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## Personality correlates of meditation practice.

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PERSONALITY CORRELATES OF MEDITATION PRACTICE

A Thesis Presented

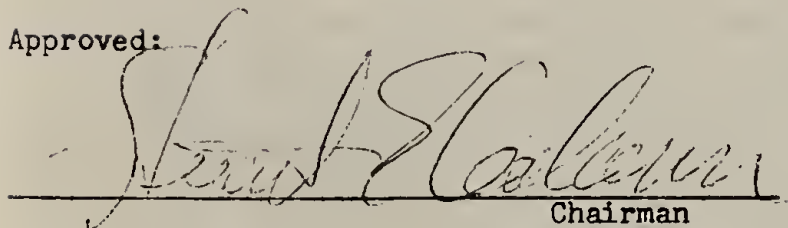
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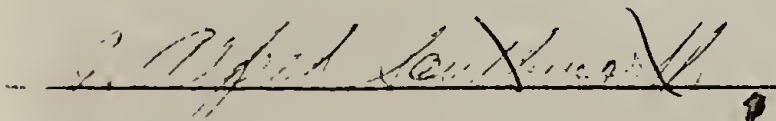
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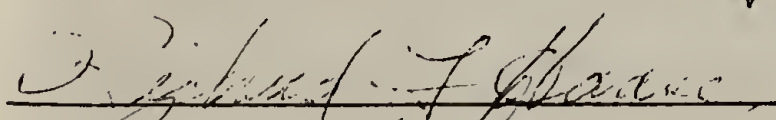
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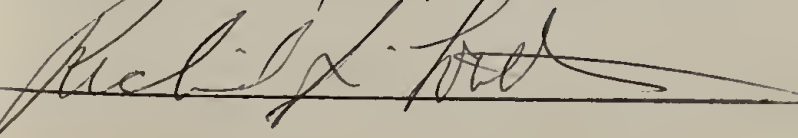
MASTER OF SCIENCE

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In view of mankind's never-ending search for emotional stability, contentment and peace of mind, it is surprising that so little research has been undertaken in the investigation of the practice of meditation which - according to the claims of its practitioners, ancient and modern - can bring about just these effects. Meditation can be defined as

a narrowing of the field of attention in a manner, and for a time determined by the will. The mind is made one-pointed, does not waver, does not scatter itself, and it becomes steady like the flame of a lamp in the absence of wind. (Conze, 1969, p. 19)

The object of meditation may be a physical object, a mental image, a phrase or an idea, the choice within these categories being determined by the supposed effect of the object upon the consciousness of the meditator.

It is not an easy process to master. The ancient Hindu texts liken the mind to a restless monkey, jumping from one thing of interest to another. It is a matter of learning to "concentrate the mind at will on a subject chosen by the mind, and to maintain that unswerving attention without the intrusion of other thoughts for long periods of time." (Humphreys, 1970, p. 232.) However, even at the beginning certain changes, it is asserted, become apparent in the direction of increased serenity and inner quiet. And if the aspirant can persist well beyond the beginning stages, greater benefits are in store for him, according to a Buddhist scripture:

There are, in fact, twenty-eight advantages to be gained from secluded meditation... They are as follows: secluded meditation guards him who meditates, lengthens his life, gives him strength, and shuts out faults; it removes ill-fame, and leads to good repute; it drives out discontent, and makes for contentment; it removes fear, and gives confidence; it removes sloth and generates vigour; it removes greed, hate, and delusion; it slays pride, breaks up preoccupations, makes thought one-pointed, softens the mind, generates gladness, makes one venerable, gives rise to much profit, makes one worthy of homage, brings exuberant joy... (Humphreys, 1970, p. 233.)

In turning to more empirical (and somewhat more recent) testimony, we find William James' report of a case personally known to him,

a very gifted European friend of mine who, by persistently carrying out for several months yoga methods of fasting from food and sleep, its exercises in breathing and thought-concentration, and its fantastic posture gymnastics, seems to have succeeded in waking up deeper and deeper levels of will and moral and intellectual power in himself, and to have escaped from a decidedly menacing brain-condition of the "circular" type, from which he had suffered for years.... (Quoted in Behanan, 1964, pp. 240-241.)

Behanan, who underwent yoga training (which, like that of James' friend, involved breathing and posture exercises as well as concentration) as part of a scientific investigation of these techniques, reports the following:

...I cannot refrain from putting on record a change in my own emotional life which seems somehow to be an outgrowth of these practices. They have led to an emotional stability and balance which I do not remember having possessed prior to taking up these exercises.... This inner quality, immeasurable though it may be, has changed in me as yogic discipline has progressed. My mental-emotional life is no longer a blind catch-as-catch-can and, unlike the two snakes that intertwined their bodies so inextricably as to make each feel the other a part of itself, I seem relatively able to prevent self-victimization by emotional extremes. (1964, p. 245.)

And he adds:

I have had the privilege of watching at close range the daily lives of more than a half-dozen yogins for over a period of one year. I can testify without any reservation that they were the happiest personalities that I have known. Their serenity was contagious and in their presence I felt always that I was dealing with people who held great "power" in reserve. If the saying "radiant personality" means anything, it should be applied to them. (1964, p. 245.)

A recent study by Seeman, Nidich and Banta (1972) on the effects of transcendental meditation lends some corroboration to such statements as the above. Transcendental meditation (TM) is a technique developed by Maharishi Mahesh Yogi, and is taught in this country by the Students' International Meditation Society (SIMS). In the Seeman, Nidich and Banta study, the Personal Orientation Inventory (POI), an instrument for the measurement of self-actualization as defined by Maslow (1970), was administered to an experimental and a control group 2 days preceding meditation training and again 2 months later, following regular practice of meditation by the experimental subjects. Differences between the 2 groups were found in the direction of self-actualization for the meditators on 6 of the 12



POI subscales at the end of the 2-month period. On 4 of the subscales - those measuring inner-directedness, self-regard, acceptance of aggression and spontaneity - mean differences were significant at  $p < .02$ . The authors concluded that "the practice of transcendental meditation for a 2-month period had a salutary influence on a subject's psychological state as measured by the POI." (1972, p. 185.)

Other studies report on the use of meditation in psychotherapy. Maupin (1969) states that his patients frequently report "calm, greater ability to cope with tense situations, and improved sleep". Kondo (1958) and Sato (1958) also report therapeutic benefits. A specific therapeutic use of meditation has been reported by Boudreau (1972), in which a student whose fears of enclosed places, of being alone, and of taking examinations was successfully treated within one month by having the patient practice TM for 30 minutes every day following imagined phobic scenes, and also by meditation at the appearance of fear-evoking situations. TM has also been reported to have a marked effect on drug abuse. In a study of 1862 subjects, Benson, Wallace, Dahl and Cooke (1970) ascertained by means of questionnaires sent out to members of SIMS that 80% used marijuana, 48% used LSD, 60% used hard liquor and 48% smoked cigarettes in the 6-month period prior to beginning meditation training. After 21 months of meditation practice 12% used marijuana, 3% used LSD, 25% used hard liquor (with only 0.1% heavy users) and 16% smoked cigarettes. The magnitude of the changes increased with the duration of the practice of meditation. Most subjects attributed the decrease or termination of drug abuse to their practice of TM.

