

Changes in Self-Concept, Ego Defense Mechanisms, and Religiosity Following Seven-Day Vipassana Meditation Retreats

TIPAWADEE EMAVARDHANA[†]
CHRISTOPHER D. TORI[†]

To enhance psychological adjustment, Vipassana meditation assists individuals to perceive the transitory nature of the self. Because the consequences of this potentially troubling insight are not well understood, changes in self-concept and ego defense mechanisms of two cohorts ($N_1 = 222$, $N_2 = 216$) of young ($M = 18.03$ years) Thai participants who attended separate seven-day Vipassana meditation retreats and a nontreated control group ($N = 281$) were compared. Multivariate statistical analysis revealed positive gains in all areas of self-representation among meditators relative to controls ($p < .001$). Ego defense mechanisms of the meditation participants also underwent significant change ($p < .0001$) with coping becoming characterized by greater maturity and tolerance of common stressors. Increases in Buddhist beliefs were significantly correlated with heightened self-esteem and less impulsiveness ($ps < .001$). Theoretical and applied implications of the findings are discussed.

Interest regarding the effects of meditation based on traditional Buddhist principles remains high (Goldstein 1993; Kabat-Zinn 1994; Shapiro 1992a; Tart 1990). Vipassana, which is one of the oldest forms of Buddhist meditative practice, was developed within the Theravada tradition and consists of the mindful observation of whatever arises in consciousness. It is believed the sustained awareness of cognitive and sensory phenomena will lead to the realization that unnecessary suffering results when attempts are made to attach to anything within the impermanent flux of human experience (Bucknell and Stuart-Fox 1993: ch. 4; Janakabhivamsa 1995; Nyanaponika 1988; Solé-Leris 1986). Other terms for Vipassana practice include "insight meditation" or simply "mindfulness" (Gunaratana 1993). This form of meditation is gaining increased recognition, and several studies have shown positive outcome following the application of interventions based on insight meditation procedures (e.g., Kabat-Zinn 1982; Kabat-Zinn et al. 1992; Kaplan, Goldenberg and Galvin-Nadeau 1993; Sharma, Kumaraiah, Mishra, and Balodhi 1990).

Within Buddhism, it has long been argued that the desire for a continuous, unchanging self (*attā*) is a particularly strong and insidious source of unhappiness (Fryba 1989; Harvey 1990; Sujiva 1990). In Vipassana, meditators are therefore encouraged to engage in what Epstein (1988) has called the "deconstruction of the self" by paying close attention to the transitory nature of their self-representations.

Problems associated with the concept of "nonself" or "egolessness" have received particular attention by Buddhist meditation researchers (e.g., Epstein 1988; Muzika 1990;

[†]Tipawadee Emavardhana is an associate professor and director of the Counseling Psychology program at Thammasat University, Bangkok, Thailand. E-mail: csgpsy@ipied.tu.ac.th.

[†]Christopher D. Tori is a practicing clinical psychologist and professor at the Alameda campus of the California School of Professional Psychology, 1005 Atlantic Ave., Alameda, CA 94501. E-mail: ctori@value.net (Because both authors contributed equally to this research, they are listed alphabetically).

Walsh 1978). This has been necessary for a variety of reasons including contemporary beliefs regarding the importance of autonomous development and the quest for self-fulfillment through mastery, acquisition, and individualism (Baumeister 1987; Cushman 1990). From this perspective, the thought of selflessness can lead to severe anxiety (Loy 1992) and may be partially responsible for adverse effects noted among Vipassana meditators, which have included disturbances of identity and self-concept (Engler 1986), negative emotional experiences (Miller 1993; Shapiro 1992b; Walsh 1977), and the exacerbation of psychiatric problems (Epstein and Lief 1986). As Engler (1986: 49) has cautioned, a "phase-appropriate" developed and healthy sense of self is necessary before one can gain insight into the ultimate illusoriness of self-depiction that persists beyond its moment to moment mental construction.

