

## Examining the Effects of Meditation Techniques on Psychosocial Functioning

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*Objective: An experiment was conducted to determine the effects of chanting the maha mantra on stress, depression, and the three gunas—sattva (enlightenment), rajas (passion), and tamas (inertia)—described in the Vedas as the basis of human psychology. Primary hypotheses of the study were that the maha mantra group would increase sattva and decrease stress, depression, rajas, and tamas significantly more than the other groups. Method: Participants were tested at pretest, posttest, and follow-up, with testing times separated by 4 weeks. Participants were randomly assigned to a maha mantra group, an alternate mantra (placebo) group, and a control group. Results: MANOVA results supported these hypotheses from pretest to posttest at  $p < .05$  for all dependent variables except rajas. Conclusions: The authors suggest that the maha mantra has potential in addressing problems related to stress and depression and that it be considered as one possible component of a spiritual approach to social work practice.*

Recent literature has called attention to the importance for social workers to consider the spiritual needs of clients (Canda, 1988; Keefe, 1996). Canda asserts that spirituality is a basic aspect of human experience and that it therefore should be explored through social work practice and research. After overviewing Christian, Jewish, shamanist, and Zen perspectives on social work, he concludes that professional helping may be significantly enhanced by the introduction of meditative techniques.

Keefe (1996) presents Eastern-style meditative techniques as potentially important in social work practice and treatment, describing specific applications in treating depression, substance abuse, excessive anxiety, and development of social work skills in professional training. He asserts that the potential of meditation in social work treatment and psychotherapy has already been recognized by some researchers and practitioners and that meditative methods are natural adjuncts to social work interventions. He concludes that

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meditation “has the potential to be valuable in work with clients from diverse cultures” (p. 451).

Many meditative techniques have been researched, including Buddhist approaches (Sweet & Johnson, 1990), mindfulness meditation (Miller, Fletcher, & Kabat-Zinn, 1995), and mantra meditation (e.g., Janowiak & Hackman, 1994; Kaye, 1985), with encouraging results on outcome variables such as stress (e.g., Janowiak & Hackman, 1994; Keefe, 1996), anxiety (Delmonte & Kenny, 1985), and empathy development (Sweet & Johnson, 1990). Because this study involves mantra meditation, a brief summary of the research on mantras is provided below. Janowiak and Hackman (1994) conducted a three-group pretest to posttest experimental design with random assignment, including a mantra chanting group, a yoga relaxation group, and a control group. The null hypothesis was that there would be no correlation between mantra chanting or yoga relaxation, and stress level. The mantra group showed a significant ( $p < .01$ ) reduction in stress. Janowiak and Hackman obtained an effect size of 2.38, which indicates the magnitude of difference between pretest and posttest mean scores for the mantra chanting group, divided by the pretest standard deviation. This effect size is larger than the effect sizes for both of the other groups on the stress variable. Furthermore,  $r^2$  for the correlation between stress reduction and chanting compliance was .42. These effect sizes for the chanting group could be characterized as very large (Rosenthal, 1997). The article by Janowiak and Hackman does not specifically describe the mantra that was tested, and the report also fails to provide a theoretical foundation.

Kaye (1985) included chanting of the mantra “Om” in an intervention package with a group of elderly clients. In this qualitative study, Kaye reported that response to the chanting was very enthusiastic and that the clients were enlivened by and looked forward to the chanting sessions. Delmonte (1983) conducted a literature review on meditative and mantra interventions. He concluded that the supposed “mantra-person fit” advocated by some proponents of mantra meditation is not supported by empirical evidence. That is, the literature suggested that any sort of mental device, or mock mantra, was as effective as the so-called genuine mantras. Outcome measures in his literature review included physiological indicators such as heart rate and blood pressure, as well as measures of anxiety.

Canda (1988) stated that there are many potentially effective meditative practices that have not been applied in social work. In the Vedic literatures (Prabhupada, 1976) from ancient India, which are the source of many meditative techniques for enhancement of mental health, the maha mantra is postulated to be an especially effective technique of mantra meditation. No

formal research has yet been conducted on the maha mantra, although some practitioners, including the lead author, have used it in professional practice.

This article describes a group study on the effects of the maha mantra, which is described in many of the Vedas, including the Kali santarana Upanisada, the Narada Pancaratna, and the Agni Purana (Prabhupada, 1975). The hypotheses of this study were that chanting the maha mantra, which is the independent variable, would reduce the dependent variables of stress and depression. Other dependent variables in this study were the Vedic-based constructs of sattva, or enlightenment, rajas, or passion, and tamas, or inertia.