Studies of physiological changes during meditation (Wallace, 1970; Wallace & Benson, 1972; Wallace, Benson & Wilson, 1971) show a distinct slowdown of metabolism; in fact, "a greater drop in metabolic rate in 20 minutes than is found in a full night's sleep; whereas, the meditator's EEG shows him to be awake". (Orme-Johnson, 1971.) Wallace and Benson describe this condition as

a "wakeful, hypo-metabolic" state: reductions in oxygen consumption, carbon dioxide elimination and the rate and volume of respiration; a slight

increase in the acidity of the arterial blood; a marked decrease in the blood-lactate level; a slowing of the heartbeat; a considerable increase in skin resistance, and an electroencephalogram pattern of intensification of slow alpha waves with occasional theta-wave activity. (1972, p. 89.)

These changes are of psychological significance, particularly the decrease in the blood-lactate level and the increase of skin resistance. With respect to the former, Wallace and Benson state that "patients with anxiety neurosis show a large rise in blood lactate when they are placed under stress..." and that "patients with hypertension (essential and renal) show higher blood-lactate levels in a resting state than patients without hypertension..." (1972, p. 88.) With respect to GSR changes, decrease in skin resistance is thought to be associated with arousal and increase with relaxation. Orme-Johnson (1971) has demonstrated that regular practice of TM produces rapid GSR habituation and low levels of spontaneous GSR. He states that:

Rapid GSR habituation and low levels of spontaneous GSR are often found to be correlated with each other as well as with physiological and behavioral characteristics associated with good mental health, e.g., behavioral and autonomic stability, less motor impulsivity, stronger ego, outgoingness, field independence, less susceptibility to a variety of stresses and less susceptibility to acquiring conditioned stresses. (1971, p. 18.)

All these findings would appear to support the subjective reports quoted above. It seems that meditators somehow acquire the ability to carry these effects beyond the meditation period and into everyday living.

At this point the objection might be raised that we are here dealing only with a deepened state of relaxation, such as that found in hypnosis. But, according to Wallace and Benson, the meditative state bears little resemblance to either sleep or hypnosis:

Whereas oxygen consumption drops rapidly within the first five or 10 minutes of transcendental meditation, hypnosis produces no noticeable change in this metabolic index, and during sleep the consumption of oxygen decreases appreciably only after several hours....Skin resistance commonly increases during sleep, but the rate and amount of this increase are on a much smaller scale than they are in transcendental meditation. The electroencephalogram patterns characteristic of sleep are different...The patterns during hypnosis have no relation to those of the meditative state...The same is true of changes in heart rate, blood pressure, skin resistance and respiration; all these visceral adjustments in a hypnotized person merely reflect the suggested state. (1972, p. 89.)



Further, these effects differ also from those brought about by operant conditioning of autonomic responses.

Whereas operant conditioning is limited to producing specific responses and depends on a stimulus and feedback of a reinforcer, meditation is independent of such assistance and produces not a single specific response but a complex of responses that marks a highly relaxed state. (Wallace & Benson, 1972, p. 8.)

Are the subjective changes the result or the cause of the physiological changes? Western psychologists are not agreed as to this, but Eastern theory holds that inner states are the ultimate source of all outer manifestation. Conze explains that

our mind consists of two disparate parts, - a depth which is calm and quiet, and a surface which is disturbed. The surface layer is in perpetual agitation and turmoil. There exists, however, a centre which is quite still, at the bottom of the mind, beyond both the conscious and the unconscious mind as modern psychologists understand it. The turmoil is caused in the main by three agents: 1. the senses, 2. the passions, wants and desires, and 3. discursive thinking. In order to conquer these enemies of spiritual quietude it is therefore necessary to withdraw the senses from their objects, as the tortoise draws in all its limbs; to cease wanting anything; and to cut off discursive thinking.... People often believe that it must result in sleep rather than in tranquility, although the experience of many generations of Yogins proves it to be otherwise. (1969, pp. 17-18.)

The implication is that psychological turmoil works out finally into physical manifestation as physiological imbalance and that the converse is also true: inner peace conduces to good physical health. Modern psychosomatic medicine would agree.

That there is a distinct change of inner state is evidence by the changed EEG patterns during meditation, in which there is an increase of the intensity of slow alpha waves with occasional theta-wave activity (Wallace, 1970; Wallace & Benson, 1972; Wallace, Benson & Wilson, 1971). Wallace (1970) cites a study of Zen monks by Kasamatsu and Hirai in which a pattern of predominantly alpha-wave activity, even with eyes half open, was recorded during meditation, with no habituation of the alpha-blocking response to repeated trials of click stimulation. He cites also a study of Indian yogis by Anand, Chhina and Singh in which the



EEG showed an increase in alpha-wave activity and amplitude during meditation, with a loss of the alpha blocking response to all external stimuli in a few of the yogis. In his own study, Wallace (1970) found that:

Before meditation, with eyes closed, all subjects showed alpha activity. During meditation the regularity and amplitude of the alpha waves increased in all subjects....In almost all subjects, alpha blocking caused by repeated sound or light stimuli showed no habituation. After meditation regular alpha activity continued when eyes were closed, and irregular alpha activity developed when eyes were open.

The subjective experience of this condition, in which one withdraws his consciousness from the outer world, is not that of a state of nothingness, as some might believe. According to the theories of Eastern meditation and Western mysticism alike (Happold, 1965; James, 1958; Stace, 1960; Underhill, 1961), in its more advanced stages, at least, it is a state of heightened awareness, of greater livingness, and ultimately an inner realm of being and experience which is unknown to the average person but which constitutes his "real" self. Modern psychologists in the West have begun to find a place for the inner self within their theoretical systems, among them Assagioli, Jung and Proff, the first two of whom recognize yoga meditation as one means of approach.

But just how real is this "real" self? To be considered a reality it would have to be empirically verifiable. After making a comprehensive study of the phenomena associated with religious and mystical experience, James formed this conclusion:

The further limits of our being plunge, it seems to me, into an altogether other dimension of existence from the sensible and merely 'understandable' world. Name it the mystical region, or the supernatural region, whichever you choose. So far as our ideal impulses originate in this region, (and most of them do originate in it, for we find them possessing us in a way for which we cannot articulately account), we belong to it in a more intimate sense than that in which we belong to the visible world, for we belong in the most intimate sense wherever our ideals belong. Yet the unseen region in question is not merely ideal, for it produces effects in this world. When we commune with it, work is actually done upon our finite personality, for we are turned into new men, and consequences in the way of conduct follow in the natural world upon our regenerative change. But that which produces effects within another reality must be

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termed a reality itself, so I feel as if we had no philosophic excuse for calling the unseen or mystical world unreal. (1958, pp. 388-389.)

The inner world exists and is accessible, and contact with it can bring about transformation. It is real in the sense that it works, producing real effects.

Assagioli is in close agreement with this point of view:

May I emphasize the fact that the elements and functions, coming from the superconscious, such as aesthetic, ethical, religious experiences, intuition, inspiration, states of mystical consciousness, are factual, are real in the pragmatic sense, (wirklich, to use the significant German word), because they are effective (wirkend), producing changes both in the inner and the outer world. Therefore, they are amenable to observation and experiment, through the use of the scientific method in ways suited to their nature; also they can be influenced and utilized through psycho-spiritual techniques. (1964, p. 6.)

