) have blocked negative affect and psychopathology from verbal report and consciousness but that this was somewhat reduced as a result of the breathwork. The level of statistical significance, at posttest, was reduced on the DAS as well. This suggests that the breathwork psychotherapy may have been impacting the repressors, reducing their level of repression. The fact that highs have blocked NA from consciousness is consistent with a good deal of research in the field and also the HRMTP (Shedler et al., 1993; Wickramasekera, 1998).

Participants as a group appeared to demonstrate a reduction in repression, from pretest to posttest, as indicated by significantly lower correlations in 5 of 9 clinical dimensions and on one global scale of the BSI, and on the DAS compared to the Marlowe-Crowne, see Supplementary Table 1 in Appendix A. (The group Marlowe-

Crowne measure of repression itself actually increased from 13.55 at pretest to 13.60 at posttest.) That is, there was a significant negative correlation between the MC repression measure and the DAS, and SOM, OC, ANX, HOS, and PSY general dimensions and GSI global dimension of the BSI measure of distress at pretest, but no significance at posttest.

This did not carry over to the follow-up portion of the test even though there were clearly wide mean differences between these two groups. The small number of participating participants (N = 22) in the follow-up portion of the research was largely responsible for this nonsignificance.

One subject, number 34, showed a dramatic increase in measures of NA, DAS, and BSI scores from pretest to posttest, skewing the overall group data. Her MC measure of repression dropped from 15 at pretest to 9 at posttest. This suggests that as repression dropped, underlying psychopathology emptied into consciousness. Removing her scores from the data, even more significant results were found on overall subject scores, see Table 11. Notice that 5 of the clinical scales of the BSI are significant at the .05 level or greater and the 2 global scales are significant at the .01 level, as well as NA.

There is something very important to learn from this subject's data. The data supports the prediction (Wickramasekera, 1988, 1993, 1998) that when repression breaks down in people of high hypnotic ability, there will be massive increases in negative affect.

Table 11. Results of Group Raw Data Analysis Using Paired Samples Test After Removing Data of Subject 34, Pretest to Post-test (N = 43), continued on next page.

Measure	t	df	Sig. (2-tailed)
Marlowe-Crowne	-.062	41	.951
DAS	.838	28	.409
PANAS (PA)	.446	41	.658
PANAS (NA)	4.252	41	.000**
SOM	.525	40	.602
O-C	2.424	40	.020*

**t is significant at the 0.01 level (2-tailed)
* t is significant at the 0.05 level (2-tailed)

Table 11. Results of Group Raw Data, Analysis Using Paired Samples Test After Removing Data of Subject 34, Pretest to Post-test (N = 43).

Measure	t	df	Sig. (2-tailed)
IS	2.351	40	.024*
DEP	3.357	40	.002**
ANX	1.570	40	.124
HOS	3.189	40	.003**
PA	1.941	40	.059
PI	2.640	40	.012*
PSY	1.344	40	.187
GSI	2.994	40	.005**
PST	3.967	40	.000**

**t is significant at the 0.01 level (2-tailed)
*t is significant at the 0.05 level

No subjects scored low on the TAS. In addition, subjects scores tended to cluster in the high-moderate range. This made analysis impossible between even the moderates and highs due to a restricted range of scores. However, as mentioned previously, one subject who scored moderately high on the MC (15) measure of repression at pretest

showed a dramatic increase on posttest measures of all tests as well as a significant reduction in the MC score (9) at posttest. She may have been suffering from Post Traumatic Stress Disorder (PTSD), judging from the posttest comments on her questionnaire. For instance, she stated: "As a non-violent person, to whom much violence and atrocity has been committed." And: "I felt I was in control, although I was out of control, and realized this had been the state of my tormenters--not in control and therefore not personal." I had spoken to her--I was actually paired up with her in a walking meditation exercise--the morning after her breathwork experience and she did not appear overtly to be at all upset. (If I had tested her physiology--blood pressure, heart rate, skin conductance, ect.--I may have seen evidence of somatic NA.)

This individual, a first-time breather who was also high on the trait of Absorption (31), skewed the scores as a whole in this study. For instance, her NA score went up from 33 to 43, DAS went from 1 to 6, the BSI dimensions increased—e.g., somatization went from 6 to 28, hostility went from 4 to 16, and obsessive-compulsive climbed from 12 to 29. Her scores on the global symptom inventory (GSI) of the BSI, an indicator of the severity of distress, more than doubled from pretest (84) to post test (169). As already mentioned, when her scores are removed from the data, more significant results were found with the breathwork participants as a group, see Table 11.

Looking at the results in Table 11, the reader can see significant reductions in five of the nine dimensions and in the two global scales of the BSI, providing even more evidence for the efficacy of holotropic breathwork psychotherapy for these participants. This suggests that the breathers who participated in this research experienced dramatic reductions in distress from pretest to posttest--and that this trend continued at follow-up.

Since there were a relatively small number of participants (N = 44), one individual, whose scores were skewed, could attenuate the overall reduction in psychological distress recorded by the group as a whole. Again, these dramatic reductions in distress carried over to the follow-up portion of the research where the two global dimensions of the BSI were significantly reduced even though there were only 22 participating subjects.

Operationally, since this individual, subject #34, reports having experienced a great deal of trauma and abuse which likely resulted in PTSD, the impact of the experiential therapy appears to have broken through her repression, releasing powerful feelings, thus supporting Grof's claims discussed earlier in this paper. According to the HRMTP (Wickramasekera, 1993, 1998), when repressed feelings are released, they are transferred from the physical body to the psychological and emotional realm where they can be dealt with through verbal therapy, e.g. cognitive-behavioral therapy. This results in a reduction of somatic complaints and less likelihood of later developing stress related disease. It appears that this is what happened with this subject.

Another finding was that the Marlowe-Crowne scores in this study were significantly greater than normal (Crowne & Marlowe, 1960). It may be that individuals higher in repression are attracted to this type of psychotherapy.

Marlowe-Crowne and absorption scores at pretest in this study were orthogonal (r =.025, p =.875), which supports the prediction from the HRMTP that the constructs measured by these measured are unrelated (Wickramasekera, 1998). Additional support of the predictions from the model were likewise found with a significant negative correlation between the anxiety measure (DAS) and Marlowe-Crowne scores, (r =-.495, p

=.002) and a near-significant negative relationship between the negative affect scale from the PANAS and the Marlowe-Crowne scores (r =-.295, p = 052).

Hypothesis 5.

It was hypothesized that death anxiety scores would decrease from pretest to posttest. Measures on the Death Anxiety Scale with the group as a whole stayed about the same and therefore were not significantly changed. Previous research (Holmes, 1993) which had reported a decrease in DAS scores as a result of breathwork psychotherapy, was conducted once monthly over a 6-month period. This differed from the shorter, one afternoon, workshop results reported here. Thus, it appeared immediately after posttest results were found that more breathwork sessions would be needed to impact death anxiety. The follow-up results showed significant reductions in death anxiety (p = .033), see Table 10, suggesting a delay in time is needed to reduce death anxiety.

Mean significance levels between pretest and posttest DAS scores and a measure of repression (MC) were reduced from p = .004 at pretest to p = .028 at postttest, see Supplementary Table 2, Appendix A. This suggests that participants may have been repressing more of their death anxiety before breathwork than after. The breathwork may have broken through and attenuated, their repression, if only a small amount. This was not found on the follow-up portion of the test, likely due to low statistical power (i.e., not enough individuals participating).

As already discussed, follow-up research showed a significant reduction in death anxiety. This supports Grof's (1985, 1988, & 1998) assertion that holotropic breathwork reduces death anxiety. This verifies Holmes (1993) findings that, over a 6-month period, death anxiety was reduced using this mode of psychotherapy. The peculiar thing is that it

appears to take some time to gain this benefit. Perhaps the psyche needs time to integrate the breathwork experience. If the research from Terror Management Theory is correct in proposing that our society has an entrenched fear of death, a mode of psychotherapy that can bring relief in this area would be extremely useful.

Another interesting fact is that participants completed the DAS in much lower numbers (N = 30) than they did other tests included in the pamphlet. The shortness of the DAS (15 items) and its placement in the middle of the other tests in the packet suggests that about a third of the participants who completed all the other tests provided appeared to avoid filling out this scale. When considering that two of the experienced breathers but none of the novice breathers did not take this test, it can certainly be theorized that death anxiety may be a factor in attracting experients to this type of psychotherapy. However, a more tenable hypothesis for the reduced number of people filling out the DAS is that it was on the back side of the PANAS. It is important to be cautious in interpreting the results in the follow-up portion of the DAS because of the missing data points that could have compromised the internal and external validity of the findings. Future research needs to be performed to clarify this. It is important not to jump to conclusions before considering all of the confounding variables. A confounding variable here is the relationship of gender to death anxiety. This will be discussed in the next section.

Hypothesis 6.

It was hypothesized that experienced breathwork volunteers (N = 13) would have lower measures of psychological distress as recorded on the Brief Symptom Inventory (BSI) and the negative affect dimension (NA) of the Positive Affect and Negative Affect

Schedule (PANAS) as well as death anxiety as recorded on the Death Anxiety Scale (DAS) than novice breathwork volunteers (N = 11) at pretest. This was not found.

Mean differences, although not significant, were found on the MC measure of repression and NA between novice breathers and experienced breathwork participants. (Keep in mind we are dealing with small numbers of individuals--11 novice breathers and 13 experienced breathers—and, therefore, less statistical power.) Since experienced breathers were found to have somewhat lower, but not significantly lower, Marlowe-Crowne scores on the whole than novice breathers, it would certainly follow that they are more conscious of emotional pain than the first-time breathers. (In future research, it would be useful to find out if experience with this form of psychotherapy reduces Marlowe-Crowne scores.) Therefore, the experienced participants higher scores on the DAS ($\underline{M}$ = 5.55, S. D. = 3.05) than first-time breathers ($\underline{M}$ = 5.09, S.D. = 2.74) and first-time breathers lower scores on the global scales of the BSI would support this notion that their greater awareness of psychological input produced elevation on these measures compared to the novice breathers. This should certainly be assessed as beneficial.

Follow-up research could not be conducted because of the small number of participating clients. There were 8 experienced breathers and 4 novice breathers who participated in follow-up research.

Research has found that death anxiety has been significantly correlated with gender (Shell & Zinger, 1984; Davis, Martin, Wilee, & Voorhees, 1978; Koob & Davis, 1977; Templer, Lester, & Ruff, 1974) with females having higher death anxiety than males, and death anxiety is negatively related to self-esteem (Davis & Martin, 1978; Cohen & Burdsal, 1978). Repression, however, does not appear to be influenced by

gender. In their influential work on repressive coping style, Weinberger et al. (1979) used 40 male undergraduates as participants. In a footnote, however, they noted that "some aspects of these [repressive coping] patterns may not generalize to females" (p. 378). Some subsequent articles used only female participants--e.g. Davis and Schwartz (1987), Davis (1987), and Newton and Contrada (1992)--which summarized research that found similar patterns of coping as with male participants. Finally, Mendolia et al. (1996) compared both male and female repressors in three experiments and found no significant differences based on gender.

Since there were more female participants (N = 11) in the experienced group than in the novice group (N = 5), gender is then a confounding variable with regards to death anxiety, but not with repression. Slightly more than half, 6 of 11 or 54.5%, of the first-time breathers were male while in the experienced group 11 of 13, or 71.8%, participants were female. Since females have significantly higher death anxiety, they would be expected to have higher scores on this measure.

Conversely, it was found in testing Hypothesis 6 that participants as a whole fell within normal ranges (4.5 to 7.0) of death anxiety on both pretest (M = 5.27) and posttest (M = 5.20), see Shell & Zinger, 1984. Since 73% (N = 32) of participants participating in this research were female, this suggests that participants as a whole were not highly anxious about death. In fact, compared to the norms (4.5 to 7.0), they fell on the low end of the normal range. Since most participants who participated in this research had some holotropic breathwork experience (N = 33), this may support the beneficial effects of this psychotherapy on death anxiety.

Hypothesis 7.

