THE INFLUENCE OF TRANSCENDENTAL MEDITATION ON ANXIETY

THESIS

Presented to the Graduate Council of the
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Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

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This study was concerned with the degree to which the practice of transcendental meditation (TM) aids in the long-term reduction of anxiety. The Taylor Manifest Anxiety Scale (TMAS), short form, was given to 16 Ss about to learn the technique of TM and to 16 control Ss. Eighteen weeks later, the TMAS was again administered to both groups. A significant difference was found in TMAS score reduction between the two groups, with the meditation group showing the greater reduction. These findings lend support to the hypothesis that TM aids in the long-term reduction of anxiety. It is recommended that further research in this area be undertaken to further validate the results of this study.
THE INFLUENCE OF TRANSCENDENTAL MEDITATION ON ANXIETY

Psychologists, psychiatrists, and educators have long been concerned with anxiety and with minimizing the effects associated with it. Several techniques of reducing anxiety, autosuggestion, autogenic training, and analytic treatment, have been identified and examined by early studies. Nevertheless, these techniques have been widely criticized, and their aids to the reduction of anxiety have been questioned. Transcendental meditation has been recommended as an effective aid to the reduction of anxiety, though empirical verification has not been extensive. Campbell (1970) has reported findings that clearly distinguish the state reached during transcendental meditation from both sleep and autosuggestion. His data indicated no particular electroencephalographic changes during sleep or autosuggestion, and no particular metabolic changes during autosuggestion. In comparing transcendental meditation to autogenic training, suggestive therapy, and analytic treatment, Vanselow (1968) concluded that transcendental meditation goes deeper to dissolve the cause of tension and stress and therefore is more effective than these other methods.

Because transcendental meditation involves an inward centering of attention, description of it is difficult and
often vague. Each meditator is given a specific mantra, usually an euphonious syllable with no particular meaning. The meditator finds a quiet, comfortable place where he sits thinking the sound of the mantra, usually for 20 minutes twice a day. The individual is instructed to follow and enjoy the thoughts and effects of meditation and not to force concentration on any particular aspect. The technique of transcendental meditation is almost effortless, requiring no concentration or exercises, and may be learned by the novice usually in less than an hour. Transcendental meditation has been described as a technique for turning the attention inwards toward subtler levels of thought until the mind transcends the subtler state of thought and arrives at the source of thought.

Much of the research done on transcendental meditation has been of a physiological nature, dealing with short-term effects, usually only with the state of the organism during meditation. Of particular interest are physiological studies whose supposed psychological concomitant is closely associated with anxiety. Table 1 summarizes some physiological changes and their supposed psychological concomitants.

Wallace and Benson (1971) found a marked decrease in oxygen consumption and blood lactate level, and an increase in skin resistance during meditation. They point out that these particular physiological states achieved during 20 minutes of meditation are comparable to, or greater than,
Table 1
Physiological Measurements and Their Supposed Psychological Concimitants

<table>
<thead>
<tr>
<th>Physiological Measurements</th>
<th>Supposed Psychological Concimitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. skin resistance</td>
<td>stress or anxiety</td>
</tr>
<tr>
<td>2. oxygen consumption</td>
<td>state of rest</td>
</tr>
<tr>
<td>3. breath rate</td>
<td>relaxation or rest</td>
</tr>
<tr>
<td>4. blood lactate concentration</td>
<td>sometimes anxiety neurosis</td>
</tr>
<tr>
<td>5. galvanic skin response</td>
<td>resistance to environmental stress, behavioral instability</td>
</tr>
</tbody>
</table>

states reached during several hours of sleep. Indications are that during meditation, a deep state of rest and relaxation is achieved with a decrease in stress and anxiety.

A significant decrease in breath rate during meditation was found by Allison (1970). It was also pointed out that the decreased rate of breathing was accompanied by a decreased depth of breathing, with no evidence of compensatory over-breathing after meditation had stopped. A more relaxed and rested state of the nervous system is indicated.

