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PAPER 313

TRANSCENDENTAL MEDITATION IN THE TREATMENT OF POST-VIETNAM ADJUSTMENTJAMES S. BROOKS¹ and THOMAS SCARANO²¹ Department of Psychiatry, University of Colorado Medical Center, Denver, Colorado, U.S.A.² Denver Veterans Administration, Vietnam Veterans Outreach Program, Denver, Colorado, U.S.A.

The Transcendental Meditation programme was found to be effective in the rehabilitation of patients with Post-Vietnam Adjustment problems, as demonstrated by reduced severity of delayed stress syndrome, decreased anxiety, decreased depression, reduced use of alcohol, relief from insomnia, improved employment status, and reduced family problems.—EDITORS

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In a randomized, prospective study at the Denver Vietnam Veterans Outreach Program, the Transcendental Meditation (TM) program was compared with psychotherapy in the treatment of Post-Vietnam Adjustment. Eighteen subjects were measured on the following dependent variables, both before and after a three-month treatment period: severity of delayed stress syndrome as measured by a questionnaire based on DSM III diagnosis, anxiety as measured by the Taylor Manifest Anxiety Scale, depression as measured by the Beck Depression Inventory, degree of alcohol use, insomnia, employment status, family problems, and a physiological measurement of habituation to a stressful stimulus (Stimulus GSR). The TM treatment group showed marked improvement on each of these measures, as compared to the psychotherapy group which did not improve significantly on any measure. This study suggests that the Transcendental Meditation program is a useful therapeutic modality for the treatment of Post-Vietnam Adjustment problems.

INTRODUCTION

In July of 1981 we embarked upon a research project at the Denver Vietnam Veterans Outreach Program ("Vet Center") to determine if the Transcendental Meditation (TM) program¹ might be useful in the treatment of Vietnam veterans who have been having difficulty readjusting to civilian life. The hypothesis was that since many of the symptoms of

Post-Vietnam Adjustment (PVA) such as insomnia, depression, anger outbursts, somatization, emotional numbness, anxiety, substance abuse, difficulties holding onto a job, and problems in interpersonal relationships are symptoms that have been found to be relieved by the regular practice of the TM technique (1, 3, 4, 7, 9, 11, 16, 23, 24, 25, 29, 30, 33, 34), this technique should prove to be a useful adjunct in the treatment of PVA. Thus far, the TM program has never been studied as a form of treatment of PVA. Hypnotherapy, systematic desensitization, behavior modification, individual psychotherapy, marriage and family counseling, group therapy, small group living, phenelzine and hospital treatment have all been reported as being beneficial in the treatment of PVA (5, 6, 8, 10, 12, 13, 14, 15, 19, 20, 21, 26, 28,

1. Transcendental Meditation is a simple mental technique that comes from the Vedic tradition of India; during this technique the mind periodically "transcends," or experiences a state of "pure consciousness" in which the mind is completely devoid of thought and yet remains fully awake within itself. This subjective state is correlated physiologically with EEG coherence (1), reduced metabolic rate (33), increased skin resistance (33), reduced cortisol (17), and reduced lactic acid levels (33).

31, 35). However, most of these studies are case reports, and there have been few well-designed, controlled prospective studies attempting to measure the comparative effectiveness of these various treatments.

METHODS

A group of 18 Vietnam veterans seeking treatment at the Denver Vet Center were randomly selected to be in one of two treatment groups. During the period from November 1981 through March 1982, each incoming client at the Vet Center was given a number. All odd-numbered subjects were automatically assigned to the TM group, and all even-numbered clients were considered to be in the psychotherapy group. During the intake evaluation which followed, each client was evaluated as to whether he met the criteria to be in the study. The criteria for selection were that the subject:

- a) was not on major tranquilizers (Haldol, Thorazine, etc.), antidepressants (Nardil, Elavil, Tofranil, etc.), or Lithium Carbonate (Eskalith);
- b) had no history of previous psychiatric hospitalizations;
- c) was not actively suicidal or homicidal;
- d) had no inpatient treatment for alcoholism or drug abuse during the past year; and
- e) was not practicing Transcendental Meditation.

If an individual qualified for the study, he was then asked, if he had an odd number, if he would like to participate in a stress management workshop (SMW) where he would learn the TM program, consisting of an initial four-day instruction period of one and one-half hours per day and weekly follow-up meetings over a three-month period. (He was also informed that after the three-month period he could get further treatment if he so desired.) He was also told that should he decide to participate in the SMW, he would be asked to fill out a questionnaire and to undergo a physiological measurement of his "stress level."