It was hypothesized that the predisposers (DAS, PANAS, NA dimension, MC, and TAS) of the HRMTP, measured at pretest, will predict positive symptom scores both at posttest and follow-up (p = .05). Two multiple regression analyses were therefore conducted to evaluate how well the predisposers of the HRMTP predict the overall symptom index of the BSI at posttest, and again at 6 months' follow-up. The predictors were the scales used to operationalise the predictors of the model, while the criterion was the overall symptom index (PST). The linear combination of the four predictors, DAS, NA, MC, and TAS, measured at pretest, was significantly related to the PST at posttest R^2 = .41, F (4, 39) = 6.515, p = .000 and at 6 months follow-up, R^2 = .71, F (4, 17) = 10.428, p = .000. Based on these results, it appears that the HRMTP is a viable predictor of symptoms in this sample. The finding that the predictive ability actually increased rather than decreased at follow-up is a truly remarkable finding both in terms of the magnitude of the effect and its reliability. This means that over 40% of the scores at posttest, and over 70% of the scores at follow-up, were predicted by the HRMTP. Since over 70% of the variance was predicted at 6 month outcome of breathwork psychotherapy, it seems logical to assume that the HRMTP could be used to predict outcomes from other research--e.g., in psychology or medicine.

In addition, the HRMTP predicted several other aspects of this research. It predicted (hypothesis 2) that the PST, measuring psychological distress, would be higher in this subset of high absorption individuals compared to normal adults; that the absorption scale, or TAS, would be higher in this group of psychology volunteers seeking experiential psychotherapy compared to normal adults (hypothesis 3); that the MC measure of repression would be significantly higher than normal adults in this sample of

high absorption subjects (hypothesis 4); finally that the measures used in this study applying the HRMTP would be orthogonal to each other--e.g., the MC and TAS are orthogonal, and there is an inverse relationship between the DAS and NA dimension of the PANAS compared to the MC.

It is important to mention again that I received data from less that 30% of people who attended this workshop--I know nothing about the other 70% of workshop participants. (This number was cut in half again in the follow-up section where only 22 participants participated—less than 15%.) Therefore, as discussed earlier, there is a need to be very cautious about generalizing these findings even to the general population of people who sign up for this form of therapy, and much less to the population as a whole.

Volunteer participants, as already discussed, are likely to be a biased sample of the target population (Borg & Gall, 1989) because volunteers differ in so many ways from nonvolunteers. For example, volunteers tend to be better educated, have a higher social-class status, are more sociable, more female in composition, more interested in religion, and tend to be more anxious and extraverted (Rosenthal & Rosnow, 1975). Since this study was composed of people who were highly educated, probably of a higher social class (the workshop was expensive, and with the cost of travel to and from the Southwest, even more so), highly female in makeup, and interested in religious/spiritual issues, one can see how closely this conforms to the theoretical composition of volunteers. Future holotropic breathwork research should test every individual who participates in the workshop in order to eliminate this bias.

As mentioned earlier, this group of volunteers scored very high on the trait of absorption and this is what may have attracted them to this mode of psychotherapy, since

individuals high on this construct tend to seek out self-altering experiences. The literature of hypnosis suggests that there may be individual differences in people's ability to enter altered states at a baseline (before therapy)—see Hilgard, 1965--and that this ability is very stable (r=.71) over 25 years, Piccione et al., (1989). The volunteers in this study were highly educated persons who endorsed an Eastern belief system, and an openness to higher levels of consciousness. Conversely, Grof (1998, 2000) has argued that once an individual has experienced an altered state, his or her view of reality changes, or rather, is transformed. Other researchers in this field—e.g., Ring (1984, 1992), Mack (1994, 1999), and Monroe, (1985)—also reported that they found this transformation of consciousness which augured in a shift in values.

As discussed earlier, Council and Greyson (1985) found a relationship between individuals who had a near-death experience and measures of high trait absorption. Krippner and Welch (1992) suggested that shamans and psychic healers may be high on the construct of fantasy proneness, one characteristic of absorption (Wilson & Barber, 1982). Wickramasekera (1998) reported that psychic experiences occur much more frequently in participants who score high in absorption compared to those who score low. The question is: were these participants high on absorption prior to their nonordinary state of consciousness experiences, or did these experiences elevate their absorption scores? Currently we have no data on the long-term stability of absorption scores, however, as previously mentioned, we know that hypnotic ability is highly stable over 25 years.

The brevity of this psychotherapy should also be emphasized. For the participants who participated in this research, one afternoon of nonspecific psychotherapy produced

significant reductions in distress as recorded on all the BSI scales, which are highly correlated with NA,and other reliable standardized psychometric measures. In addition, over time, it appears that there were benefits derived from opening blocks in consciousness (i.e., reducing repression) as a result of this psychotherapy. This is clearly what happened to one subject, a first-time breather, which Grof (1985) had indicated would happen as a result of this breathwork psychotherapy. Also, it is important to note that MC scores, which measure repression, are extraordinarily stable, ($r = .93$). In this study, repression, as measured by the Marlowe-Crowne, was not significantly reduced by this psychotherapy for the group as a whole.

However, high scorers on the MC produced lower mean scores on the NA dimension of the PANAS, the DAS, and on all nine clinical dimensions and on both global dimensions of the BSI than low MC scorers at pretest, see Supplementary Table 2 in Appendix A. More importantly, participants as a group appeared to demonstrate a significant reduction in repression, from pretest to posttest, as indicated by significantly lower correlations in five of nine clinical dimensions and on one global scale of the BSI, and on the DAS. Two scales showed no change. In addition, experienced breathers were found to have lower mean scores on the MC than novice breathers. All this suggests that HBW may be impacting repression on some level. Ironically, it appears that individuals high on repression may be attracted HBW.

HBW appears to have significantly reduced the level of distress on so many measures, with or without the missing data of the DAS, that it is difficult to say that it is not an effective form of psychotherapy, at least for this select group of individuals. The

overall F was significant along with a significant interaction between measures and time. This is an extremely important finding.

Future research on holotropic breathwork should involve procuring a larger sample of participants who are engaged in breathwork at one of Grof's larger workshops. Future research will need to be more controlled, randomly selecting and testing persons who participates in the breathwork workshop using a repeated-measures design. It would be useful to examine participants who score low on trait absorption--if any of these individuals can be persuaded to take the tests, or even if they even took the workshop--to determine how they respond to the breathwork psychotherapy. (A larger sample of participants may produce some low absorption scorers who could then be compared to "highs" to determine if any difference exists between these two groups.) First-time breathers should be looked at carefully. It may also be useful to measure trait absorption on both the pretest and posttest to see if breathwork alters absorption scores. In addition, subject scores should be compared on the basis of gender. More research should be conducted on repression to determine if this psychotherapy impacts it.

These participating subjects were highly educated in addition to being high on the construct of trait absorption. As a group, they would seem to be the ideal clients for any type of therapy. Perhaps this contributed to their success.

Thus, holotropic breathwork appears to have a beneficial emotional and psychological impact on experients who undertake it, as hypothesized earlier in this dissertation. In short, holotropic breathwork is an efficacious psychotherapy for the select sample of high to moderate absorption non-super repressors under study in this research. . Finally, the mechanism of efficacy in this study was likely high trait absorption.

REFERENCES

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Anderson, J. R. (1990). Cognitive psychology and its implications (3rd ed.). New York: Freeman.

Aroian, K. J., & Patsdaughter, C. A. (1989). Multi-method, cross-cultural assessment of psychological distress. IMAGE: Journal of Nursing Scholarship, 21, 90-93.

Aron, A., & Aron, E. N. (1994). Statistics for psychology. Englewood Cliffs, NJ: Prentice Hall.

Aronow, E., Rauchway, A., Peller, M., & de Vito, A. (1980). The value of the self in relation to the fear of death. Omega: Journal of Death and Dying, 11, 37-44.

Asendorpf, J. B., & Scherer, K. L. (1983). The discrepant repressor: Differentiation between low anxiety, high anxiety, and repression of anxiety by autonomic-facial-verbal patterns of behavior. Journal of Personality and Social Psychology, 45, 1334-1346.

Ashton, M. A., & McDonald, R. P. (1985). Effects of hypnosis on verbal and nonverbal creativity. International Journal of Clinical and Experimental Hypnosis, 33, 15-26.

Bache, C. M. (1999). Dark night, early dawn: Steps to a deep ecology of mind. Albany, NY: State University of New York Press.

Barabasz, M., Barabasz, A. E., & Mullin, C. S. (1983). Effects of brief Antarctic isolation on absorption and hypnotic susceptibility-Preliminary results and recommendations: A brief communication. International Journal of Clinical and Experimental Hypnosis, 31, 235-238.

Barber, T. X. (1969). Hypnosis: A scientific approach. New York: Van Nostrand Reinhold.

Barlow, D. (1988). Anxiety and its disorders: The nature and treatment of anxiety and panic. New York: Guilford.

Barlow, D. (1992). Cognitive-behavioral approaches to panic disorder and social phobia. Bulletin of the Menniger Clinic, 56, 14-28.

Barsky, A. J., & Klerman, G. L. (1983). Overview: Hypocondriasis, bodily complaints, and somatic styles. American Journal of Psychiatry, 140, 273-283.

Bartholomew, K., & Weinberger, D. A. (1986, August). Adjustment styles and patterns of substance abuse among college students. Paper presented at the annual meeting of the American Psychological Association, Washington, DC.

Baumeister, R. F., & Cairns, K. J. (1992). Repression and self-preservation: When audiences interfere with self-deceptive strategies. Journal of Personality and Social Psychology, 62, 851-862.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 561-571.

Becker, E. (1973). The denial of death. New York: Free Press.

Belicki, K., & Belicki, D. (1986). Predisposition for nightmares: A study of hypnotic ability, vividness of imagery, and absorption. Journal of Clinical Psychology, 42, 714-718.

Berger, P. L., & Luckman, T. (1967). The social construction of reality: A treatise in the sociology of knowledge. Garden City, NY: Anchor.

Beyerstein, B. L. (1988, Winter). The brain and consciousness: Implications for PSI phenomena. Skeptical Inquirer, 163-173.

Bohart, A. (1993). Experiencing: The basis of psychotherapy. Journal of Psychotherapy Integration, 3, 51-67.

Bonanno, G. A., & Singer, J. L. (1995). Repressive personality style: Theoretical and methodological implications for health and psychology. In J. L. Singer (Ed.), Repression and dissociation: Implications for personality theory, psychopathology, and health (pp. 435-470). Chicago: University of Chicago Press.

Borg, W. R., & Gall, M. D. (1989). Educational research: An introduction (5^{th} ed.). New York: Longman.

Bowers, K. S. (1971). Sex and susceptibility as moderator variables in the relationship of creativity and hypnotic susceptibility. Journal of Abnormal Psychology, 78, 93-100.

Bowers, P. G. (1978). Hypnotizability, creativity, and the role of effortless experiencing. International Journal of Clinical and Experimental Hypnosis, 26, 184-202.

Bowers, P. (1982). The classic suggestion effect: Relationships with scales of hypnotizability, effortless experiencing and imagery vividness. International Journal of Clinical and Experimental Hypnosis, 30, 270-279.

Bowers, K. S., & van der Meulen (1970). Effects of hypnotic ability on creativity test performance. Journal of Personality and Social Psychology, 14, 247-256.

Boyer, J. I. (1964). The construction and partial validation of a scale for the measurement of the fear of death. Unpublished Doctoral Dissertation, University of Rochester, New York.

Brown, E. L., & Katcher, A. H. (1997). The contribution of attachment to pets and attachment to nature to dissociation and absorption. Dissociation, 10, 125-129.

Brown, L. L., Tomarken, A. J., Orth, D. N., Loosen, P. T., Kalin, N. H., & Davidson, R. J. (1996). Individual differences in repressive-defensiveness predict basal salivary cortisol levels. Journal of Personality and Social Psychology, 70, 362-371.

Campbell, D. T., & Stanley, J. C. (1963). Experimental and quasi-experimental designs for research. Boston: Houghton Mifflin Co.

Capra, F. (1988). The turning point: Science, society and the rising culture. New York: Bantam Books.

Challis, G. B., & Stam, H. J. (1992). A longitudinal study of the development of anticipatory nausea and vomiting in cancer chemotherapy patients: The role of absorption and autonomic perception. Health Psychology, 11, 181-189.

Clark, L. A., & Watson, D. (1991). A tripartite model of anxiety and depression: Psychometric evidence and taxometric implications. Journal of Abnormal Psychology, 100, 186-212.

Cohen, P. M., & Burdsal, C. (1978). Factor analytic examination of role attitudes of married women. Psychological Reports, 42, 423-434.

Combs, A. L., Black, J., O'Donnell, A., Pope, R., Buckner, J., Crow, L., Ray, K., & Vandermeer, J. A. (1988). Absorption and the appreciation of visual art. Perceptual and Motor Skills, 67, 453-454.

Combs, D. C. (1981). Brief communication: the effects of selected death education curriculum models on death anxiety and death acceptance. Death Education, 5, 75-81.

Conn, L. K., & Crowne, D. P. (1964). Instigation to aggression, emotional arousal, and defensive emulation. Journal of Personality, 32, 163-179.

