

VIPASSANA MEDITATIVE RELAXATION THERAPY IN THE TREATMENT OF ASTHMA

Joe Kunnumpuram
Ateneo de Manila University

ABSTRACT

This research studied the effect of Vipassana Meditative Relaxation (VMR) therapy in the treatment of asthma. 45 asthmatic students from Ateneo de Manila Grade school participated. The design was a three randomized independent groups design using within subjects design for correlated samples similar to the ABA design. The entire study lasted 3 months and 1 week. The DV measures were frequency, duration, intensity, medication, and global impression of asthmatic attacks. The 45 selected asthmatic students were randomly assigned to two treatment groups and a control group of equal size. A two-tailed t test for correlated samples ($p < .001$), confirms the hypothesis that VMR therapy is effective in the treatment of asthma; a two-tailed t test for two independent samples ($p < .05$), confirms the hypothesis that alleviation of asthma is brought about by the method of Vipassana, not by the unique personality effects of the therapist. A one-way-Anova and Scheffe's test for three randomized independent groups further confirm the validity of the findings.

The term meditation refers to a family of mental exercises that generally involve calmly limiting thought and attention. Such exercises vary widely and can involve sitting still and counting breaths, or focusing on any simple external or internal stimulus (Smith, 1975). To the casual observer it may seem implausible that a simple mental exercise such as focusing on breathing, body sensations, and mental processes as in Vipassana meditation, could have any effect on the widespread problems of human suffering such as stress, neurosis, anxiety and even alleviation of physical illness. However, since 1936 at least 100 scholarly books and journal articles have argued that meditation does have psychotherapeutic potential (Haims, 1972; Kanellakos and Ferguson, 1973; Lesh, 1970; Timmons and Kamiya, 1970; Timmons and Kanellakos, 1974). Based on the above speculations, a number of researches have been conducted on the therapeutic effects of

meditation and the results show that various types of meditation such as transcendental meditation, zen, yoga, and Vipassana have been effectively used in the treatment of stress-related illnesses.

THERAPEUTIC EFFECTS OF MEDITATION

Studies using mail-in questionnaires consistently yielded results that appeared to speak favorably for meditation. Wallace and Benson (cited in Gattozzi & Luce, 1971) found that of 400 transcendental meditators who completed a questionnaire regarding mental and physical health, 84% judged that their mental health had improved significantly since learning meditation. In addition transcendental meditators who were willing to be tested in the laboratory appeared healthier than nonmeditators on the Frieburger Personality Inventory (Febr, Nerstheimer, & Torber, 1973), the Personal Orientation Inventory (POI) (Hjelle, 1973), and tests of "autonomic stability"

measuring the rate of galvanic skin response (GSR) habituation to a series of loud tones and the number of spontaneous GSR fluctuations during a period of quiet inactivity (Orme-Johnson, 1973). Moreover, six experimental studies on the therapeutic effectiveness of TM, all using control groups, have found that over 4 to 10 weeks, meditators showed a "significantly greater decrease in spontaneous (Orme-Johnson, Kiehlbauch, Moore, & Bristol, 1973), as well as significantly greater improvement on the State-Trait Anxiety Inventory (Ballou, 1973; Ferguson and Gowan, 1973), the POI (Nidich, Seeman, & Dreskin, 1973; Seeman, Nidich, & Banta, 1972), the IPAT Anxiety Scale Questionnaire, Northridge Depression, Neuroticism, and Self-Actualization Scales (Ferguson & Gowan, 1973), and the Hypochondria, Psychasthenia, Social Introversion, Schizophrenia, and Taylor Anxiety Scales of MMPI (Orme-Johnson et al., 1973).

The therapeutic uses of zen meditation also have been investigated. Lesh (1970b) reports that after a period of 4 weeks of zen meditation meditators improved significantly more than the controls on the Affective Sensitivity Scale. Zazen meditation as therapy has been extensively researched in Japan using EEG recordings, Galvanic Skin Reflex (GSR) and Feedback Training or Voluntary Control and the results show that anxiety neurosis has been successfully treated by zazen (Hirai, 1989).

Yoga-meditation therapy was successfully used in the treatment of psychoneurotic patients at the King Edward VI Memorial Hospital in Bombay, India. The results show that the group that underwent yoga-meditation therapy showed significantly greater improvement than the control group, measured on the basis of clinical assessment, MMPI, Rorschach and Taylor Manifest Anxiety Scale (Vahia et al., 1973).

In the first study involving teaching meditation to children, meditators became more field independent as measured by the Children's Embedded Figures Test and less test anxious as measured by the Test Anxiety Scale for Children

(Linden, 1973), as compared to a guidance and a control group. A group of 25 normal and highly gifted kindergarten children underwent a form of meditation called wave meditation and all showed marked improvement in the levels of attention span, relaxation, and imagination (Murdock, 1978).

Thus, virtually all studies that have sought to document the effect of meditation on psychosomatic well-being have shown marked reduction of stress or anxiety in meditators versus nonmeditating controls, even as soon as a few weeks following the commencement of meditation. This has been a consistent finding whether physiological measurements were taken or researchers relied on self reports or standardized tests to determine the extent of this change (Carrington, 1977). Evidence also suggests that meditators may actually develop some immunity to stress, as evidenced by the fact that they respond physiologically with "fewer" alarm reactions to stressful stimuli after becoming meditators (Goleman & Schwartz, 1976).

Meditation can have a strong positive effect on many stress-related illnesses as well. A series of studies have shown that meditation has been successfully utilized in normalizing blood pressure (Benson & Wallace, 1972); in the treatment of tension headaches (Carrington, 1977); heart disease (Zamarra et al., 1978); and bronchial asthma (Honsberger & Wilson, 1973). Meditation, combined with relaxation therapy, has been successfully used in the treatment of insomnia (Woolfolk, et al., 1976). The use of intensive meditation by a patient with advanced cancer was followed by remission of the disease (Meares, 1978).

A 52-year old female who had unresolved grief and multiple cardiovascular and hemodynamic symptoms for 2.5 years following the death of her husband, was successfully treated with meditation, relaxation and personal construct psychotherapy (Delmonte, 1990). In another study conducted on stress management in

childhood and adolescence various techniques of relaxation, meditation, hypnosis and biofeedback have been found effective in the treatment of recurrent headache, chest pain, abdominal pain, syncope, and dizziness (Smith & Womack, 1987).

THE THERAPEUTIC EFFECTS OF VIPASSANA MEDITATION

Vipassana, as a form of meditation, takes its origin from the founder of Buddhism, Siddhartha Gautama Buddha who lived in India in the middle of the 6th century B.C. He made use of vipassana meditation in alleviating human suffering (Capra, 1975; Prabhavananda, 1969). The outline of Vipassana method is summed up in the opening of Buddha's discourse on the foundations of mindfulness -Maha Satipatthana Sutta. The four areas of contemplation indicated are: the body, the feelings, the mind, and the mind-objects. Mindfulness of the body, for instance, comprises mindfulness of breathing, mindfulness of postures and movements, and several exercises in which the meditator contemplates the body from specific points-of-view. The practice of breathing meditation (anapana sati) is the corner stone of the whole method (Naranjo & Ornstein, 1976).

Vipassana meditation has also been used in the treatment of many stress-related illnesses. Deatherage (1975) describes a set of psychotherapeutic techniques adopted from Buddhist Satipatthana or "mindfulness meditation." Training with psychiatric patients has proven most effective by beginning with observations of an obvious body process (e.g., breathing). Delmonte (1990) describes two basic meditation techniques of concentration and mindfulness, and discusses their relationship in the context of finding a linking repression to physical disorders. Mindfulness enhances insight and being opposite to the mechanism of repression, it promotes health.

The use of mindfulness meditation in treating five adults in 2-12 weeks therapy resulted in

patients gaining insight into their depressions, anxieties, or other neurotic symptoms (Deatherage, 1975). An anorectic patient was successfully treated with vipassana meditation. The patient was helped to observe the moment-to-moment flux of mental and physical events, experiencing their radical impermanence. Her mind opened and her anorectic symptoms disappeared within 3 weeks (Wilber et al, 1986). Ten patients (aged 18-40 years) with tension headaches received 20 daily sessions of Vipassana meditation. Pre-, mid-, and post-treatment assessment were conducted using two psychophysiological and three psychobehavioural measures along with a self-report.

Results indicate significant frontalis muscle tension and reduced skin conductance after treatment. Headache was reduced in terms of intensity, frequency, and duration, and there was improvement in associated anxiety symptoms. Subjects who were followed up for 5 months or 1 year maintained the improvement (Sharma et al., 1990).

