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THE APPLICATION OF THE TRANSCENDENTAL MEDITATION PROGRAM TO CORRECTIONS AND CRIME PREVENTION

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This paper reviews research demonstrating that the Transcendental Meditation and TM-Sidhi programme produces consistent beneficial effects for both criminal rehabilitation and crime prevention.—EDITORS

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This paper describes the research studies on the Transcendental Meditation (TM) program which have relevance to corrections and to crime prevention in urban communities. Physiological and psychological laboratory studies of the TM program which bear on criminal rehabilitation are briefly reviewed, followed by consideration of applied studies. Eight research projects in six correctional settings are reviewed. These studies give strong evidence that regular practice of the TM program leads to positive changes in health, personality development, and behavior among prisoners. Evidence of reduced recidivism among TM program participants is also indicated. Seven studies are reviewed which support the hypothesis that decreased crime rate in urban areas is associated with the percentage of persons practicing the TM program in that area. The research evidence suggests that the TM program participation is the causal factor in this decrease; theoretical explanations of the phenomenon are described. Practical implications of this research are also discussed.

THE APPLICATION OF THE TRANSCENDENTAL MEDITATION PROGRAM TO CORRECTIONS AND CRIME PREVENTION

There has never been a greater need for effective means of criminal rehabilitation and crime prevention. Approximately one-half million individuals are currently incarcerated in the U.S. Nearly 85 percent of male prison inmates and nearly 75 percent of female inmates have served at least one prior criminal commitment. As this incarceration treadmill has revolved, crime rate has continued to grow at an alarming pace in the past twenty years. As a result, over \$24 billion was spent on criminal justice activities in the U.S. in 1978, an increase of \$14 billion from 1971. The cost in human terms is immeasurable; in many urban areas fear for personal

safety is commonplace, severely restricting the quality of life of the community.

In light of this urgent need, the research on the Transcendental Meditation (TM) program related to criminal rehabilitation and crime prevention offers striking promise. This paper reviews scientific findings on the general effects of the Transcendental Meditation program, on its use in penal settings, and on its application to crime prevention.

THE TRANSCENDENTAL MEDITATION TECHNIQUE

The TM technique is described as a simple, effortless, and uniformly taught mental procedure practiced for 15 – 20 minutes twice daily (Cox, 1972).

It is said to require no change in beliefs or lifestyle. The TM technique is not itself a rehabilitative program, but rather a program for the development of individual consciousness to its full value (Maharishi Mahesh Yogi, 1977). The technique's positive effect in criminal rehabilitation settings is said to be due to this development of individual potential.

According to the Science of Creative Intelligence (SCI), the theoretical basis of the TM technique, the technique is predicted to increase the ability to act in a law-abiding manner by developing the common basis of thought, feeling, and behavior: consciousness. SCI posits that the degree to which the coherence of one's consciousness is developed directly determines the ability to behave in a manner which does not violate law; the quality of consciousness, in turn, is dependent upon psychophysiological integration. SCI predicts that the TM technique increases psychophysiological integration by alternating daily activity with regular experience of a state of least excitation of mind and body found during the TM technique. The least excited state of awareness, termed "pure consciousness," is described as a quiet inner state of "pure wakefulness" brought about through a de-excitation of the thinking process; the TM technique is said to allow the mind to experience increasingly quiet mental activity, until this unique least excited state of awareness is experienced (Maharishi Mahesh Yogi, 1977).

The TM technique has indeed been found to produce a unique combination of physiological changes which indicate a state of deep rest and heightened mental alertness, such as decreased oxygen consumption, increased skin resistance, increased frontal alpha in the EEG, and specific biochemical changes (Banquet, 1972, 1973; Dhanaraj, 1977; Glueck and Stroebel, 1978; Wallace et al., 1971). In addition, EEG coherence, a measure of long-range orderliness of brain functioning, has been found to increase during the practice of the TM technique (Levine, 1976).

There is also strong evidence for the prediction that the regular experience of pure consciousness during the TM technique leads to a wider range of physiological, psychological, and behavioral effects. Laboratory research on the effects of the TM program indicates that the technique, which seems physiologically to produce an effect of increased orderliness in brain functioning, does foster psychophysiological and psychological integration in subsequent daily activity as measured by the

following parameters which have relevance to criminal rehabilitation: levels of cortisol (a stress hormone), stress tolerance, EEG coherence, moral reasoning, and field independence.