If the client had an even number and met the criteria for the study, he was asked: "We are conducting a study to measure how effective our program is in reducing stress. In this study, we would like our clients to fill out a questionnaire and have their 'stress level' measured prior to and after three months of treatment. Would you be interested in participating

in this study?" Neither group knew of the existence of the other group throughout the study.

The seven therapists at the Vet Center were trained over a three-month period prior to the start of the study to concisely answer further questions clients might have with regard to the SMW, the physiological measurement (Stimulus GSR), and the questionnaire.

After pretesting, clients assigned to the SMW were taught the TM technique by a qualified instructor of the TM program. Each client was then instructed to meditate twice daily for a period of 20 minutes. In addition to this "homework," weekly follow-up meetings of about an hour each were held; these meetings were similar to the advanced lectures held each week at the local TM Center, which consist of a "meditation check" and a discussion period where questions which may have come up in between sessions are answered.

Clients assigned to the "therapy" group participated in weekly individual psychotherapy sessions conducted by the Vet Center staff, and, when appropriate, subjects were also given the option of participation in group and/or family counseling. The therapeutic approach of all the therapists combined was eclectic; a variety of theoretical approaches were used, including behavioral, existential, cognitive, somatic, and psychodynamic, primarily depending upon the training background of the therapist. All of the full-time staff at the Vet Center are themselves Vietnam veterans, and each has at least a master's degree in either psychology or social work.

All of the questionnaire scoring was done blindly by an independent evaluator not otherwise involved in the study.

Dependent variables were measured in all 18 subjects, both pre- and post-treatment and consisted of:

- a) a measurement of degree of Post-Vietnam Stress Disorder (PVSD) modeled after DSM III criteria, designed by Charles Figley, Ph.D., including a subscale measuring "emotional numbness." This subscale was analyzed separately because it is considered to be one of the salient features of PVSD;
- b) a measurement of anxiety using the Taylor Manifest Anxiety Scale (32);
- c) a measurement of degree of depression using the Beck Depression Inventory (2);
- d) individual questions taken from a questionnaire designed by Dr. Figley to measure Post-Vietnam

Adjustment, addressing:

- 1) amount of alcohol consumption,
- 2) degree of insomnia,
- 3) employment status, and
- 4) extent of family problems; and
- e) a physiological measurement using Stimulus GSR to measure rapidity of habituation to a stressful stimulus.

The procedure for the habituation measurement followed standard protocol (27) and was as follows:

1. An initial hearing test so that appropriate adjustments could be made in the decibel level of the tone if needed.
2. The subject sat in a comfortable chair and was told: "Just sit comfortably with your eyes open. After about 10 minutes you'll be hearing some loud tones. I'll be measuring small changes in the amount of sweat on your palm in response to the tone. You will not feel a shock or any pain throughout the procedure. Do you have any questions?"

The tones were delivered monaurally through ear-phones via a Beltone Audiometer at a frequency of 3,000 Hz, lasting 0.5 seconds, at a decibel level of 85, at an average of every 45 seconds, with a range of 5 to 120 seconds between stimulus presentations. The GSR was allowed to stabilize before the next tone was presented. Skin resistance was measured via silver-plated contoured electrodes systematically placed on the palm of the left hand. A 12-channel Grass poly-graph machine was used to record fluctuations in skin resistance. Tones were presented until three consecutive responses of an amplitude of less than 0.4 kilo-

ohms occurred, and this was the criterion for habituation.

This measurement was used to physiologically quantify an individual's ability to handle stress. There is some evidence to suggest that individuals who are manifestly anxious are more "autonomically labile" as measured by how quickly they habituate to a recurrent stressful stimulus (18, 27). We postulated that those suffering from delayed stress syndrome might have a high anxiety level and might therefore be an "autonomically labile" group. We also postulated that after successful treatment of this condition, one might see a faster habituation response. Therefore, pre- and post-habituation were measured in each subject.