Council, J. B., & Greyson (1985, August). Near-death experiences and the fantasy prone personality. Paper presented at the annual meeting of the American Psychological Association, Los Angeles, California.

Council, J. R., Kirsch, I., & Hafner, L. P. (1986). Expectancy versus absorption in the predicting of hypnotic responding. Journal of Personality and Social Psychology, 50, 182-189.

Council, J. R., Kirsch, I., Vickery, A. R., & Carlson, D. (1983). "Trance" versus "skill" hypnotic inductions: The effects of credibility, expectancy, and experimenter modeling. Journal of Consulting and Clinical Psychology, 51, 432-440.

Council, J. R., & Lodge, D. (1988). Suggestibility and confidence in false perceptions: A pilot study. British Journal of Experimental and Clinical Hypnosis, 5, 95-98.

Coveney, P., & Highfield, R. (1995). Frontiers of complexity: The search for order in a chaotic world. New York: Ballantine Publishing.

Covino, N. A., Jimerson, D. C., Wolfe, B. E., Franko, D.E., & Frankel, E. F. (1994). Hypnotizability, dissociation, and bulimia nervosa. Journal of Abnormal Psychology, 103, 455-459.

Crawford, H. J. (1982). Hypnotizability, daydreaming styles, imagery, vividness, and absorption: A multidimensional study. Journal of Personality and Social Psychology, 42, 915-926.

Croog, S. H., Levine, S., Testa, M. A., Brown, B., Bulpitt, C. J., Jenkins, C. D., Klerman, G. L., & Williams, G. H. (1986). The effects of antihypertensive therapy on quality of life. New England Journal of Medicine, 314, 1657-1664.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. Journal of Consulting Psychology, 24, 349-354.

Crowne, D. P., & Marlowe, D. (1964). The approval motive: Studies in evaluative dependence. New York: Wiley.

Cupps, T. R., & Fauci, A. S. (1982). Corticosteroid-mediated immunoregulation in man. Immunological Reviews, 65, 133-155.

Davies, M. (1970). Blood pressure and personality. Journal of Psychosomatic Research, 14, 155-162.

Davis, P. J. (1987). Repression and the inaccessibility of affective memories. Journal of Personality and Social Psychology, 53, 585-593.

Davis, P. J. (1995). Repression and the inaccessibility of affective memories. In J. L. Singer (Ed.), Repression and dissociation: Implications for personality theory, psychopathology, and health (pp. 387-403). Chicago: University of Chicago Press.

Davis, P. J., & Schwartz, G. E. (1987). Repression and the inaccessibility of affective memories. Journal of Personality and Social Psychology, 53. 585-593.

Davis, S. F., Martin, D. A., Wilee, D. T., & Voorhees, J. W. (1978). Relationship of fear of death and level of self-esteem in college students. Psychological Reports, 42, 419-422.

de Mause, L. (1975). The independence of psychohistory. In L. de Mause (Ed.), The new psychohistory (pp. 7-28). New York: Psychohistory Press.

Derogatis, L. R. (1993). Brief symptom inventory: Administration, scoring, and procedures manual. Minneapolis, MN: National Computer Systems.

Derogatis, L. R., & Cleary, P. A. (1977). Confirmation of the dimensional structure of the SCL-90-R: A study in construct validation. Journal of Clinical Psychology, 33, 981-989.

Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. Behavioral Science, 19, 1-5.

Derogatis, L. R., Rickels, K., & Rock, A. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. British Journal of Psychiatry, 128, 280-289.

Dixon, M., Brunet, A., & Laurence, J. R. (1990). Hypnotizability and automaticity. Toward a parallel distributed processing model of hypnotic responding. Journal of Abnormal Psychology, 93, 222-230.

Dixon, M., & Laurence, J. R. (1992). Hypnotic susceptibility and verbal automaticity: Automatic and strategic processing differences in the Stroop color-naming task. Journal of Abnormal Psychology, 99, 336-343.

Edwards, P. (1996). Reincarnation: A critical examination. Amherst, NY: Prometheus Books.

Esler, M., Julius, J., Zweifler, A., Randell, O., Harburg, E., Gardiner, H., & De Quatto, V. (1977). Mild high-renin essential hypertension: Neurogenic human hypertension? New England Journal of Medicine, 296, 405-411.

Ferguson, G. A. (1981). Statistical analysis in psychology and education (5^{th} ed.). New York: McGraw Hill.

Firestone, R., & Will, J. (1994). Psychological defenses against death anxiety. In R. A. Neimeyer (Ed.), Death anxiety handbook: Research, instrumentation, and application, (pp. 217-241). New York: Taylor & Francis.

Florian, V., & Mikulincer, M. (1997). Fear of death and the judgement of social transgressions: A multidimensional test of terror management theory. Journal of Personality and Social Psychology, 73, 369-380.

Frankel, F. H., Apfel-Satitz, R., Nemiah, J. C., & Sifneos, P. E. (1977). The relationship between hypnotizability and alexithymia. Psychotherapy and Psychosomatics, 8, 172-178.

Frankel, F. H., & Orne, M. T. (1976). Hypnotizability and phobic behavior. Archives of General Psychiatry, 31, 261-263.

Galin, D. (1974). Implications of left-right cerebral lateralization for psychiatry: A neurophysiological context for unconscious processes. Archives of General Psychiatry, 9, 412-418.

Gick, M., McLeod, C., & Hulihan, D. (1997). Absorption, social desirability, and symptoms in a behavioral medicine population. Journal of Nervous and Mental Disease, 185, 263-272.

Goldberg, J. L., McCoy, S. K., Pyszczynski, T., Greenberg, J., & Solomon, S. (2000). The body as a source of self-esteem: The effects of mortality salience on identification with one's body, interest in sex, and appearance monitoring. Journal of Personality and Social Psychology, 79, 118-129.

Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of a need for self-esteem: A terror management theory. In R. F. Baumeister (Ed.), Public self, private self (pp. 189-212). New York: Springer-Verlag.

Greenberg, J., Pyszczynski, T., Solomon, S., Rosenblatt, A., Veeder, M., Kirkland, S., & Lyon, D. (1990). Evidence for terror management theory II: The effects of mortality salience reactions to those who threaten to bolster the cultural worldview. Journal of Personality and Social Psychology, 58, 308-319.

Greenberg, J., Simon, L., Pyszczynski T., Solomon, S., & Chatel, D. (1992). Terror management and tolerance: Does mortality salience always intensify negative reactions to others who threaten one's worldview? Journal of Personality and Social Psychology, 63, 212-220.

Greenberg, J., Solomon, S., Pyszczynski, T., Rosenblatt, A., Burling, J., Lyon, D., Pinel, E., & Simon, L. (1992). Assessing terror management analysis of self-esteem: Converging evidence of an anxiety-buffering function. Journal of Personality and Social Psychology, 63, 913-922.

Greenleaf, M., Fisher, S., Miaskowski, C., & DuHamel, K. (1992). Hypnotizability and recovery from cardiac surgery. American Journal of Clinical Hypnosis, 35, 119-128.

Greyson, B. (1991). Near-death experiences and systems theory: A biosociological approach to mystical states. Journal of Mind and Behavior, 12, 487-507.

Greyson, B. (1993). Varieties of near-death experiences. Psychiatry, 56, 390-399.

Grof, S. (1975). Realms of the human unconscious: Observations from LSD research. New York: E. P. Dutton.

Grof, S. (1980). LSD psychotherapy. Alameda, CA: Hunter House.

Grof, S. (1985). Beyond the brain: Birth, death and transcendence in psychotherapy. Albany, NY: State University of New York Press.

Grof, S. (1988). The adventure of self-discovery: Dimensions of consciousness and new perspectives in psychology and inner exploration. Albany, NY: State University of New York Press.

Grof, S. (1993). The holotropic mind: The three levels of human consciousness and how they shape our lives. San Francisco: Harper.

Grof, S. (1998). The cosmic game: Exploration of the frontiers of human consciousness. Albany, NY: State University of New York Press.

Grof (2000). Psychology of the future: Lessons from modern consciousness research. Albany, NY: State University of New York Press.

Grof, S., & Halifax, J. (1977). The human encounter with death. New York: E. P. Dutton.

Hanratty, P. H. (1998). Hypnotizability and outcome in holotropic breathwork therapy. Unpublished manuscript, Saybrook Graduate School and Research Center, San Francisco.

Hanratty, P. H. (1999). Hypnotizability and outcome in holotropic breathwork therapy with a multiple treatment group. Unpublished manuscript, Saybrook Graduate School and Research Center, San Francisco.

Harmon-Jones, E., Simon, L., Greenberg, J., Pyszczynski, T., Solomon, S., & McGregor, H. (1997). Terror management theory and self-esteem: Evidence that increased self-esteem reduces mortality salience effects. Journal of Personality and Social Psychology, 72, 24-36.

Hansen, R. D., & Hansen, C. H. (1988). Repression of emotionally tagged memories: The architecture of less complex emotions. Journal of Personality and Social Psychology, 55, 811-818.

Hathaway, S. R., & McKinley, J. C. (1940). A multiphasic personality schedule (Minnesota): I. Construction of the schedule. Journal of Psychology, 14, 73-84.

Hilgard, E. R. (1965). Hypnotic susceptibility. New York: Harcourt, Brace & World.

Hilgard, E. R. (1977). Divided consciousness: Multiple controls in human thought and action. New York: Wiley.

Hilgard, E. R., & Hilgard, J. R. (1975). Hypnosis in the relief of pain (2nd ed.). Los Altos, CA: William Kaufman.

Hilgard, E. R., Sheehan, P. W., Monteiro, K. P., & MacDonald, H. (1981). Factorial structure of the Creative Imagination Scale as a measure of hypnotic

responsiveness: An international comparative study. International Journal of Clinical and Experimental Hypnosis, 29, 66-76.

Hill, D., & Gardner, G. (1980). Repression-sensitization and yielding to threatening health communications. Australian Journal of Psychology, 32, 183-93.

Hirshberg, C., & Barasch, M. I. (1995). Remarkable recovery: What extraordinary healings tell us about getting well and staying well. New York: Riverhead Books.

Holmes, S. (1993). An examination of the comparative effectiveness of experientially and verbally oriented psychotherapy in the amelioration of client identified presenting problems. Unpublished doctoral dissertation, Georgia State University, Athens.

Hoyt, I. P., Nadon, R., Register, P. A., Chorny, J., Fleeson, Grigorian, E. M., Otto, L., & Kihlstrom, J. E. (1989). Daydreaming, absorption, and hypnotizability. International Journal of Clinical and Experimental Hypnosis, 37, 332-342.

Howell, D. C. (1992). Statistical methods for psychology (3rd ed.). Belmont, CA: Duxbury Press.

Irwin, H. J. (1981). Some psychological dimensions of the out-of-body experience. Parapsychology Review, 12, 1-6.

Irwin, H. J. (1985). Parapsychological phenomena and the absorption domain. Journal of the American Society for Psychical Research, 79, 1-11.

Jammer, L. D., Schwartz, G. E., & Leigh, H. (1988). The relationship between repressive and defensive coping styles and monocyte, eosinophile, and serum glucose levels: Support for the opiod-peptide hypothesis of repression. Psychosomatic Medicine, 50, 566-575.

Jensen, M. R. (1987). Psychobiological factors predicting the course of breast cancer. Journal of Personality, 2, 317-342.

Judd, L. L. (1993). The NIMH research program in panic disorder: The present and the future. Conference on Panic and Anxiety: A Decade of Progress (1990, Geneva, Switzerland). Journal of Psychiatric Research, 27, 221-228.

Kachigan, S. K. (1986). Statistical analysis: An interdisciplinary introduction to univariate and multivariate methods. New York: Radius Press.

Kastenbaum, R. (1992). The psychology of death. New York: Springer.

Katon, W., Von Korff, M., Lin, E., Lipscomb, P., Russo, J., Wagner, E., & Polk, E. (1990). Distressed high utilizers of medical care: DSM-III-R Diagnoses and treatment needs. General Hospital Psychiatry, 12, 255-262.

Kelly, S. (1984). Measured hypnotic response and phobic behavior: A brief communication. International Journal of Clinical and Experimental Hypnosis, 32, 1-5.

Kennedy-Moore, E., & Watson, J. C. (1999). Expressing emotion: Myths, realities, and therapeutic strategies. New York: Guilford Press.

Kermit, K., Devine, D. A., & Tatman, S. M. (2000). High risk model of threat perception in chronic pain patients: Implications for primary care and chronic pain patients. Journal of Nervous and Mental Disease, 188, 577-582.