The practice of transcendental meditation aids in stabilizing the nervous system as evidenced by the elicitation of fewer spontaneous galvanic skin responses. In a study with noxious tones, Orme-Johnson (1972) found that
Meditators achieved habituation in significantly fewer trials than did non-meditators. That meditation results in greater resistance to environmental stress and greater emotional stability is concluded.

Psychological interest in transcendental meditation has been minimal until recent years. The studies have been mostly exploratory, dealing with the short-term effects of many variables. In a study of teachers of transcendental meditation, using the Freiburger Personality Inventory (similar to the MMPI), Fehr (1972) found a significant reduction in nervousness, irritability, and emotional instability, as compared with the average population.

A significant difference between meditators and controls in terms of both momentary and general anxiety was found by Ballou (1973) in a study using the Spielberger Anxiety Inventory with state prisoners. Prior to the introduction of transcendental meditation, there was no difference between the pre-meditator group and the control group, but with only a few days of practice, the meditators showed a marked reduction in anxiety, which remained at a low level. In support of Ballou and using the same anxiety scale, Ferguson & Gowen (1973) found a significant decrease in anxiety and neuroticism after six weeks of meditation by university students.

It must be noted that the preceding arguments are based on relatively short-term states of the organism. The
physiological studies were concerned with changes which occurred during meditation. The remaining studies were concerned with a time period of, at most, six weeks' duration. It may be argued that transcendental meditation does not necessarily have a long-term effect on anxiety, but, at most, only a temporary effect. In light of this argument, the present study was undertaken to investigate the long-term effect of transcendental meditation on anxiety. It was hypothesized that, on a relatively enduring basis, transcendental meditation is an effective technique which aids in the reduction of anxiety.

Method

Subjects

Eighty-two Ss were tested initially, 35 Ss in the meditation group and 47 Ss in the control group. The meditation group consisted of Ss who had never had experience with transcendental meditation and who enrolled with the Students International Meditation Society for instruction in transcendental meditation. The control group consisted of volunteers from undergraduate psychology classes at North Texas State University. Because of attrition and failure to meet meditation requirements (12 times a week), only 16 Ss in the meditation group were retested. No significant difference was found between groups on the basis of sex, age, or scale score.
Instrument

The short form of the Taylor Manifest Anxiety Scale (Taylor, 1953), as suggested by Bendig (1956), was employed. Several items, unrelated to anxiety, were added. An instruction sheet was attached to each of the two forms (pretest and posttest). The Appendix contains the two forms of the scale. It should be noted that both forms incorporate the same scorable items, only in a slightly different order.

Procedure

The Taylor Manifest Anxiety Scale was administered to the experimental group prior to their learning to meditate and to the control group during this same time period. Following a period of 18 weeks, matched Ss were retested using the same scale. During retesting, Ss in the meditation group were asked to estimate the number of times a week they had meditated since their initial learning of the technique. Also during retesting, all Ss in both groups were asked if they had been involved in therapy, counseling, or yoga since their initial testing. Meditators who did not meet the meditation requirement of 12 sessions per week (5 Ss) and Ss who had been involved in therapy, counseling, or yoga (1 S in the experimental group and 1 S in the control group) were excluded from this study.

This experiment was designed to test the effects of meditation on anxiety as measured by the Taylor Manifest Anxiety Scale. A comparison between the two groups with
respect to the differential change in anxiety scores within each group provided a test of the hypothesis.

**Results**

With the pretest scale score as the covariable, analysis of covariance was employed to determine if meditation had a differential effect on the final scale score. Results of analysis of covariance revealed a significant difference between the two groups. As seen in Table 2, the scale score reduction was the greatest for the meditation group.

**Table 2**

*Summary of Sex, Age, TMAS Scores, and $F^*$ for the Meditation Group and the Control Group*

<table>
<thead>
<tr>
<th></th>
<th>Meditation Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Subjects</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Mean Age</td>
<td>27.3</td>
<td>21.5</td>
</tr>
<tr>
<td>Mean Pretest Score</td>
<td>7.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Mean Posttest Score</td>
<td>4.75</td>
<td>5.9</td>
</tr>
</tbody>
</table>

* $F = 4.79$ (p < .05)
Discussion

On the basis of the obtained results, and since the pretest mean anxiety score is higher than the posttest mean anxiety score, it was concluded that the research hypothesis was confirmed. Specifically, it was concluded that transcendental meditation is a technique which effectively aids in the reduction of anxiety on a relatively enduring basis.

