A FOLLOW-UP STUDY OF THE EFFECTS OF THE TRANSCENDENTAL MEDITATION PROGRAM ON INMATES AT FOLSOM PRISON

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Sustained reductions in anxiety, hostility, neuroticism, insomnia, and use of cigarettes were found in a group of prisoners following nine months’ practice of the Transcendental Meditation technique.—EDITORS

A follow-up investigation of Folsom Prison inmates who had learned the Transcendental Meditation technique was performed at six and nine months in order to determine whether initial benefits for personality and behavior shown in the original three-month study were sustained. Subjects were evaluated using the same psychological tests as in the first study.

Significant overall reductions over the nine months were found (p<.05) on all psychological indices measured—state anxiety, trait anxiety, neuroticism, and hostility. In particular, neuroticism showed a continued downward trend over the nine month interval. The marked improvements in sleeping patterns and insomnia noted at three months were also sustained and a clear trend developed towards less heavy use of cigarettes.

These findings strongly indicate that the practice of the Transcendental Meditation technique produces lasting benefits for behavior and personality in prison inmates. Furthermore, these findings are supported
by an independent study showing reduced recidivism in parolees from the same prison who had learned the Transcendental Meditation technique.

The Transcendental Meditation (TM) technique was indicated to have very positive effects on personality and behavior of inmates at Folsom Prison (Abrams and Siegel, 1978). Allen (1979) and Rahav\(^1\) (1980) challenged the interpretation of the findings with the assertion that the true cause of the changes may have been experimenter caused placebo effects rather than the practice of the TM technique. In a secondary data analysis, Abrams and Siegel (1979) found no significant relationship between lie scale scores and personality and behavioral changes in the treatment groups. Thus, Allen's and Rahav's assertions received non-support. Unless the lie scale was invalid, and this has not previously been shown, then results cannot be attributed to social desirability as critics have charged. Despite this, it is still of interest to follow up the meditating subjects to determine whether the apparent treatment effects were maintained. Although there have been no experimental tests of the length of placebo effects, Barber\(^2\) has opined that nine months would be an inordinately long duration.

The present study reports the results of six and nine month follow-up testings on the original group of inmates instructed in the TM technique at Folsom Prison. The key issue is whether these subjects show any regressive tendencies on measures which indicated growth in psychological stability.

SUBJECTS

The attrition trend noted in the original study continued as a function of the overcrowding in Folsom Prison, transfer policies, and the completion of terms. Of the 26 remaining subjects from the first study, 23 were available for the second posttesting with six months of TM technique practice, and only 14 were available for the third posttesting, with nine months of TM technique practice. These numbers represent maximum possible samples for analyses. Actual numbers are somewhat lower.

The ethnic composition of the sample continued to be essentially the same as it was at the start of the study with 52 percent white, 30 percent black and 17 percent Mexican-American. Fewer of the remaining subjects were maximum security residents—14 percent compared to 22 percent in the original sample.

The transfer of inmates to other prison facilities was the major cause of attrition. Also, several inmates were discharged. Only two participants declined to be posttested.

PROCEDURE

The design of the first phase of the study consisted of random assignment to a TM technique treatment group and a waiting control group, with the exception of four individuals considered prison leaders, who were placed in the treatment group at the request of the warden. The first waiting control group also included several men who were considered leaders in the Folsom Prison community.\(^3\) No control subjects were appropriate for comparison since all waiting controls were instructed in the TM technique following posttesting at three months after the instruction of the original treatment group.

All subjects had been instructed in the TM technique in the standard seven-step method. Follow-up instructional activities consisted of weekly two-hour meetings held Monday evenings from seven-thirty to nine-thirty and monthly individual meditation checks for continued correctness of practice. Evening meetings featured audiocassette and videotape presentations by Maharishi Mahesh Yogi on the Science of Creative Intelligence, the theoretical aspect of the Transcendental Meditation program, plus guest lectures and discussions.

1. Interestingly, Rahav's reanalysis of the data gave further support to the Abrams and Siegel hypothesis. Besides having the original treatment effects remain significant after covariation for age, security, status, and ethnicity, resting pulse rate was found to be reduced by the practice of the TM technique. Allen (1979) had chided Abrams and Siegel for mentioning that this effect was "nearly statistically significant." With the added power of Rahav's analysis, it was significant.

2. In a personal communication, T.X. Barber of the Medfield Foundation, an acknowledged expert on experimenter and subject bias effects, stated that he felt a placebo effect of nine months duration would be extremely unlikely—particularly with prison inmates.

3. See the original article, Abrams and Siegel (1978), for a description of the instructional program.
The testing procedure used for the pretest and initial posttest was maintained. Subjects were posttested in a lecture room by a member of the prison education staff who was otherwise uninvolved in the research study.

INSTRUMENTS

The identical battery of measures used in the original experiment was administered, except for blood pressure due to the unavailability of a physician.

(1) State-Trait Anxiety Inventory (STAI). The STAI (Spielberger et al., 1970) measures two types of anxiety: state anxiety ("A-State"), or immediate anxiety, which varies with changes in the subject's mood and environment; and trait anxiety ("A-Trait"), which is more stable over time and is considered the potential for anxiety.