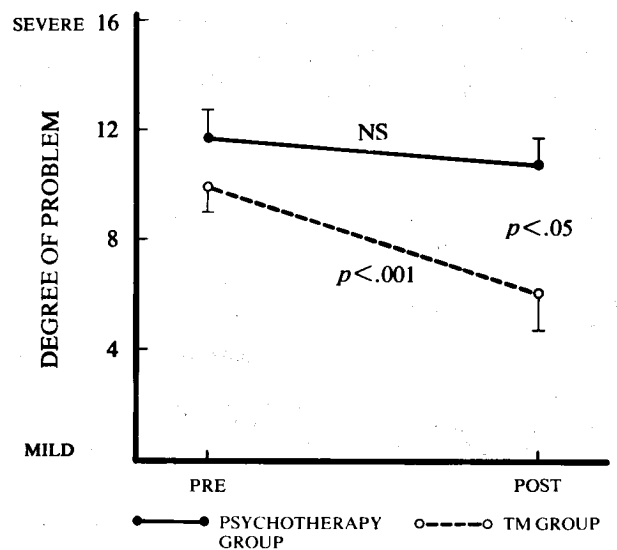


FIG. 1. CHANGES IN POST-VIETNAM STRESS DISORDER FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

TABLE 1

MEASURE	TM GROUP				PSYCHOTHERAPY GROUP			
	PRE		POST		PRE		POST	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Post-Vietnam Stress Disorder	9.70	2.98	5.80 ^{b,z}	4.26	11.71	2.63	10.86	2.85
Emotional Numbness Scale	3.70	1.64	1.70 ^{b,y}	1.95	3.75	1.03	3.50	1.41
Taylor Anxiety Scale	16.50	4.72	9.10 ^{d,z}	5.34	18.25	4.43	18.62	5.01
Beck Depression Scale	16.60	6.80	7.60 ^{b,z}	7.49	20.62	7.94	19.75	3.84
Alcohol Consumption (4 = no problem)	2.00	.63	3.67 ^{d,x}	.82	2.17	.41	2.17	.41
Insomnia (4 = no problem)	2.71	.76	3.71 ^{e,w}	.49	1.57	.53	1.43	.53
Employment (4 = no problem)	2.25	.50	3.50 ^x	.58	2.40	1.14	2.80	1.30
Family Problems (4 = no problem)	2.12	.83	3.25 ^{b,x}	.89	2.14	.90	2.29	.76
Sensitivity to Stress (GSR)	18.80	19.46	10.50 ^{a,v}	10.92	19.16	16.95	23.00	21.11

a) $p < .10$ b) $p < .05$ c) $p < .01$ d) $p < .005$ e) $p < .001$ (ANCOVA; pretest as the covariate)
 v) $p < .10$ w) $p < .05$ x) $p < .01$ y) $p < .005$ z) $p < .001$ (paired t -test, one-tailed; pre/post)

Subjects who responded "not a problem" (score of 4) at pretest to the individual Post-Vietnam Adjustment questionnaire items (alcohol use, insomnia, employment status, and family problems) are not included in the statistical analysis unless they scored below a 4 at posttest. This eliminates potential ambiguity of results due to ceiling effects, since 4 was the maximally positive score available, and a pretest score of 4 left no opportunity for improvement to be measured. In addition, one subject from the therapy

group is not included in the depression scale data because of failure to complete this section of the questionnaire. Two therapy subjects are not included in the GSR analysis because they refused to participate in the habituation posttesting.

RESULTS

Pre- and posttest group means and the results of the statistical analysis are reported in table 1 and illustrated in figures 1 to 9.

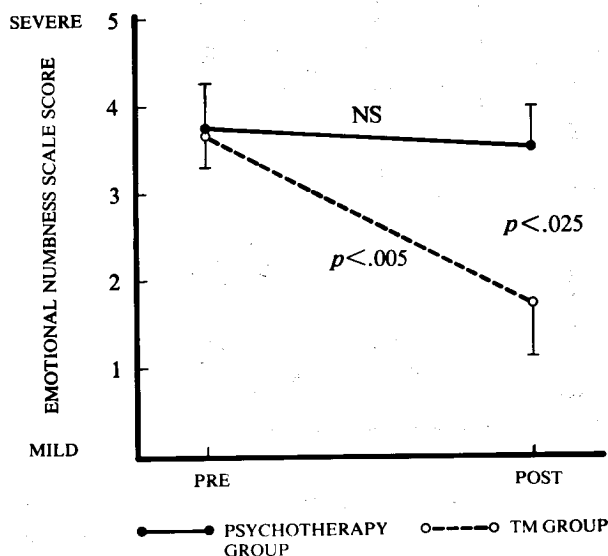


FIG. 2. CHANGES IN EMOTIONAL NUMBNESS FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