Kielcolt-Glasser, J. K., & Murray, J. A. (1980). Social desirability bias in self-monitoring data. Journal of Behavioral Assessment, 2, 239-247.

Kihlstrom, J. F., Register, P. A., Hoyt, I. P., Albright, J. S., Grigorian, E. M., Heindel, W. C., & Morrison, D. R. (1989). Dispositional correlates of hypnosis: A phenomenological approach. International Journal of Clinical and Experimental Hypnosis, 37, 249-263.

King, A. C., Taylor, C. B., Albright, C. A., & Haskel, W. L. (1990). The relationship between repressive and defensive coping styles and blood pressure responses in healthy, middle-aged men and women. Journal of Psychosomatic Research, 34, 461-471.

Kirk, R. E. (1995). Experimental design: Procedures for the behavioral sciences (3rd ed.). Pacific Grove, CA: Brooks-Cole.

Kirsch, I. (1996). Hypnosis enhancement of cognitive-behavioral weight loss treatments-another meta-analysis. Journal of Consulting Psychology, 64, 517-519.

Kneier, A. W., & Temoshok, L. (1984). Repressive coping reactions in patients with malignant melanoma as compared to cardiovascular disease patients. Journal of Psychosomatic Research, 28, 368-378.

Koob, P. B., & Davis, S. F. (1977). Fear of death in military officers and their wives. Psychological Reports, 40, 261-262.

Koocher, G. F., O'Malley, J. E., Foster, D., & Groger, J. L. (1976). Death anxiety in normal children and adolescents. Psychiatrica Clinica, 9, 220-229.

Krippner, S., & Villoldo, A. (1986). The realms of healing (3rd ed.). Berkeley, CA: Celestial Arts.

Krippner, S., & Welch, P. (1992). Spiritual dimensions of healing: From native shamanism to contemporary health care. New York: Irvington.

Kuperman, S. K., Golden, C. J. (1978). Personality correlates of attitude toward death. Journal of Clinical Psychology, 34, 612-613.

La Flamme, D. M. (1994). Holotropic breathwork and altered states of consciousness. Unpublished doctoral dissertation, California Institute of Integral Studies, San Francisco.

Lane, R. D., Merikangas, K. R., Schwartz, G. E., Huang, S. S., & Prusoff, B. A. (1990). Inverse relationship between defensiveness and lifetime prevalence of psychiatric disorder. American Journal of Psychiatry, 147, 573-578.

Laurence, J. R., & Perry, C. (1983). Hypnotically created memory among highly hypnotizable participants. Science, 222, 523-524.

Leckman, J. F., Weisman, M. M., Merikangas, K. R., Pauls, D. R., & Prusoff, B. A. (1983). Panic disorder and major depression. Archives of General Psychiatry, 40, 1055-1060.

Lester, D., & Kamm, E. G. (1971). Effect of a friend dying upon attitudes toward death. Journal of Social Psychology, 83, 149-150.

Levenson, R. W., & Mades, L. L. (1980, October). Physiological response, facial expression, and trait anxiety: Two methods for improving consistency. Paper presented at the annual meeting of the Society for Psychophysiological Research, Vancover, British Columbia.

Levin, J. S. (1994). Religion and health: Is there an association, is it valid, and is it causal? Sociology and Scientific Medicine, 1475-1482.

Levin, J. S., Wickramasekera, I. E., & Hirschberg, C. (1998). Is religiousness a correlate of absorption? Implications for psychophysiology, coping, and morbidity. Alternative Therapies in Health and Medicine, 4, 72-76.

Levine, J., Warrenburg, S., Kerns, R., Schwartz, G. E., Delaney, R., Fontana, A., Gradman, A., Smith, S., Allen, S., & Cascione, R. (1987). The role of denial in recovery from coronary heart disease. Psychosomatic Medicine, 49, 109-117.

Levitt, E. E. (1993). Hypnosis in the treatment of obesity. In J. W. Rhue, S. J. Lynn & I. Kirsch (Eds.), Handbook of clinical hypnosis (pp. 533-554). Washington, DC: American Psychological Association.

Loftus, E. (1993). The reality of repressed memories. American Psychologist, 48, 518-537.

Lucas, R. A. (1974). A comparative study of measures of general anxiety and death anxiety among three medical groups, including patient and wife. Omega, 5, 233-243.

Lynch, D. J., McGrady, A., Scherger, C., & Nagel, R. (1996, August). Somatization in family practice. Paper presented at the annual meeting of the American Psychological Association, Toronto, Canada.

Lynn, S. J. & Rhue, J. W. (1988). Fantasy proneness: Hypnosis, developmental antecedents, and psychopathology. American Psychologist, 43, 35-44.

Mack, J. E. (1994). Abduction: Human encounters with aliens. New York: Charles Scribner's Sons.

Mack, J. E. (1999). Passport to the cosmos: Human transformation and alien encounters. New York: Crown.

Mathe, A. A., & Knapp, P. H. (1971). Emotional and adrenal reactions to stress in bronchial asthma. Psychosomatic Medicine, 33, 323-340.

Mathes, E. W. (1982). Mystical experiences, romantic love, and hypnotic susceptibility. Psychological Reports, 50, 701-702.

Mathews, A., & MacLeod, C. (1986). Discrimination of threat cues without awareness in anxiety states. Journal of Abnormal Psychology, 95, 131-138.

Mathews, A., Mogg, K., May, J., & Eysenck, M. (1989). Implicit and explicit memory bias in anxiety. Journal of Abnormal Psychology, 98, 236-240.

Mathews, A., Mogg, K., May, J., & Eysenck, M. (1990). Attentional bias in anxiety: Selective search or defective filtering? Journal of Abnormal Psychology, 99, 166-173.

Matlock, J. G. (1997). Review of the book: Reincarnation: A critical examination. Journal of Scientific Exploration, 11, 570-573.

McConkey, K. M., & Nogrady, H. (1986). Visual elaboration scale: Analysis of individual and group versions. Journal of Mental Imagery, 10, 37-46.

McEwen, B. S., Angulo, J., Cameron, H., Chao, H. M., Daniels, D., Gannon, M. N., Gould, E., Mendelson, S., Sakai, R., Spencer, R., & Wooley, C. (1992). Paradoxical effects of adrenal steroids on the brain: Protection versus degeneration. Biological Psychiatry, 31, 177-199.

McGrath, P. A., Brooke, R. I., & Cosier, F. (1986). Hypnotizability and the treatment of chronic facial pain. International Journal of Clinical and Experimental Hypnosis, 34, 186-195.

McGregor, H., Liberman, J. D., Solomon, S., Greenberg, J., Arndt, J., Simon, L., & Pyszcznski, T. (1998). Terror management and aggression: Evidence that mortality salience motivates aggression against worldview threatening others. Journal of Personality and Social Psychology, 74, 590-605.

McMordie, W. R. (1982). Concurrent validity of Templer and Templer/McMordie death anxiety scales. Psychological Reports, 51, 265-266.

McRae, R. P., & Costa, P. T. (1983). Social desirability scales: More substance than style. Journal of Consulting and Clinical Psychology, 51, 882-888.

Mendolia, M., Moore, J., & Terrer, A. (1996). Dispositional and situational determinants of repression. Journal of Personality and Social Psychology, 70, 856-867.

Monroe, R. A. (1985). Far journeys. New York: Doubleday.

Monteiro, K. P., MacDonald, H., & Hilgard, E. R. (1980). Imagery, absorption, and hypnosis: A factorial study. Journal of Mental Imagery, 4, 63-81.

Moody, R. A. (1975). Life after life: The investigation of a phenomenon-survival of bodily death. New York: Bantam Books.

Morgan, A. H. (1973). The heritability of hypnotic susceptibility in twins. Journal of Abnormal Psychology, 82, 55-66.

Morgan, A. H., Hilgard, E. R., & Davert, E. C. (1970). The heritability of hypnotic susceptibility of twins: A preliminary report. Behavioral Genetics, 1, 213-224.

Morrock, R. (1986, Spring). A heady quest for transcendence [A book review of: Beyond the brain]. Skeptical Inquirer, 277-279.

Morse, M., & Perry, P. (1990). Closer to the light: Learning from the near-death experiences of children. New York: Ivy Books.

Murray, P. (1974). Death education and its effect on the death anxiety level of nurses. Psychological Reports, 35, 1250.

Murray, R. (1998). Unconscious processes in individuals at risk for somatization and dream variables: A study of repressive cognitive styles. Unpublished doctoral dissertation, Saybrook Graduate School and Research Institute, San Francisco.

Myers, S. A., Austrin, H. R., Grisso, T. J., & Nickerson, R. C. (1983). Personality characteristics as related to the out-of-body experience. Journal of Parapsychology, 47, 131-144.

Nace, E. P., Warwick, A. M., Kelly, R. L., & Evans, F. J. (1982). Hypnotizability and outcome in brief psychotherapy. Journal of Clinical Psychiatry, 43, 129-133.

Nadon, R., & Kihlstrom, J. E. (1987). Hypnosis, psi, and the psychology of anomalous experience. Behavioral and Brain Sciences, 10, 597-599.

Nadon, R., Hoyt, I.P., Register, P.A., & Kihlstrom, J.F. (1991). Absorption and hypnotizability: Context effects reexamined. Journal of Personality and Social Psychology, 60, 144-153.

Neimeyer, R. A. (1997). Special article: Death anxiety research: The state of the art. Omega, 36(2), 97-120.

Neimeyer, R. A., & Fortner, B. (1995). Death anxiety in the elderly. In G. Maddox (Ed.), The encyclopedia of aging (pp. 252-253). New York: Springer.

Nell, V. (1988). The psychology of reading for pleasure: Needs and gratifications. Reading Research Quarterly, 23, 6-50.

Neufeldt, D. E., & Holmes, C. B. (1979). Relationship between personality traits and fear of death. Psychological Reports, 45, 907-910.

Newton, T. L., & Contrada, R. J. (1992). Journal of Personality and Social Psychology, 62, 159-167.

Niaura, R., Herbert, P. N., Mc Mahon, N., & Sommerville, L. (1992). Repressive coping and blood lipids in men and women. Psychosomatic Medicine, 54, 698-706.

Nunnally, J. (1970). Introduction to psychological measurement. New York: McGraw-Hill.

Pennebaker, J., & Beall, S. K. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. Journal of Abnormal Psychology, 95, 274-281.

Pennebaker, J., Kiecolt-Glaser, J. K., & Glaser, R. (1988). Disclosure of trauma and immune function: Health implications for psychotherapy. Journal of Consulting and Clinical Psychology, 56, 239-245.

Pennebaker, J., & Sussman, J. (1988). Disclosure of traumas and psychosomatic process. Social Science and Medicine, 26, 327-332.

Pennebaker, J. W., Hughes, C. F., & O'Heeron, R. C. (1987). The psychophysiology of confession: Linking inhibitory and psychosomatic processes. Journal of Personality and Social Psychology, 52, 781-793.

Perls, F. (1976). The Gestalt approach and eyewitness to therapy. New York: Bantam Books.

Pert, C. B., Ruff, M. R., Weber, R. J., & Herkenham, M. (1985). Neuropeptides and their receptors: A psychosomatic network. Journal of Immunology, 135, 820s-826s.

Pettinati, H., Horne, R. L., & Staats, J.M. (1985). Hypnotizability in patients with anorexia nervosa and bulimia. Archives of General Psychiatry, 42, 1014-1016.

Piccione, C., Hilgard, E. R., & Zimbardo, P. G. (1989). On the degree of stability of measured hypnotizability over a 25-year period. Journal of Personality and Social Psychology, 56, 289-295.

Plante, T. G., & Karpowitz, D. (1987). The influence of aerobic exercise on physiological stress and responsivity. Psychophysiology, 24, 670-677.

Pressman, T. (1993). The psychological and spiritual effects of Stanislav Grof's holotropic breathwork technique: An exploratory study. Unpublished doctoral dissertation, Saybrook Graduate School and Research Institute, San Francisco.

Quill, T. E. (1985). Somatization disorder: One of medicine's blind spots. Journal of the American Medical Association, 254, 3075-3079.

Rainey, L. C., & Epting, F. R. (1977). Death threat constructions in the student and the patient. Omega, 8, 19-28.

Reid, G., Steggles, S., & Fehr, R. C. (1982). State, emotionality, belief, and absorption in ESP scoring. Journal of the Association for the Study of Perception, 17, 28-39.

Rhodes, L. A., David, D. C., & Combs, A. L. (1988). Absorption and the enjoyment of music. Perceptual and Motor Skills, 66, 737-738.