Implicit in most discussions of meditation as a therapeutic tool is the assumption that, given a real and accessible inner self, as long as we have no contact with it we are split off from the springs of livingness and vitality, and thus of psychological health. This split, in the belief of some psychologists, is at the root of much neurosis today. Moreover, present therapeutic techniques cannot in the long run solve the problem, at least not completely, according to Proffoff:

The evidence of psychotherapy is accumulating to show that what has been called pathology is indeed not a fact in itself, but a derivative of the emptiness of personality. Lacking an integrative experience to give cohesion to life, the individual splinters into segments; and this condition of segmentation is what gives the pain and confusion of neurosis. To paste the parts together may alleviate the pain and even give the impression that the person has been "fixed" and that the pathology of brokenness has been healed; but this is an illusion. Pasting will not last, for the lines of weakness remain. Only a unifying experience that establishes anew a sense of wholeness as a principle working within the person can have a lastingly healing effect....

A minimum of what happens then is that the new awareness of reality that has been felt both within and around oneself eliminates those pains and disorders that had been diagnosed as pathology. (1963, pp. 64-65.)

This unifying experience is contact with the inner self, the inner world of being which is sometimes described as "spiritual" and is experienced as superceding and containing within itself all of the old manner of being; it is integrative in its effect.



Frankl (1963) speaks of "noögenic neurosis", which he distinguishes from psychogenic neurosis, and which has its roots in spiritual\* conflict; specifically in man's aspiration for a meaningful existence and the frustration of this aspiration. And such a neurosis cannot appropriately be treated by conventional psychotherapy, but by a therapy "that dares to enter the spiritual dimension of human existence" (1963, p. 160), which for Frankl is logotherapy.

In Jung's view, the spiritual sense is an instinct equal to, and as demanding as, the Adlerian will-to-power and Freudian sexuality, and for him as for Frankl its frustration leads to psychological disturbance. It is a "spiritual and religious need that is innate in the psyche....For 'the spiritual appears in the psyche also as an instinct, indeed as a real passion....It is not derived from any other instinct...but is a principle sui generis, a specific and necessary form of instinctual power.'" (Jacobi, 1962, p. 60.) We have emphasized the outer side of personality at the expense of the inner, and in consequence are as a "house divided against itself". Yet within us is a center which, if we could experience it, would unite both sides.

I have called this centre the self. Intellectually the self is no more than a psychological concept, a construct that serves to express an unknowable essence which we cannot grasp as such, since by definition it transcends our powers of comprehension. It might equally well be called the "God within us." The beginnings of our whole psychic life seem to be inextricably rooted in this point, and all our highest and ultimate purposes seem to be striving towards it. (Jung, 1961, p. 250.)

Only when this midpoint is found and integrated, can one speak of a well-rounded man. For only then has he solved the problem of his relation to the two realms which make up every man's life, the outward and the inner reality....For the conscious personality the birth of the self means a shift of its psychic centre, and consequently an entirely different attitude toward, and view of, life - in other words a 'transformation' in the fullest sense of the word. (Jacobi, 1962, p. 123.)

Most of us float on the surface of our lives. We contact the outer world

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\*"It must be kept in mind, however, that within the frame of reference of logotherapy, "spiritual" does not have a primarily religious connotation but refers to the specifically human dimension." (Frankl, 1963, pp. 159-160.)

through our five senses, we react to this contact with our emotions, and we organize all of this experience with our minds. And we function, more or less satisfactorily, but frequently with a nagging sense that there should be more to life than we know. The thinkers cited above unanimously agree that there is more. There is a deep spring within us which we can tap if we know how. For those who already function well, to do so can result in an enrichment and fulfillment of life; for those who do not function so well the effect can be a healing one. Until man can be in touch with his own deep center, unknown and unsuspected by most of us, he can never be completely healthy, happy, or whole. There are a number of ways to approach this center, among them Progoff's technique of "twilight imagery" (1963), Jung's way of individuation (Jacobi, 1962), Assagioli's psychosynthesis (1965), Raja Yoga, and other systems of the East. Meditation of one kind or another is basic to most of these.

At this point it should be stated that, while the practice of meditation seems to enhance integration of the personality and make available resources of energy which the individual can bring to bear on his problems, by itself it is not enough to bring about the deep transformations described by James, Behanan, Jung, Assagioli and others, and it would be incorrect to regard it as a magic wand by means of which undesirable symptoms are waved out of existence. Every responsible school of meditation in the East stresses the necessity of working actively upon one's character (purification, it is called) simultaneously with the practice of meditation; and in fact they warn that meditation without this safeguard could have the effect of enhancing the individual's problems. Jung, Progoff and Assagioli all use symbolism to get at underlying conflicts and to assist the "purifying" process, while at the same time bringing the individual nearer to the experience of his true inner self. Maupin, Sato and Kondo use meditation along with more conventional therapeutic techniques. Even while the safe-



guards are observed, certain types of meditation, by bringing underlying conflicts to light, may appear to have the effect of deepening the individual's difficulties. Yet this must be regarded as desirable if ultimate inner harmony is the goal. It should be apparent that meditation for this end is a slow process. Practiced correctly, it leads to nothing less than the complete regeneration of personality, according to its proponents. Therefore, no quick cure or straight-line progress should be expected.

In spite of these reservations, it seems worthwhile to make a thorough investigation of meditation as a therapeutic tool. One step in this investigation might be to determine what personality differences, if any, are associated with the practice of meditation. From the reports of James, Behanan, Maupin and others, we might expect to find such characteristics as serenity, poise, emotional control and intellectual efficiency in people who meditate. Wood (1962), who made an exhaustive study of Indian yoga at first-hand, lists the following among the lesser goals of yoga:

- Peace of mind and heart
- Power of the will, and of love and intellect....
- Control of mind and power of concentration
- Control of the emotions...
- The complete prevention and removal of psychosomatic dangers and troubles.(p.36)

While the greater goals of yoga involve spiritual values and aim at union with God, and require many years of practice, the lesser goals are held to be within the reach of the majority of aspirants who meditate regularly.

The following study, therefore, was designed as an inquiry into the personality variables associated with the practice of meditation; or, more specifically, to answer the question: Will meditators score higher than non-meditators on tests measuring positive personality characteristics, such as serenity, poise, emotional control and intellectual efficiency?

## METHOD

### Subjects

The experimental group in this study were members of the Students' International Meditation Society (SIMS), who are individually instructed in a meditation technique uniform for all members, making them a controlled group suitable for study. A group just beginning training in meditation was also used for purposes of contrast, the idea being that if beginners turned out to have personality characteristics similar to non-meditators but different from meditators, then it might be possible to speculate that meditation does make a difference; but if beginners turned out to be most like advanced meditators and least like non-meditators, then differences between meditators and non-meditators could not be easily attributed to meditation practice. We would have to conclude that they were two different groups to begin with. Subjects were recruited through requests for volunteers made at meetings of beginning groups and of advanced groups; they were given no reward for participation other than feedback on results of the study.