In spite of extensive efforts by Buddhist apologists to describe the benefits resulting from the deconstruction of the self, there has been no empirical research directly assessing changes in self-concept during meditation practice. If it is true that many aspects of ego functioning are actually strengthened through insights regarding the fluidity and impermanence of self (Epstein 1988, 1989, 1990), it seems reasonable to expect that the experience of self will undergo discernable transformation for committed meditators. Therefore, it was hypothesized that significant pretest to posttest change would be found in self-concept scores of those participating in seven-day Vipassana meditation retreats.

Most contemporary models of the self have been influenced by the psychoanalytic view of the ego as the principal energy-directing system within the person (Page and Berkow 1991). Freud (1923) concluded that unconscious ego defense mechanisms regulate instinct and affect, enabling the person to act in an adaptive manner. Because Vipassana supposedly leads to the quieting of instinctual drives with resulting emotional tranquility and skillful living (Goldstein 1993; Kornfield 1993), significant change in ego defense mechanisms were also expected.

Religious beliefs were evaluated before and after the retreats because only one study (Shapiro 1992c) has examined the influence of Vipassana on religious orientation. Interestingly, for a small group of Americans, length of practice was negatively associated with monotheism. While it is known that religious experiences can significantly improve the self-esteem of believers (e.g., Latkin 1990; Stromberg 1990; Ullman 1989), the relationship between heightened faith in Buddhist tenets (e.g., metaphysical inconsistency, nonsoul, selflessness) with measures of self-concept and ego defense mechanisms has never before been investigated.

In summary, the present study was designed to assess changes in self-concept, ego defense mechanisms, and Buddhist beliefs occurring over the course of seven-day Vipassana meditation retreats. It was believed the dependent variables selected for use in this research would capture the central outcomes of this form of Buddhist meditative practice (i.e., deconstruction of the self, increased self-control, and heightened religiosity). While significant pre to posttest differences were anticipated, the direction of change for the self-concept and coping measures was not predicted given the lack of empirical investigations evaluating the impact of Vipassana meditation practice upon conscious and unconscious ego functioning.

METHOD

Participants

Two cohorts of meditation participants ($N_1 = 222$, $N_2 = 216$) who attended separate retreats were utilized in this study. The recruitment of the samples was undertaken by the staff of the Bangkok headquarters of the Young Buddhist Association of Thailand. Announcements of the seven-day Vipassana retreats were sent to secondary schools and

colleges throughout the country, inviting interested individuals to complete an application form to attend the retreat. To be accepted, an applicant had to be above the age of 12 years, a matriculated student, have parental permission (if under 18), be without any serious medical or psychiatric problems, and present a short letter of recommendation.

The majority of the meditators were teenagers with the mean ages of the two samples being 18.27 ($SD = 4.22$) and 17.79 years ($SD = 4.02$) years, respectively. Most were female ($N_1 = 146, 66\%$; $N_2 = 127, 59\%$) and college students ($N_1 = 138, 62\%$; $N_2 = 127, 59\%$). High school students formed the second largest group ($N_1 = 75, 33\%$; $N_2 = 76, 35\%$) with the remainder of the participants in both cohorts being teachers and other adults. Seventy-nine percent of the meditators were residents of the Bangkok metropolitan area; the rest came from other Thai provinces. Most ($N = 309, 71\%$) had never before participated in a weeklong Vipassana meditation retreat. There were no dropouts and a certificate of completion was given to each participant at the end of the retreat.

The control group of 281 individuals was selected to be commensurate with the meditators on age ($M = 18.11$ years, $SD = 4.95$), gender (61% female, $N = 172$), education (64% high school students, $N = 180$), and demographics (82% were Bangkok residents, $N = 231$). Like those in the meditation groups, the control participants were willing to participate in a scientific study that required extra time to complete test forms on two occasions (one week apart). Students in both the meditation and control conditions were in good academic standing and they came from high schools and colleges with similar standards.

Instruments

Tennessee Self-Concept Scale (TSCS). This is a 100-item multidimensional personality inventory that assesses internal and external aspects of self-representation (Roid and Fitts 1988). A total self-esteem score is obtained along with a number of subscales including (a) Self-Criticism, (b) Identity, (c) Self-Satisfaction, (d) Behavior, (e) Physical Self, (f) Moral-Ethical Self, (g) Personal Self, (h) Family Self, (i) Social Self, (j) Variability (consistency of self-concept), and (k) Distribution (certainty of self-perceptions). The TSCS was designed to be used with individuals 12 years or older who are able to read at a fourth-grade level, and it can be completed in 10 to 20 minutes. Extensive research has shown high reliability and validity (Blascovich and Tomaka 1991), and the TSCS remains a very popular self-concept assessment instrument (Marsh and Richards 1988), which has been used with diverse international populations (e.g., Ezeilo 1982; Migone de Faletty and Moreno 1991).