MODERN APPROACHES TO THE TREATMENT OF ASTHMA

Modern approaches to the treatment of asthma include the following components: providing information about asthma and asthma medications; training and practice in trigger identification and avoidance; training in self-assessment of asthma symptoms and in the use of the peak flow meter to assess exacerbations in asthma and as a guide to taking medications or seeking medical care; training in diaphragmatic breathing, postural adjustments, relaxation, and stress reduction; using group and family therapy to blunt the fear and anxiety that accompanies the disease; and encouraging general healthy habits and attitudes. Most of these programs have been directed toward children with asthma and their families (Lehrer et al., 1992).

One of the most promising approaches to the management of asthma has been found to be

relaxation therapy. A number of studies have reported statistically significant improvement in pulmonary function following progressive muscle relaxation training (Richter & Dahme, 1982; Steptoe, 1984). Although some reviewers have commented that the magnitude of the changes generally falls short of the standard criteria for clinical significance used in evaluating asthma medication, such as a 15% increase in air flow, the consistency of the findings suggests that relaxation therapy may be a very useful adjunct to medical management, at least for some asthmatics (Lehrer et al., 1992). A clinical trial with 29 asthmatic children compared the long-term (months) effect of training to decrease facial muscle tension through relaxation to hold it at the same level. These changes are ascribed to a direct link between facial muscle tension and vagus nerve activity, through a hypothesized vagus-trigeminal reflex. There was significant improvement in various measures of pulmonary function (Kotses et al., 1991). Asthmatic exacerbations have been eliminated by training in controlled breathing directed toward preventing hyperventilation (Hibbert & Pillsbury, 1988).

Moreover, relaxation and meditation have been recommended as a very useful adjunct in the treatment of asthma. The meditation exercise recommended has the following steps: (1) sit in a comfortable position; (2) loosen all tight clothing if necessary; (3) close your eyes and relax; (4) breathe slowly and deeply using "7-1-7" or "6-3-6"; (5) free the mind of any thoughts; (6) continue breathing; (7) if things come into your mind, just ignore them and let them pass by; (8) concentrate on the emptiness of the mind; and (9) visualize yourself in a healthy mood (Amores, 1993). The above procedure of relaxation and meditation is very similar to the vipassana meditative relaxation which may be effectively used in the treatment of asthma.

CONCEPTUAL FRAMEWORK

Every system of meditation (TM, zen, yoga or vipassana) has one thing in common: the calming of the objective mind to enter deeper and deeper into the subjective mind. This shift automatically induces the passive relaxation response and keeps it there until awakened. In such an atmosphere the mind is free to let other realities affect it. It can be creative or even curative. This is not achieved by the meditation director, but by "the subject himself undergoing meditation. The director only facilitates the process in which the subject can make use of his own inner resources to bring about therapeutic changes (Bulatao, 1987).

One of the most important physiological benefits of meditation is lowered levels of tension due to a profound relaxation response by the body/mind composite. Heart rate and blood pressure drop. Breathing rate and oxygen consumption decline because of the profound decrease in the need for energy.

Brain waves shift from an alert beta-rhythm to a relaxed alpha-rhythm. Blood flow to the muscles decreases, and instead blood is sent to the brain and skin producing a feeling of warmth and rested mental alertness (Borysenko, 1987). Researches in psychoneuro-immunology have shown that there is a rich and intricate two-way communication system linking the mind, the immune system and potentially all other systems, a pathway through which our emotions that produce tension or relaxation can affect the body's ability to defend itself. When emotional tension increases, the immune system which defends the body against illness is inhibited; on the other hand, when relaxation response increases, the immune system is helped to defend itself against illness. Because meditation has the power to bring about deep relaxation response, meditation may be effectively used in the

alleviation of stress-related illnesses such as asthma (Borysenko, 1987).

From the life of Buddha it is said that after struggling for many years to find a solution to the problem of suffering, he discovered in profound meditation the secret of removing all tensions and pain. The secret was to sit in silence, in a relaxed, non-trying mood and allow the flow of every reality to affect him. And he was awakened into great interior harmony, peace and well-being. He also found that the best way to reach this goal was to start with observing one's own breathing process, body sensations, feelings and mental thought patterns in a detached manner as they rise and fall away in one's consciousness. This method originating from Buddha came to be known as vipassana meditation for the cessation of suffering.

In its contemporary form, vipassana is described as training in mindfulness, choiceless awareness or bare attention. Bare attention is defined by two technical paradigms: a particular attention deployment and a particular way of managing affect. Cognitively, attention is restricted to registering the mere occurrence of any thought, feeling or sensation exactly as it occurs and enters awareness from moment to moment without further elaboration. Affectively, all feelings and emotions are attended to equally without selection or censorship. If physical or mental reactions like these occur, they themselves are immediately noted and made the objects of bare attention. Even lapses in attention—distractions, fantasies, reveries internal dialogue—are made objects of bare attention as soon as the meditator becomes aware of them. The aim is threefold: to come to know one's own mental processes, to begin to have the power to shape or control them, and finally to gain freedom from the condition where one's psychic processes are unknown and uncontrolled (Wilber et al, 1986).

Vipassana meditation is also similar to free association within the framework of homeostasis, psychogenic and Gestalt models of therapy. The objectives of mindfulness are juxtaposed to those of repression. Mindfulness enhances insight and

facilitates the integration of perceptual, cognitive, and behavioral aspects of human functioning. The mindfulness component of meditation, being opposite to the mechanism of repression, promotes health (Delmonte, 1990).

Moreover, vipassana meditation is based on the premise that only the individual has the ability to help himself. In the treatment of mental and physical illness using vipassana, the most effective way of beginning therapy is by focusing bare attention on one's own breathing process. By establishing a "watcher self" the patient is grounded in the present where there is a greater chance of making significant therapeutic changes (Deatherage, 1975). Bare attention, first of all, unbinds the attachment of the self to its expressions, that is, a person undergoing such an experience can feel "a part of yet apart from" the ongoing phenomenological experience, such that observation without interference is possible. Secondly, bare attention loosens the connections between associational elements of a frame, such that an individual element can be experienced within multiple associational elements of a frame, such that an individual element can be experienced within multiple associational frames. Thus, deframing can occur (Gilligan, 1987).

From a cognitive stand point it becomes clear that vipassana experience of bare attention on breathing, body sensations and mental processes without any censorship by the "watcher self," goes beyond the objective and subjective mode of knowing. It is a type of meta-cognition, a higher form of consciousness by which the "watcher self" just observes all reality whether subjective or objective as they rise and fall away in one's consciousness. The "watcher self" is at rest as it observes the agitations of the various sensations and mental processes as they rise and fall away, bringing about the necessary relaxation response and possible healing.

Vipassana experience is also similar to the autogenic training in self hypnosis for managing many physiological problems brought about by psychological stress. For instance, in asthmatic

patients a tightening of the chest can bring about anxiety that an asthmatic attack is about to occur. This anxiety in turn tightens the air sacs and tubes of the lungs, and the tightening in turn results in higher anxiety and so on until a full blown asthma attack occurs. By autogenic training in self hypnosis one can control the air passages of the lungs, leaving them open and thus breaking the vicious cycle of tightening-anxiety-tightening. By a process of relaxation, breathing and hypnotic suggestion of heavy arms and warmth, the asthmatic attack may be aborted (Bulatao, 1987). In a similar way, in vipassana meditation the meditator becomes accustomed to the relaxation response by autogenic training by observing one's own breathing, body sensations, and mental processes. This relaxation response is utilized to help the asthmatic patient to heal himself of his asthma or at least control his asthmatic attacks.

From the foregoing study, it is seen that vipassana is a form of meditation in which the "watcher self" observes all phenomena whether pleasant or unpleasant as they rise and fall away in human consciousness by focussing bare attention on one's own breathing, body sensations, feelings and mental processes. This process of bare attention can bring about the salutary relaxation response in the body/mind composite. In this process of quiet relaxation the objective and subjective modes of consciousness are allowed to function naturally. As this natural process is allowed to continue by the "watcher self", various experiences like fear, anxiety, and stress due to asthma will rise and fall away and the result is the possible disappearance of asthma symptomology.

Hence, the study seeks to answer the following research questions:

1. Is Vipassana Meditative Relaxation therapy effective in the treatment of asthma?
2. Is alleviation of asthma brought about by the unique personality effects of the therapist or by the method of vipassana?