Advanced TM participants were found to have lower levels of urinary free cortisol than nonmeditators or novice TM meditators; in addition, urinary cortisol levels decreased further among these subjects after a weekend course featuring additional meditations (Bevan, Young, Wellby, Nenadovic, and Dickins, in press). Plasma cortisol has also been found to decrease during the TM technique (Bevan et al., in press; Jevning, Wilson, and Davidson, 1978).

Increased resistance to stress among TM meditators may be inferred from a number of studies. TM meditators record lower levels of resting heart rate and breath rate than nonmeditators (Routt, 1977). TM participants have also been found to habituate more quickly than prospective meditators to a stressful stimulus, as well as to display lower levels of spontaneous galvanic skin responses than prospective meditators (Orme-Johnson, 1973). These measures indicate a more stable functioning of the autonomic nervous system. Other indications of increased resistance to stress among TM participants include decreased insomnia (Fuson, in press; Miskiman, 1977), lower "biological age" (Wallace, Dillbeck, Jacobe, and Harrington, 1982) and decreased anxiety (Ferguson and Gowan, 1976). This anxiety decrease has been found to be significant in contrast to another relaxation procedure in longitudinal studies (Davies, 1977; Dillbeck, 1977). This decreased susceptibility to stress has obvious practical implications for the stressful environment of most correctional facilities. It also has a preventative implication; a recent study (Masuda, Cutler, Hein, and Holmes, 1978) indicates that a large sample of state penitentiary inmates had experiences of mounting frequency of life change events in each year immediately prior to incarceration. This pattern of life change magnitude parallels that found in the onset of illness as a result of stress (Masuda et al., 1978).

EEG coherence has also been found to increase longitudinally among those instructed in the TM program (Dillbeck and Bronson, 1981). Higher EEG coherence in frontal brain areas has been found to correlate significantly with higher (principled) stages of moral reasoning and to increase longitudinally

in advanced TM participants (Orme-Johnson, 1980). Consonant with this, college student TM meditators have been found to have higher levels of moral reasoning on Kohlberg's measure than peers (Nidich, 1976).

Another laboratory study of the TM program with correctional implications is that of Pelletier (1974), which found longitudinal increases in two measures of field independence among new TM participants over a three-month period using a Solomon-type design. Persons with high field independence have been found to have more structured control of affective discharges and motor activities (Witkin, Goodenough, and Oltman, 1977).

The ability to fulfill desires without resorting to crime also depends on a much broader platform of cognitive flexibility, emotional stability, and personal fulfillment. In this context, longitudinal studies have demonstrated increases in creativity and self-actualization among participants in the TM technique (Dick, 1974; Nidich, Seeman, and Dreskin, 1973; Seeman, Nidich, and Banta, 1972; Shapiro, 1977; Shecter, 1978; Travis, 1977). This development of inner potential is predicted to lead to a state of full development, termed enlightenment, in which the individual spontaneously acts in a manner which not only effectively fulfills his or her own needs, but also contributes most to the needs of others (Maharishi Mahesh Yogi, 1977).

THE TM PROGRAM AND CRIMINAL REHABILITATION

In the past ten years, the Transcendental Meditation technique has been taught to more than one thousand adult prison inmates in ten U.S. and in four foreign prisons, and to several hundred incarcerated juveniles in eight U.S. facilities. Each of the major prison projects included a research and evaluation component which attempted to provide an objective and valid view of some aspects of the impact of the TM technique on incarcerated men. Programs for women's facilities are now in the proposed stage. It should be noted that prisons are not ideal laboratories for research and each of the research projects described was made under limited environmental conditions and with funds generally consisting of private donations. In spite of this, the results are consistently positive.

LA TUNA FEDERAL PENITENTIARY, TEXAS—The first pilot research on the effects of the TM program in a prison setting was conducted on samples of narcotic (heroin) addict prisoners (Orme-Johnson, Kiehlbauch, Moore, and Bristol, 1977). In this study a non-matched groups comparison design was used with 23 meditators and 17 controls pretested. After a two-month interval without contact with the experimenters, 12 meditators and 7 controls were post-tested. No time or place was set aside for meditation, yet five of the experimental subjects had managed to meditate regularly on more than one half of the possible occasions. Regular meditators decreased significantly more than irregular meditators and controls on spontaneous galvanic skin response (GSR), and the percent decrease was found to be significantly correlated with the number of times the subject meditated. The meditators decreased significantly more than the controls on MMPI scales of psychasthenia (obsessive-compulsive symptoms) and social introversion. Changes in the basal GSR level were not significant.