Control subjects were obtained from the Department of Psychology at the University of Massachusetts by requests for volunteers made at class meetings; this group received credit points for participation.

All subjects were informed that they would be participating in a study on meditation in which they would be asked to fill out two personality questionnaires. Since those among the college group with an interest in meditation might be more likely to respond to such a request, this helped to increase uniformity among the groups. The SIMS members were recruited in an area heavily populated by students (Cambridge, Mass.) and were primarily, though not exclusively, students.

Since the control group was obtained first, and since their average age turned out to be 20.9, the SIMS groups were matched to them by requesting participants between the ages of 18 and 24. The final mean age of all subjects was 21.2; the range in ages was 19-23 for control subjects, 18-24 for beginners, and 18-26

for meditators. (Some volunteers in this latter group apparently did not hear the announced age limits; it was decided to use their data anyway, since the mean age for the group remained at approximately 21.) The groups were matched for sex as well as for age, by obtaining more than the required number and dropping out those who did not fit within the design. There were 30 subjects in each group (15 males and 15 females) for a total of 90.

### Materials

Two instruments were used: the California Psychological Inventory (CPI) (Gough, 1964) and the Adjective Check List (Gough and Heilbrun, 1965).

The CPI is concerned with the favorable and positive aspects of personality rather than the pathological, with certain sub-scales particularly relevant, e.g. Sense of Well-Being, Self Control, Social Presence (assessing such factors as poise and self-confidence), and Intellectual Efficiency. (See Appendix A.)

Two test-retest reliability studies have been made on the CPI, one on high school students and one on male prisoners (Gough, 1965). Correlations generally run between .60 and .77 for the students with only 2 subscales falling below this range (Communality and Psychological-Mindedness). These are lower than for the prisoner group, which run generally between .71 and .87, and may reflect maturation during the year between testings. According to Gough, "the correlations in the prisoner group are as high as those generally found in personality measurement." (1964, p. 19.)

Validity studies reported in the CPI Manual (Gough, 1964) are as follows:

(1) Ratings on a given characteristic by supervisors and/or staff members or scores on tests measuring the characteristic have been correlated with scores on the corresponding CPI subscale. In general, the correlations have ranged between .30 and .50.

(2) High school principals have been asked to nominate students most and



least like a given characteristic. CPI scores for the 2 groups have then been submitted to a test of significance. Results have shown significant differences at or beyond  $p < .01$ , almost without exception.

The ACL consists of 300 descriptive adjectives in common usage, yielding 24 subscales. (See Appendix B.) A test-retest study of reliability yielded a mean phi coefficient of .54, with a standard deviation of .19 (Gough and Heilbrun, 1964, p. 12). Results of validity studies are mixed. Perhaps the most representative is a study correlating equivalent subscales of the ACL and the Edwards Personal Preference Schedule. Ten of the 15 coefficients calculated were significant at or beyond the .01 level, but none of the values were very high (p. 14). Although the validity and reliability of the ACL are not outstanding, it was felt that the test could nevertheless be of use for the particular purpose of this study.

High self vs. ideal-self correlations are taken by some investigators to indicate good psychological health and adjustment. Dymond (1954) found that correlations increased markedly in a therapy group after therapy had been completed, with a pre-counseling  $r$  of  $-.01$  and a post-counseling  $r$  of  $.34$ , and that these results concurred significantly with counselor ratings of successful therapy. Gough and Heilbrun (1965) found that men with higher self vs. ideal-self phi coefficients were rated independently by 10 observers as being alert, confident, mature, stable, etc., while men with lower correlations were rated as being apathetic, awkward, confused, etc. They concluded that the "self vs. ideal-self correspondence apparently reflects a generally healthy and positive kind of personological disposition" (p. 17). Thus, the ACL was used as an additional measure of the kind of positive personality characteristics which meditation practice might be expected to enhance. Also, as a further means of discriminating between the groups, a comparison of ideal-self subscale scores would reveal differences in respective strivings, goals and orientations.



## Procedure

The questionnaires were administered to the control subjects (Cs) in small groups. Personal administration of the tests was not possible with the other 2 groups due to lack of accommodations at their meeting place; therefore they were given packets of the materials, to fill out at home and return, containing printed instructions identical to those given the controls. Of the group of beginning meditators (Bs) about 85% returned the completed questionnaires; of the group of meditators (Ms) about 55% returned them. Bs were given the tests during their training period, on either the second or third day. At the time of contact, Ms had practiced meditation for a period of time ranging from 3 months to more than 5 years, with a mean of 17.5 months.

Subjects were asked first to fill out the ACL twice, once for real self and once for ideal self, then to fill out the CPI. Bs were asked to answer one additional question:

What do you expect to gain from Transcendental Meditation?

Ms were asked to answer several additional questions:

How long have you been practicing Transcendental Meditation?

What did you expect to gain from TM when you first began?

How do you think TM has changed you?

Do you meditate regularly? If not, how often?

Do you meditate according to your original instructions?

Did you ever meditate before learning TM? For how long? What technique did you use?

The above questions were designed to yield information not covered by the questionnaires for the purpose of qualitative analysis, and also to further insure uniformity of practice.

Scores for all subscales of the CPI and the ACL-Ideal were subjected to a one-way fixed effects analysis of variance. Where significant differences were found, pair-wise comparisons between groups were made using the Scheffé procedure. In order to arrive at a more conceptual interpretation of the data, multivariate analysis of the same scores was also made. Correlation coefficients were computed for real vs. ideal-self for each group.

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## RESULTS

It was hypothesized that:

- (1) Ms would score higher than Cs and Bs on positive personality characteristics as measured by the CPI.
- (2) Ms would have higher self vs. ideal-self correlations than Cs and Bs, reflecting a more "generally healthy and positive kind of personological disposition."
- (3) Differences in ACL-Ideal subscales would reflect different strivings, goals and orientations between Ms, Bs and Cs.

### California Psychological Inventory

Table 1 shows findings related to the first hypothesis. Significant differences (at the .05 level or beyond) among the groups of male subjects were obtained on 3 subscales: Self-Control (Sc), Tolerance (To) and Achievement via Conformance (Ac). Pair-wise comparisons showed that Ms scored higher than Cs on Sc ( $p < .025$ ), To ( $p < .005$ ) and Ac ( $p < .10$ ).<sup>\*</sup> One other subscale, Sense of Well-Being (Wb), approached significance at the .08 level, and pair-wise comparisons revealed this as a difference between Ms and Cs at  $p < .06$ , with Ms scoring higher. Examination of group means shows that B scores fall somewhere in the midrange between the other 2 groups, but they are not significantly different from the scores of the other groups.

Among the female subjects, a significant difference was obtained on only 1 subscale, Socialization (So). Pair-wise comparisons showed this to be a difference between Cs and Bs, the Cs scoring higher ( $p < .005$ ). The mean for the Ms fell between these two group means and was not significantly different from either.

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<sup>\*</sup>This level of significance is acceptable due to the rigorousness of the Scheffé method. The .10 level is Scheffé's own recommendation. See Ferguson (1966), p. 297.