The TSCS was translated into Thai under our direction, with preliminary versions of the Thai text being prepared by the second author in conjunction with two bilingual Thai language instructors at the American Alumni University Association Language Center, Bangkok, Thailand. The first author then reviewed the translated materials and made any necessary final revisions. Only one statement from the original TSCS required substantial change to be appropriate for a Buddhist population (viz., "I am satisfied with my relationship with God" became "I am satisfied with my relationship with my religion").

We have used the Thai version of the TSCS for five years, collecting normative data on 1,835 participants. The results of factor analytic, reliability, and validity analyses of these data revealed that the factor structure of the Thai and American editions were very similar and the item groupings suggested by Fitts had high internal reliability (Tori and Emavardhana 1996a). For these reasons, and in order to make the results of the present study comparable to others that have used the TSCS, the item configuration of scales was not altered in this investigation.

The pretest and posttest internal reliability coefficients of the translated TSCS self-representation scales for the three groups of participants were very similar and high. The mean of the Cronbach alphas for the pretest Total score was .91 and alphas ranged from .71

to .77 for the pretest Identity, Behavior, Self-Satisfaction, Physical Self, Moral Ethical Self, Personal Self, Family Self, and Social Self scales. The 10 item Self-Criticism scale had the lowest mean internal reliability at pretesting (.60). Since all items are used in the calculation of the Distribution and Variability scores, alphas were very high ($\geq .89$).

Life Style Index. The 97-item Life Style Index was developed by Plutchik, Kellerman, and Conte (1979) to measure the following eight ego defense mechanisms: (a) Compensation, (b) Displacement, (c) Denial, (d) Intellectualization, (e) Projection, (f) Reaction Formation, (g) Regression, and (h) Repression. This instrument was based on a psychoevolutionary theory of emotion (Plutchik 1982, 1990) and the psychoanalytic theory of unconscious ego defense mechanisms as the primary regulators of affect (Vaillant 1992). The psychometric characteristics of the Life Style Index have been described by Plutchik (1989) and the inventory has been used in a number of American and European studies (Conte and Apter 1995).

The Thai translation of the Life Style Index followed procedures identical to those for the TSCS, and our statistical study of the test's reliability and validity was based on the norm group ($N = 1,835$) who had also taken the TSCS. Because the eight scales conceptually derived by Plutchik et al. (1979) were stable (Tori and Emavardhana 1996b), it was decided to retain these variables in this research.

Cronbach alphas for the eight pretest and posttest ego defense mechanisms scales were equivalent satisfactory; the mean values at pretest were: Compensation = .61, Displacement = .71, Denial = .63, Intellectualization = .58, Projection = .61, Reaction Formation = .66, Regression = .69, and Repression = .56.

Buddhist Beliefs and Practices Scale. An 11-item scale which assessed Buddhist beliefs and practices (e.g., I believe in the doctrine of no-soul; The teachings of the Buddha are very important in my life; I observe the 5 precepts) was created by the authors for use in the study. The mean internal consistency coefficient (α) for the scale at pretesting was .69.

Procedure

The retreats. The retreats were held at the Young Buddhists Association Retreat Center, Bangkok, Thailand. As is common in Vipassana retreats, a very demanding schedule was followed (Hamilton-Merritt 1976; Kornfield 1979; Nyanaponika 1988: ch. 6). The day began at 4:00 A.M. and the participants observed complete silence at all times. All activities (e.g., eating, walking) were performed with heightened awareness and the 18-hour day was divided between alternating periods of sitting and walking meditation, mindfulness exercises (e.g., slow, deliberate drinking of a beverage in the afternoon), listening to brief dharma sermons, and morning and evening prayers. There was a daily small-group discussion regarding the experiences of the participants with the meditation master. The day ended at 9:30 P.M. following an hour of sitting meditation and evening chanting.