STILLWATER PRISON, MINNESOTA—Ballou (1977) randomly assigned 30 volunteer inmates to a TM technique group and another 27 to a control group who were not instructed in the Transcendental Meditation technique until later; subjects were measured repeatedly on the State-Trait Anxiety Inventory and blood pressure readings over an 11-week period. In addition, 16 inmates not desiring to start the TM program were also repeatedly tested. Twenty-three meditators and twenty controls completed the experiment. There were no significant distinguishing traits in terms of age, educational or SES background, race, IQ, crime, or length of sentence between the volunteers and the rest of the prison population.

Results indicated that the meditators' state and trait anxiety levels reduced significantly in comparison to both control groups, which did not differ from one another. These decreases in the TM group occurred within three weeks of instruction and remained constant over the experiment. No effects on blood pressure were found. Ballou provided a program of extensive follow-up instruction to participants. Seventy percent of those trained in the program maintained regular practice for the full year of the complete study. In other aspects of the study Ballou found that meditators significantly decreased in number of disciplinary reports in comparison to

controls, and they doubled in the number of educational, recreational, and vocational activities and tripled in the number of hours spent in those activities. Fourteen of 23 inmates surveyed also reported a decline or cessation of drug use as a function of TM program participation. Lastly, Ballou reports that only one of 16 released participants was reincarcerated during the year with one other suspected of illicit activities; more than half continued to meditate regularly.

THE FEDERAL CORRECTIONAL INSTITUTION AT LOMPOC, CALIFORNIA—Cunningham and Koch (1977) used a time series design to replicate Ballou's anxiety findings with 38 inmates. Besides finding significant decreases in state and trait anxiety over a five-month period, the investigators found positive changes on self-report Likert-type personality scales during their twenty-week study. There was no loss of subjects and 85 percent of those inmates taught continued to meditate through the study. Amount of treatment gain was positively correlated ($r = .89$) with regularity of TM technique practice.

MILAN FEDERAL CORRECTIONAL INSTITUTION, MICHIGAN—This experimental study by Ramirez (in press), a private consultant, included the most extensive assessment battery in a TM prison study to date. Ramirez randomly selected 80 volunteers from two drug (heroin) addiction treatment units in the prison. Those men were randomly assigned to a TM and a control condition, 20 men per each group from each treatment unit. The researcher was blind to group assignment. In this pretest-posttest design, 68 men were available for posttesting after the two- and one-half month interest interval. Only three of these men had not practiced the TM technique with any regularity and were excluded from the analysis of data.

In this project both control groups received the treatments provided in their respective units, and one treatment group received only the TM technique (Group A) whereas the second group was treated with both the TM technique and the treatment provided by the prison unit (Group B). Ramirez found that Group A (80% very regular) practiced the Transcendental Meditation technique far more regularly than did Group B (25% very regular), which was housed in a more disruptive environment. The TM groups improved significantly compared to the controls in terms of self-esteem (Rosenberg Self-

Esteem Inventory), internal locus of control (modified version of Rotter's scale), neuroticism (Eysenck Personality Inventory), and aggression (MMPI and Buss-Durkee Hostility Inventory), and also experienced a reduction of personality disturbance (MMPI subscales D, Ma, Pt, Sc, Es, Re, Hy, and Hs). Regularity of practice was associated with more positive changes in terms of most of the above-listed variables.

MASSACHUSETTS CORRECTIONAL INSTITUTION AT WALPOLE, MASS.—Several studies have been performed on the TM program at MCI Walpole, beginning with the pilot study of Ferguson (in press). In his pretest-posttest design 38 male inmates were pretested and 25 of those were posttested after an average of eight weeks of meditation. Significant reductions in state and trait anxiety and hostility were found on self-report instruments. In addition, sleep patterns became more stable and the number of disciplinary reports declined, but tobacco smoking habits were unchanged. Most importantly, confidential reports of counsellors and the program teaching staff indicated that the program met its objective in reducing drug use. Drug use could not be measured directly since very few were willing to report their drug use patterns in writing. In a letter to the regional drug rehabilitation coordinator, the prison staff psychologist who served as the corrections department project committee chairman wrote:

"In several confidential interviews, individual meditators have described to me how they felt freed of their long-standing drug addictions and immensely reassured in their belief in themselves. Others told of a significant drop in their previous tendency to succumb to stressful situations with depression or with impulsive acting out. I have sensed a general increase in a kind of quiet pride and self-confidence among the meditators. At first there was considerable humorous or even scathing skepticism (among inmates and staff) toward those involved in TM. This has changed in many cases to respect, and to questions as to how one might get into the program. . . . This whole effort must be commended as one of the very most effective ventures at Walpole in helping men move toward goals of constructive self-development and responsibility. We hope it can be expanded and made available to all, both men and staff." William Clark, Staff Psychologist; M.C.I. Walpole (Ferguson, in press).