Table 1

## Mean Scores on CPI Sub-Scales

Scale	&	Symbol	M	Males		F-ratio	Females			F-ratio
				B	C		M	B	C	
1. Dominance		(Do)	49.47	44.47	51.67	1.58	48.40	42.87	44.20	1.07
2. Capacity for Status		(Cs)	53.20	49.93	48.40	1.13	51.07	51.00	48.20	0.43
3. Sociability		(Sy)	45.13	43.40	47.40	0.68	44.53	45.47	45.33	0.02
4. Social Presence		(Sp)	57.00	52.73	55.80	0.85	51.53	54.53	53.40	0.31
5. Self-Acceptance		(Sa)	59.00	56.27	57.13	0.26	56.80	52.60	52.53	0.71
6. Sense of Well-Being		(Wb)	45.33	38.33	32.33	2.70	41.33	36.47	40.47	0.64
7. Responsibility		(Re)	40.13	38.87	39.33	0.07	36.73	36.33	42.47	2.03
8. Socialization		(So)	43.33	40.07	41.53	0.50	39.87	36.07	44.73	3.39*
9. Self-Control		(Sc)	45.87	42.93	37.40	3.31*	45.80	41.53	41.20	1.15
10. Tolerance		(To)	50.40	48.13	39.53	6.62**	51.27	48.07	49.13	0.42
11. Good Impression		(Gi)	43.80	40.93	36.93	2.27	45.00	41.20	36.73	2.57
12. Communalility		(Cm)	41.80	43.20	42.73	0.04	41.47	40.40	47.40	2.72
13. Achievement via Conformance		(Ac)	47.33	41.60	37.67	3.51*	47.33	39.93	41.73	2.58
14. Achievement via Independence		(Ai)	58.93	54.27	53.00	1.53	56.40	58.07	59.47	0.43
15. Intellectual Efficiency		(Ie)	53.20	48.00	44.67	2.25	51.13	47.20	49.73	0.53
16. Psychological-Mindedness		(Py)	55.13	54.13	51.07	0.73	55.67	50.00	56.60	1.82
17. Flexibility		(Fx)	61.33	66.33	62.20	0.95	61.80	67.20	63.87	1.12
18. Femininity		(Fe)	51.93	54.40	50.53	0.79	49.33	51.00	52.93	0.55

\*  $p < .05$   
 \*\*  $p < .01$



Results of multivariate discriminant analysis for the male groups are presented in Table 2. Two discriminant functions were extracted, but only the first was significant ( $p < .05$ ), accounting for 81.63% of the variability. Three variables contribute substantially to the discrimination among the 3 groups; these are Sc, To and Ac, with factor loadings of .462, .635 and .416 respectively. For the female groups neither of the 2 discriminant functions was significant.

Table 2

Discriminant Functions Maximally Separating Male Groups, with Significance Values and Discriminant Weights of CPI Variables

CPI Variables		Functions	
		1	2
1. Dominance	(Do)	-.241	.388
2. Capacity for Status	(Cs)	.232	.288
3. Sociability	(Sy)	-.203	.174
4. Social Presence	(Sp)	-.049	.395
5. Self-Acceptance	(Sa)	.038	.217
6. Sense of Well-Being	(Wb)	.386	.338
7. Responsibility	(Re)	.016	.118
8. Socialization	(So)	.023	.308
9. Self-Control	(Sc)	.462	.217
10. Tolerance	(To)	.635	.142
11. Good Impression	(Gi)	.381	.232
12. Communality	(Cm)	-.014	-.085
13. Achievement via Conformance	(Ac)	.416	.420
14. Achievement via Independence	(Ai)	.241	.378
15. Intellectual Efficiency	(Ie)	.338	.356
16. Psychological-Mindedness	(Py)	.236	.068
17. Flexibility	(Fx)	.082	-.406
18. Femininity	(Fe)	.184	-.262
per cent Variance		81.63	18.37
$\chi^2$		30.14	9.42
df		19	17
p		.05	.92



A graphic presentation of the male group centroids, or multivariate group means, along the significant linear function is shown in Figure 1. It can be seen that Ms and Bs are clearly separated from Cs along this dimension.

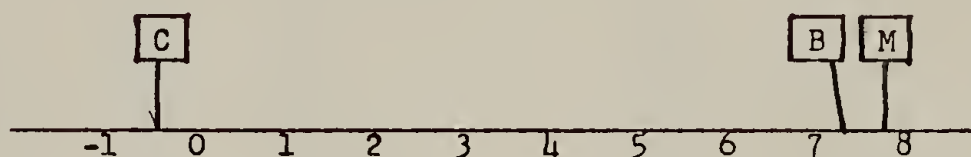


Figure 1

Plot of Group Centroids on Composite Linear Function of  
CPI Variables (Males)

#### Adjective Check List, Self vs. Ideal Self

Table 3 shows findings related to Hypothesis (2). Ms were shown to have the highest mean correlations between the real and ideal self, and Bs the lowest, with Cs falling somewhere between them; however, differences between the groups were significant only between male Ms and Bs ( $t$ -ratio =  $p < .05$ ). This result was arrived at through submitting the group mean phi coefficients to  $t$ -tests.

Table 3

Real vs. Ideal-Self Correlations with Mean and Standard Deviation

	Males				Females		
	M	B	C		M	B	C
	.40*	-.68****	-.38*		-.34	.62****	-.52***
	.22	-.53***	-.12		.08	-.61****	.40*
	-.72****	-.34*	.56***		-.48**	-.32	-.77****
	-.24	-.07	-.24		.65****	-.08	-.20
	-.39*	-.56***	.20		.68****	-.57***	.48**
	.09	-.50**	.42*		-.04	.02	.17
	-.25	.16	.63****		.23	-.53***	-.82****
	-.07	-.34*	-.07		-.12	-.37*	.10
	.46**	.57****	.02		.44*	-.40*	-.27
	.25	-.48**	-.34*		-.69****	-.57***	-.06
	.83****	-.39*	.24		.68****	-.53***	.54***
	.82****	.76****	-.59***		.32	.38*	-.17
	-.17	.32	.68****		-.39*	.10	.15
	.43*	-.34	.53***		-.09	.88****	.16
	.91****	-.19	-.21		.76****	.23	-.66****
Mean	.17	-.20	.09		.11	-.12	-.10
SD	.48	.42	.41		.47	.47	.44

\*  $p < .05$   
 \*\*  $p < .01$   
 \*\*\*  $p < .005$   
 \*\*\*\*  $p < .001$

#### Adjective Check List, Ideal Self

Findings pertaining to Hypothesis (3) are shown in Table 4. Univariate analysis revealed no significant differences in Ideal Self between the male groups, but significance ( $p < .05$ ) was obtained between the female groups on 4 subscales: Number of Favorable Adjectives Checked (Fav), Personal Adjustment (Per Adj), Aggression (Agg), and Counseling Readiness (Crs). Pair-wise comparisons showed that Cs scored higher than Ms ( $p < .025$ ) on Fav and Crs with Bs falling in between, and higher than both Ms and Bs on Per Adj ( $p < .10$  and  $p < .05$ , respectively), while Bs scored higher than Ms ( $p < .05$ ) on Agg with Cs falling between them.