Based on the review of related literature, conceptual framework, and the questions raised above the following hypotheses may be formulated:

Null Hypotheses (Ho)

1. Vipassana Meditative Relaxation therapy is not effective in the treatment of asthma.
2. Alleviation of asthma is not brought about by the unique personality effects of the therapist, but by the method of vipassana.

Alternative Hypotheses (H1)

1. Vipassana Meditative Relaxation therapy is effective in the treatment of asthma.
2. Alleviation of asthma is brought about by the unique personality effects of the therapist, not by the method of vipassana.

METHOD

Sample/Subjects

With the permission of the Ateneo Grade School authorities, 3,300 letters were sent out to the parents of all the students within the age bracket of 8-14 (grades 2, 3, 4, 5, 6, and 7) requesting them to fill in the necessary information regarding their asthmatic child. The letters also contained request for permission from the parents to conduct the meditative relaxation therapy for the asthmatic students. Within the stipulated period of two weeks, 110 replies came in for evaluation of the asthmatic students.

Of these 110 students, 45 students had a history of 3-16 asthmatic attacks per month. These 45 asthmatic students were randomly assigned to three groups of 15 subjects in each group. From these three groups, two experimental groups and a control group were randomly selected for the study. Moreover, during the randomization of the 45 subjects into three groups, randomization was done for each grade level so that the three groups were balanced according to age and height.

Instruments

One vipassana script was used by the investigator as the therapist for one of the experimental groups and an identical vipassana script recorded on an audio-tape by the therapist himself was utilized for conducting therapy for the other experimental group. A small carpet (6'x4') was used by each subject for body relaxation. A standard peak flow meter was used to monitor the intensity of asthma. Global assessment of the illness was made by the asthmatic student himself through the personal assessment of the human faces drawn on a paper representing the student's present condition on a 0 to 4 scale. The frequency and duration of asthmatic attacks as well as the medication used were assessed by means of interviews. All the measurements were done by the therapist himself.

Design

Three Randomized Independent Groups Design
(The experimental groups using Within Subjects Design, the ABA Design)

	Pre-treatment (4 weeks)	Treat-ment (4 weeks)	Post-treatment (1 week)	Delayed (4 weeks)
C 1	X	T1 (n1=15) T2 (n2=15) no T (n3=15)	O2	O3
A1		B	A2	

Figure 1. Experimental Design

The design of the present study is based on the special experimental clinical research design of Ma. Ll. Ramos in her doctoral dissertation: "Eypnotherapy in the Treatment of Chronic Headaches" (Ramos, 1986). It is a three randomized independent group design using within subjects design similar to the ABA design. The first observation (O1), for each of the three groups measured the symptomatic baseline condition (A1) prior to the vipassana treatment

(X). VMR treatment was given to the two treatment groups consisting of 15 subjects in each group, that is, a total of 30 subjects received the treatment (B condition); but no treatment was given to the control group. The second observation (O2), measured the dependent variable immediately after the post treatment period. The (O3) measured the dependent variable during the delayed post treatment period.

The 45 subjects selected were randomly assigned to three groups of 15 each. The control group received no treatment, while the experimental groups received the treatment. The treatment for one of the experimental groups was to follow a VMR script administered by the therapist himself, and the treatment for the other group was to undergo the same VMR using the same script recorded on an audio-tape by the same therapist to evidence any experimenter effect present.

The major experimental framework of the entire research was the within subjects design or repeated measures using the same subjects as control. In this design all the subjects in each treatment group were exposed to all the treatment conditions of each group and, thus, they were used as their own control. The constant monitoring and repeated measurements of the dependent variable for the subjects all throughout the investigation allowed for the sensitive experimental control techniques of elimination and constancy. Through intra-subject control, such problems of internal validity as proactive history, maturation, retroactive history, and instrumentation were automatically controlled for in the design itself (Ramos, 1986).

The basic format of the within subjects design used in this study is similar to the ABA design where the initial A represents the baseline state of the dependent variable prior to the treatment; B corresponds to the application of the independent variable; and the second A captures the state when the treatment condition is removed (Ramos, 1986).

Vipassana Meditative Relaxation therapy was manipulated as:

1. Relaxation of the body
2. Awareness of the natural process of breathing
3. Awareness of body sensations
4. Awareness of chest congestion
5. Coming back to the natural process of breathing

(See Appendix A)

Alleviation of asthma was measured by the following ways:

1. Frequency of asthmatic attacks per week or month
2. Duration of asthmatic attacks in minutes
3. Intensity of asthmatic attacks by means of a peak flow meter
4. Number of medications per week
5. Asthmatic student's global impression of the illness

(See Appendix B)

Procedure

Asthmatic students who met the stipulated requirements were interviewed on a weekly basis during the pre-treatment period (4 weeks), treatment period (4 weeks), immediate post-treatment period (1 week), and delayed post-treatment period (4 weeks). From these interviews the frequency of attacks, duration of attacks in minutes, lung capacity (intensity of asthma) in litres per minute by means of a standard peak flow meter, and the global impression of the illness on a 0 to 4 scale, were recorded. During the treatment period of 4 weeks the first session was spent in VMR training, which involved training for 30 minutes. Next seven sessions were spent in the utilization of VMR therapy. After the treatment, again the dependent variable measures were recorded during the immediate post)treatment of one week. Finally, after the delayed post)treatment period of another 4 weeks (same length of time as the baseline phase) the dependent variable measures were again recorded.

Statistical Analysis

Quantitative characterization of the sample in terms of the various measures of the dependent variable were recorded. The following necessary data were computed: (a) mean, (b) standard deviation, and (c) percentages. A percentage improvement for each individual patient based on the difference between the pre-treatment and immediate post-treatment measures as well as pre-treatment and delayed post-treatment measures were calculated. The effectiveness of the treatment on the dependent variable was examined using a t test for correlated samples ($N = 30$). The standard t test for two randomized independent groups design compared the means of the two randomized groups ($n_1 = 15$ and $n_2 = 15$) which underwent the same VMR therapy, one conducted by the experimenter and the other following the audio-tape. A one-way-ANOVA was used to see any significant differences between the experimental groups and the control group before and after treatment, using the same pre- and post-treatment measures. Because the analysis of variance gave a nonsignificant F ratio for the intensity measurements, a t test for correlated samples was computed for the control group as well. Scheffe's post hoc analysis was used to assess any significant differences between means which contribute to the improvement in the asthmatic students. For a more concrete illustration of the effect of the independent variable on the dependent variable, the dependent variable measures were also presented graphically.

RESULTS

This section presents the findings of the experiment as follows. First, the basic demographic profile of the subjects are given as an overview of the type of clientele used for the research. Second, the means and standard deviations of the pre-treatment, immediate post-treatment and delayed post-treatment measures

are given. Third, the results of the within subjects design which is the major experimental framework are shown. Quantitative results of the three observation periods are given along with qualitative observations of the VMR therapeutic procedure used for the alleviation of asthma. The monitoring of the control group over the entire period of the study also is included.

The information gathered through the secondary research designs, namely two randomized independent groups design for the evaluation of experimenter effects as well as the three randomized independent groups design for finding any significant difference between the treatment groups and control group before and after the treatment is also given.

Asthmatic Students Selected for the Study

The study included 45 subjects ($n_1 = 15$, $n_2 = 15$, $n_3 = 15$). All were male students of the Ateneo Grade School, belonging to grades 3, 4, 5, 6, and 7. Their age ranged from 8 to 14 years and their height ranged from 49 to 67 inches. The average age and standard deviations for each group were 10.47 and 1.06, 10.73 and 1.33, 10.33 and 1.11 respectively.

The average height and standard deviations for each group were 56.93 and 4.43, 56.83 and 3.91, 56.00 and 4.39 respectively.

Table 1
Pre-treatment Means and Standard Deviations of Different DV Measures for the Three Groups

Group	Mean/ SD	fr/mth #attacks	dur/wk mn	int/wk liter/m	med/wk #pills	gl.imp/wk 0-4 scale
GI	Mean	6.20	43.53	252.27	13.15	2.134
	SD	3.68	35.03	69.35	6.70	0.755
GII	Mean	6.26	53.50	296.47	14.25	2.620
	SD	2.73	30.13	64.17	6.26	0.760
GIII	Mean	5.73	48.60	271.73	14.45	2.334
	SD	2.43	30.89	41.42	5.32	0.827

The 45 students selected for the study had the above symptomatic condition at the commencement of the treatment. The mean and standard deviations of the three groups for each of the five measures are given in Table 1.