The results of this study may have been anticipated by projections of several short-term studies (Ballou, 1973; Ferguson & Gowen, 1973). However, such projections may lead to severe problems of overgeneralization. In addition to supporting these short-term studies, this study also tends to eliminate factors attributable to the individual's enchantment with a new technique and not due to the effects of the technique itself.

There are several questions that can be raised concerning the validity of this study. First, after an individual starts meditating, the anxiety reduction exhibited may be related to the individuals with whom he associates or to the social attitude of the Students International Meditation Society. Since part of the Students International Meditation Society function is social in nature (dinners, meetings, and lectures), the individual is likely to feel he is a member of a family with a common cohesive factor, namely meditation. In addition, the joining of an organization or group may tend
to carry with it a predisposition towards particular personality characteristics, making it likely that an individual will find others with common interests or goals. It is possible that a cohesive social situation may lead to decreased anxiety.

Second, it is possible that the two groups of Ss were not from the same population. An individual who actively seeks a technique such as transcendental meditation may differ in some way from an individual who does not. It may be that he has an anxiety score slightly elevated from normal. Individuals seeking a technique such as TM may recognize a need for help in much the same way as individuals seeking therapy.

Third, Ss who continue the practice of TM may be doing so as a result of a felt benefit. The Ss who were not included in the meditation group due to failure to meet the criterion of 12 meditation sessions a week or due to practice of another technique may have been dissatisfied with the results of their meditation. Inclusion of meditation Ss who were disqualified may have significantly affected the results of this experiment even if they had met all the criteria.

Fourth, since anxiety is not a unidimensional construct, it may be impossible to measure anxiety with any degree of certainty. The validity of this study is directly related to the validity of the Taylor Manifest Anxiety Scale. In
addition, even if the validity of the scale were not in question, one could not be certain that it was measuring trait rather than state anxiety. If a relatively temporary state of the $S$ is being measured, then the interpretation of the results of this study is greatly complicated.

Fifth, since the Students International Meditation Society had knowledge of the nature of this study, it may be that indirect communication of expected results influenced the meditation group. Also, the $E$ may have communicated expected results during retesting or during engagement in social activities with $S$s in the experimental group before retesting.

With the preceding limitations of the validity of this study in mind, suggestions for future studies may be made. The use of a control group with $S$s who intend to learn to meditate but are taught a technique which would have no benefit may be valuable. It may be advisable to use another measure of anxiety and to take into account all $S$s, including those who drop out of meditation.

In many cases, the pretest anxiety scores for $S$s in both groups were quite low. The utility of lowering a prevailing low anxiety score is debatable. If performance has a parabolic relationship with anxiety, then low-anxiety $S$s would be poor performers along with high-anxiety $S$s. Also, it seems that lowering the anxiety of an already low-anxiety individual has little therapeutic utility. With
this in mind, it is suggested that further studies may benefit to eliminate exceedingly low-anxiety individuals.

Since transcendental meditation has potential therapeutic utility, Ss with particular problems seeking therapy could be matched according to disturbance and/or prognosis of success in therapy. One of the matched pairs could be asked to learn transcendental meditation while the other serves as a control. The success in therapy of both groups could be compared to determine the value of transcendental meditation as a therapeutic instrument.

The most tenable explanation of the finding of this study is that transcendental meditation does aid in the reduction of anxiety. However, with reference to the cited limitations of this study and with respect to the limited literature to support this hypothesis, generalization of the results must be made with caution.
Appendix

Biographical Inventory

This inventory consists of a number of statements which should be answered true or false as they pertain to you.

If a statement is true or usually true, circle a T; if the statement is false or not usually true, circle an F. Remember to give your own opinion of yourself.

Be sure to make your marks legible and erase completely any answer you wish to change. Do not leave any statements blank.