Testing. For those attending the retreats, the pretest measures were administered during the initial orientation hour, which occurred prior to any meditation practice. The meditation participants completed the posttests on the last day of the retreat before the final communal meal. Most of the control participants (84%) took the measures in school settings and none reported any prolonged meditation experiences.

RESULTS

A nonequivalent-groups, pretest-posttest design (Heppner, Kivlighan, and Wampold 1992: 154–58) was used to assess the changes that occurred over the course of the study. Means and standard deviations of all outcome variables for the three groups (meditation 1, meditation 2, and control) by time (pretest, posttest) are presented in Table 1.

TABLE 1
PRETEST-POSTTEST MEANS AND STANDARD DEVIATIONS FOR ALL OUTCOME VARIABLES BY GROUPS*

| Variables | Groups | | | | | | | | | | | |
|--------------------------------|------------------------|-------|----------|-------|------------------------|-------|----------|-------|-------------------|-------|----------|-------|
| | Meditation 1 (N = 222) | | | | Meditation 2 (N = 216) | | | | Control (N = 281) | | | |
| | Pretest | | Posttest | | Pretest | | Posttest | | Pretest | | Posttest | |
| | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD |
| Self-Concept Scales | | | | | | | | | | | | |
| Identity | 109.41 | 10.67 | 111.88 | 11.07 | 108.45 | 10.57 | 111.09 | 10.41 | 110.62 | 9.03 | 109.70 | 10.76 |
| Satisfaction | 99.58 | 11.39 | 101.33 | 11.17 | 99.07 | 12.05 | 101.68 | 12.31 | 101.06 | 12.07 | 100.23 | 12.28 |
| Behavior | 105.60 | 9.67 | 108.50 | 9.61 | 104.62 | 10.75 | 107.56 | 10.75 | 106.41 | 10.29 | 105.56 | 10.72 |
| Physical Self | 65.19 | 7.00 | 66.94 | 7.46 | 65.66 | 7.49 | 67.34 | 7.89 | 65.06 | 6.89 | 64.82 | 7.92 |
| Moral-Ethical Self | 61.44 | 6.71 | 62.90 | 7.52 | 62.52 | 7.82 | 64.93 | 7.92 | 63.45 | 7.28 | 63.55 | 7.49 |
| Personal Self | 60.18 | 6.81 | 61.93 | 6.95 | 59.43 | 6.99 | 62.28 | 7.07 | 62.86 | 6.22 | 62.69 | 6.59 |
| Family Self | 65.01 | 7.82 | 65.61 | 7.67 | 65.16 | 9.17 | 65.23 | 8.54 | 66.37 | 8.93 | 65.21 | 8.26 |
| Social Self | 61.76 | 7.61 | 63.32 | 6.94 | 61.37 | 7.37 | 62.48 | 7.78 | 62.54 | 6.70 | 61.42 | 6.65 |
| Self-Criticism | 32.79 | 5.10 | 31.00 | 5.26 | 32.04 | 4.94 | 30.75 | 5.66 | 30.35 | 4.82 | 30.26 | 4.95 |
| Variability | 42.99 | 11.06 | 42.63 | 12.83 | 43.18 | 11.73 | 43.82 | 11.66 | 42.36 | 11.13 | 37.43 | 11.32 |
| Distribution | 110.17 | 26.61 | 104.04 | 29.53 | 98.31 | 29.10 | 102.28 | 30.66 | 101.72 | 28.76 | 91.85 | 30.23 |
| Total | 317.59 | 26.99 | 324.71 | 29.05 | 315.14 | 30.69 | 323.26 | 32.58 | 319.29 | 26.89 | 317.20 | 30.33 |
| Defense Mechanisms | | | | | | | | | | | | |
| Compensation | 5.60 | 2.06 | 5.50 | 2.00 | 5.45 | 2.18 | 5.29 | 2.19 | 5.19 | 1.96 | 5.47 | 2.06 |
| Denial | 7.21 | 2.53 | 8.06 | 2.22 | 6.93 | 2.49 | 7.78 | 2.48 | 7.65 | 2.24 | 7.95 | 2.27 |
| Displacement | 3.92 | 2.58 | 3.44 | 2.90 | 3.78 | 2.48 | 2.76 | 2.28 | 2.99 | 2.42 | 3.02 | 2.68 |
| Intellectualization | 7.30 | 1.97 | 7.62 | 1.87 | 7.14 | 1.94 | 7.50 | 1.93 | 7.71 | 1.85 | 7.94 | 1.93 |
| Projection | 9.03 | 2.31 | 8.41 | 2.98 | 9.04 | 2.40 | 8.38 | 3.03 | 8.73 | 2.36 | 9.36 | 2.28 |
| Reaction Formation | 5.49 | 2.33 | 5.75 | 2.43 | 4.50 | 2.20 | 4.96 | 2.26 | 5.20 | 2.35 | 5.22 | 2.79 |
| Regression | 5.46 | 2.73 | 4.87 | 3.16 | 5.47 | 2.62 | 4.29 | 2.85 | 4.60 | 2.77 | 4.51 | 2.83 |
| Repression | 4.40 | 2.12 | 4.70 | 2.02 | 4.18 | 2.04 | 4.38 | 1.98 | 3.88 | 2.08 | 4.41 | 2.44 |
| Buddhist Beliefs and Practices | 22.15 | 4.90 | 25.14 | 4.60 | 22.27 | 4.80 | 25.94 | 4.66 | 21.43 | 5.13 | 21.50 | 5.32 |