The most common medications used were:

ventolin, budesort, budesoride, prediasone, theofan, theophylline, bicanyl, nuelin, bralexis elixir, zaditen claritin, loviscol, asbal, berotec, hismanal, primalan, expectorant, herbal medicine, maxepa fish oils, and inhalers, turbuhalers, and nebulizers.

Table 2
 Immediate Post-Treatment Means and Standard Deviations of Different DV
 Measures for the Three Groups

Group	Mean/ SD	fr/mth # attacks	dur/wk mn	int/wk litre/mn	med/wk # pills	gl.imp/wk 0-4 scale
GI	Mean	1.66	6.45	298.87	5.17	1.022
	SD	2.52	9.35	62.78	7.28	0.660
GII	Mean	1.33	8.00	333.00	4.23	0.821
	SD	2.61	16.75	57.24	5.61	0.653
GIII	Mean	4.80	48.27	292.40	12.22	1.999
	SD	3.70	63.70	31.87	9.53	0.864

The symptomatic condition of the three groups during the immediate post-treatment

period was measured. The means and standard deviations are given in Table 2.

Table 3
 Delayed Post-Treatment Means and Standard Deviations of
 Different DV Measures for the Three Groups

Group	Mean/ SD	fr/mth # attacks	dur/wk mn	int/wk litre/mn	med/wk # pills	gl.imp/wk 0-4 scale
GI	Mean	0.693	2.893	315.50	1.840	0.733
	SD	1.625	6.680	51.27	3.962	0.623
GII	Mean	0.907	2.400	330.00	4.440	0.833
	SD	1.567	3.439	65.86	8.250	0.919
GIII	Mean	4.213	28.360	290.07	13.013	2.000
	SD	3.782	40.742	63.74	10.339	1.035

Again the symptomatic condition of the three groups was measured after a week and after a month for the delayed post-treatment measures.

The means and standard deviations are given in Table 3.

Table 4
Percentage of Improvement for the Three Groups
(Immediate Post-treatment period)

Group	fr/mth # attacks %	dur/wk mn %	int/wk litre/mn %	med/wk # pills %	gl. imp/wk 0-4 scale %
GI	78.45	83.24	22.75	63.81	51.60
GII	83.67	87.24	14.96	71.32	48.58
GIII	12.03	12.46	9.14	25.01	6.72

Based on the above data percentage of improvement for each group was calculated.

Percentage of improvement for each group is given in Table 4.

Table 5
Percentage Improvement for the Three Groups (Delayed Post-treatment Period)

Group	fr/mth # attacks %	dur/wk mn %	int/wk litre/mn %	med/wk # pills %	gl. imp/wk 0-4 scale %
GI	91.44	92.50	31.12	83.15	60.59
GII	89.41	94.72	12.53	72.50	68.39
GIII	26.13	37.08	15.27	17.46	7.98

Percentage of improvement for the delayed post-treatment period is given in Table 5.

From tables 4 and 5 it is clear that Groups I and II showed significantly high percentage improvement in all DV measures, whereas Group III showed low percentage of improvement. After

the immediate post-treatment period, 17 out of 30 asthmatic students showed 100% symptom relief and after the delayed post-treatment period, 18 out of 30 asthmatic students showed 100% symptom relief.

The Within Subjects Experiment

Table 6
 Test for the Significance of Difference between Pre-Treatment and Immediate Post-Treatment Measures for Correlated Samples (n = 30)

DV Measures	D	S D ²	t values
Frequency	142.00	800.000	12.347 ***
Duration	1239.25	75724.190	7.779 ***
Intensity	1094.00	94518.000	4.602 ***
Medication	288.95	4228.970	7.471 ***
Gl. impression	43.68	86.413	8.991 ***

* p < .05. *** p < .001. t crit.(29) = 2.045

The main part of the experiment was the within subjects experiment to assess the effectiveness of the VMR therapy in the treatment of asthma. Hence, the t test for the correlated

sample of 30 experimental subjects are given in the next two tables. The obtained t values of the immediate post-treatment measures for a two-tailed test are given in Table 6.

Table 7
 Test for the Significance of Difference between Pre-Treatment and Delayed Post-Treatment Measures for the Correlated Samples (n = 30)

DV Measures	D	S D ²	t values
Frequency	162.80	1087.88	22.269 ***
Duration	1377.60	92729.76	7.890 ***
Intensity	1520.00	125627.25	6.778 ***
Medication	348.75	5276.10	9.809 ***
Gl. impression	49.32	102.26	10.536 ***

* p < .05. ***p < .001 t crit.(29) = 2.045

The obtained t values for the delayed post-treatment measures for a two-tailed test are given in Table 7.

The Two Independent Groups Experiment

Table 8
Pretreatment, Immediate Post-treatment, and Delayed Posttreatment
Measures for Groups I and II

DV Measures	Baseline Pre-treatment (t values)	Immediate Posttreatment (t values)	Delayed Posttreatment (t values)
Mean frequency	0.051	0.355	0.367
Mean duration	0.836	0.212	0.254
Mean intensity	1.812	1.560	0.696
Mean medication	0.464	0.937	1.100
Mean gl.impression	1.748	0.835	0.349

$p < .05$ $t \text{ crit.}(28) = 2.048$

Prior to the treatment, groups I and II shared a similar degree of asthma problems which can be seen from the t values for a two-tailed test. After the post-treatment and delayed post-

treatment periods also the improvement in asthma symptomology for Groups I and II was similar as is shown by the t values for a two-tailed test. The t values are given in Table 8.

The Three Randomized Independent Groups Design

Table 9A Comparison of the Pretreatment, Immediate Posttreatment, and
Delayed Posttreatment Measures for the Three Randomized Groups

DV Measures	Baseline Pre-treatment (F values)	Immediate Post-treatment (F values)	Delayed Post-treatment (F values)
Mean frequency	0.141	6.099	9.034
Mean duration	0.631	5.702	5.780
Mean intensity	2.071	2.592	0.977
Mean medication	0.208	4.634	8.070
Mean gl.impression	2.928	11.118	19.22

$p < .05$ $F \text{ crit.}(2,43) = 3.22$

Another way of examining the effectiveness of the treatment on the dependent variable was through a comparison of the results of the two treatment groups and the control group by means

of the three randomized independent groups design. The results of the One-way-ANOVA for the treatment measures are given in Table 9.

Table 10
Scheffe's Post Hoc Analysis for the Immediate Post-treatment Measures

DV Measures	GI vs GII	GI vs GIII	GII vs GIII
Mean frequency	0.0912	11.825	14.441
Mean duration	0.0122	8.872	8.227
Mean intensity	3.1832	0.114	4.505
Mean medication	0.1127	6.384	8.167
Mean gl.impression	2.2250	13.350	19.385

$p < .05$ F crit.(2,43) = 6.44

The results of the Scheffe's post hoc analysis for the comparison of the means of the

immediate post-treatment measures are given in Table 10.

Table 11
Scheffe's Post Hoc Analysis for the Delayed Post-treatment Measures

DV Measures	GI vs GII	GII vs GIII	GII vs GIII
Mean frequency	0.053	14.370	12.680
Mean duration	0.003	8.500	8.830
Mean intensity	0.420	3.253	1.206
Mean medication	0.780	14.735	8.675
Mean gl.impression	0.940	12.338	13.258

$p < .05$ F crit.(2,43) = 6.44

The results of the Scheffe's post hoc analysis for the comparison of the means

of the delayed post-treatment measures are given in Table 11.