Alexander (1982) conducted a double-blind cross-sectional follow-up study of the Walpole program.

Forty long-term TM participants (LTTM) with an average of 18 months' experience were compared to 50 inmates interested (ITM) and 40 inmates not interested (NITM) in learning TM. Subjects in this study were administered a large battery of predominantly "fake-proof" psychological measures and were not informed of the true nature of the study prior to testing. This study controlled for a number of background variables. The three groups did not differ on preincarceration variables, such as age, education, race, religion, IQ or crime severity; in addition, the ITM and NITM groups did not differ on 20 personality and developmental test variables.

The LTTM group scored significantly higher in Loevinger's Ego Development Scale than the other two groups, higher on Intimacy Motivation (measured on the Thematic Apperception Test), higher on Alexander's measure of "stage of consciousness," and lower on self-reported number of stresses and on seven psychopathology scales of the Special Hospital Assessment of Personality and Socialization, including psychopathic deviation and aggression. These results were significant covarying for IQ, education, religious affiliation, time of testing, and months of time served. A principle component factor analysis reduced the entire battery to three factor scales: psychopathology, development, and stage of consciousness; the LTTM group scored significantly better than the other two groups on all three factor scales.

In the longitudinal study, Alexander (1982) divided the ITM group into start TM (STM) and delay-start TM (DSTM) subgroups. After fourteen months, the regular STM meditators showed an increase of one step on the ego-development measure, as did the LTTM group, while DSTM and NITM groups remained unchanged. This degree of change in ego development is equivalent to that which usually occurs during four years of college; moreover, this gain took place among a group of young adult inmates, even though ego development does not usually change after age 20.

Finally, Alexander (1982) found that TM program participants had a significantly lower recidivism rate than the control subjects and participants in other prison programs through the first three years after release.

FOLSOM PRISON AND OTHER CALIFORNIA INSTITUTIONS—Abrams and Siegel (1978) conducted a cross-validation study of the Folsom TM program,

the largest TM prison program to date. In two parallel studies, matched groups of inmates were assigned to the TM technique and a waiting control condition. Ninety of 113 inmates completed the study; Folsom has a rather high transfer rate. The pretest-posttest interval was three months in each sample. Results of the validations were highly congruent; significant reductions in anxiety, neuroticism, hostility, and insomnia were found.

Allen (1979) criticized Abrams and Siegel for having produced results by means of manipulating social desirability levels in practitioners. Abrams and Siegel (1979) responded to the critique with a meta-analysis of the data which indicated that the TM program actually reduced tendencies towards social desirability and also demonstrated that there were no relationships between Lie Scale scores (Eysenck) and positive change scores in the study. A follow-up assessment of recidivism found that only three of 56 released program participants had been returned to custody over an average span of one year out of prison.

An unpublished psychological follow-up study by Abrams (1980) revealed that the TM effects were of a lasting nature. It was also verified that continued participation in the program was very high (above 80%) over the course of the last year beyond instruction.

Two other unpublished studies of TM programs in California prisons at San Quentin and Deuel Vocational Institution replicated the findings of the Folsom study. The San Quentin study involved several additional measures. Of note are a significant decrease in respiration rate and a significant increase in field independence. The Acting Chief of Research for the California Department of Corrections commented on these research programs:

"I have been a researcher in the Department of Corrections for about 12 years.... My experience in research in the Department of Corrections has been discouraging.... A wide variety of treatment programs haven't proven to be effective.... I have developed a pretty hard shell of cynicism and skepticism. When I first heard about the possibility of TM being in prisons ... I sort of scoffed.... I guess that I would have to say I have become some sort of a believer.... I think I've seen enough results from prison studies to justify my opinion that there are positive effects emerging from the TM program. I think that people are going to have a great deal of trouble explaining away the findings

at this point.... There's something to be looked at here very seriously...." Robert Dickover, Acting Chief of Research, California Department of Corrections (Lyons and Halberstadt, 1979).