All facets of material nature, including types of food, worldviews, work, knowledge, charity, and faith, are classified according to these three gunas, which are extensively described in books such as the Bhagavad-gita (Prabhupada, 1972) and Srimad-Bhagavatam (Prabhupada, 1976). Material nature is made up of the three modes, and the Vedic sciences of physical (Ayur Veda) and psychological health are based on an analysis of the gunas (Dasa, 1994). According to Vedic psychology, these three qualities, or modes of nature, form the psychological makeup of individuals. Sattva is characterized by qualities such as cleanliness, truthfulness, and discipline. Attributes of rajas include intense activity, dissatisfaction with one's position, and envy of others. Qualities associated with tamas include anger, depression, and a feeling of helplessness (Dasgupta, 1961). Sattva, rajas, and tamas were measured in this experiment by the Vedic Personality Inventory (VPI; Wolf, 1999). Hypotheses related to these modes of nature, and derived from Vedic theory (Prabhupada, 1976), were that chanting the maha mantra would increase sattva and decrease rajas and tamas. The maha mantra, which is postulated by the Vedas to be in sattva guna, was hypothesized to increase the mind's sattvic qualities and decrease its rajasic and tamasic qualities. A different combination of sounds, such as that which constituted the alternate mantra in this experimental design, would not, according to the Vedas, be in sattva guna, and thus the effects on the dependent variables would not be expected to be the same as the effects of the maha mantra.

According to Vedic philosophy, the self is a nonmaterial entity that exists within a gross material body, as well as within a subtle material body. The subtle material body is made up of mind, intelligence, and ego. The nonmaterial entity, or spiritual particle, is inherently situated completely in sattva guna, although in its present state of encasement within a subtle and gross material body, both of which are affected by tamas and rajas, the consciousness of the spiritual self is influenced by tamas and rajas. Pure sattva guna, or enlightenment, is the natural condition of the self (Prabhupada, 1972). This brief description forms the basis of the spiritual ontology underpinning this study.

An article on social work and spirituality (O'Neill, 1999) emphasized the need for social workers to become more conversant with spiritual interventions. Rosen, Proctor, and Staudt (1999) stressed the importance of social work research contributing to a body of knowledge on intervention effectiveness, specifically through the examination of measurable outcomes associated with replicable interventions. This investigation of the maha mantra, an outcome study on a spiritual intervention, thus responds to two important calls from the profession and is among the first of its type using a randomized experimental trial to test the benefits of a traditional Eastern approach to the management of psychological distress.

## METHOD

### Pilot Study

Before conducting a group study, a single-system design on the maha mantra with five participants was performed. This was an A-B-A withdrawal design, with baseline and follow-up periods each 1 week long and the intervention period lasting 4 weeks. Participants completed survey packages on Day 1, and at weekly intervals thereafter, for a total of seven data points during a 6-week period. The second survey package was completed at the beginning of Week 2, just before the participant was instructed in the chanting intervention. Dependent variables in this single-case design, which were measured with standardized instruments, included stress, depression, verbal aggressiveness, life satisfaction, spirituality, sattva, rajas, and tamas. For the five participants combined, 80% of outcome measures from baseline to intervention changed according to predictions of Vedic theory. Specifically, Vedic theory predicted that chanting the maha mantra would decrease stress, depression, verbal aggressiveness, rajas, and tamas and would increase life satisfaction, spirituality, and sattva. For most of these variables, all five participants changed according to Vedic predictions, and for all of the variables, at least three of five participants changed as predicted by the hypotheses. Although the design of this experiment had many shortcomings, such as lack of a control group and small sample size, the results were sufficiently encouraging to warrant a more rigorous study of the maha mantra.

### Design

The group study incorporated an experimental design, using an intervention, control, and placebo group. Each group was pretested and posttested

with a package of surveys, including a scale on depression (GCS) (Hudson & Proctor, 1977), personal stress (ICS) (Abell, 1991), and *sattva*, *rajas*, and *tamas* (VPI) (Wolf, 1999). Random assignment was used to place participants in groups. There was also follow-up testing for all groups 28 days after the last day of the chanting intervention.

### Sampling

Participants were purposively sampled through newspaper advertisements in a university town in the Southeastern United States. These ads read, "Wanted: Participants in a study examining the effects of an Eastern-style intervention on stress and depression. \$40 reimbursement. If interested, contact . . ." Respondents were initially screened by the researcher via phone interviews for the purposes of (a) ruling out those with debilitating mental disorders, defined as those who reported that they had received a diagnosis from a mental health professional that was determined by the researcher to be a formal DSM diagnosis, and (b) determining availability to participate for the entire duration of the study and willingness to devote approximately half an hour per day for 4 weeks. All participants were at least 18 years of age, signed a form of voluntary consent before participating, and received a financial incentive of \$40, with half paid at pretest and half paid after follow-up testing. To control for its potential impact on responsiveness to or benefit from the planned intervention, participants' prior experience with yoga, bio-feedback, meditation, and chanting was used to create two blocks, "past experience" and "no past experience," prior to random assignment to groups. Of the 108 persons responding to the ads, 93 were retained after screening. Thirty-one participants were assigned to each condition.

### Measures

The instruments used in this study were the Vedic Personality Inventory (VPI) (Wolf, 1999), the Generalized Contentment Scale (GCS) (Hudson & Proctor, 1977), and the Index of Clinical Stress (ICS) (Abell, 1991).