Table 12
Tests for the Significance of Difference between the
Pre-treatment, Immediate Post-treatment, and Delayed Post-treatment
Measures for the Control Group (Correlated Samples)

DV Measures	Immediate Post-treatment (t values)	Delayed Post-treatment (t values)
Mean frequency	1.073	1.703
Mean duration	0.229	0.496
Mean intensity	2.396	3.103
Mean medication	1.295	0.830
Mean gl.impression	0.970	1.152

$p < .05$ t crit.(14) = 2.145

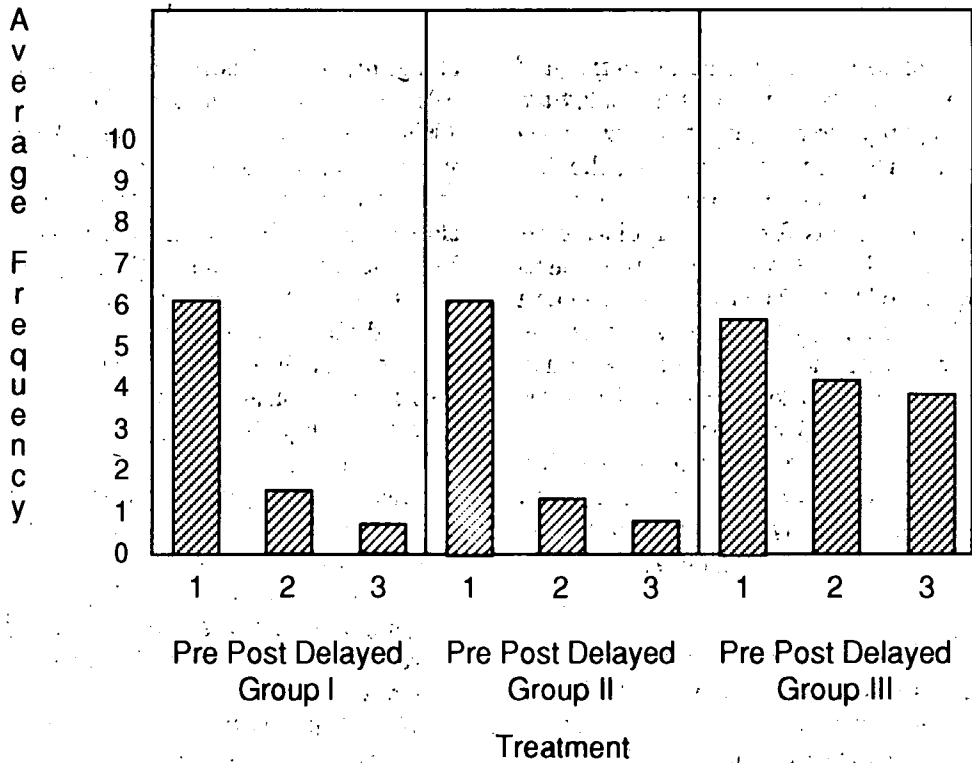


Figure 2. Average Monthly Frequency of Asthmatic Attacks by Group

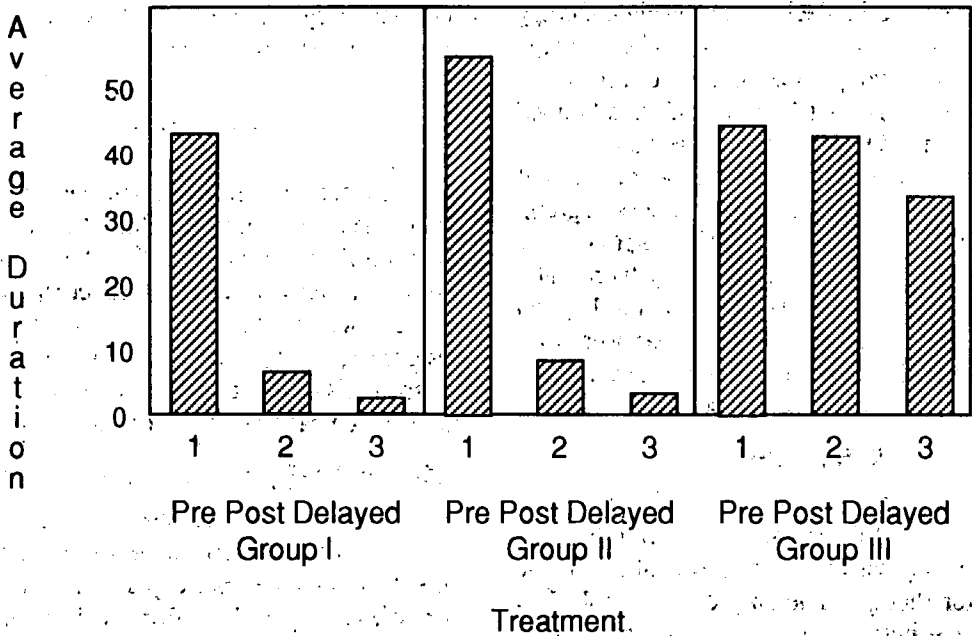


Figure 3. Average Weekly duration of Asthmatic Attacks by Group

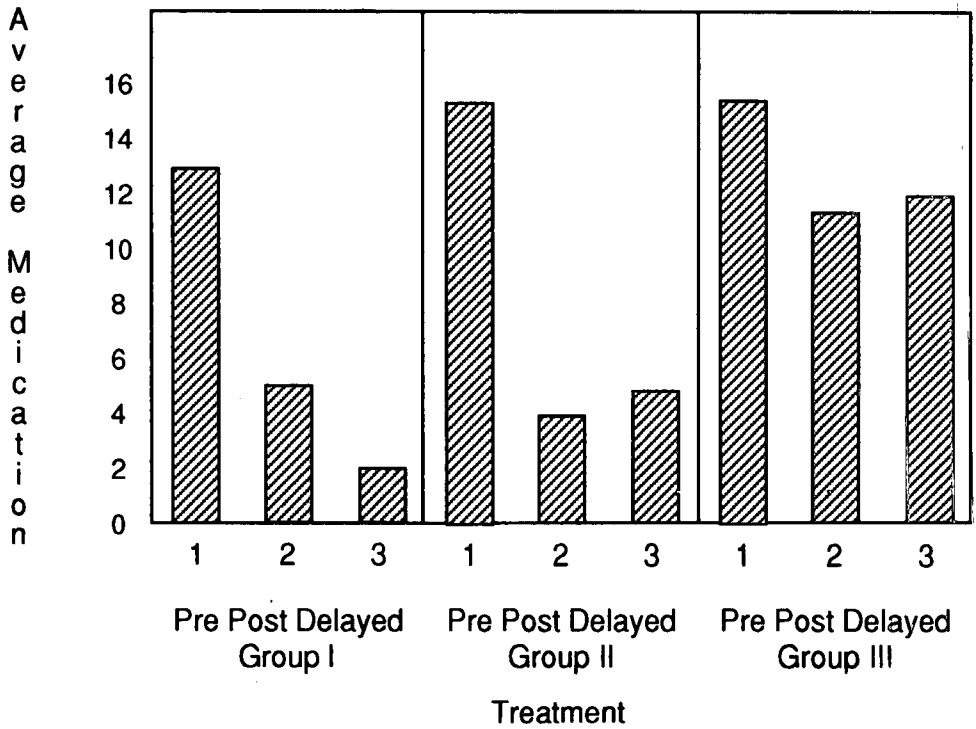


Figure 4. Average Weekly Medication by Group

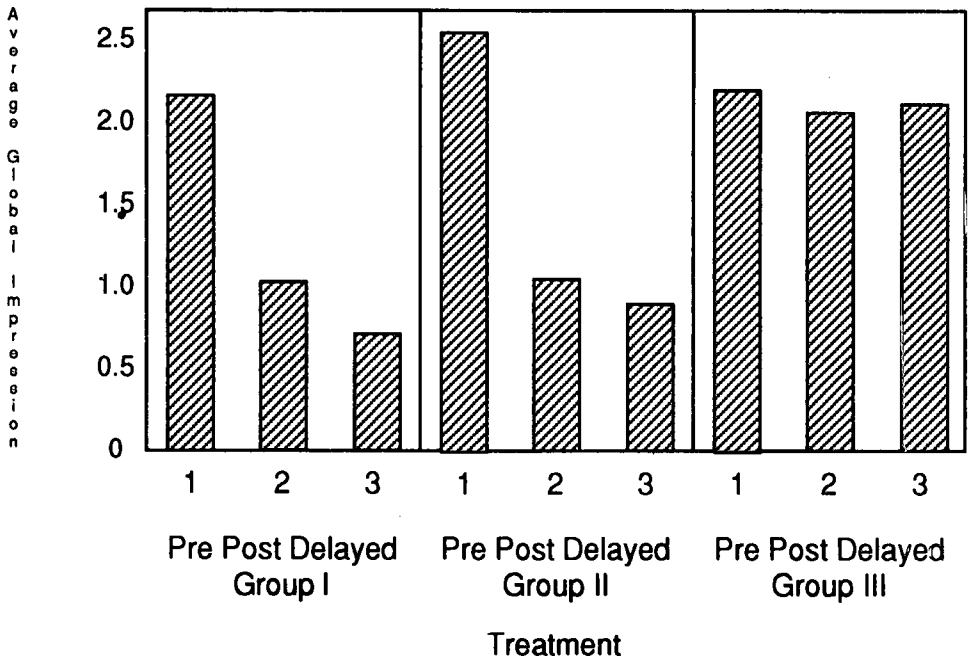


Figure 5. Average Weekly Global Impression by Group

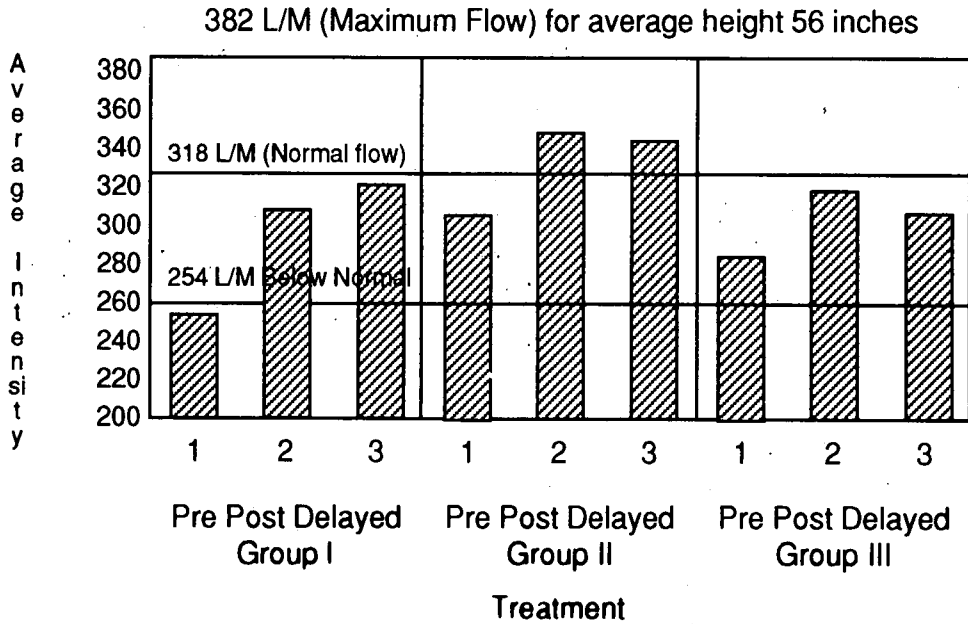


Figure 6. Average Intensity Measured by the Peak Flow Meter by Group

significant decreases in such asthma related characteristics as duration ($p < .001$), intensity ($p < .001$), medication ($p < .001$), and global impression ($p < .001$). These findings are true for both immediate and delayed post treatment measures.

These findings from the within subjects design, the principal experimental design were sustained by the two independent groups design for experimenter effects in which the 30 asthmatic students were randomly assigned to two groups of 15 subjects each per group. Group I received VMR therapy, where as group II received therapy by means of an audio-tape of the same VMR script. The two randomized groups showed no significant difference on all five measures of the dependent variable. Consequently the observed effectiveness of the VMR therapy cannot be attributed to the unique personality effects of the experimenter.

In therapy outcome studies, the rival explanation of non-scientific factors or placebo effects is often raised. For this experiment, however, not only the subjects were completely matched (because each asthmatic student served as his own control), but also compared with a

control group in a three randomized independent groups design. The control group and the two treatment groups initially shared a similar degree of symptom difficulties. After the immediate and delayed post treatment period, significant differences ($p < .01$) were obtained between each treatment group and the control group on frequency of asthmatic attack, duration of asthmatic attack, number of medication used for asthmatic attacks, and the global impression of the illness by the asthmatic students. In the same post-treatment phase, the two treatment groups were non-significantly different from each other. Thus, the placebo-based effect to account for the changes observed in the frequency of attacks, duration of attacks, medication used, and the global impression of illness can be generally ruled out.

However, the intensity measurements for the three randomized groups using the peak flow meter gave no significant differences between the three groups in the immediate and delayed post treatment period. This needs further explanation based on the nature of the peak flow intensity measurements, which is given in the following section:

Explanation of the Peak Flow Meter Findings

