
Transcendental Meditation

in the Treatment

of Post-Vietnam Adjustment

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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. Nine dependent variables were measured both before and after a 3-month treatment period. The TM treatment group improved significantly from pretest to posttest on eight variables; the therapy group showed no significant improvement on any measure. This study indicates that the TM program is a useful therapeutic modality for the treatment of post-Vietnam adjustment problems.

In July 1981 we began a research project at the Denver Vietnam Veterans Outreach Program ("Vet Center") to determine if the Transcendental Meditation (TM) program would be useful in the treatment of Vietnam veterans who were having difficulty readjusting to civilian life. The hypothesis was that because many of the symptoms of post-traumatic stress disorder (PTSD), including insomnia, depression, outbursts of anger, somatization, emotional numbness, anxiety, substance abuse, difficulty holding onto a job, and problems in interpersonal relationships, have been relieved by the regular practice of TM (Banquet, 1974; Bielefeld, 1981; Bloomfield, 1977; Ferguson & Gowan, 1976; Frew, 1974; Glueck & Stroebel, 1975; Hjelle, 1974; Miskiman, 1977a, 1977b, 1977c; Nidich, Seeman, & Dreskin, 1973; Shafii, 1974, 1975), this technique should prove to be a useful adjunct in the treatment of PTSD.

Transcendental Meditation is a simple mental technique that comes from the Vedic tradition of India. During TM, the mind periodically transcends or experiences a state of pure consciousness in which it is completely devoid of thought and yet remains fully awake within itself. This subjective state is physiologically correlated with electroencephalogram (EEG) coherence (Banquet, 1974), reduced metabolic rate and blood lactate (Wallace, Benson, & Wilson, 1972), increased skin resistance (Glueck & Stroebel, 1975), and reduced cortisol (Jevning, 1975). Additionally, the TM technique has been shown to be superior to relaxation techniques and other meditation techniques in its physiological and psychological benefits (Alexander, Langer, Newman, Chandler, & Davies, 1984; Epley, Abrams, & Shear, 1984).

To date, the TM program has not been studied as a form of treatment of PTSD. 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 PTSD (Brende & Benedict, 1980; Egendorf, 1975; Figley & Sprenkle, 1978; Geer & Silverman, 1967; Goldsmith & Cretekos, 1969; Hogben & Cornfield, 1981; Howard, 1981; Keane & Kaloupek, in press; Kentsmith, 1980; Klipper,

1977; O'Neill & Fontaine, 1973; Rado, 1942; Silverman & Geer, 1968; Williams & Jackson, 1972). Most of these studies are case reports, however, and there have been few well-designed, controlled prospective studies attempting to measure the comparative effectiveness of these various treatments.

METHOD

Participants

A group of 18 male Vietnam veterans seeking treatment at the Denver Vet Center were randomly selected to be in one of two treatment groups. From November 1981 through March 1982, each incoming client at the Vet Center was assigned a number. Odd-numbered participants were assigned to the TM group and even-numbered clients were assigned to the psychotherapy group. During the intake evaluation, each client was evaluated to determine whether or not he met the criteria of the study. The criteria for selection were that the participant (a) was not on major tranquilizers (e.g., Hador, Thorazine), antidepressants (e.g., Nardil, Elavi, Tofranil), or lithium carbonate (Eskalith); (b) had no history of previous psychiatric hospitalizations; (c) was not actively suicidal or homicidal; (d) had no record of inpatient treatment for alcoholism or drug abuse during the past year; and (e) was not practicing Transcendental Meditation.

Procedure

Those individuals with odd numbers who qualified for the study were invited to participate in a stress management workshop where they would learn the TM program. It consisted of an initial 4-day instruction period of 1 1/2 hours per day and weekly follow-up meetings over a 3-month period. (Participants were also informed that after the 3-month period they could get further treatment if they desired.) They were told that should they decide to participate in the workshop, they would be asked to fill out a questionnaire and to undergo a physiological measurement of their stress levels.

Those clients with even numbers who met the criteria for the study were told: "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 3 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.

Over a 3-month period before the start of the study, the seven therapists at the Vet Center were trained to answer concisely questions clients might have with regard to the workshop, the physiological measurement (Stimulus GSR), and the questionnaire. After pretesting, clients were taught the TM technique

by an instructor trained and qualified to teach TM by Maharishi Mahesh Yogi. Each client was instructed to meditate twice daily for a period of 20 minutes. Also, 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 that consisted of a "meditation check" and a discussion period in which questions that may have come up between sessions were answered.

Clients assigned to the therapy group participated in weekly, individual psychotherapy sessions conducted by the Vet Center staff and, when appropriate, were given the option of participation in group or family counseling. The approach of the therapists was eclectic; various theoretical approaches were used, including behavioral, existential, cognitive, somatic, and psychodynamic, depending on the training of the therapist. The full-time staff members at the Vet Center were Vietnam veterans, and each had at least a master's degree in either psychology or social work.

Dependent Variables

The questionnaire was scored by an independent evaluator not otherwise involved in the study. Dependent variables were measured in all 18 participants, both at pretest and posttest. The variables consisted of:

1. A measurement of degree of PTSD, designed by Charles Figley, that was modeled after DSM III criteria and that included a subscale measuring emotional numbness. This subscale was analyzed separately because it is considered to be one of the salient features of PTSD.
2. A measurement of anxiety using the Taylor Manifest Anxiety Scale (Taylor, 1953).
3. A measurement of degree of depression using the Beck Depression Inventory (Beck, 1967).
4. Individual questions taken from a questionnaire designed by Figley to measure post-Vietnam adjustment by addressing (a) amount of alcohol consumption, (b) degree of insomnia, (c) employment status, and (d) extent of family problems.
5. A physiological measurement using Stimulus GSR to measure rapidity of habituation to a stressful stimulus.