There are presently over 300 inmates practicing Transcendental Meditation in the California prison system and a waiting list of more than 200.

META-ANALYSIS FINDINGS—Table 1 presents results of the meta-analysis of effect sizes on twenty variables measured across the nine studies reviewed in this paper. Glass et al.'s (1981) approach to estimating effect sizes, posttest differences divided by control posttest standard deviations, was used where these data were available (Abrams and Siegel, 1978; Alexander, 1982; Ballou, 1977; Orme-Johnson et al., 1977; Ramirez, in press). For some of these studies, where means and standard deviations are not listed, effect sizes were calculated from statistical test data, in the manner suggested by Glass et al. (1981). In the case where there was both a group of regular TM program participants and a group of irregular TM program participants, the effect size was calculated on the basis of the results of the group of regular participants. All such effect sizes were then transformed into unbiased estimates of effect size in the manner described in Glass et al. (1981). In the case of clean parole and recidivism, Cohen's (1977) comparison of arcsine-transformed percentages was used to gauge the effect sizes and test for significance of effects. For two of the studies, involving single-group longitudinal designs, comparable effect sizes could not be calculated because there was no control group (Cunningham and Koch, 1977; Ferguson, in press). For these studies, as well as for measures where raw score means were unavailable due to the use of ordinal scale variables, effects were classified as "+" for significant in the hypothesized direction or "0" for no significant effect. No significantly negative outcomes occurred.

The data in table 1 reveal a remarkably consistent pattern of effects. Eighty-seven percent of the numerically estimated outcomes were statistically significant at the .05 level. The average variable effect size was .66 in the predicted direction with an S.D. of .28 standard effect units. Findings on the signed outcome variables can be most simply summarized as "+" except for the effects on cigarette consumption. Although as a group the recidivism and parole effect sizes appear to be smaller than the psychological effect sizes, it is very encouraging that

they were all statistically significant, particularly in light of the fact of the near total absence of any post-release program follow-up due to the lack of funds.

FUTURE DIRECTIONS IN REHABILITATION RESEARCH ON THE TM PROGRAM—It is becoming widely recognized that sentencing convicted people to prison does not impart justice, nor eliminate the tendency to commit crime. Legal counsels and judges are starting to recognize the importance of the TM program's ability to reform and rehabilitate a criminal. To date, learning and practicing the TM technique has served as the central feature of a sentencing alternative in seven court cases, five in the United States and two in India. None of those receiving a sentence to practice the TM technique has failed in their probation, nor discontinued routine practice. This is a promising area for future research.

It may also be valuable for future research on the effects of the TM program in penal settings to test the concept of a rehabilitation index proposed by researchers at Maharishi European Research University (Rigby, 1979). This idea suggests that a number of the physiological and psychological measures which have been found to improve with the development of consciousness through the TM program can be used to predict recidivism. Suggested measures for such an index are EEG coherence, field independence, settled respiration and heart rates, stability of GSR, low plasma cortisol, and the absence of negative behavior.

In summary, the consistency of positive research outcomes on a variety of indices associated with criminal rehabilitation over more than a half dozen independent studies indicates the TM program is a valuable addition to corrections. Moreover, the procedure of the Transcendental Meditation technique is extremely simple and is not at odds with the basic purposes of rehabilitation, i.e. (1) removal of the individual from a tempting, provoking environment by means of incarceration, and (2) the instruction in life-supporting cognitive, emotional, and physical skills. As a result, the TM program can provide a basis for rehabilitation through its addition to an existing program in any corrections setting.

THE TM PROGRAM AND CRIME PREVENTION

The problem of crime prevention has appeared to be as intractable as that of criminal rehabilita-