Peak flow is a measurement of how fast one can blow out air from the lungs (Figure 7). How fast one can blow out air depends on whether the breathing tubes are wide or narrow. If they have become narrowed down because of asthma, one will find it more difficult to blow out air from the lungs. So the peak flow value will be less than when the breathing tubes are wide open. Peak flow is measured by means of a peak flow meter in liters per minute. Normal peak flow depends on age, height and sex, and because of this the best

level of peak flow that one achieves should fall within a range of 20% either side of one's predicted normal value (Clarke, 1992).

The normal peak flow for children of average height 4ft 8in is 318 L/M (See Figure.6) and all the three groups were below the normal flow during the pre-treatment period. During the immediate and delayed post-treatment periods, all the groups increased in their peak flow measurements. It has been noted that a 15% increase in peak flow is clinically significant (Lehrer, 1992). The percentage of improvement and t values for a two-tailed test using the peak flow measures are given in Table 18.

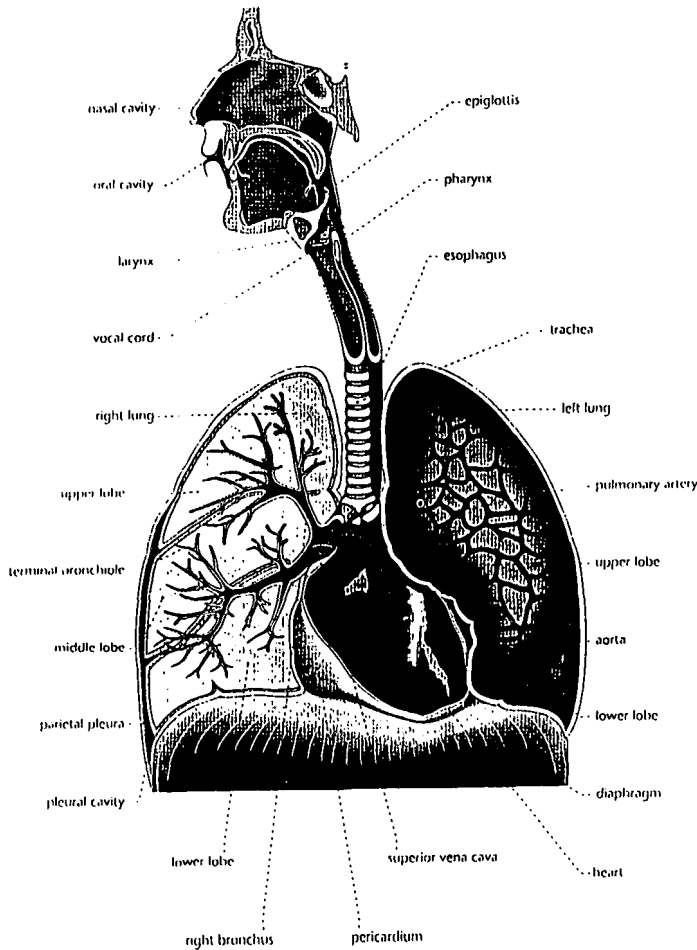


Figure 7. Respiratory Sytem Showing Bronchial Tubules

Table 13
Results of the Intensity Measures Using the Peak Flow Meter

Group	Immediate (t values)	% of impr.	Delayed (t values)	% of impr.
I	2.965	22.75	6.097	31.12
II	3.790	14.96	3.901	12.53
III	2.396	9.14	3.103	15.27

$p < .05$ $t \text{ crit.}(14) = 2.145$

It is clear that the treatment groups as well as the control group registered statistically significant improvement in peak flow during the immediate as well as during the delayed post-treatment periods. Moreover, Group I recorded clinically significant peak flow during the immediate and delayed post-treatment periods. Group II recorded clinically significant peak flow during the immediate post-treatment period, but no such significant peak flow was recorded during the delayed post-treatment period. Group III recorded no clinically significant peak flow during the immediate post-treatment period, but it recorded a clinically significant peak flow during the delayed post-treatment period.

The above results explain the nonsignificant F ratios for the intensity measures, the reason being the control group too improved significantly in the intensity of the peak flow. How should these peak flow findings be interpreted? From the previous tables, it is evident that groups I and II improved significantly ($p < .001$) in frequency, duration, medication, and global impression whereas group III (control group) showed no such significant improvement in the same four DV measures. This shows that, statistically or even clinically, significant improvement in the peak flow is not necessarily associated with significant reduction in the number of asthmatic attacks, duration of attacks, medication used, or the global impression of the asthmatic condition. Improvement in the peak flow may merely show

an increase in the lung capacity of the asthmatic student to blow out air from the lungs, with no significant reduction in the asthmatic symptomatology as is evident from the analysis of data from the control group. Therefore, it can be concluded that in groups I and II (treatment groups) reduction in asthmatic attacks, duration of asthmatic attacks, medication and global impression, was wrought about by the effectiveness of the VMR therapy itself.