Ring, K. (1980). Life at death: A scientific investigation of the near-death experience. New York: Coward, Mc Cann, & Geoghegan.

Ring, K. (1984). Heading towards omega: In search of the meaning of the near-death experience. New York: William Morrow.

Ring, K. (1992). The omega project: Near-death experiences, UFO encounters, and mind at large. New York: William Morrow and Company.

Ring, K., & Cooper, S. (1999). Mindsight: Near-death and out-of-body experiences in the blind. Palto Alto, CA: William James Center for Consciousness Studies at the Institute of Transpersonal Psychology.

Roche, S. M., & McConkey, K. M. (1990). Absorption: Nature, assessment, and correlates. Journal of Personality and Social Psychology, 59, 91-101.

Rosenblatt, A., Greenberg, J., Solomon, S., & Pyszczynski, T. (1989). Evidence for terror management theory. Journal of Personality and Social Psychology, 57, 681-690.

Rosenthal, R., & Rosnow, R. L. (1975). The volunteer subject. New York: Wiley.

Saxon, J., & Wickramasekera, I. (1994, October). Discriminating patients with organic disease from somatizers among patients with chest pain using factors from the high risk model of threat perception. Paper presented at the annual meeting of the Society for Experimental and Clinical Hypnosis, San Francisco, CA.

Schell, B., & Zinger, T. (1984). Death anxiety scale means and standard deviations for Ontario undergraduates and funeral directors. Psychological Reports, 54, 439-446.

Schwartz, G. E. (1983). Dysregulation theory and disease: Applications to the repression/cerebral disconnection/cardiovascular disorder hypothesis. International Review of Applied Psychology, 32, 95-118.

Schwartz, G. E. (1995). Psychobiology of repression and health: A systems approach. In J. L. Singer (Ed.), Repression and dissociation: Implications for personality theory, psychopathology, and health (pp. 337-386). Chicago: University of Chicago Press.

Schwartz, G. E., Gramling, S. E., & Mancini, T. (1994). The influence of life stress, personality, and learning history on illness behavior. Journal of Behavior Therapy and Experimental Psychiatry, 25, 135-142.

Shadinger, M., Hinninger, K., & Lester, D. (1999). Belief in life after death, religiosity, and fear of death. Psychological Reports, 84, 868.

Shea, J. D., Burton, R., & Girgis, A. (1993). Negative affect, absorption, and immunity. Physiology and Behavior, 53, 449-457.

Shedler, J., Mayman, M., & Manis, M. (1993). The illusion of mental health. American Psychologist, 48, 1117-1131.

Shor, R. E., & Orne, M. T. (1962). Manual: Harvard Group Scale of Hypnotic Susceptibility: Form A. Palo Alto, CA: Consulting Psychologists Press.

Singer J. L. (Ed). (1995). Repression and dissociation: Implications for personality theory, psychopathology, and health. Chicago: University of Chicago Press.

Snodgrass, M., & Lynn, S. J. (1989). Music absorption and hypnotizability. International Journal of Clinical and Experimental Hypnosis, 37, 41-54.

Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: The psychological functions of self-esteem and cultural worldview. In M. P. Zanna (Ed.), Advances in experimental social psychology (pp. 93-159). New York: Academic Press.

Spanos, N. P., & McPeake, J. D. (1975). The interaction of attitudes towards hypnosis and involvement in everyday imaginative activities on hypnotic suggestibility. American Journal of Clinical Hypnosis, 17, 247-252.

Spanos, N. P., McPeake, J. D., & Churchill, N. (1976). Relationships between imaginative ability variables and the Barber Suggestibility Scale. American Journal of Clinical Hypnosis, 19, 39-46.

Spanos, N. P., Steggles, S., Radtke-Bodorik, H., & Rivers, S. M. (1979). Nonanalytic attending, hypnotic susceptibility, and psychological well-being in trained meditators and nonmeditators. Journal of Abnormal Psychology, 88, 85-87.

Spanos, N. P., Radtke, H. L., Hodgkins, D. C., Bertrand, L. C., Stam, H. J., & Moretti, P. (1983). The Carlton University Responsiveness to Suggestion Scale: Relationships with other measures of hypnotic susceptibility, expectancies, and absorption. Psychological Reports, 53, 723-734.

Spanos, N. P., Brett, P. J., Anears, E. P., & Cross, W. P. (1987). A measure of attitudes toward hypnosis: Relationships with absorption and hypnotic susceptibility. American Journal of Clinical Hypnosis, 30, 139-150.

Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.

Spitzer, R. L., & Endicott, J. (1979). Schedule for Affective Disorders and Schizophrenia-Lifetime Version (3rd ed.). New York: New York State Psychiatric Institute, Biometrics Research.

Spitzer, R. L., Endicott, J., & Robbins, E. (1978). Research diagnostic criteria: Rationale and reliability. Archives of General Psychiatry, 35, 777-782.

Stevenson, I. (1987). Children who remember previous lives: A question of reincarnation. Charlottesville, VA: University Press of Virginia.

Stevenson, I. (1997). Where reincarnation and biology intersect. London: Praeger.

Stutman, R. K., & Bliss, E. L., (1985). Posttraumatic stress disorder, hypnotizability, and imagery. American Journal of Psychiatry, 142, 741-743.

Tarnas, R. (1991). The passion of the Western mind: Understanding the ideas that have shaped our world view. New York: Ballantine Books.

Tart, C. (1969). Altered states of consciousness: A book of readings. New York: Doubleday.

Taylor, E. (1999). Shadow culture: Psychology and spirituality in America. Washington, DC: Counterpoint.

Tellegen, A. (1981). Practicing the two disciplines for relaxation and enlightenment: Comment on "Role of the feedback signal in electromyograph biofeedback: The relevance of attention" by Qualls and Sheehan. Journal of Experimental Psychology: General, 110, 217-226.

Tellegen, A. (1982). Brief manual for the Multidimensional Personality Questionnaire. Unpublished manuscript, University of Minnesota, Minneapolis.

Tellegen, A., & Atkinson, G. (1974). Openness to absorbing and self-altering experiences ("absorption"), a trait related to hypnotic susceptibility. Journal of Abnormal Psychology, 83, 268-277.

Tellegen, A., Lykken, D. T., Bouchard Jr., T. J., Wilcox, K. J., & Rich, S. (1988). Personality similarity in twins reared apart and together. Journal of Personality and Social Psychology, 54, 1031-1039.

Templer, D. I. (1970). The construction and validation of a death anxiety scale. Journal of General Psychology, 82, 165-177.

Templer, D. I., Lester, D., & Ruff, C. F. (1974). Fear of death and femininity. Journal of General Psychology, 35, 530.

Templer, D. L., & Ruff, C. F. (1971). Death anxiety, scale means, standard deviations, and embedding. Psychological Reports, 29, 173-174.

Templer, D. I., Ruff, C. F., & Franks, G. M. (1971). Death anxiety, age, sex, and parental resemblance in diverse populations. Developmental Psychology, 4, 108.

Tennes, K., & Kreye, M. (1985). Children's adrenocorticol responses to classroom activities and tests in elementary school. Psychosomatic Medicine, 47, 451-460.

Tomarkin, A. J., & Davidson, R. J. (1994). Frontal brain activation in repressors and nonrepressors. Journal of Abnormal Psychology, 103, 339-349.

Trent, C., Glass, J. C., & McGee, A. Y. (1981). The impact of a workshop on death and dying on death anxiety, life education, and locus of control among middle-aged and older adults. Death Education, 5, 157-173.

Tublin, S. K., Bartholomew, K., & Weinberger, D. A. (1987, August). Peer perceptions of preadolescent boys with repressive coping styles. Paper presented at the annual meeting of the American Psychological Association, New York.

Vargo, M. E., & Batsel, W. M. (1984). The reduction of death anxiety: A comparison of didactic, experiential and non-conscious treatments. British Journal of Medical Psychology, 57, 333-337.

Vassend, O. (1989). Dimensions of negative affectivity, self-reported somatic symptoms, and health related behaviors. Social Science and Medicine, 28, 29-37.

Watson, J. C., Greenberg, L. S., & Lietaer, G. (1998). The experiential paradigm unfolding: Relationship and experiencing in therapy. In L. S. Greenberg, J. C. Watson & G. Lietaer (Eds.). Handbook of experiential psychotherapy (pp. 211-237). New York: The Guilford Press.

Watson, M., Pettingale, K. W., & Greer, S. (1984). Emotional control and autonomic arousal in breast cancer patients. Journal of Psychosomatic Research, 28, 467-474.

Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience negative emotional states. Psychological Bulletin, 96, 465-490.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, 54, 1063-1070.

Webster's New Universal Unabridged Dictionary. (1992). Springfield, Massachusetts: Merriam-Webster International.

Weinberger, D. A. (1995). The construct validity of the repressive coping style. In J. L. Singer (Ed.), Repression and dissociation: Implications for personality theory, psychopathology, and health (pp. 337-386). Chicago: University of Chicago Press.

Weinberger, D. A., & Davidson, M. N. (1994). Styles of inhibiting emotional expression: Distinguishing repressive coping from impression management. Journal of Personality, 62, 587-613.

Weinberger, D. A., Schwartz, G. E., & Davidson, R. J. (1979). Low-anxious, high-anxious, and repressive coping styles: Psychometric patterns and behavioral and physiological responses to stress. Journal of Abnormal Psychology, 88, 369-380.

Weitenhoffer, A. M., & Hilgard, E.R. (1962). Stanford Hypnotic Susceptibility Scale, Form C. Palo Alto, CA: Consulting Psychologists Press.

Wickramasekera, I. (1979, March). A model of the patient at high risk for chronic stress related disorders: Do beliefs have biological consequences? Paper presented at the annual convention of the Biofeedback Society of America, San Diego, CA.

Wickramasekera, I. (1986). A model of people at high risk to develop chronic stress-related somatic symptoms: Some predictions. Professional Psychology: Research and Practice, 17, 437-447.

Wickramasekera, I. (1988). Clinical behavioral medicine: Some concepts and procedures. New York: Plenum.

Wickramasekera, I. (1993). Assessment and treatment of somatization disorders: The high risk model of threat perception. In J. W Rhue, S. J. Lynn & I. Kirsch (Eds.), Handbook of clinical hypnosis (pp. 587-621). Washington, DC: American Psychological Association.

Wickramasekera, I. (1994). Psychophysiological and clinical implications of the coincidence of high hypnotic ability and high neuroticism during threat perception in somatization disorders. American Journal of Clinical Hypnosis, 37, 22-33.

Wickramasekera, I. (1995). Somatization concepts, data, and predictions from the high risk model of threat perception. Journal of Nervous and Mental Disease, 15-23.

Wickramasekera, I. (1996). Applied psychophysiology: A bridge between the biomedical model and the biopsychosocial model in family medicine. Professional Medicine, 27, 221-233.

Wickramasekera, I. (1997a). Secrets kept from the mind, but not from the body and behavior: Somatoform disorders and primary care medicine. Applied Psychophysiology and Biofeedback, 25, 20-22.

Wickramasekera, I. (1997b). A case study: Electromyographic correlates in the hypnotic recall of a repressed memory. Dissociation, 5, 11-20.

Wickramasekera, I. (1998). Secrets kept from the mind but not the body or behavior: the unsolved problems of identifying and treating somatization and psychophysiological disease. Advances in Mind-Body Medicine, 14, 81-132.

Wickramasekera, I. (1999). The faith factor, the placebo, and the AAPB: The placebo is a conditioned response composed of credible expectation and vivid memories of health and past healing events. Applied Psychophysiology and Biofeedback, 27, 1A-3A.

Wickramasekera, I., Pope, A. T., & Kolm, P. (1996). On the interaction of hypnotizability and negative affect in chronic pain: Implications for the somatization of trauma. Journal of Nervous and Mental Disease, 184, 628-635.

Wickramasekera, I., & Price, D. (1997). Morbid obesity, absorption, neuroticism and the high risk model of threat perception. American Journal of Clinical Hypnosis, 34, 291-302.

Wilson, S. C., & Barber, T. X. (1982). The fantasy-prone personality: Implications for understanding imagery, hypnosis and parapsychological phenomena. In A. A. Shiekh (Ed.), Imagery: Current theory, research, and application (pp. 340-390). New York: Wiley.

Wood, W. D. (1986). Patterns of symptom report on the Brief Symptom Inventory. Psychological Reports, 58, 427-431.

Yanchar, R. J., & Johnson, H. J. (1981). Absorption and attitude towards hypnosis: A moderator analysis. International Journal of Clinical and Experimental Hypnosis, 29, 375-382.