TABLE 1
META-ANALYSIS OF EFFECT SIZES OF THE TM TECHNIQUE ON PRISON INMATES

OUTCOME VARIABLE	PROGRAM LOCATION, RESEARCHERS, SAMPLE SIZE, TYPE OF DESIGN				
	La Tuna, Texas (Orme-Johnson et al.) N = 12 (Static Groups, Longitudinal)	Stillwater, Minnesota (Ballou) N = 45 (Random Assigned Controls)	Milan, Michigan (Ramirez) N = 65 (Random Controls)	Lompoc, California (Cunningham & Koch) N = 15 (Longitudinal)	Folsom, California (Abrams & Siegel) N = 45 (Quasi-Random Controls)
Recidivism					-.44* ¹
Clean Paroles					.25* ¹
Insomnia					+
Cigarettes					0
Positive Activities		+			
Disciplinary Reports		+	0		
Spontaneous GSR	-.96*				
Blood Pressure					-.94
Ego Development					
Hostility/Aggression			-.83*		-.43* ³
Self-esteem			1.11*		
Trait Anxiety		-1.11*		+	-.62*
State Anxiety		-.70*		+	-.90*
Neuroticism			-.89*		-.58*
Locus/Field Independence			.37		
MMPI Ego Strength			.04		
MMPI Social Responsibility			.50*		
MMPI Mania			-.48		
MMPI Schizophrenia			-.65*		
MMPI Depression			-.77*		
MMPI Social Introversion	-1.13*				
MMPI Psychasthenia	-1.29*		-.86*		

OUTCOME VARIABLE	PROGRAM LOCATION, RESEARCHERS, SAMPLE SIZE, TYPE OF DESIGN			
	Folsom, California (Abrams & Siegel) N = 49 (Random Controls)	Walpole, Massachusetts (Ferguson) N = 45 (Longitudinal)	Walpole, Massachusetts (Alexander) N = 160 (Cross-Sectional Controls)	Walpole, Massachusetts (Alexander) N = 252 (Static Groups, Longitudinal)
Recidivism	-.44* ¹	-.29* ²	-.29* ²	-.29* ²
Clean Paroles	.25* ¹	.30* ²	.30* ²	.30* ²
Insomnia	+	+		
Cigarettes	0	0		
Disciplinary Reports		+		
Ego Development			.59*	.87*
Hostility/Aggression	-.58* ³	+		-.48*
Self-esteem				
Trait Anxiety	-.77*	+	-.69*	-.37*
State Anxiety	-.84*	+	-.67*	
Neuroticism	-.63*		-.67*	
Locus/Field Independence			.28	
Schizophrenia (Not MMPI scale)				-.43*
Depression (Not MMPI scale)			-.60*	

* $p < .05$, two-tailed tests.

¹ This result applies to the combined samples of the Abrams and Siegel studies.

² This result applies to the combined samples of the Ferguson study and the two Alexander studies.

³ This result is the average of effect sizes calculated for each subscale of the hostility measure used in the Abrams and Siegel studies.

tion. According to current theories of crime, the sources of criminal behavior are social conditions which are complex and not easily changed. For example, the theory of differential opportunity for material success as a cause of crime suggests changing the society's opportunity structure through education and job training (Cloward and Ohlin, 1960). The war against poverty programs, based on this concept, did not result in systematic reduction of crime rate (Radzinowicz and King, 1977). Differential association theory (Sutherland and Cressey, 1978) posits that criminal behavior results from social learning; this theory suggests changes in the child care, such as day care centers, as a means of crime prevention in urban areas (Cressey, 1978). The lack of success of current programs for crime prevention seems to arise from the nature of crime as an expression of the whole social field.

However, a theory of crime prevention proposed by Maharishi Mahesh Yogi (1977), founder of the TM program, suggests that crime can be prevented by making use of the most basic level of the social field. According to this theory, the social field is not only a complex web of behavioral interactions and economic conditions; the social field is predicted to exist as a more basic reality. This basis of the social field is postulated to be consciousness, experienced by the individual as "pure consciousness" during the TM technique. Pure consciousness is predicted to be a unified field of consciousness at the basis of the thought and behavior of everyone. As a result, it is hypothesized that the collective consciousness of a community can be influenced by making use of the field property of consciousness itself. This theory of collective consciousness conceptualizes crime as an expression of disorder in the community, indicating lack of integration or coherence between the social system as a whole and its individual elements or subsystems. The best method of crime prevention, from this perspective, is to create coherence in the whole social system; this is said to be accomplished by contacting the most basic level of the social field, pure consciousness, which is found to create a state of greater coherence of brain functioning in the individual (Levine, 1976). As a result of this influence of coherence, it is specifically predicted that a small percentage of individuals in a city's population daily experiencing the field of pure consciousness, through the TM technique, create an influence of orderliness in the collective consciousness of their community which results in decreased crime rate.