The procedure for the habituation measurement followed standard protocol (Orme-Johnson, 1973):

1. An initial hearing test was administered so that appropriate adjustments could be made in the decibel level of the tone if needed.
2. The participant sat in a comfortable chair and was given the following instructions: "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 earphones via a Beltone Audiometer at a frequency of 3,000 Hz and at a decibel level of 85. The tones lasted .5 seconds and were administered 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 by silver-plated, contoured electrodes systematically placed on the palm of the left hand. A 12-channel Grass polygraph machine was used to record fluctuations in skin resistance. Tones were presented until three consecutive responses of an amplitude of less than .4 kilohms occurred; this was the criterion for habituation.

This measurement was used to physiologically quantify an individual's ability to handle stress. There is 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 (Katkin, 1965; Orme-Johnson, 1973). We postulated that those suffering from PTSD could have a high anxiety level and could therefore be autonomically labile. We also postulated that after successful treatment of this condition, one might see a faster habituation response. Therefore, pre-habituation and posthabituation were measured for each participant.

Participants 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) were not included in the statistical analysis unless they scored below a 4 at posttest. This eliminates potential ambiguity of results attributable to ceiling effects, because 4 was the maximum positive score available and a pretest score of 4 left no opportunity for improvement to be measured. Additionally, one participant from the therapy group was not included in the depression scale data because of his failure to complete that section of the questionnaire. Two therapy participants were not included in the GSR analysis because they refused to participate in the habituation posttesting.

RESULTS

Pretest and posttest group means and the results of the statistical analysis are reported in Table 1. A comparison of the two groups before treatment showed no significant differences for the demographic variables of age ($M=33.3$ years), sex (all male), marital status, annual income, time spent in the military, degree of combat, race, and location of service. There were also no significant differences between the two groups on any of the dependent variables ($p<.10$, two-tailed t test) at the pretest, with the exception of insomnia, $t(13)=3.27$, $p<.01$. The therapy group reported 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 PTSD, $F(1, 14)=5.26$, $p<.05$; the PTSD 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, $F(1, 19)=16.05$, $p<.005$; insomnia, $F(1, 11)=30.29$, $p<.001$; and family problems, $F(1, 12)=5.48$, $p<.05$. Despite the large variance in the measure of GSR habituation, it was found that the TM group had 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, $F(1, 6)=1.61$, n.s.; however, a t test for related measures showed that the TM group improved significantly from pretest to posttest, $t(3)=5.000$, $p<.01$, whereas there was no such improvement for the therapy group, $t(4)=.785$, n.s. Comparable pretest to posttest, within group results were found on all of the dependent variables (see Table 1). The TM group showed significant improvements on all self-report items and a trend toward significant improvement on the physiological measure of habituation to a stressful stimulus (GSR); the therapy group did not change significantly on any measure.

DISCUSSION

We would have preferred to include a control group but did not because we felt it would be unethical to make Vietnam veterans who were in a crisis and seeking treatment wait for 3 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. Out of 14 veterans who were given the chance to participate in the TM group, 13 volunteered to do so (92%); out of 14 veterans given the chance to participate in the therapy group, 12 volunteered to do so

TABLE 1
Comparison Between the Two Groups on Pre/Post Measurements

Measure	TM Group					Psychotherapy Group						
	Mean	Pre	SD	Mean	Post	SD	Mean	Pre	SD	Mean	Post	SD
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 $p < .001$.

^y $p < .10$; ^w $p < .05$; ^x $p < .01$; ^v $p < .005$; ^z $p < .001$.

(ANCOVA; pretest as the covariate)

(paired t test, one tailed; pre/post)

(85%). The high initial participation in both groups increased the randomness of the selection method and hence decreased the possibility of selection bias. Three people in the TM group and four people in the therapy group dropped out of the study before its completion.

Because the number of participants in each group was small (8 in the therapy group and 10 in the TM group), caution must be exercised about generalizing the findings of this study to others with PTSD. In this study, however, the TM program was found to be beneficial in the treatment of PTSD. The participants 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 PTSD.

The phenomenon of *transcending* may be responsible for the TM group improving so significantly. Past research has shown that when the mind transcends during TM, the body achieves a deeply restful state and the mind remains fully alert. It seems that the deep level of rest produced during TM allows the body to spontaneously heal itself or rid itself of the deep impressions incurred from past stressful experiences. Veterans in the TM group commonly reported that, "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."

The therapy group showed little improvement over the 3-month period. It could be that measurable benefits of psychotherapy for PTSD are seen only after an extended period of time. After 3 months of treatment, 7 out of 10 participants in the TM group felt improved enough that they saw no further need for the services of the Vet Center. Three members of the TM group, however, still wanted to work on some issues pertaining to their Vietnam experience. Therefore, these individuals decided to remain in therapy in addition to practicing TM regularly. The TM program may sufficiently relieve the symptoms of many individuals with PTSD. In some cases, however, a combined approach of both TM and psychotherapy (or other approaches) may be the preferred treatment.

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