Zevon, M. A., & Tellegen, A. (1982). The structure of mood change: An idiographic/nomothetic analysis. Journal of Personality and Social Psychology, 43, 111-122.

Zinbarg, R. E., Barlow, D. H., Brown, T. A., & Hertz, R. M. (1992). Cognitive-Behavioral approaches to the nature and treatment of anxiety disorders. Annual Review of Psychology, 43, 235-267.

APPENDICES

APPENDIX A. Supplementary Tables.

Supplementary Table 1. Correlations: Pretest and Posttest Correlations of the Marlowe-Crowne Scale (MC), the Tellegen Absorption Scale (TAS), Templer's Death Anxiety Scale (DAS), with the Brief Symptom Inventory (BSI) Subscales.

Measures	MC Pretest	MC Posttest	TAS	DAS Pretest	DAS Posttest
	r p (N)	r p (N)	r p (N)	r p (N)	r p (N)
MC Pretest	1.000	.932** .000	.031 .840	-.495** .002	-.243 .187
	43	43	44	38	31
MC Post	.932** .000	1.000	.002 .991	-.455** .004	.282 .124
	43	43	43	38	31
TAS Pretest	.031 .840	.002 .991	1.000	.033 .856	.156 .403
	44	43	44	38	31

*Significant p values below .05
**Significant p values below .01
Table continued on next page.

DAS	-.495**	-.455**	.033	1.000	.783**
Pretest	.002	.004	.846		.000
	38	38	38	38	30
DAS	-.243	-.282	.156	.783*	1.000
Post	.187	.124	.403	.000	
	31	31	31	30	31
SOM	-.357**	-.353**	.181	.270	.189
Pretest	.020	.022	.251	.106	.317
	42	42	42	37	30
SOM	-.102	-.211	.164	-.113	-.005
Post	.515	.174	.294	.498	.979
	43	43	43	38	31
OC	-.326*	-.320	.029	.275	.176
Pretest	.035	.039	.857	.099	.352
	42	42	42	37	30
OC	-.286	-.343*	.048	.137	.178
Post	.063	.024	.762	.412	.338
	43	43	43	38	31
IS	-.357*	-.426**	.007	.221	.206
Pretest	.020	.005	.966	.189	.274
	42	42	42	37	30
IS	-.271	-.362*	.052	.098	.199
Post	.078	.017	.742	.559	.284
	43	43	43	38	31
DEP	-.430*	-.465	-.046	.151	.001
Pretest	.005	.002	.772	.372	.997
	42	42	42	37	30
DEP	-.219	-.321*	-.043	.020	.122
Post	.158	.036	.786	.904	.514
	43	43	43	38	31

*Significant p values below .05
**Significant p values below .01
Table continued on next page.

ANX	-.423**	-.503**	.037	.174	.186
Pretest	.005	.001	.817	.303	.326
	42	42	42	37	30
ANX	-.190	-.268	-.028	.035	.062
Post	.223	.082	.861	.834	.739
	43	43	43	38	31
HOS	-.426**	-.449**	-.084	.337*	.222
Pretest	.005	.003	.598	.041	.238
	42	42	42	37	30
HOS	-.037	-.116	.081	-.174	.067
Post	.815	.457	.607	.297	.722
	43	43	43	38	31
PHOB	-.159	-.216	-.014	.107	.089
Pretest	.314	.170	.932	.530	.640
	42	42	42	37	30
PHOB	-.158	-.266	-.010	-.087	-.087
Post	.318	.089	.950	.609	.929
	42	42	42	37	30
PAR	-.172	-.268	.131	.016	-.014
Pretest	.277	.086	.408	.925	.941
	42	42	42	37	30
PAR	-.119	-.249	.212	-.081	.055
Post	.448	.108	.173	.630	.771
	43	43	43	38	31
PSY	-.362*	-.325*	.017	.291	-.036
Pretest	.019	.036	.915	.080	.852
	42	42	42	37	37
PSY	-.182	-.259	.041	.026	.033
Post	.244	.093	.796	.878	.860
	43	43	43	38	38

*Significant p values below .05
**Significant p values below .01
Table continued on next page.

GSI	-.401**	-.449**	.046	.227	.150
Pretest	.008	.003	.176	.429	.429
	42	42	37	37	30
GSI	-.211	-.313*	.068	.002	.104
Post	.175	.041	.665	,991	.577
	43	43	43	38	31
	-.564**	-.586**	.059	.400*	.247
PST	.000	.000	.708	.014	.188
Pretest	42	42	42	37	30
PST	-.425**	-.466**	-.054	.306	.257
Post	.004	.002	.729	.062	.162
	43	43	43	38	31

*Significant p values below .05
**Significant p values below .01

Supplementary Table 2, One-Way ANOVA Results of Pretest and Posttest Measures by High vs. Low Marlowe-Crowne Scores, continued on following page.

Measures	MC Category	N	M	SD	p
PANAS, PA, Pretest	High	12	35.17	4.8	.957
	Low	32	35.03	8.07	
PANAS, PA, Posttest	High	12	35.84	8.48	.398
	Low	31	33.26	8.99	
PANAS, NA, Pretest	High	12	13.34	3.37	.094
	Low	32	16.38	5.76	
PANAS, NA, Posttest	High	12	10.67	.98	.126
	Low	31	13.54	8.33	
DAS, Pretest	High	12	3.25	2.59	.004*
	Low	26	6.08	2.62	
DAS, Posttest	High	9	3.78	2.82	.028*
	Low	22	6.14	2.62	

Mann-Whitney U Test used for analysis instead of ANOVA
* Statistical Significance

Supplementary Table 2, One-Way ANOVA Results of Pretest and Posttest Measures by High vs. Low Marlowe-Crowne Scores, continued on following page.

Measures	MC Category	N	M	SD	p
SOM, Pretest	High	12	2.0	2.49	.129
	Low	30	3.43	2.79	
SOM, Posttest	High	12	1.42	1.62	.098
	Low	31	4.16	5.45	
O-C, Pretest	High	12	3.00	3.33	.010*
	Low	30	6.94	4.59	
O-C,Posttest	High	12	1.67	1.59	.000*
	Low	31	6.07	5.25	
IS, Pretest	High	12	0.83	1.10	.000*
	Low	30	4.1	3.64	
IS, Posttest	High	12	0.42	0.79	.000*
	Low	31	3.48	3.5	

1. Mann-Whitney U Test used for analysis instead of ANOVA
* Statistical Significance

Supplementary Table 2, One-Way ANOVA Results of Pretest and Posttest Measures by High vs. Low Marlowe-Crowne Scores, continued on following page.

Measures	MC Category	N	M	SD	p
DEP, Pretest	High	12	1.84	2.82	.023*
	Low	30	4.54	3.51	
DEP, Posttest	High	12	1.67	2.44	.097
	Low	31	3.17	3.75	
ANX, Pretest	High	12	1.67	2.19	.009*
	Low	30	4.64	3.47	
ANX, Posttest	High	12	.83	1.34	.008*
	Low	31	4.39	5.3	
HOS, Pretest	High	12	0.58	0.90	.013*
	Low	30	2.20	2.07	
HOS, Posttest	High	12	0.50	1.17	.317
	Low	31	1.42	3.04	

Mann-Whitney U Test used for analysis instead of ANOVA
* Statistical Significance

Supplementary Table 2, One-Way ANOVA Results of Pretest and Posttest Measures by High vs. Low Marlowe-Crowne Scores, continued on following page.

Measures	MC Category	N	M	SD	p
PHOB, Pretest	High	12	0.25	0.62	.027*
	Low	30	1.60	2.34	
PHOB, Posttest	High	12	0.21	0.29	.043*
	Low	31	1.03	1.84	
PAR, Pretest	High	12	0.92	1.38	.023*
	Low	30	3.17	3.87	
PAR, Posttest	High	12	0.42	0.90	.088
	Low	31	2.16	3.39	
PSY, Pretest	High	12	1.50	2.02	0.90
	Low	30	3.00	2.91	
PSY, Posttest	High	12	1.50	2.02	.241
	Low	31	2.58	2.87	

Mann-Whitney U Test used for analysis instead of ANOVA
* Statistical Significance

Supplementary Table 2, One-Way ANOVA Results of Pretest and Posttest Measures by High vs. Low Marlowe-Crowne Scores.

Measures	MC Category	N	M	SD	p
GSI, Pretest	High	12	13.42	11.89	.002*
	Low	30	36.43	25.77	
GSI, Posttest	High	12	8.17	7.54	.018*
	Low	31	30.00	30.04	
PST, Pretest	High	12	10.17	8.70	.000*
	Low	30	23.77	10.72	
PST, Posttest	High	12	6.34	5.48	.000*
	Low	31	19.03	10.01	

Mann-Whitney U Test used for analysis instead of ANOVA
* Statistical Significance

APPENDIX B. Forms, Tests, and Questionnaires.

INSTRUCTIONS FOR VOLUNTEERS

1. Pre-Breathwork

A. Please fill out the forms in the pre-Breathwork (left hand) pocket of your packet before your breathwork experience. Check both sides of each page to see if anything is written on the back.

B. The following forms are in this left-hand pocket of your booklet:

5. Consent to Participate in Research
6. Pre-Breathwork Questionnaire
7. The PANAS (Pre)
8. Templer DAS (on back side of PANAS)
9. TAS (both sides)
10. Marlowe-Crowne (both sides)
11. BSI

5. Post Breathwork

A. Please fill out the forms in the Post Breathwork (right hand) pocket of your packet after doing your breathwork. Tou may not want to do paperwork immediately after breathing so you might wish to wait until that evening or the next day to complete the forms.

B. The following forms are in the right-hand pocket of your booklet:

5. Post Breathwork Questionnaire
6. Marlowe-Crowne (both sides)
7. The PANAS (Post)
8. Templer DAS (on back side of PANAS)
9. BSI

3. Finally, Also, please feel free to use pen or pencil (provided). Thank you!

Patrick Hanratty

CONSENT TO PARTICIPATE IN RESEARCH

The following information is being provided to you in order that you will be informed about the research in which you have been asked to participate. If you have any questions regarding this information, or any aspects of this study, please feel free to ask the investigator for this project before you complete this form.

The investigator for this project is:

Patrick Hanratty
Name

Candidate, Doctor of Psychology
Title

Saybrook Institute
Affiliation

450 Pacific, San Francisco, CA. 94133
Address

Purpose and Benefits

The purpose of this research is to examine holotropic breathwork. In participating in this study, you will be given immediate verbal feedback on one of the scales you will be using. You will later be given written feedback on each of your test scores and what each of those scores represents.

Procedures

The study consists of two parts. Prior to your first breathwork experience, on day two or three, you will be asked to fill out several short pre-breathwork forms. The whole process should take approximately 30-40 minutes. Sometime after your breathwork experience, but before you breathe for the second time, please fill out the post-breathwork forms. (You may not wish to do paperwork immediately after breathwork.)

Safeguards

Your participation in this study is purely voluntary and anonymous. Furthermore, you have the right to discontinue your involvement in the study at any given time, for any or no reason, without being subjected to any negative feedback on the part of the investigator. All data received from this study will be handled in the strictest confidence.

Possible Risks

This study is designed to minimize potential risks to participants. It is unlikely that filling out any of these forms will upset you, but if it does, please discuss it with me, the primary investigator, who will administer these forms to you. My phone number is 608-787-5811

and you may call me anytime. You may also call my Committee Chair, Dr. Ian Wickramasekera, at 510-245-7022.

Summary Report

At the conclusion of this research project, including a six-month follow-up study, a summary report containing the results and outcomes of the study will be made available to you, as well as personal feedback, unless you request otherwise. Please write your name and address here so I can send you the results:

_____

_____

_____

Follow-up Research

We request that you participate in follow-up research in six months following the completion of this workshop. I will send out several more forms for you to fill out at that time. Follow-up information is extremely helpful to us. Please indicate if you would be willing to participate in follow-up research: YES___ No___

Dislaimer

Participation in this study does not put participants at risk for emotional or physical injury. However, the Saybrook Institute will not provide compensation or medical care in the unlikely event injuries are incurred as a result of the participation in this research project.

Signatures

I have explained the above components and conditions to this study. I have provided an opportunity for this individual to ask questions and have attempted to provide satisfactory answers to any questions that have been asked in the course of this explanation.

_____

Investigator

_____

Date

I have read the above information, have had the opportunity to ask questions about this information, and hereby acknowledge my voluntary participation in this study.

_____

Research Participant

_____

Date

TAS
(Tellegen & Atkinson, 1974)

Below you will find a series of statements a person might use to describe his/her attitudes, opinions, interests and other characteristics. Read each statement and decide which choice (TRUE or FALSE best describes you. For each statement,

If you think the statement is FALSE, mark a "0" on your answer sheet.