Table 4

## Mean Scores on ACL-Ideal Subscales

Scale	&	Symbol	Males			F-ratio	Females			F-ratio
			M	B	C		M	B	C	
1. Total Adjectives Checked	(No Ckd)		51.00	54.00	54.40	0.86	52.33	52.67	53.07	0.02
2. Defensiveness	(Df)		58.40	57.20	57.93	0.08	55.27	54.73	57.20	0.43
3. No. of Favorable Adjectives Checked	(Fav)		62.33	59.40	59.20	0.54	53.87	60.20	66.53	4.52*
4. No. of Unfavorable Adjectives Checked	(Unfav)		41.33	41.53	42.67	2.50	36.73	37.87	38.60	2.65
5. Self-Confidence	(S-Cfd)		56.47	58.47	58.00	0.46	58.53	60.40	62.67	1.66
6. Self-Control	(S-Ch)		55.80	53.47	54.60	0.77	57.13	54.87	56.73	0.67
7. Lability	(Lab)		57.60	56.40	58.00	0.17	54.07	56.47	54.93	0.37
8. Personal Adjustment	(Per Adj)		58.00	56.13	55.73	0.48	56.07	56.27	56.93	0.06
9. Achievement	(Ach)		56.60	56.27	58.53	0.72	55.80	55.73	60.53	3.53*
10. Dominance	(Dom)		57.20	57.13	58.47	0.23	57.20	57.87	60.53	1.80
11. Endurance	(End)		57.47	58.87	58.80	0.37	58.73	55.87	59.80	2.68
12. Order	(Ord)		55.13	56.33	58.60	0.29	54.93	52.87	57.20	2.24
13. Intraception	(Int)		63.60	61.87	59.60	0.69	58.67	56.73	57.87	0.19
14. Nurturance	(Nur)		61.07	60.07	58.80	0.38	56.13	52.07	54.73	1.05
15. Affiliation	(Aff)		58.07	57.00	57.27	0.10	52.53	49.87	55.27	1.63
16. Heterosexuality	(Het)		60.00	60.93	61.13	0.07	54.07	55.00	58.33	0.74
17. Exhibition	(Exh)		54.47	58.13	59.07	2.43	53.33	58.07	57.53	2.92
18. Autonomy	(Aut)		45.93	48.53	47.93	1.25	48.80	52.47	49.27	1.79
19. Aggression	(Agg)		44.27	44.53	46.87	0.74	44.53	49.73	48.80	3.45*
20. Change	(Cha)		53.47	53.47	49.87	1.21	52.47	52.67	50.33	0.39
21. Succorance	(Suc)		39.47	39.00	41.07	0.58	35.73	38.40	37.80	2.21
22. Abasement	(Aba)		44.40	44.00	44.93	0.16	41.80	40.13	41.67	0.65
23. Deference	(Def)		47.20	44.07	45.80	1.32	43.93	41.93	44.20	0.56
24. Counseling Readiness	(Crs)		42.73	41.00	40.47	0.42	46.33	48.67	54.93	4.56*

\*  $p \leq .05$



Results of the multivariate discriminant analysis of male group scores are presented in Table 5. Only the first function was significant ( $p < .03$ ), and accounted for 72.39% of the variability. The variables contributing to the maximum difference between the groups are Number of Unfavorable Adjectives Checked (Unfav) and Exhibition (Exh), with respective factor loadings of .359 and .355.

Table 5

Discriminant Functions Maximally Separating Male Groups, with Significance Values and Discriminant Weights of ACL-Ideal Variables

ACL-Ideal Variables		Functions	
		1	2
1. No. of Total Adjectives Checked	(No Ckd)	.187	-.169
2. Defensiveness	(Df)	-.028	.085
3. No. of Favorable Adjectives Checked	(Fav)	-.164	.105
4. No. of Unfavorable Adjectives Checked	(Unfav)	.359	.162
5. Self-Confidence	(S-Cfd)	.123	-.144
6. Self-Control	(S-Cn)	-.109	.231
7. Lability	(Lab)	.028	.121
8. Personal Adjustment	(Per Adj)	-.163	.079
9. Achievement	(Ach)	.173	.153
10. Dominance	(Dom)	.104	.076
11. Endurance	(End)	.128	-.103
12. Order	(Ord)	.128	-.061
13. Intracception	(Int)	-.209	-.013
14. Nurturance	(Nur)	-.157	-.008
15. Affiliation	(Aff)	-.057	.069
16. Heterosexuality	(Het)	.062	-.030
17. Exhibition	(Exh)	.355	-.158
18. Autonomy	(Aut)	.199	-.233
19. Aggression	(Agg)	.199	.103
20. Change	(Cha)	-.241	-.158
21. Succorance	(Suc)	.146	.153
22. Abasement	(Aba)	.061	.100
23. Deference	(Def)	-.121	.312
24. Counseling Readiness	(Crs)	-.156	.062
per cent Variance		72.39	27.61
$\chi^2$		40.59	21.87
df		25	23
p		.03	.53

The location of the group centroids along this function is displayed in Figure 2. The Cs most clearly fit this configuration, the Bs less so and Ms least of all.

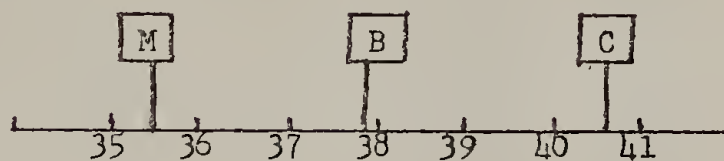


Figure 2

Plot of Group Centroids on Composite Linear Function of  
ACL-Ideal Subscales (Males)

Table 6 presents the findings with respect to the female groups. Again only the first function was significant ( $p < .03$ ), accounting for 60.77% of the variability. A combination of Fav and Crs maximally separates the groups, with factor loadings of .486 and .483 respectively.

Table 6

Discriminant Functions Maximally Separating Female Groups, with Significance Values and Discriminant Weights of ACL-Ideal Variables

ACL-Ideal Variables		Functions	
		1	2
1. No. of Total Adjectives Checked	(No Ckd)	.035	-.002
2. Defensiveness	(Df)	.132	.104
3. No. of Favorable Adjectives Checked	(Fav)	.486	-.050
4. No. of Unfavorable Adjectives Checked	(Unfav)	.379	-.090
5. Self-Confidence	(S-Cfd)	.314	-.013
6. Self-Control	(S-Cn)	-.014	.217
7. Lability	(Lab)	.041	-.157
8. Personal Adjustment	(Per Adj)	.062	.014
9. Achievement	(Ach)	.398	.200
10. Dominance	(Dom)	.317	.082
11. Endurance	(End)	.138	.390
12. Order	(Ord)	.217	.307
13. Intraception	(Int)	-.035	.110
14. Nurturance	(Nur)	-.062	.262
15. Affiliation	(Aff)	.182	.269
16. Heterosexuality	(Het)	.208	.049
17. Exhibition	(Exh)	.304	-.286
18. Autonomy	(Aut)	.007	-.347
19. Aggression	(Agg)	.307	-.330
20. Change	(Cha)	-.137	-.081
21. Succorance	(Suc)	-.240	-.284
22. Abasement	(Aba)	.005	.215
23. Deference	(Def)	.038	.196
24. Counseling Readiness	(Crs)	.483	.084
per cent Variance		60.77	39.23
$\chi^2$		42.85	33.22
df		25	23
p		.02	.08

Figure 3 shows that Cs are best described by this combination of variables with Bs and Ms following them, in that order.