If for arguments sake, one takes the position that it was the peak flow meter which was effective in the alleviation of asthma, then the question arises: how is that there was no significant reduction in asthmatic attacks, duration, medication, and global impression in the control group, though there was statistically and clinically significant improvement in the peak flow in the same control group? The only reason is that the control group (group III) did not undergo VMR therapy. This further confirms the effectiveness of VMR therapy in the alleviation of asthma. Therefore, the experiment can be said to be internally valid. The Vipassana Meditative Relaxation therapy (VMR therapy) led to the significant reduction in asthma symptomatology.

Based on the above findings and data analysis of the study, the first null hypothesis that Vipassana Meditative Relaxation therapy is not effective in the treatment of asthma, is rejected ($p < .0001$) and the first alternative hypothesis that Vipassana Meditative Relaxation therapy is

effective in the treatment of asthma, is accepted ($p < .001$).

Moreover, the second null hypothesis that alleviation of asthma is not brought about by the unique personality effects of the therapist, but by the method of Vipassana, is accepted ($p < .05$) and the second alternative hypothesis that alleviation of asthma is brought about by the unique personality effects of the therapist, not the method of Vipassana, is rejected ($p < .05$).

Thus, the present experimental study has established that VMR therapy is effective in reducing asthma symptomology. It is the method of VMR itself which brings about symptom reduction in asthma, not through any experimenter effect due to the therapist.

External Validity of the Observed Effects

Can these findings be generalized to the wider population of asthmatic students belonging to populations similar to the Ateneo Grade School. Random representativeness was achieved through voluntary recruitment from the Ateneo Grade School (Grades 2, 3, 4, 5, 6, and 7), which has a population of above 3,400 students.

Moreover, it is the first quantitative and experimental attempt at validation of VMR therapy in the treatment of asthma which has been found to be stress-related. Since VMR therapy is effective in alleviating stress-related asthma symptomology, the same VMR therapeutic procedure may also be used effectively in the treatment of other stress-related illnesses.

Comparison with Previous Studies

Compared to other modes of therapy used for the alleviation of asthma the results obtained with VMR therapy stand as effective or even more. It is significant to note that 17 out of 30 asthmatic students were 100% free from asthmatic attacks immediately after therapy and the overall

improvement for all the 30 asthmatic students was 81%. After the delayed post-treatment of 5 weeks a total of 18 out of 30 asthmatic students were 100% free from asthmatic attacks and the overall improvement for the asthmatic attacks and the overall improvement for the asthmatic students was 90%. On the other hand, previous studies of asthma management and symptom reduction have reported an improvement of 60% to 80% (Collison, 1975; Lehrer & Sargunraj, 1992; Olness & Gardner, 1988; Piano & Salzberg, 1979).

In the present study most of the methodological defects of the previous studies were remedied in the very research design itself (Piano & Salzberg, 1979). In contrast to the number of single and multiple case studies, the present study made use of an experimental design using a three randomized independent groups design with two experimental groups and a control group.

In most of the previous studies subjects were not randomly assigned to treatment and control groups. This was remedied in the present study by randomly assigning all the 45 subjects to the three groups, that is, two experimental groups and one control group. Moreover, each group was randomly selected and assigned to each treatment condition and control condition.

Lack of specification of therapeutic procedure in the previous studies was remedied by using the VMR script for therapy. The additional shortcoming of the previous studies, that is, experimenter bias was remedied by the two randomized independent groups design in which one treatment group underwent therapy by using the VMR script directed by the therapist himself and the other treatment group followed the same VMR script from an audio-tape.

Moreover, the present study employed both objective as well as subjective measures for the outcome measures. The objective measures were frequency of asthmatic attacks, duration of attacks, intensity (physiological measure using a peak flow meter), and medication used. The

subjective measure used was the global impression of the illness assessed by the asthmatic student himself on a 0 to 4 scale.

Finally, the present study attempted to remedy the placebo effects, if present. For this purpose the three randomized groups were completely matched at the baseline period and each asthmatic student in each of the groups served as his own control in the within subjects design. The effect of placebo effects was assessed by means of ANOVA for three randomized groups at the baseline, immediate post-treatment and delayed post-treatment measures.

The Observed Efficacy of VMR Therapy (Some Attempts at Explanation)

From the observations by the investigator and the explanations given by the asthmatic students, the healing process came about through body relaxation, awareness breathing, awareness of body sensations, awareness of chest constriction as well as awareness of fear and anxiety. In this process the asthmatic students discovered for themselves the secret of removing asthma: IN A RELAXED ATMOSPHERE ALLOW THE CONSTRICTION DUE TO ASTHMA RISE NATURALLY TO ITS PEAK AND THEN IT WILL FALL AWAY NATURALLY, BRINGING ABOUT HEALING. The asthmatic students learned this secret by repeatedly undergoing VMR therapy and there was significant reduction in their asthma symptomology.

In VMR therapy, body relaxation prepares the person for awareness of the natural flow of sensations in one's body/mind composite. Through awareness of the natural process of breathing, one sharpens awareness itself. With this sharpened awareness, one becomes more and more aware of the various sensations, pleasant or unpleasant, as they rise and fall away in the conscious mind. In this process, one spontaneously becomes aware of the rising and falling

away of fear, anxiety, or stress associated with asthma; even the unconscious fear, anxiety, or stress due to asthma may surface to the conscious mind and they will rise and fall away. The light and warmth of consciousness itself will melt away fear, anxiety or stress and the very constriction caused by asthma itself.

During VMR therapy sessions conducted for the experimental subjects of the present study as well as for the other asthmatic patients, the present investigator has discovered certain specific areas in the body associated with asthmatic attacks. These specific areas of stress are stomach, chest, throat and head. Stress due asthma seems to begin at the bottom of the stomach and then spread into the chest, then into the throat and finally the head itself experiences the full blown distress due to asthma. By removing stress from stomach, chest, throat, and head by means of VMR Therapy, one asthmatic patient with daily severe asthmatic attacks was completely cured in one session.

Significance of the Study

Thus, the present study has shown the effectiveness of the VMR Therapy in the treatment of asthma for Grade School students. As it is significantly effective in removing asthma, the same therapeutic procedure may bring about alleviation of asthma for high school students as well as for college students. The present investigator has also used the same VMR therapy effectively for college students as well as for adults in managing their asthmatic attacks. This needs further scientific investigation.

Modern approaches to asthma management uses relaxation, meditation, diaphragmatic breathing, peak flow measures, medication and stress reduction. In VMR therapeutic procedure a unique combination of relaxation, meditation, and stress reduction is achieved, which has been found significantly effective in the treatment of asthma, the percentage of success in reducing

asthmatic attacks being over 90% and duration of attacks being 94%.

The subjective evaluation of the students themselves shows highly significant improvement in their health and well being, the percentage of improvement being 65%.

The asthmatic students also in general have improved their lung capacity significantly, and as a result they are able to breathe better, the percentage of improvement being 22%.

Moreover, the asthmatic students have learned the natural way of removing asthma symptomology by the uncensored observation of the rising and falling away of stress due to asthma which is a highly significant contribution to the management and control of asthma.

And finally, the highly specialized experimental design of Ramos (1986) using a three randomized independent groups design, the experimental subjects using within subjects design similar to Skinner's ABA Design, has been significantly effective in the present experimental study in eliminating methodological weaknesses of many a research design.

Limitations of the study

1. The present study used only VMR therapy for the treatment of asthma; no comparison was made with other asthma control therapies such as hypnotherapy, yoga, zen or TM.
2. Vipassana, as a meditation, is primarily a process of attaining enlightenment through insight into the nonpermanence of all phenomena as they rise and fall away in one's consciousness. Healing of stress-related illness such as asthma comes only as a side effect.
3. Even though the experimental group II received therapy from the audio-tape rather than from the therapist, the presence of the experimenter could not be eliminated in the present study.
4. Due to the physical impossibility of moni-

toring the peak flow twice daily for 45 asthmatic students during the period of three months of research, the present investigator was able to record the peak flow of the asthmatic students once a week only. Daily monitoring of the peak flow may give more accurate data for further study.