If you think the statement is TRUE, mark a "1" on your answer sheet.

Please answer every statement, even if you are not completely sure of the answer. Read every statement carefully, but do not spend too much tiem deciding on your answer.

1. Sometimes I feel and experience things as I did when I was a child.
2. I can be greatly moved by eloquent or poetic language.
3. While watching a movie, a TV show, or a play, I may sometimes become so involved that I forget about myself and my surroundings and experience the story as if it were real and as if I were taking part in it.
4. If I stare at a picture and then look away from it, I can sometimes "see" an image of the picture, almost as if I were still looking at it.
5. Sometimes I feel as if my mind could envelop the whole earth.
6. I like to watch cloud shapes in the sky.
7. If I wish, I can imagine (or daydream) some things so vividly that they hold my attention as a good movie or a story does.
8. I think I really know what some people mean when they talk about mystical experiences.
9. I sometimes "step outside" my usual self and experience an entirely different state of being.
10. Textures-such as wool, sand, wood-sometimes remind me of colors or music.
11. Sometimes I experience things as if they were doubly real.
12. When I listen to music, I can get so caught up in it that I don't notice anything else.
13. If I wish, I can imagine that my whole body is so heavy that I could not move it if I wanted to.
14. I can often somehow sense the presence of another person before I actually see or hear him/her.

15. The crackle and flames of a woodfire stimulates my imagination.

16. It is sometimes possible for me to be completely immersed in nature or art and to feel as if my whole state of consciousness has somehow been temporarily altered.

17. Different colors have distinctive and special meanings for me.

18. I am able to wander off into my own thought while doing a routine task and actually forget that I am doing the task, and then find a few minutes later that I have completed it.

19. I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again or almost so.

20. Things that might seem meaningless to others often make sense to me.

21. While acting in a play, I think I would really feel the emotions of the character and "become" her/him for the time being, forgetting both myself and the audience.

22. My thoughts often do not occur as words but as visual images.

23. I often take delight in small things (like the five pointed star shape that appears when you cut an apple across the core or the colors in soap bubbles).

24. When listening to organ music or other powerful music, I sometimes feel as if I am being lifted into the air.

25. Sometimes I can change noise into music by the way I listen to it.

26. Some of my most vivid memories are called up by scents and smells.

27. Certain pieces of music remind me of pictures or moving patterns of color.

28. I often know what someone is going to say before he or she says it.

29. I often have "physical memories"; for example, after I have been swimming I may still feel as if I am in the water.

30. The sound of a voice can be so fascinating to me that I can just go on listening to it.

31. At times I somehow feel the presence of someone who is not physically there.

32. Sometimes thoughts and images come to me without the slightest effort on my part.

33. I find that different odors have different colors.

34. I can be deeply moved by a sunset.

Marlowe- Crowne SDS*

Listed below are a number of statements concerning personal attitudes and traits. Please read each of the following items and decide whether the statement is true or false as it pertains to you and write T for true or F for false next to the item number.

1. Before voting, I thoroughly investigate the qualifications of all the canditates.

2. I never hesitate to go out of my way to help someone in trouble.

3. It is sometimes hard for me to go on with my work if I am not encouraged.

4. I have never intensely disliked anyone.

5. On occasion, I have had doubts about my ability to succeed in life.

6. I sometimes feel resentment when I don't get my way.

7. I am always careful about my manner of dress.

8. My table manners at home are as good as when I eat out at a restaurant.

9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.

10. On a few occasions, I have given up doing something because I thought too little of my ability.

11. I like to gossip at times.

12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

13. No matter who I'm talking to, I'm always a good listener.

14. I can remember "playing sick" to get out of something.

15. There have been occasions when I took advantage of someone.

16. I'm always ready to admit it when I make a mistake.

17. I always try to practice what I preach.

18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

19. I sometimes try to get even rather than to forgive and forget.

20. When I don't know something, I don't mind at all admitting it.

21. I am always courteous, even to people who are disagreeable.

22. At times, I have really insisted on having my own way.

23. There have been times when I felt like smashing things.

24. I would never think of letting someone else be punished for my wrongdoings.

25. I never resent being asked to return a favor.

26. I have never been irked when people expressed ideas very different from my own.

27. I never make a long trip without checking the safety of my car.

28. There have been times when I was quite jealous of the good fortunes of others.

29. I have almost never felt an urge to tell someone off.

30. I am sometimes irritated by people who ask favors of me.

31. I have never felt that I was punished without cause.

32. I sometimes think that when people have a misfortune, they only got what they deserved.

33. I have never deliberately said something that hurt someone's feelings.

From Crowne & Marlowe (1960).

PANAS*

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to the word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

_____interested	_____irritable
_____distressed	_____alert
_____excited	_____ashamed
_____upset	_____inspired
_____strong	_____nervous
_____guilty	_____determined
_____scared	_____attentive
_____hostile	_____jittery
_____enthusiastic	_____active
_____proud	_____afraid

*From Watson, Clark, & Tellegen (1988).

Templer DAS*

NAME_____

DIRECTIONS: Please indicate your age and sex, and then answer the 15 questions. If a statement is true or mostly true as applied to you circle "T". If a statement is false or mostly false as applied to you, circle "F".

T F 1. I am very much afraid to die.

T F 2. The thought of death seldom enters my mind.

T F 3. It doesn't make me nervous when people talk about death.

T F 4. I dread to think about having to have an operation.

T F 5. I am not at all afraid to die.

T F 6. I am not particularly afraid of getting cancer.

T F 7. The thought of death seldom bothers me.

T F 8. I am often distressed by the way time flies so very rapidly.

T F 9. I fear dying a painful death.

T F 10. The subject of life after death troubles me greatly.

T F 11. I am really scared of having a heart attack.

T F 12. I often think about how short life really is.

T F 13. I shudder when I hear people talking about World War III.

T F 14. The sight of a dead body is horrifying to me.

T F 15. I feel that the future holds nothing for me to fear.

*Templer (1970)

Brief Symptom Inventory (BSI)*

Below are a list of problems people sometimes have. Please read each one carefully and blacken the circle that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Blacken the circle for only one number for each problem and do not skip any items. If you change your mind, erase your first mark carefully.

Not at all 0

A little bit 1

Moderately 2

Quite a bit 3

Extremely 4

1. Nervousness or shakiness inside.

2. Faintness or dizziness.

3. The idea that someone else can control your thoughts.

4. Feeling others are to blame for most of your troubles.

5. Trouble remembering things.

6. Feeling easily annoyed or irritated.

7. Pains in heart or chest.

8. Feeling afraid in open spaces or on the streets.

9. Thoughts of ending your life.

10. Feeling that most people cannot be trusted.

11. Poor appetite.

12. Suddenly scared for no reason

13. Temper outbursts that you could not control.

14. Feeling lonely when you are with people.

15. Feeling blocked in getting things done.

16. Feeling lonely.

17. Feeling blue.

18. Feeling no interest in things.

19. Feeling fearful.

20. Your feelings being easily hurt.

21. Feeling that people are unfriendly or dislike you.

22. Feeling inferior to others.

23. Nausea or upset stomach.

24. Feeling that you are watched or talked about by others.

25. Trouble falling asleep.

26. Having to check and double check what you do.

27. Difficulty making decisions.

28. Feeling afraid to travel on busses, subways, or trains.

29. Trouble getting your breath.

30. Hot or cold spells.

31. Having to avoid certain things, places, or activities because they frighten you.

32. Your mind going blank.

33. Numbness or tingling in parts of your body.

34. The idea that you should be punished for your sins.

35. Feeling hopeless about the future.

36. Trouble concentrating.

37. Feeling weak in parts of your body.

38. Feeling tense or keyed up.

39. Thoughts of death or dying.

40. Having urges to beat, injure, or harm someone.

41. Having urges to break or smash things.

42. Feeling very self-conscious with others.

43. Feeling uneasy in crowds, such as shopping or at a movie.

44. Never feeling close to another person.

45. Spells or terror or panic.

46. Getting into frequent arguments.

47. Feeling nervous when you are left alone.

48. Others not giving you proper credit for your achievements.

49. Feeling so restless you couldn't sit still.

50. Feelings of worthlessness.

51. Feeling that people will take advantage of you if you let them.

52. Feelings of guilt.

53. The idea that something is wrong with your mind.

*Derogatis (1993).

Pre-Breathwork Questionnaire

NAME_____

Please provide the following information using the back of the sheet if necessary.

1. AGE_____ GENDER_____

54. Please indicate the highest educational level you have completed—e.g., high school, junior college, college, masters degree, doctorate, other.

55. Please list any/all previous breathwork experience you have. This may include Holotropic Breathwork or another form of breathwork. If this is your breathwork workshop, please indicate this.

56. If you would, please describe in your own words your religious/spiritual orientation or belief system. For instance, traditional Christian religion, other Christian sect, Orthodox or Reformed Jewish, Hindu, Muslim, or other religious sect; Atheist, or Eastern belief system; other. Please explain.

57. If you would, please describe what you wish to accomplish as a result of your breathwork experience. For example, personal growth, emotional/psychological healing, achieving a peak experience and/or accessing a nonordinary state of consciousness. Please esplain, using the other side of the sheet, if necessary.

58. Please describe in your own words how you feel at this time.

Post Breathwork Questionnaire

NAME_____

1. Please describe, in your own words, how you felt at the completion of your breathwork experience.

2. Please describe your breathwork experience, in as much detail as is comfortable for you.

3. Please add anything else you wish to say about your breathwork experience. (Use back of sheet if necessary.)

Follow-up Breathwork Questionnaire

NAME_____

1. Looking back, how would you assess your breathwork experience?

2. Looking back, did the questionnaires you filled out allow you to capture the essence of your breathwork experience?

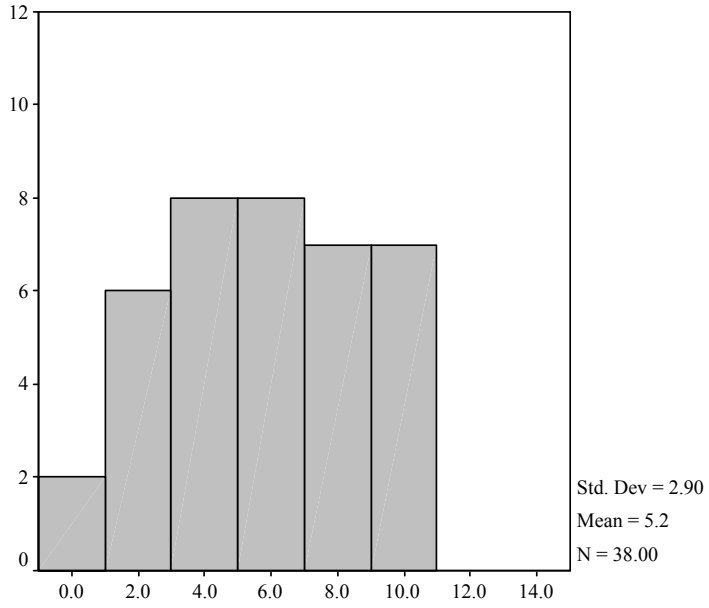
3. Please provide any suggestions that might help future researchers better gain access to your core breathwork experiences.

4. Other comments:

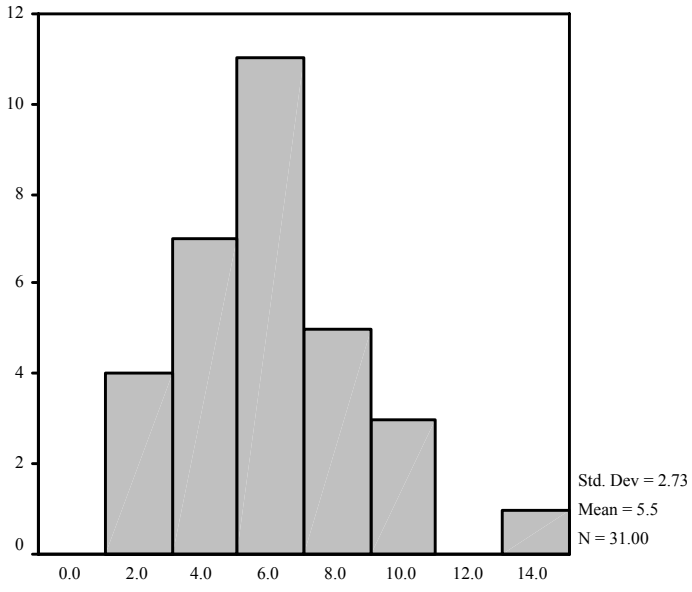
5. Questions or concerns:

Use back of sheet if necessary.