* Note: All variables are unstandardized raw scores.

Preliminary Analyses

Assumptions for multivariate testing. Because of large sample sizes and significant correlations among TSCS and Life Style Index subscale scores (Tori and Emavardhana 1996a, 1996b), a multivariate approach to data analyses was adopted. Assumptions necessary for the multivariate analyses of variance (MANOVA) and covariance (MANCOVA) were found to be satisfactory including normal distributions, significant tests of sphericity, and high associations between pre- and posttest scores.

Combining data from the two meditation groups. It seemed likely the pretest and posttest scores of the two meditation cohorts who had attended different retreats would be equivalent, because these participants followed identical daily schedules at the same facility and the two groups were alike on the demographic variables of age, gender, education, and place of residence, $ps \geq .07$. The results of 2 (groups) x 2 (time) MANOVAs for (a) TSCS scales (except the composite Total score) and (b) the eight ego-defense variables, confirmed this expectation with interaction and main groups effects being nonsignificant, $ps \geq .08$. Univariate groups x time ANOVAs on the TSCS Total composite score and the Buddhist Beliefs and Practices scale also yielded nonsignificant interaction and groups effects, $ps \geq .11$. The two different meditation groups were, therefore, combined for all subsequent statistical analyses.

Pretest equivalence of combined meditation and control groups. Pretest differences between those who attended and did not attend the retreats were minimized by selecting control participants on the basis of the demographic and social factors that characterized the meditators (i.e., urban, young, mostly female, willing to take part in research, and good academic standing). The results of one-way MANOVAs on the noncomposite TSCS and ego defense mechanism pretest scores obtained from the combined meditation group vs. the control group were not significant, $ps \geq .09$. There were also no significant between groups pretest differences on the TSCS Total and Buddhist Beliefs and Practices scores, $ps \geq .11$.

Data analysis plan. Given the equivalence of the meditation and control groups at pretesting, several approaches to data analyses were possible (Reichardt 1979). The contrast of the posttest scores of the meditators vs. controls using the analysis of covariance (pretest scores as covariates) followed by tests of pretest-posttest change was deemed the most powerful and complete analytic stratagem to evaluate the outcome of our investigation (Huck and McLean 1975).

Group Differences Following the Retreats

Self-concept. The adjusted, noncomposite TSCS posttest scores of the meditation and control groups were first subjected to a multivariate analysis of covariance (Norušis 1994: ch. 4). Following the retreats, self-perceptions of meditators were significantly different than controls, $F(11, 707) = 8.66, p < .001$. Using an adjusted alpha level of .004 (modified Bonferroni procedure; Howell 1992: ch. 12) to protect against Type I error, follow-up ANCOVAs revealed significantly higher posttest self-concept scores for those in the meditation group on all TSCS variables except Self-Criticism and Family Self. Relative to controls, meditators became much less disapproving of themselves, $p < .003$; although the perception of self in relation to family became higher for meditators than controls ($p = .025$), this increase did not meet the more stringent statistical significance criterion.