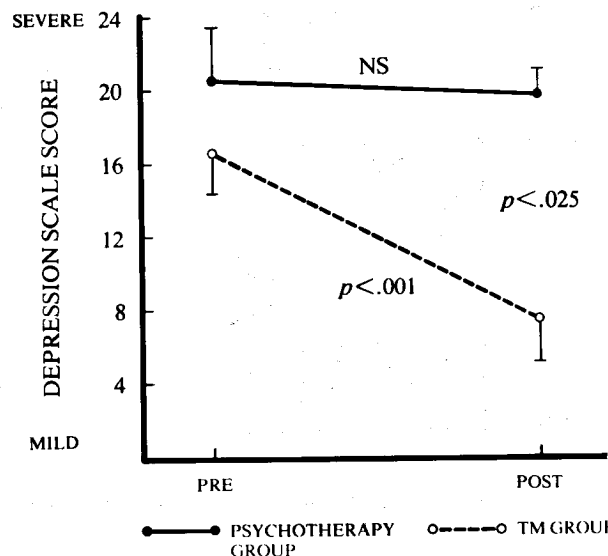


FIG. 4. CHANGES IN DEPRESSION FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

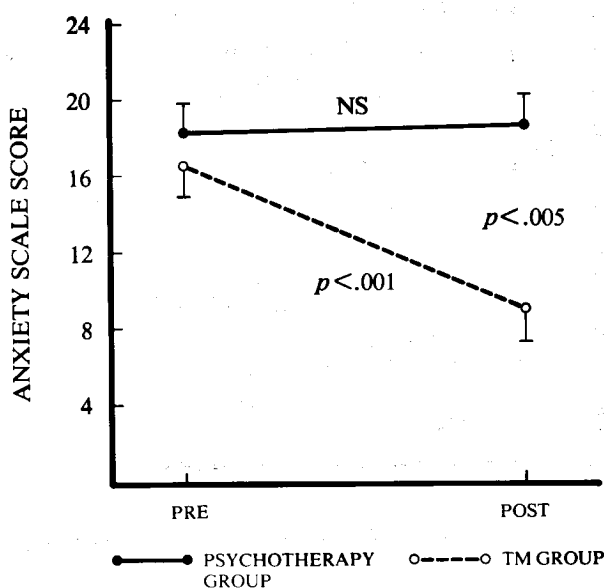


FIG. 3. CHANGES IN ANXIETY FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

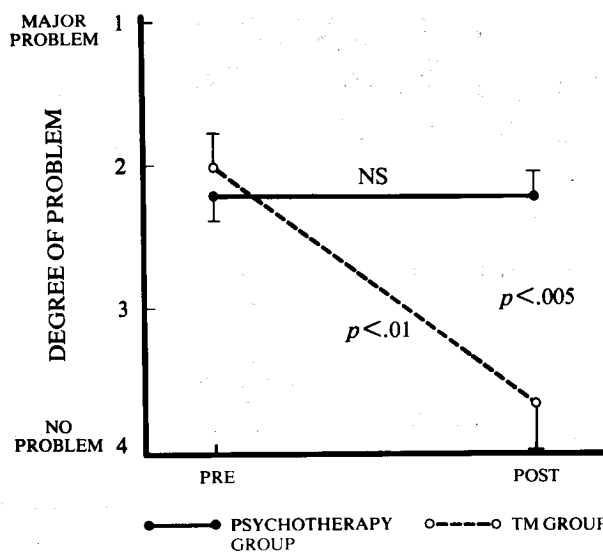


FIG. 5. CHANGES IN ALCOHOL USE FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

Comparison of the two groups prior to treatment found no significant difference for the demographic variables of age (mean = 33.3 years), sex (all male), marital status, annual income, time spent in the military, degree of combat, race, and location of service. There was also no significant difference between the two groups on any of the dependent variables ($p < .1$, two-tailed t -test) at the pretest with the exception of insomnia ($t(13) = 3.27$, $p < .01$) with the therapy group reporting greater difficulty sleeping.