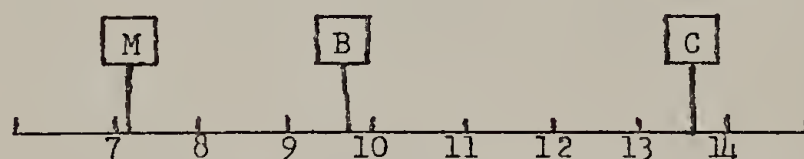


Figure 3

Plot of Groups Centroids on Composite Linear Function  
of ACL-Ideal Subscales (Females)



## DISCUSSION

There is only slight indication that those who practice transcendental meditation will exhibit a higher degree of positive personality characteristics than non-meditators. Male Ms scored higher than Cs on 4 subscales of the CPI, but only two of them, Sc and Wb, were in the direction of expected differences, i.e. sense of well-being, poise, self-control and intellectual efficiency. Although there were no differences among the females, an interesting fact emerges upon examination of the group means (Table 1). The means for female Ms are the same as or higher than those for male Ms on 3 of the 4 subscales on which male Ms scored significantly higher than male Cs (Sc, To and Ac). This suggests that the female Ms exhibit the same degree of positive personality traits as the males, but that the female Cs do not differ greatly from them, while the male Cs do differ from the male Ms.

Multivariate discriminant analysis yields a linear function (or functions) of predictor variables which provides a means of discriminating between groups in terms of the combination(s) of variables which maximally separates the groups. Analysis of the CPI variables shows that the male groups are maximally separated by a composite linear function which is predominantly defined by 3 variables: Sc, To and Ac. The position of the group centroids along this dimension (see Figure 1) indicates that both Ms and Bs tend to be more calm, practical and thoughtful (Sc), to have more broad and varied interests, to be more open and accepting of others (To), and to be more cooperative and industrious (Ac) than Cs. This would appear to indicate greater maturity in the M group, if we take Rogers' (1961) definition of the mature individual as one who will "behave in ways which are less defensive, more socialized, more acceptant of reality in himself and in his social environment [i.e. one who is tolerant, open and accepting of others], and which give evidence of a more socialized system of values" (p. 259), i.e. one who is cooperative and industrious.

Rogers (1954) found that in successful therapy there is an observable change in the client's behavior in the direction of greater maturity. One might be tempted to conclude from this that TM has effects on those who practice comparable to psychotherapy, and is therefore of therapeutic value. However, the differences between the Ms and Cs in this study may have less to do with the practice of meditation than with the tendency to seek out the experience of meditation, as shown by the fact that Bs have a personality configuration very similar to that of Ms. That is to say, the kind of person who can be described as thoughtful, with varied interests, tolerant, hardworking, etc., is also the kind of person who may be attracted to the practice of meditation. This suggests that Ms and Cs may be two different groups prior to meditation practice and therefore that differences between them cannot be attributed to meditation practice. This statement cannot be as easily applied to females, however, for whom no significant separation of groups in terms of trait combinations was found.

While both male and female Ms show higher mean correlations between real and ideal self than Cs, these differences were not significant, and therefore lend no support to the second hypothesis, that meditators would have a more generally healthy and positive disposition. There is only a suggestion that this might be so, as well as a suggestion that male Bs, whose correlations are significantly lower than male Ms, are dissatisfied with themselves and take up meditation as a solution to their problems. Again, we are not justified in concluding from this that the practice of meditation leads to psychological health, for there are difficulties in the way of such an interpretation. For one thing, it is likely that to maintain the practice of meditation - and all Ms reported regular daily practice - a certain degree of self-discipline and steadiness is necessary to begin with. Those who do not have this would drop

out and never show up in a group of advanced meditators. Second, none of the mean correlations was high, not even that of the meditators. Gough and Heilbrun (1965) suggest a phi coefficient of .50 as the lower cut-off point of the range indicating health. While the low means and the wide variability indicated by the standard deviations (ranging from .41 to .48 as compared to .21 for Gough's and Heilbrun's group of 100 adult males) may be a reflection of the youth of the subjects, these results cannot be said to indicate good psychological health for any of the groups.

While univariate analysis revealed no differences between the male groups with respect to their goals and orientations as measured by the ACL-Ideal, multivariate analysis did indicate group differences. The 3 groups are maximally separated by a combination featuring 2 variables, Unfav and Exh. It is the ideal of the Cs which most closely fits this personality configuration (see Figure 2) and which can perhaps be described as rebellious and skeptical (Unfav), self-assured and the center of attention (Exh). Thus Cs appear to wish to be more "sophisticated" in the sense of being cynical, arrogant, self-seeking and poised, and to gain the admiring attention of others. Of the other 2 groups, the Ms are least attracted to this ideal type, with the Bs falling midway between.

Female Cs were shown by univariate analysis to score significantly higher on Fav, Per Adj, and Crs, a result supported in part by multivariate analysis which shows a combination of Fav and Crs maximally separating the groups. Again the Cs have the predominant position on the linear function, with Bs and Ms in positions corresponding to those of the males (see Figure 3). This suggests that female Cs can be separated out as a group having a greater desire to impress others by doing well (Fav) and a greater motivation for change and improvement in themselves (Crs) than the other two groups.

It is interesting to note that both male and female Cs appear to be more outer-directed in that they desire the approval of others, although their means



of obtaining that approval differ, and that both male and female Bs fall in the midrange between Ms and Cs. This suggests one of two possibilities: either that the practice of meditation increases the tendency to inner-directedness, or that those who already tend to be inner-directed stay with meditation, while those who tend to be outer-directed do not find much satisfaction in it and drop out (and thus do not show up in advanced groups). The finding of Seeman, Nidich and Banta (1972), that meditators increased in inner-directedness over a 2-month period, lends support to the first possibility. Yet other findings of the present study, i.e. the lack of any strong indication of specific effects of meditation and the indication that Ms and Cs are differentiated groups prior to meditation practice, support the latter possibility. In any case, it is possible to say that Hypothesis (3) is supported to the degree that life goals and orientations differ for Ms and Cs, but due to the indeterminate position of the Bs, it is not clear whether this is the cause or the result of taking up meditation.

What do meditators have to say about the effects of meditation? In answer to the open-ended question included with the questionnaire 50% reported having found increased capacity for clear thinking, perceptiveness and awareness; 33% believed they have achieved greater stability and strength of character; 43% reported having found peace of mind, freedom from tension and worry, greater poise and capacity to cope with stress; 33% reported finding enhanced enjoyment of life. One reported being able to give up the use of hard drugs, another the use of drugs and alcohol. Many are highly enthusiastic about what TM has done for them.

The objective measurements provided by the instruments used in this study indicate only a few of these results, i.e. sense of well-being, tolerance, and self-control, and not the wide range of differences that might be expected from the subjects' reports. That is to say, it might have been expected that differences would show up in additional CPI subscales such as Social Presence, Self-

Acceptance, Intellectual Efficiency and Psychological-Mindedness. Because this is not the case, one must conclude either that the subjective experience of the subjects has only a modest basis in fact, or that the instruments used were not sensitive enough. It might be of interest to see what differences would be revealed by the use of projective tests, such as the TAT and the Rorschach.