The multivariate comparison of TSCS pretest and posttest scores for the meditation group was significant, $F(11, 427) = 7.67, p < .0001$, while little change occurred among control participants, $p = .34$. As before, with the exception of Family Self, the posttest self-representations of the meditators were more positive than their pretest appraisals ($ps < .004$).

At posttesting, the overall self-esteem (Total TSCS composite score) of those attending the retreats was found to be much higher than controls, $F(1, 716) = 12.27, p < .001$. Pre- to posttest change on this variable for those in the meditation group was significant, $p < .001$. The pre- and posttest Total scores of controls participants did not undergo significant change, $p = .16$.

Ego Defense Mechanisms. The MANCOVA testing of the vectors of adjusted posttest ego defense mechanism scores for the two groups yielded significant results, $F(8, 710) = 7.76, p < .0001$. Using a Bonferroni adjusted alpha of .006, follow-up univariate ANCOVAs revealed that the meditation participants significantly decreased on the Displacement, Projection, and Regression scales relative to controls, $ps < .004$; Denial and Reaction Formation scores, on the other hand, increased to a greater extent among meditators than nontreated participants, $ps < .005$. The groups were alike on the posttest Compensation, Intellectualization, and Repression variables, $ps \geq .04$.

The Life Style Index posttest scores of meditators were significantly different from pretest values, $F(8, 430) = 5.61, p < .001$ with the same pattern of change as described above, $ps < .005$. Control group Life Style Index pretest and posttest scores were equivalent, $p = 19$.

Buddhist Beliefs and Practices. As expected, the retreats had a powerful effect on the Buddhist beliefs and practices of the meditators, $F(1, 716) = 142.16, p < .00001$, while the control group showed virtually no change on this variable, $p = .72$.

Correlations of Increases in Religious Beliefs with Self-Concept and Ego Defenses Gain Scores

Gain scores (posttest minus pretest) were used to evaluate the relationship of heightened beliefs in Buddhist precepts with changes in self-concept and ego defense mechanisms among those attending the retreats. As shown in Table 2, an elevation in religious convictions was significantly associated with an increase in overall self-esteem (Total Score), $r(437) = .44, p < .00001$; the correlation coefficients between the remaining TSCS gain scores (except Variability) and the pre- to posttest difference in the Buddhist Beliefs and Practices scale were significant ($ps < .01$) with gains in religiosity being associated with positive changes in self-concept and less self-criticism.

As Buddhist beliefs increased, the Life Style Index scales assessing the ego defense mechanisms of Compensation, Displacement, Projection, and Regression decreased in magnitude, $ps < .001$. Greater use of Denial was associated with raising Buddhist religiosity, $r(437) = .22, p < .001$. Finally, variation in the pre- to posttest measures of Intellectualization, Reaction Formation, and Repression were not related to the gains in Buddhist Beliefs and Practices scale.

DISCUSSION

The quantitative results obtained in the present study are consistent with phenomenological accounts of insight meditators (Hamilton-Merritt 1976; Kornfield 1979; Miller 1993; Walsh 1977, 1978) and supportive of the hypothesis that participation in a seven-day Vipassana meditation retreat significantly changes ways the self is perceived and defended. As predicted, the TSCS scores of meditators underwent transformation with those attending the retreats showing increases in overall self-esteem, feelings of worth, benevolence, and self-acceptance. The unconscious coping mechanisms of the Vipassana participants were also altered. At posttesting, they were less affected by external stimuli and sexual impulses than controls. Those in the meditation groups, further, were less likely to use the defenses of displacement, projection, and regression following the retreat.

Heightened belief in Buddhist precepts was associated with positive change in self-concept and less self-criticism. Finally, increased Buddhist religiosity was correlated with reductions in the defenses of displacement, projection, and regression and with greater use of denial.