This prediction has been tested within the past few years in several studies relating crime rate changes to participation in the TM program in urban areas; it has also been tested experimentally by moving advanced TM participants into high-crime areas. The first study of this phenomenon assessed crime rate change in a number of cities which reached one-percent participation in the TM program in 1972 (Borland and Landrith, 1977). There were 11 such cities larger than 25,000 population in 1972; these were matched with control cities on the basis of geographic region, population, college population, and crime rate. Both the experimental and control cities as a group had been increasing in crime rate prior to this time. In 1973, after the experimental cities reached the one-percent level of TM participation, crime rate decreased by 9% compared to 1972; the control cities increased by 8%, which was comparable to cities of this size in the nation as a whole. This difference was statistically significant.

Two other studies have indicated that crime rate changes within communities of a single metropolitan area are related to TM program participation. Among the 23 major cities of the Kansas City metropolitan area in 1975 and 1976, crime rate changes correlated significantly with TM program participation, after statistically controlling for other demographic variables related to crime rate change such as income, stability of residency, police coverage, and age distribution (Dillbeck, in press). Similar results were found in suburban Cleveland for the years 1974 to 1976 (Hatchard, in press).

In a follow-up study of cities which reached one-percent TM program participation in 1972, Dillbeck, Landrith, and Orme-Johnson (1981) assessed crime rate change among the 24 cities larger than 10,000 population which met this criterion. These cities also displayed a significant decrease in crime rate in 1973 compared to control cities matched for geographic region, resident population, college population, and crime rate. In addition, these experimental "one-percent" cities showed a significant decrease in the trend or slope of crime rate change over the years 1972 to 1977, in comparison to the period 1967 to 1972; in contrast, the control cities increased in crime rate trend. Both these immediate and long-range changes were significant after statistically controlling, through analysis of covariance, for changes in demographic variables related to crime rate on which the two groups of cities differed, viz., education level and population stability.

The major concern in such correlational studies is the possibility that some third variable is the cause of both TM technique participation and crime rate change. Two approaches have been taken to address this problem: cross-lagged panel analysis and direct intervention. In a study using cross-lagged analysis with a random sample of 160 U.S. cities, there were significant partial correlations between TM program participation and crime rate decrease for each year from 1972 to 1978 (Dillbeck, 1981). Crime rate change was defined as the deviation of crime rate at each year from what would be predicted from a baseline period of 1964 to 1971 through linear regression. These partial correlations controlled for demographic variables related to crime rate change in this sample, which were police rate, median years education, unemployment rates, and percentage over age 65. In addition, the pattern of correlations, using the cross-lagged panel analysis, gave evidence of a causal relationship between TM program participation and crime rate decrease, rather than a "spurious" effect, caused by a third factor to which both variables were related (Kenny, 1975).

Further evidence for this phenomenon of decrease in crime rate can be seen in the results of an intervention study in Rhode Island using advanced TM participants (Dillbeck et al., in press). In this study 300 TM-Sidhi program participants settled throughout the state of Rhode Island for the period from June 12 to September 12, 1978. An 'Ideal Society' index comprised of a wide range of parameters including crime rate was monitored to assess the sociological effects of the TM-Sidhi program. The overall pattern of results indicated a significant improvement in the quality of life throughout the state during the experimental period. These findings open a new avenue in the field of research into the phenomenon of crime prevention and furthermore give a vision of the possibility of improving the quality of life in society as a whole through the Transcendental Meditation and TM-Sidhi program.

In summary, this relationship between TM program participation and crime rate decrease has been found to be robust over a range of methods of study progressing from locating a simple association, to statistically controlling for specific alternative hypotheses, to discounting the likelihood of any third cause (cross-lagged panel analysis), to intervening experimentally in specific areas. One direction for future research will be to discover in greater detail the mechanics by which the individual's experience

of pure consciousness creates an orderly influence in collective life. Studies on brain activity related to this phenomenon are presently under way to begin to specify these mechanics (Orme-Johnson, Dillbeck, Wallace, and Landrith, 1982).

CONCLUSION

This paper has reviewed findings which indicate that the TM program produces consistent positive effects for both criminal rehabilitation and crime prevention. Although more research needs to be performed to specify the mechanisms responsible for these effects, particularly in the case of the "field effects" of crime prevention, the findings have been consistently replicated. From a practical perspective it appears to the authors that the consistent positive results of this research on the TM program are sufficient to merit consideration of its cost-effectiveness as an addition to the options presently available to the criminal justice system.

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