Analysis of covariance with the pretest used as the covariate revealed a significant positive treatment effect for TM as compared to psychotherapy on degree of Post-Vietnam Stress Disorder ($F(1,14) = 5.26$, $p < .05$), the PVSD subscale for emotional numbness ($F(1,15) = 6.64$, $p < .025$), anxiety ($F(1,15) = 14.74$, $p < .005$), depression ($F(1,15) = 7.05$, $p < .025$), alcohol consumption ($F(1,9) = 16.05$, $p < .005$), insomnia ($F(1,11) = 30.29$, $p < .001$), and family problems ($F(1,12) = 5.48$, $p < .05$). Despite the large vari-

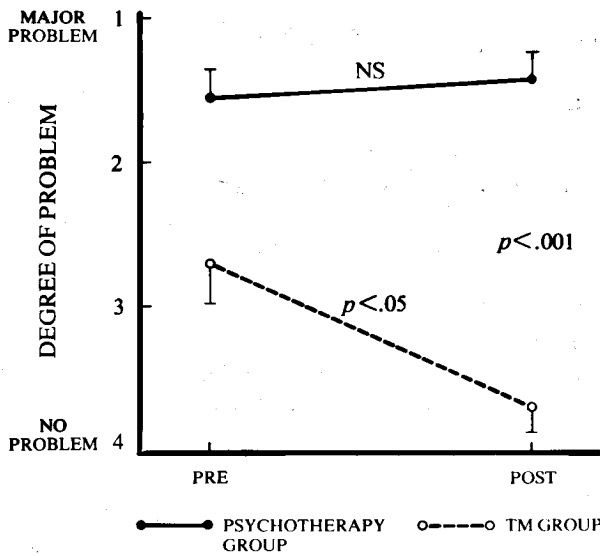


FIG. 6. CHANGES IN INSOMNIA FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

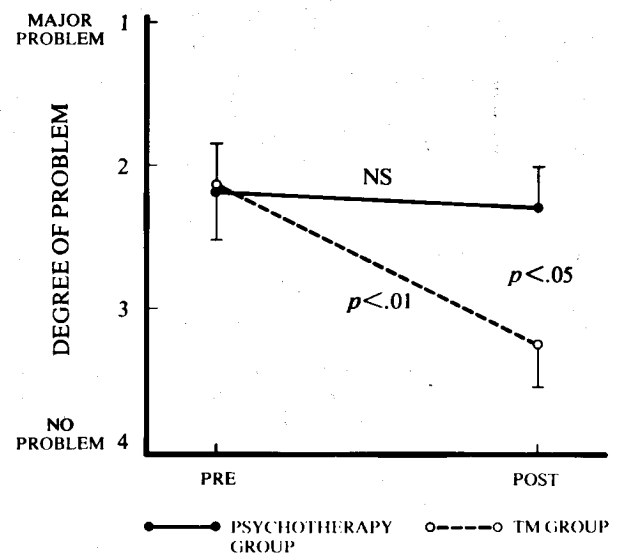


FIG. 8. CHANGES IN FAMILY PROBLEMS FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

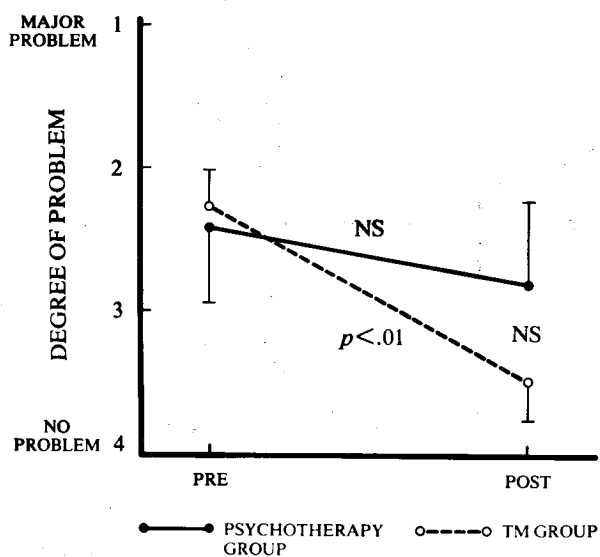


FIG. 7. CHANGES IN EMPLOYMENT STATUS (DIFFICULTY IN OBTAINING A JOB) FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