TABLE 2
CORRELATIONS OF BUDDHIST BELIEFS AND PRACTICES CHANGE SCORES WITH
MEASURES OF CHANGE IN SELF-CONCEPT AND EGO DEFENSE MECHANISMS

| Variables | <i>r</i> (437) |
|----------------------------|----------------|
| Self-Concept Scales | |
| Identity | .33* |
| Self-Satisfaction | .29* |
| Behavior | .45** |
| Physical Self | .32* |
| Moral-Ethical Self | .32* |
| Personal Self | .38** |
| Family Self | .20* |
| Social Self | .30* |
| Self-Criticism | -.27* |
| Variability | .11 |
| Distribution | .35* |
| Total | .44** |
| Defense Mechanisms | |
| Compensation | -.21* |
| Denial | .22* |
| Displacement | -.43** |
| Intellectualization | .07 |
| Projection | -.31* |
| Reaction Formation | .11 |
| Regression | -.42** |
| Repression | -.10 |

* $p < .001$; ** $p < .0001$.

Understanding Experimental Findings from a Buddhist Perspective

Recognizing that more than one explanation can be offered for the study's outcome, results will first be interpreted from the perspective of Buddhism. Siddhatta Gotama taught that human suffering (*dukkha*) arises when futile attempts are made to preserve and intensify self-satisfying experiences that are transitory in nature (Harvey 1990; Rahula 1974). The recognition of nonself (*anattā*) is liberating because it frees people from the constant distress inherent in clinging to an egocentric identity construction. When self-centered cravings are relinquished, the meditator can feel a sense of liberation, increased personal control, and equanimity (Goldstein 1993; Kabat-Zinn 1994; Kornfield 1993). Based on these tenets, the observed changes in self-concept following the retreats would not be surprising.

The deconstruction of the self in Vipassana, however, is not accomplished without potential psychological dangers (Engler 1986; Epstein and Lieff 1986). Before the self (or, more precisely, selfishness) can be transcended, an appropriately developed phenomenological sense of coherence and continuity is necessary (Engler 1986; Epstein 1990; Fontana 1990). The teachers of the retreat center, therefore, monitored the progress of the meditators in daily interviews. Dharma lectures and a communal schedule of activities were further guards against possible adverse reactions to the seven days of intense, solitary introspection.

The observed changes in coping can also be understood within the context of Buddhist psychology (de Silva 1990). From this perspective, meditation participants would attempt to (a) be more tolerant of stressors, (b) reduce sensual cravings, and (c) evaluate the behavior of

others with greater charity and understanding. It was not surprising that following the retreats test items that indicated increased detachment and forbearance (e.g., It is better to think things out rather than getting angry; Hearing a baby cry does not bother me) were more frequently endorsed. On the Life Style Index, this was shown by significant increases on the Denial scale coupled with a reduction in attributing unacceptable feelings to others (Projection) and diminished immature behaviors (Regression). Lessened reactivity to sexual impulses (Reaction Formation) has important implications given the acuteness of the AIDS epidemic in Thailand.

Although defense mechanisms are often thought of as sources of psychopathology, Vaillant (1992) has explained that they should also be understood as "potential stepping-stones of ego development" (35). There is agreement among psychoanalytic psychologists that defense mechanisms are adaptive or pathological depending on the situations in which they are employed and the intensity of use. Gottschalk, Fronczek, and Abel (1993), for example, showed that anxiety denial in psychologically healthy individuals is a functional coping response while it furthers psychopathology among those with mental disorders. For participants in the present study who faced stressful environments, being less reactive and fractious was likely adaptive if not done in an excessive manner. In this regard, it should be remembered that Buddhism favors a "middle way" in which all extremes are avoided. Based on Plutchik's psychoevolutionary theory of emotion, Endresen (1991) has shown that the defenses of denial and reaction formation are associated with the emotions of acceptance and joy. It seems reasonable that these feelings would be prominent following an intensive Vipassana retreat.

Limitations and Alternate Explanations

Design issues. In view of nonrandom group formation, appropriate caution must be used when findings are evaluated. To strengthen the validity of the study, we used two large meditation samples ($Ns > 216$) and equated the nearly 300 control participants with those in the meditation groups on age, gender, urbanity, and educational achievement factors (Kruskal and Mosteller 1979). Like the meditators, control participants were willing to participate in scientific research and, in Thailand, attending a Vipassana meditation retreat would not be considered an unusual activity (Jumsai 1980). The equivalence of the meditation and control groups on pretest self-concept, ego defense, and religiosity measures provides further support for the supposition that selection biases were reasonably controlled.