If we can take the subjects' reports at face value, it would seem that they have made some progress toward achieving at least some of the lesser goals of yoga as listed by Wood (see p. 10 above); and in fact, two subjects reported progress toward the greater goal of spiritual awareness. However, this study demonstrates no conclusive evidence that transcendental meditation, as practiced by these subjects, can be an effective enhancer of good psychological health. Future studies might be better designed to produce such evidence, for example, longitudinal studies involving clinical patients.

Although there was little support provided by the data for any except the third hypothesis, this should not be taken as a negative indication of the value of meditation. Members of SIMS were used in this study because they provided the closest approximation to a controlled group, but transcendental meditation does not entail the great effort and self-discipline involved in the type of practice found in yoga and other systems of meditation, both Eastern and Western, and which may be the prerequisites for attaining the results claimed by their proponents. Further study can and should be done in this area.

#### SUMMARY

While claims have long been made by its proponents in the East and the West that meditation can bring about positive personality change and self-actualization, little research has been done to test the validity of these claims. Recent research has focused mainly on the physiological changes accompanying the meditative state. The belief of some psychologists is that human beings are out of touch

with that deeper part of themselves which could give meaning and cohesion to their lives, and that much of neurosis is the result; meditation could establish contact with this deeper dimension. If this view is correct, then research on meditation would appear to be a rather urgent necessity.

The present study was an attempt to investigate the claims of meditation to enhance such positive personality traits as serenity, poise, emotional control and intellectual efficiency. The CPI and the ACL, real and ideal, were administered to 3 groups of subjects: meditators, beginners and controls.

Male meditators scored higher than controls on 4 subscales of the CPI, only 2 of which were in the direction of expected differences. Male meditators showed a personality configuration which could be viewed as indicating greater maturity than exhibited by the controls, but since the beginners appeared very similar to the meditators, it was concluded that this difference existed prior to meditation practice. There were no differences between the female groups on the CPI. ACL self vs. ideal-self correlations revealed no significant differences between meditators and controls. ACL ideal-self scores suggested that meditators are more inner-directed than controls, but there was no clear indication that this was a result of meditation.

Although the meditators were almost unanimous in their claims of beneficial effects from meditation, this study presented no strong support for these claims. We should not conclude from this, however, that meditation has no positive value. This has been a study of subjects practicing a particular type of meditation, i.e. transcendental meditation. Investigation of subjects practicing more formal and rigorous types of meditation may reveal more striking effects. Also, longitudinal studies and those utilizing more sensitive instruments may be able to substantiate these claims.



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Appendix A

Variables of the California Psychological Inventory\*

- |                                       |   |
|---------------------------------------|---|
| 1. Do (dominance)                     | Dominance, leadership ability, persistence and social initiative.   |
| 2. Cs (capacity for status)           | Qualities and attributes which underlie and lead to status.   |
| 3. Sy (sociability)                   | Outgoing, sociable, participative temperament.  |
| 4. Sp (social presence)               | Poise, spontaneity, and self-confidence in personal and social interaction.   |
| 5. Sa (self-acceptance)               | Sense of personal worth, self-acceptance, and capacity for independent thinking and action.                             |
| 6. Wb (sense of well-being)           | Minimal worries and complaints, freedom from self-doubt and disillusionment.  |
| 7. Re (responsibility)                | Conscientious, responsible, and dependable disposition and temperament.   |
| 8. So (socialization)                 | Social maturity, integrity and rectitude.   |
| 9. Sc (self-control)                  | Self-control, self-regulation, and freedom from impulsivity and self-centeredness.                                      |
| 10. To (tolerance)                    | Permissive, accepting, and non-judgmental social beliefs and attitudes.   |
| 11. Gi (good impression)              | Capacity for creating a favorable impression, concern about reactions of others.  |
| 12. Cm (communality)                  | Correspondence to the modal ("common") pattern established for the inventory.   |
| 13. Ac (achievement via conformity)   | Interest and motivation facilitating achievement in any setting where conformance is a positive behavior.               |
| 14. Ai (achievement via independence) | Interest and motivation facilitating achievement in any setting where autonomy and independence are positive behaviors. |
| 15. Ie (intellectual efficiency)      | Personal and intellectual efficiency.   |
| 16. Py (psychological-mindedness)     | Interest in, and responsiveness to, the inner needs, motives, and experiences of others.                                |
| 17. Fx (flexibility)                  | Adaptability of thinking and social behavior.   |
| 18. Fe (femininity)                   | Femininity of interests.  |

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\*Adapted from Gough. (1964)



# Appendix B

## Variables of the Adjective Check List\*

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|---|--|
| 1. No Ckd (total number of adjectives checked)      | Surgency, drive, and relative absence of repressive tendencies.                            |
| 2. Df (defensiveness)                               | Self-control, resoluteness, stubbornness.  |
| 3. Fav (number of favorable adjectives checked)     | Motivation to do well and impress others by virtue of hard work and conventional endeavor. |
| 4. Unfav (number of unfavorable adjectives checked) | Rebelliousness, arrogance, conceit, cynicism.  |
| 5. S-Cfd (self-confidence)                          | Assertiveness, affiliativeness, persistence.   |
| 6. S-Cn (self-control)                              | Seriousness, responsiveness to obligations, practicality.                                  |
| 7. Lab (lability)                                   | Spontaneity, restlessness, nervousness, excitability.                                      |
| 8. Per Adj (personal adjustment)                    | Dependability, trust, friendliness, wholesomeness.   |
| 9. Ach (achievement)                                | Involvement in intellectual and other endeavors, determination to do well.                 |
| 10. Dom (dominance)                                 | Perseverance, forcefulness, strong will.   |
| 11. End (endurance)                                 | Self-control, responsibility, idealism about truth and justice.                            |
| 12. Ord (order)                                     | Dependability, sincerity.  |
| 13. Int (intraception)                              | Reflectiveness, seriousness.   |
| 14. Nur (nurturance)                                | Helpfulness, nurturance, solicitousness.   |
| 15. Aff (affiliation)                               | Ambition, adaptability, exploitativeness.  |
| 16. Het (heterosexuality)                           | Interest in opposite sex, in life; outgoingness.   |
| 17. Exh (exhibition)                                | Self-centeredness, narcissism, poise, self-assurance.                                      |
| 18. Aut (autonomy)                                  | Assertiveness, independence, self-will.  |
| 19. Agg (aggression)                                | Competitiveness, impulsiveness.  |
| 20. Cha (change)                                    | Spontaneity, self-confidence, preceptiveness, alertness.                                   |
| 21. Suc (succorance)                                | Trust, guilelessness, dependence, support-seeking.   |

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\* Adapted from Gough and Heilbrun, 1965.

Appendix B (cont.)

- |                                   |  |
|-----------------------------------|--|
| 22. Aba (abasement)               | Submissiveness, self-effacement.                                 |
| 23. Def (deference)               | Conscientiousness, dependability, perseverance,<br>self-denying. |
| 24. Crs (counseling<br>readiness) | Worry and concern about self, ambivalence about<br>one's status. |