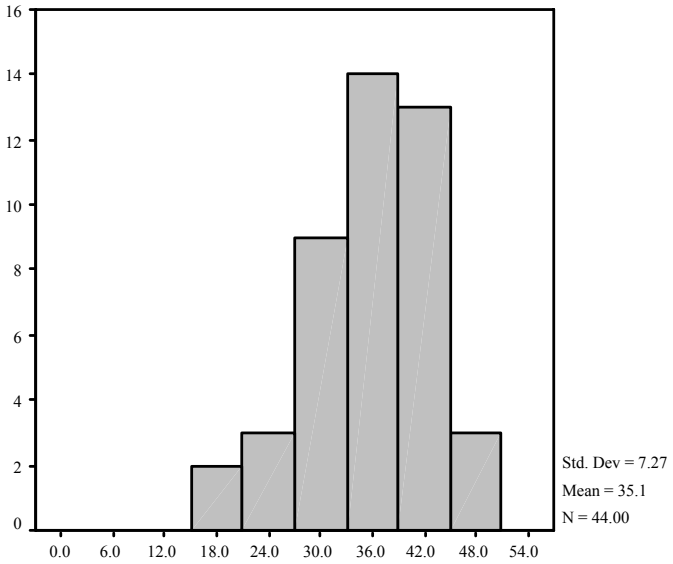
APPENDIX C: Frequency Distributions Expressed as Histograms



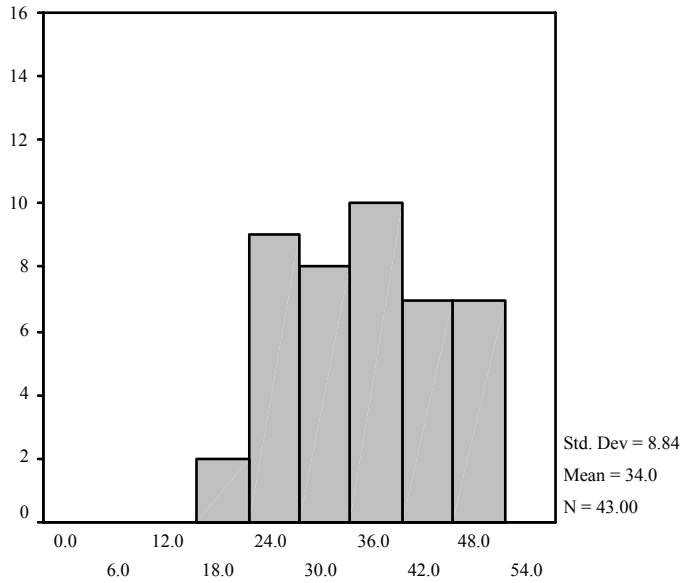
Death Anxiety Scores, Pretest



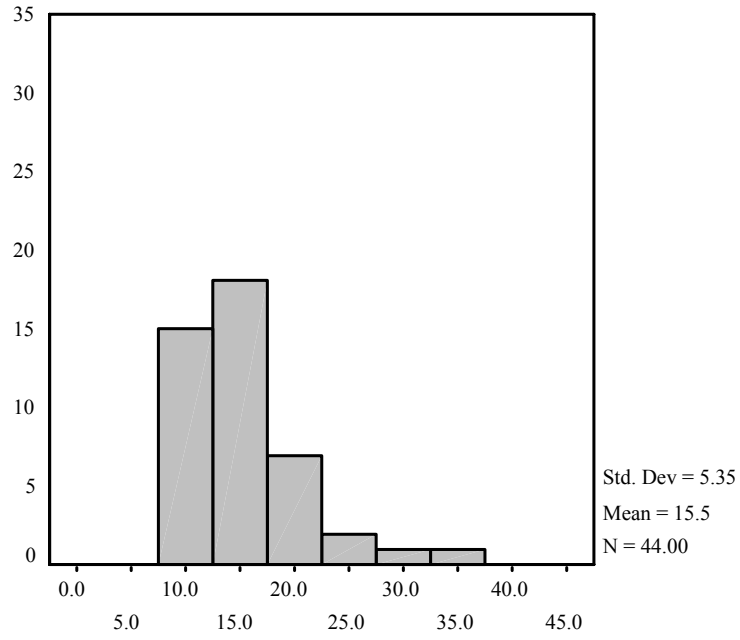
Death Anxiety Scores, Posttest



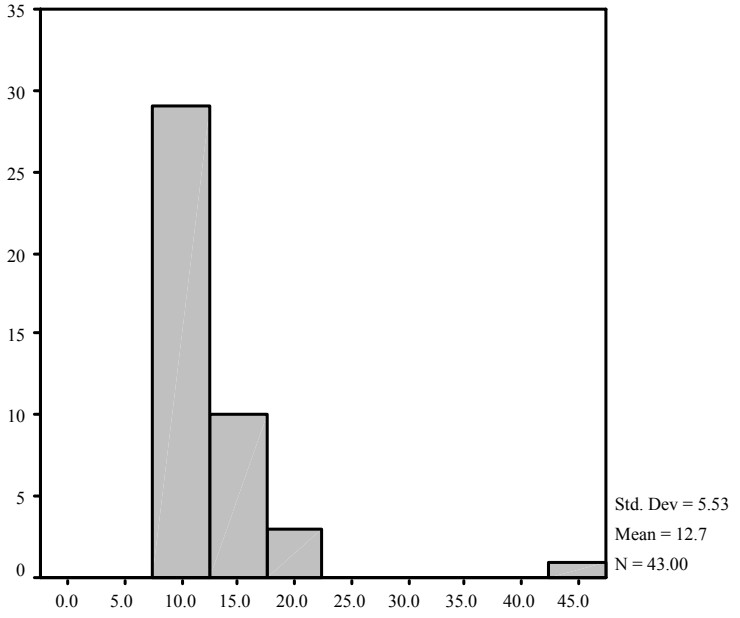
Positive Affect Scores, PANAS, Pretest



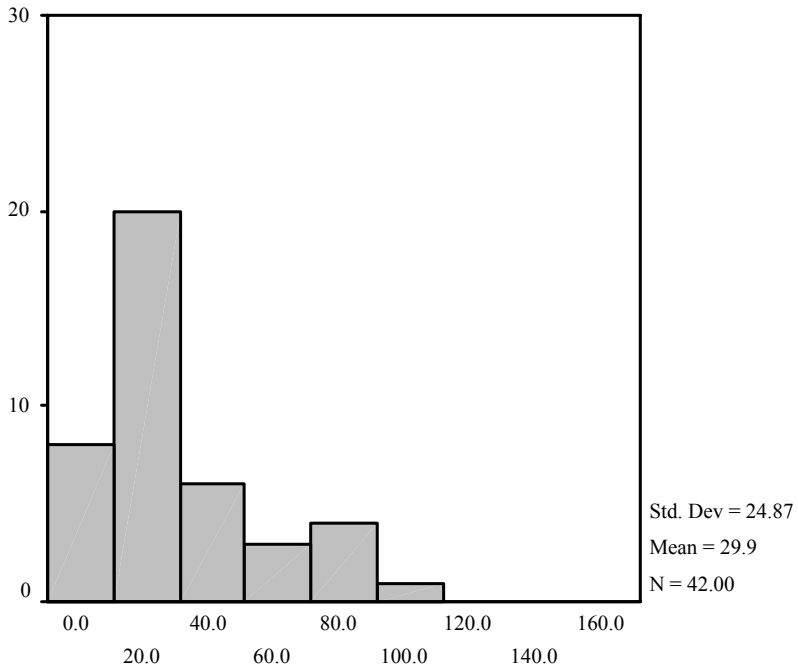
Positive Affect Scores, PANAS, Posttest



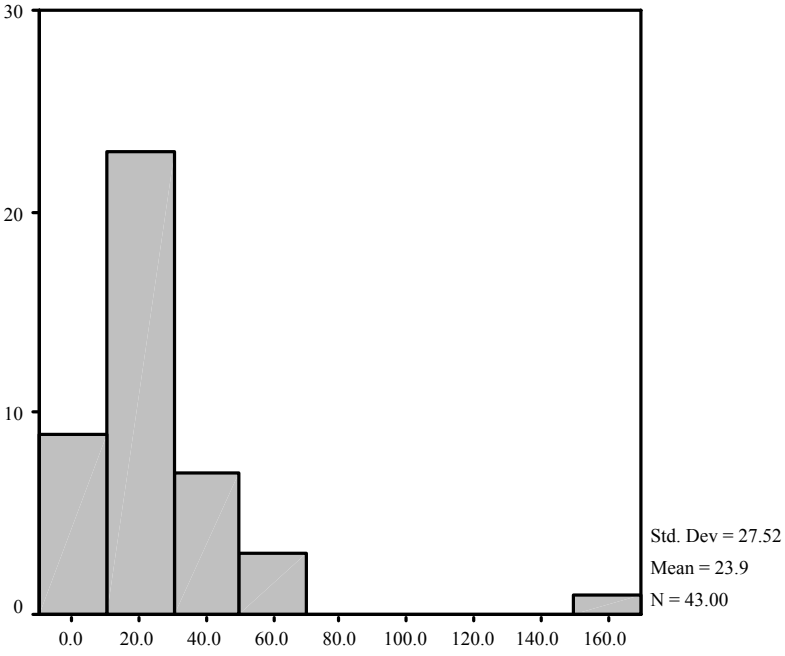
Negative Affect, PANAS, Pretest



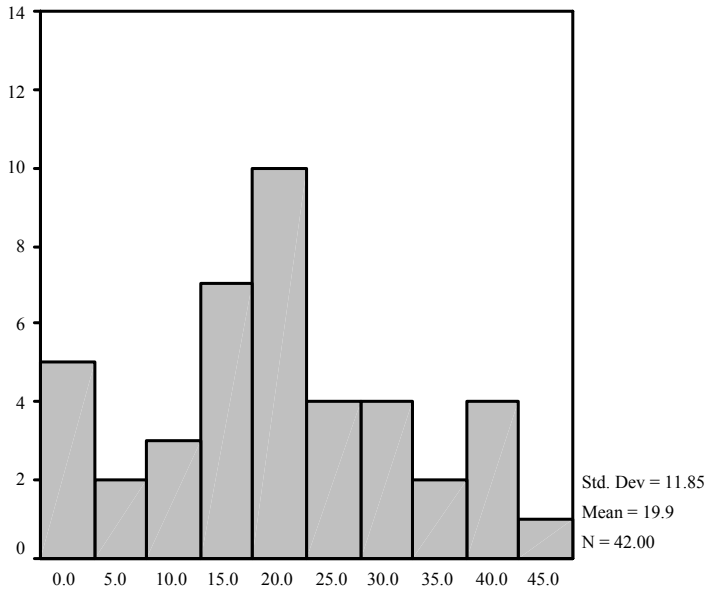
Negative Affect, PANAS, Posttest



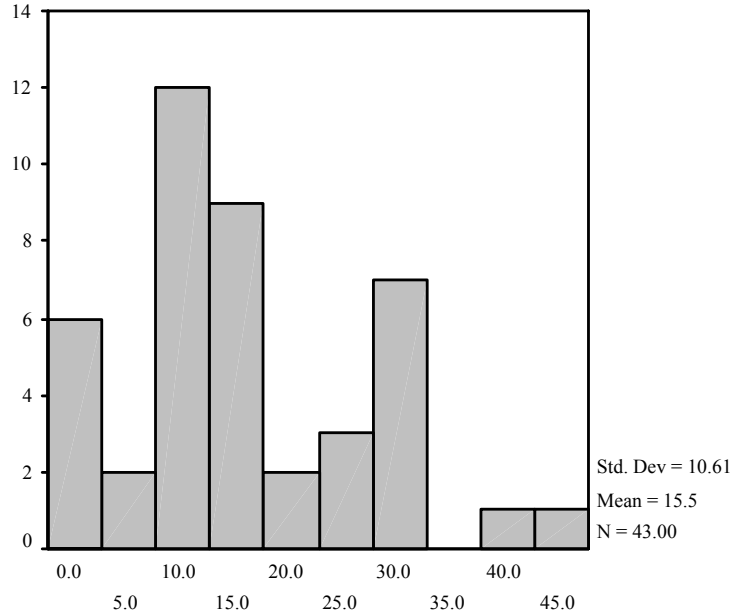
Global Symptom Inventory, BSI, Pretest



Global Symptom Inventory, BSI, Posttest



Positive Symptom Total, BSI, Pretest



Positive Symptom Total, BSI, Posttest