It should also be noted that the lack of follow-up testing precludes an empirical answer to the question of the durability of the changes that occurred following the retreats. Based on the high test-retest coefficients of the instruments used (Conte and Apter 1995; Roid and Fitts 1988; Tori and Emavardhana 1996a, 1996b) and research concerning the long-term effects of meditation (e.g., Shapiro 1992c; West 1986), it seems likely the changes would not be short-lived. In the future, we hope to supply quantitative data on this question.

Setting variables. The influence of expectancy, demand, and social facilitation factors on the two meditation cohorts must also be considered when interpreting the results of the present study. Because the vast majority of Thais consider Vipassana a meritorious religious activity, it is likely that the meditators felt they were going to do something hallowed and beneficial. The seven retreat days were quite moving (e.g., total silence, intense introspection, sermons, chanting) and physically demanding (e.g., early rising, sitting in the half-lotus position for prolonged periods). Meditators would, therefore, experience cognitive pressure to undergo expected psychological and spiritual transformations (e.g., greater self-control, equanimity, and compassion).

The isolation of the specific factors responsible for the consistent changes obtained after the meditation retreats remains an important, but difficult, experimental task. In

psychotherapy process research, for example, identification of the precise mechanisms responsible for outcome remains an elusive and perplexing task (Erwin 1994). What can be concluded is that the Vipassana retreat, with its ideology, rituals, and social practices can have pronounced effects on the psychology of meditators. Separation of the unique and interactive influences of each of the variables operating in this intervention must await further studies with multiple comparison groups (e.g., low expectancy for change, theologically focused contemplation, reduced communal activities).

Correlational Findings

The final question addressed by the present research concerned changes in self-concept and coping mechanisms that were associated with increased Buddhist religious beliefs. Interestingly, greater acceptance of the creed of nonattachment (no deity, everlasting soul, or self) was significantly correlated with a heightened sense of personal worth and fulfillment. As Buddhist beliefs increased, efforts to correct personal shortcomings were enhanced and self-criticism decreased. Reductions in the use of defenses that impute the causes of one's problems to others and in regressive immaturity were associated with heightened religiosity.

These correlational findings are not unexpected when placed within the context of other research regarding the influence of religion on feelings of well-being and satisfaction. As Stromberg (1990) has argued, identity transformation is likely when persons are influenced by any ideology which provides convincing answers to troubling existential realities (e.g., the causes of unhappiness and suffering). Thus, the psychological changes associated with increased Buddhist religiosity are similar to those reported following conversion or involvement in theistic religions (Ellison 1991; Payne, Bergin, Bielema, and Jenkins 1991; Poloma and Pendleton 1990; Ullman 1989). Although the specific mechanisms responsible for the obtained correlations remain unknown, this first empirical investigation of the influence of increased Buddhist beliefs on self-concept and coping revealed many arguably beneficial effects.

CONCLUSION

In sum, results of the present study demonstrate that among youthful Thais, an intensive seven-day Vipassana meditation retreat has positive effects on self-concept and unconscious ego defense mechanisms. Following the retreats, the self-perceptions of participants were more favorable, and coping became characterized by greater maturity and less reactivity to common stressors. While the relative importance of variables responsible for these changes cannot be fully specified, our findings have many theoretical and applied implications. The transcendence of self-centeredness may be an important step in the development of a healthy and individuated self-concept. If the deconstruction of the ego can occur within a structured environment, which provides supportive philosophical reasons for the attainment of selflessness, this process can be safe for those without serious psychiatric problems. Results also show that Vipassana can be used as an intervention for youths. Given the growing problems associated with the undercontrol of impulses among young offenders, Vipassana may hold promise as a treatment modality in settings where increased internal control is a therapeutic goal (Rhead and May 1983; Shapiro 182, 1992a). Finally, correlates of increased belief in the tenets of the world's largest nontheistic religion have been shown.

NOTES

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