Your response to this inventory will be held in strict confidence.

FULL NAME: ____________________________________________

ADDRESS: ____________________________________________

________________________________________________________________________

PHONE: ____________________________________________

AGE: ____________________________________________
Scorable scale items (indicating high anxiety) are denoted by underlining.

1. T F I enjoy reading.
2. T F I am usually calm and not easily upset.
3. T F At times I am so restless that I cannot sit in a chair for very long.
4. T F My feelings are hurt easier than most people's.
5. T F I work under a great deal of strain.
6. T F I am never happier than with close friends.
7. T F I am about as nervous as other people.
8. T F I cannot keep my mind on one thing.
9. T F I am happy most of the time.
10. T F I am more self-conscious than most people.
11. T F I have periods in which I feel unusually cheerful without any special reason.
12. T F I am the kind of person who takes things hard.
13. T F I am a very nervous person.
14. T F I certainly feel useless at times.
15. T F I don't like to face a difficulty or make an important decision.
16. T F At times I enjoy being alone.
17. T F Life is often a strain for me.
18. T F I am not at all confident of myself.
19. T F At times I think I am no good at all.
20. T  F  I find it hard to keep my mind on a task or job.

21. T  F  I am in good physical health.

22. T  F  I often find myself worrying about something.

23. T  F  At times I feel that I am going to crack up.

24. T  F  I feel anxious about something or someone almost all the time.

25. T  F  I have often felt that I faced so many difficulties I could not overcome them.
Posttest Form

Scorable scale items (indicating high anxiety) are denoted by underlining.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>T</td>
<td>I am usually calm and not easily upset.</td>
</tr>
<tr>
<td>2.</td>
<td>T</td>
<td>At times I enjoy being alone.</td>
</tr>
<tr>
<td>3.</td>
<td>T</td>
<td>My feelings are hurt easier than most people’s.</td>
</tr>
<tr>
<td>4.</td>
<td>T</td>
<td>I work under a great deal of strain.</td>
</tr>
<tr>
<td>5.</td>
<td>T</td>
<td>I am in good physical health.</td>
</tr>
<tr>
<td>6.</td>
<td>T</td>
<td>I am about as nervous as other people.</td>
</tr>
<tr>
<td>7.</td>
<td>T</td>
<td>I cannot keep my mind on one thing.</td>
</tr>
<tr>
<td>8.</td>
<td>F</td>
<td>At times I am so restless that I cannot sit in a chair for very long.</td>
</tr>
<tr>
<td>9.</td>
<td>T</td>
<td>I am more self-conscious than most people.</td>
</tr>
<tr>
<td>10.</td>
<td>T</td>
<td>I am the kind of person who takes things hard.</td>
</tr>
<tr>
<td>11.</td>
<td>T</td>
<td>I enjoy being with friends.</td>
</tr>
<tr>
<td>12.</td>
<td>T</td>
<td>I am a very nervous person.</td>
</tr>
<tr>
<td>13.</td>
<td>T</td>
<td>I am happy most of the time.</td>
</tr>
<tr>
<td>14.</td>
<td>T</td>
<td>I certainly feel useless at times.</td>
</tr>
<tr>
<td>15.</td>
<td>T</td>
<td>I don’t like to face a difficulty or make an important decision.</td>
</tr>
<tr>
<td>16.</td>
<td>T</td>
<td>I enjoy participating in sporting activities.</td>
</tr>
<tr>
<td>17.</td>
<td>T</td>
<td>Life is often a strain for me.</td>
</tr>
<tr>
<td>18.</td>
<td>T</td>
<td>I am not at all confident of myself.</td>
</tr>
<tr>
<td>19.</td>
<td>T</td>
<td>At times I think I am no good at all.</td>
</tr>
</tbody>
</table>
20. T F I find it hard to keep my mind on a task or job.

21. T F I consider myself a conservative person.

22. T F I often find myself worrying about something.

23. T F At times I feel that I am going to crack up.

24. T F I feel anxious about something or someone almost all the time.

25. T F I have often felt that I faced so many difficulties I could not overcome them.
References