5. Since the sample was taken from the population of Ateneo Grade School, generalization of the findings can be done only to similar population of students in other schools.

Recommendations

1. Because VMR therapy has been found effective in the treatment of asthma prevalent among grade school students, this unique method can be made available for high school as well as college students.
2. A cross cultural study of the effectiveness of the VMR therapy may be undertaken to compare the filipino students' response to the therapy with those of other cultures.
3. Because removal of stress associated with asthma seems to be effective in the alleviation of asthma, an experimental study may be undertaken to quantify the relationship between stress and asthma symptomology.
4. Because VMR therapy has been effective in the treatment of asthma which is found to be stress-related, other stress-related illnesses such as tension headaches, migraine, insomnia, rheumatism, cardiovascular disorders, diabetes, skin disorders, peptic ulcer, cancer, etc. may be effectively treated with VMR therapy.
5. Because during the present experimental study it was found that a good number of asthmatic students achieved almost complete symptom relief after two or three VMR sessions, a study may be undertaken to see the effectiveness of short term VMR therapy in the treatment of asthma.

6. Since the present study could not eliminate the presence of the experimenter, the effect of the presence of the experimenter for therapeutic purposes could be further investigated.

Asthma has been a perennial problem for children, adolescents, and adults. In the Vipassana Meditative Relaxation therapy (VMR therapy) there is a unique method of controlling asthma, for it utilizes the very stress due to asthma to bring about healing. In this process the simple

and yet profound secret of asthma control is learned: in a relaxed atmosphere allow the constriction due to asthma rise naturally to its peak and then it will fall away naturally, bringing about healing. As the ancient dictum goes: nature cures itself and in VMR therapy nature is allowed to cure itself. The entire findings of the present study can be summed up in the zen poem:

Sitting quietly, doing nothing,
spring comes and the grass grows by itself.

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APPENDIX A

VIPASSANA SCRIPT

BODY RELAXATION

Before you begin Vipassana, a form of awareness meditation, you will be helped to relax your body as a preparation for meditation. You are provided with a carpet: spread it on the floor. Sit gently on the carpet: stretch your legs forward: slowly and gently put your right elbow on the carpet, then your left elbow on the carpet: slowly and gently allow your backbone to touch the carpet, then your shoulders and your head; your face facing the ceiling and your legs two feet apart each of your hands one foot away from your sides, palms facing the ceiling. Close your eyes, Relax....

Just relax and raise your right leg six inches high from the ground and stretch the big toe inward and slowly stretch the entire right leg and drop the leg on the carpet and gently roll the foot on the carpet. Relax... Gently do it again. Relax ... now raise your left leg six inches high from the ground and stretch the big toe inward and slowly stretch the entire left leg and gently drop the leg on the carpet. Gently do it again. Relax... now raise your pelvic region a few inches high and gently drop it to the carpet. do it again. relax...

Now slowly and gently fill your stomach with air: hold the breath for a few seconds and open your mouth and throw out the air in one puff through the mouth. Do it again. Relax... Now fill your chest with air: hold the breath for a few seconds and throw out the air in one puff through the mouth. Do it again. Relax...

Now slowly and gently raise your right hand six inches above the carpet and tighten your fist and drop the right arm to the carpet. Do it again and roll the palm on the carpet. Relax ... Now raise your left arm six inches above the carpet and tighten your fist and drop the left arm to the carpet. Do it again and roll the palm on the carpet. Relax .. Now pull the shoulders up towards your

ears and drop them. Do it again. Relax ... Now gently roll the head on the carpet to the right and to the left ... Do it again.. Relax .. Now raise your head a few inches above the carpet and gently drop it. Do it again. Relax...Now

Now slowly open your mouth; move the jaw bones to either sides; close your mouth. Do it again. Relax ... Now tighten your nose gently and loosen again.. Do it again. Relax ... Now tighten your eyes and then loosen them. Do it again. Relax ... Now tighten your forehead and loosen it. Do it again. Relax ... Now pull in the cheeks and release. Do it again.. Relax ...

Now blow the cheeks outward and loosen them. Do it again. Relax ... Now tighten and loosen your face muscles. Do it again. Relax...

Now your entire body is relaxed. Feel the relaxation ... Slowly breathe in as you raise your hands and interlock the fingers and place them on to your chest. Breathe out as you stretch your palms downward. The fingers remaining interlocked. Again breathe in as you stretch your hands upward and stretch your entire body. Again breathe out as you bring down the hands. Now let the arms fall to both sides and your legs move apart. Now your body is fully relaxed and ready for Vipassana.

AWARENESS OF THE NATURAL PROCESS OF BREATHING

Now you sit on the chair provided for Vipassana meditation. Let your feet be touching the ground. Keep your back straight. Now you can feel your breathing... You can feel the cool air going into your lungs and warm air coming out of your lungs...Do not force your breathing... Just observe the chest going up and down as you breathe...Now you continue observing the natural process of breathing...

AWARENESS OF BODY SENSATIONS

Now you are ready to feel body sensations... Now you can feel the top of your head. Become aware of any vibrations, itching, pressure, pain, coolness, warmth or tensions. Observe the rising and falling of each of the sensations... Now become aware of the forehead and observe all sensations, pleasant or unpleasant, rising and falling... rising and falling... Now become aware of the back of your head and observe all the sensations, pleasant or unpleasant, rising and falling... rising and falling... Now become aware of the eyes and observe all the sensations, pleasant or unpleasant, rising and falling... rising and falling... Now become aware of the nose and observe the sensations rising and falling... rising and falling... Now become aware of the ears and observe the sensations, rising and falling... rising and falling... Now become aware of your cheeks and observe the sensations, rising and falling ... rising and falling .. Now become aware of the lips and observe the sensations, rising and falling ... rising and falling .. Now become aware of the chin and observe the sensations, rising and falling... rising and falling... Now become aware of the neck and observe all the sensations, rising and falling ... rising and falling Now become aware of the shoulders and observe all the sensations, rising and falling .. rising and falling ... Now become aware of the arms and observe all the sensations, rising and falling .. rising and falling .. Now become aware of the palms and fingers, and observe all the sensations, rising and falling .. rising and falling ... rising and falling ...

Now become aware of the chest and observe all the sensations, pleasant and unpleasant, rising and falling... rising and falling ... rising and falling... rising and falling ... observe all the pressure, constrictions and tensions in your chest, rising and falling... rising and falling ... rising and falling ... rising and falling...

Now become aware of your stomach and observe all the sensations, pleasant or unpleasant, rising and falling... rising and falling... Now

become aware of the back of your body and observe all the sensations, rising and falling ... rising and falling... Now become aware of the pelvic region and observe all the sensations, rising and falling... rising and falling .. Now become aware of the legs and observe all the sensations, rising and falling... rising and falling ... Now become aware of the feet and toes, observe all possible sensations, pleasant or unpleasant, rising and falling... rising and falling... Continue the same awareness and observation from the toes through the entire body up to the top of the head and feel every sensation as it rises and falls.

FOCUSING AWARENESS ON THE CHEST CONGESTION

When you come to the chest congestion, stay there longer to observe the rising and falling or your congestion, pressure and tension... Just observe the rising and falling of all the sensations affecting your chest... You may be anxious... Feel the anxiety... It will rise and pass away... Or you may be afraid of somebody... Your father... your mother .. Your brother or sister... Your teacher ... Just breathe in and feel the anxiety or fear .. And slowly breathe out the anxiety or fear... Slowly they will rise and fall away. Then, again continue the awareness and observation of various pleasant and unpleasant sensations rising and falling from the top of the body, coming down to the toes and from the toes going up the body to the crown of the head... Let natural life and sensations flow freely...

BACK TO THE NATURAL PROCESS OF BREATHING

Now you are ready to come back to the natural process of breathing. Slowly become aware of the cool air touching the upper lip as it goes into your nostrils and comes out of your nostrils as warm air touching the upper lip again. Continue the process for some time until you feel satisfied. Slowly and spontaneously open your eyes. Feel the relaxation and ease your experience.

APPENDIX B

DV MEASURES

1. Number of asthmatic attacks per month
2. Duration of asthmatic attacks in minutes per month
3. Intensity of asthmatic attacks per week measures in liters/min by means of a peak flow meter
4. Number of medications per week
5. Global assessment per week by the student on a 0 to 4 scale based on the following drawings showing various feelings of the human faces:



0

1

2

3

4

Feeling
very
well

Feeling
well

Feeling
somewhat
well

Feeling
ill

Feeling
very
ill