(2) The Buss-Durkee Hostility Inventory (Buss & Durkee, 1957). This is a 75-item inventory for assessing different kinds of hostility. It has eight scales: assault, hostility, irritability, negativism, resentment, suspicion, verbal hostility, and guilt.

(3) Eysenck Personality Inventory (EPI). The EPI (Eysenck & Eysenck, 1968) consists of two parallel 24-item forms measuring extroversion and neuroticism. It also includes a nine-item lie scale which is used to identify subjects showing a "desirability response set". Form A was used.

(4) A sleep and smoking survey. Items consisted of the following:

(a) For the past one or two months, it has taken me about this many minutes to fall asleep: less than ten minutes; between ten minutes and half an hour; longer than half an hour.

(b) During the night my sleep has been: deep without waking up; I have been waking up only once or twice in the night; my sleep is poor because I wake up many times throughout the night.

(c) In general, over the past one or two months, my sleep has been getting: easier and better; harder and more troubled; not much change or difference.

(d) I smoke cigarettes in the following amount: I don't smoke at all; I smoke one or two cigarettes a day; I smoke about a pack; I smoke two or more packs a day.

ANALYSIS

The relatively large attrition of subjects is challenging to the analysis of data. To permit maximum use of the data paired repeated measures comparisons were made in the following way as suggested by Marascuilo. The psychological (interval) data was handled as a succession of matched-pair, two-tailed t-tests: pre versus post 1, post 1 versus post 2, and post 2 versus post 3. This procedure provides maximum statistical power for the detection of differences between groups. It is acknowledged that the first and second, and the second and third t-tests are non-orthogonal as defined by Kirk (1969), and that multiple t-tests inflate the type 1 error rate beyond a usually accepted level. However, in this case such conditions mean a more conservative study. A negative outcome would be a significant loss of treatment effects at posttest 2 or posttest 3, and this analysis tends slightly to be biased in favor of such results. The behavioral measures which are ordinal were analyzed by means of Friedman Tests (in Bradley, 1968) comparing the three, six and nine month test groups.

RESULTS

There were significant (with \( p < .05 \)) reductions on all psychological indices—state anxiety \( (t_{25} = -5.53) \), trait anxiety \( (t_{25} = -5.27) \), neuroticism \( (t_{25} = -2.12) \), and hostility \( (t_{24} = -3.27) \). There was a significant increase in state anxiety between the three and six month posttests \( (t_{18} = 2.36) \), and no change between the six and nine month posttests. Comparison of the nine month posttest versus the pretest on state anxiety revealed a significant decrease \( (t_{13} = -3.83) \). There were no significant regressions in trait anxiety from the three month to the six month posttest or from the six month to the nine month posttest \( (t_{21} = .86 \) and \( t_{13} = .11 \) respectively). An additional positive treatment effect between the three and six month posttests was found on neuroticism \( (t_{21} = -3.66) \). This additional psychological improvement held through the nine month posttest \( (t_{11} = -1.03, \) NS). A positive treatment effect between the three and six month posttests was also found on hostility \( (t_{20} = -3.56) \). This improvement held through the nine month posttest

4. Leonard Marascuilo, Professor of Behavioral Statistics at the University of California at Berkeley, suggested the analysis in a consultation with the author.
(t_{12} = .21). Figure 1 displays the change trends of the psychological measures.

Table 1 presents the sleep and smoking habits behavioral trends. All values of the Friedman test statistic $S$ comparing the three, six, and nine-month test groups were far from being significant at the .05 level. Thus there was no indication of any longitudinal loss of behavioral treatment effects.

**DISCUSSION AND CONCLUSIONS**

Taken as a whole, the findings of this study strongly indicate that the practice of the Transcendental Meditation technique has lasting beneficial effects on the personality and behaviors of prison inmates. For all measures, the subjects' conditions after nine months of practice were superior to prior to instruction. Of the four psychological variables studied, only one, state anxiety, showed any significant sign of regression from the initial treatment effects at any stage. However, this occurred only between three and six months posttest and overall benefits were well sustained. On the other hand, two of the four variables—hostility and neuroticism—showed additional significant reductions during the period of three to six months of practice, with neuroticism indicating a continuing trend of decline even at the nine month testing. Whereas more than half of the subjects indicated problems of insomnia at the start of the study, only one quarter gave such evidence at its conclusion one year later. With regard to cigarette smoking there was a clear trend to less heavy smoking.

Bleich’s (1982) recent findings of reduced recidivism of program participants released from Folsom and San Quentin prisons gives further evidence that the program effects are genuine. Compared with matched controls, TM initiates had significantly better parole outcomes at six months ($p < .0006$), one year ($p < .0014$), and overall (six months to two years) ($p < .0014$). Also, 63% of survey respondents who learned TM in prison reported that they were continuing the practice.

In the face of the current and past findings on the Folsom Prison TM program, critics’ charges of placebo effects are unwarranted and appear to be revelations of bias. Civic, state, and federal agencies need to take steps to implement the TM program to rehabilitate criminals.

**REFERENCES**

ABRAMS, A. I. and SIEGEL, L. M. 1978. The Transcendental Meditation program and rehabilitation at Folsom