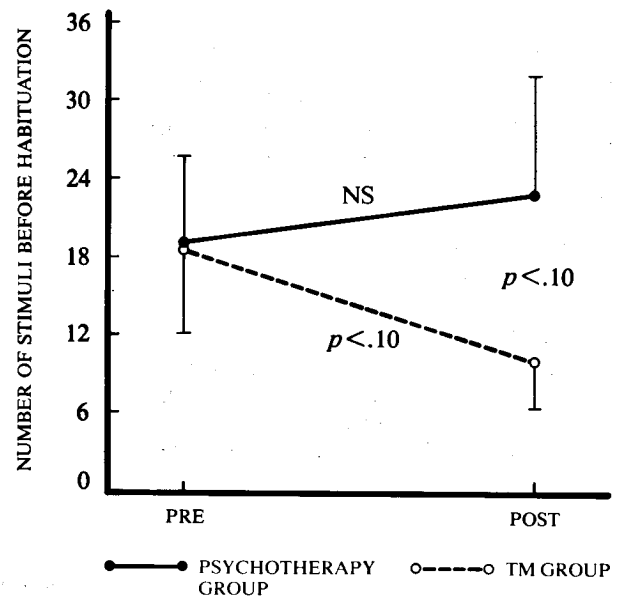


FIG. 9. CHANGES IN GSR HABITUATION FOR THE TM GROUP AND THE PSYCHOTHERAPY GROUP OVER A THREE-MONTH EXPERIMENTAL PERIOD

ance in the measure of GSR habituation, a trend was found for the TM group to have a faster habituation response to a stressful stimulus ($F(1,13)=3.44$, $p<.10$).

No significant difference was found between treatments on the measure of employment status ($F(1,6)=1.61$, NS); however, a *t*-test for related measures showed that the TM group improved significantly from pre- to posttest ($t(3)=5.000$, $p<.01$),² whereas there was no such improvement for the therapy group ($t(4)=.785$, NS). Comparable pre-to posttest within-group results were found on all of the dependent variables (see table 1), the TM subjects showing highly significant improvements on all self-report items and a trend towards significant improvement on the physiological measure of habituation to a stressful stimulus (GSR), while the therapy group did not change significantly on any measure.

DISCUSSION

Ideally, we would have liked to have included a control group. This was not possible, however, because we felt it would be unethical to make a group of Vietnam veterans in a crisis and seeking treatment wait for a period of three months before being offered any formal treatment at the Vet Center.

We found that the Vietnam veterans were willing to participate in both the TM group and the therapy group. A total of 28 people were asked to participate in the study, 14 for each group. Thirteen out of fourteen (92%) who were given the chance to participate in the TM group volunteered to do so. Twelve out of fourteen (85%) given the chance to participate in the therapy group volunteered to do so. The high initial participation in both groups increases the randomness of the selection method and hence decreases the possibility of selection bias. Three people in the TM group and four people in the therapy group dropped out of the study prior to its completion.

Because the number of subjects in each group was small (10 in the TM group and 8 in the therapy group), one has to be cautious about generalizing the findings of this study to all individuals who suffer from symptoms of PVA. In this study, however, the TM program was found to be clearly beneficial in the treatment of PVA. The subjects in the TM group reported significant reductions in depression, anxiety,

emotional numbness, alcohol consumption, family problems, difficulty in getting a job, insomnia, and overall symptoms of delayed stress, as compared to the therapy group, whose subjects reported little change after three months of treatment.

As to why the TM group improved so significantly, the phenomenon of "transcending" may be responsible. Past research has shown that when the mind transcends during TM, the body gains a deeply restful state while the mind remains fully alert. It appears that the deep level of rest produced during the TM technique allows the body to spontaneously heal itself, or rid itself of the deep impressions incurred from past stressful experiences. This was a very common report of the veterans in the TM group. As one TM group member stated, "I feel after I meditate that I no longer have the same intensity of tension, rage, and guilt inside—it's as if a huge burden has been lifted."

It is curious that the therapy group showed little improvement over the three-month period. It could be that measurable benefits of psychotherapy for PVA are only seen after a more extended period of time.

CONCLUSION

In this study the TM program was found to be beneficial in the treatment of PVA. Seven out of ten subjects in the TM group after 3 months of treatment felt improved enough that they saw no further need for the services of the Vet Center. However, three members of the TM group still felt they wanted to work on some issues pertaining to their Vietnam experience. These three individuals therefore decided to be in therapy in addition to practicing TM regularly. It appears that for many individuals with PVA the TM program alone may be sufficient in satisfactorily relieving their symptoms but it should be kept in mind that a combined approach of both TM and psychotherapy (and/or other approaches) may in some cases be the preferred treatment.

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2. All pre- to posttest *p* values are one-tailed.

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