The VPI (Wolf, 1999) measures the three *gunas*—*sattva*, *rajas*, and *tamas*—and contains 56 items, each with seven Likert-type response choices. For each *guna*, subscale items include statements with which someone who is dominated by that mode would strongly agree. For example, *sattva* items include "I am satisfied with my life" and "I take guidance from higher ethical and moral laws before I act." *Rajas* items include "For me, sex life is a major source of happiness" and "I greatly admire materially successful people." *Tamas* items include "I often feel depressed" and "I often feel helpless."

Sattva scores have a possible range of 15 to 105, rajas scores have a possible range of 19 to 133, and tamas scores have a possible range of 22 to 154, with higher scores indicating a greater predominance of the guna. No clinical cutting scores or test-retest data have been obtained for the VPI. On a sample of 619 persons, made up mostly of university students and medical professionals, internal consistency alpha for the three guna subscales ranged from .93 to .94. Evidence for construct validity for the instrument was obtained with relation to measures on verbal aggressiveness (Infante & Wigley, 1986), which correlated positively with rajas and negatively with sattva, hours of sleep per day, which correlated positively with tamas, and life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985), which correlated positively with sattva and negatively with tamas. With regard to factor analysis, all items correlated positively and significantly with their intended subscale. Also, each item of the VPI has a corrected item-total correlation greater than .50, indicating strong construct validity at the item level of analysis (Faul & Hudson, 1997).

The GCS (Hudson & Proctor, 1977) measures the magnitude of nonpsychotic depression and consists of 25 items, with the possible range of scores being from 0 to 100 and a clinical cutting score of 30, with higher scores representing increased depression. Test-retest and split-half reliability scores for the GCS ranged from .89 to .96, with a mean of .93. Also, the instrument showed good ability to differentiate between groups describing themselves as depressed or not depressed. Construct validity for the GCS has also been established. According to Hudson (1982), the GCS possesses strong reliability and validity and is also suited for repeated measures with the same client. Specifically, the GCS is short, easy to complete and score, and does not suffer from response decay when used repeatedly over time.

The ICS (Abell, 1991) was designed to assess the subjective aspect of stress in a generalized, unidimensional form. Its 25 items were designed to reflect the range of perceptions involved with subjective stress. The possible range of scores is 0 to 100 with a clinical cutting score of 30, with higher scores representing increased stress. Psychometrics of the instrument were assessed using a sample of 265 persons. Cronbach's alpha for the sample was .96. The ICS has also shown strong factorial validity, convergent construct validity, and discriminant construct validity.

### **Data Collection**

Two research assistants were employed, and each was trained in the basic techniques of scientific experimentation and specifically in the methods of this study. This included instruction in confidentiality, preserving the

integrity of data, maintaining neutrality, as well as in the paperwork and time frame for this study, and the method for teaching participants how to chant.

For pretest, posttest, and follow-up, there was a 5-day window for all members of all groups to be tested. Ideally, to minimize history effects, all participants should have been tested at precisely the same time. As this was not practically achievable, a 5-day window of testing was used, with each participant tested individually, not in the same location as the other participants. This method was used to minimize diffusion effects. Researchers surveyed participants individually, not in groups, usually in the home of the participants, and sometimes at the researcher's office.

After pretesting, members of the control group were informed that they were the control group, and they were requested to return in 28 days for the posttest. After the pretest, members of the treatment group were taught the maha mantra intervention, and members of the placebo group were taught the placebo intervention. These two groups were instructed how to chant and were directed to do so for the next 28 days. Within 3 days after pretest, a member of the research team phoned the chanter to check if there were any difficulties with following the procedures. The research team member met in person with each participant 7 or 8 days after they initially learned the chanting to ensure that they were properly following the procedures. Beads were collected from both of the chanting groups after posttest. After follow-up, members of the control and alternate groups were introduced to the maha mantra and were informed that the purpose of the study was to examine the effects of the maha mantra.

Of the 93 people initially randomly assigned to groups, 81 completed the pretest surveys and 61 completed the entire study. For the 61 who completed the experiment, 23 were in the maha mantra group, 19 in the alternate mantra group, and 19 in the control group. Of these 61 persons, 31 were female and 30 were male. Each group began with 5 participants who had prior experience with chanting mantras, yoga, meditation, or biofeedback. Of the participants who completed the study, 3 in each group had such prior experience. The average age of participants was 24.7 years ( $SD = 7.75$ ), ranging from 18 to 49.

### **Intervention**

The intervention and placebo participants were all given strings of 109 beads (called japa beads), with one bead markedly larger than the others. The research team member had his or her own set of japa beads and demonstrated the chanting method for the participant. With the thumb and middle finger of

the right hand, the chanter held the large bead on either side. Then the participant chanted the mantra. After the mantra was completed, the participant moved one bead through the fingers so that he or she was holding the second bead from the large bead. Again the chanter repeated the maha mantra. In this way, the participant would chant one mantra for each bead, until 108 mantras had been chanted. This constituted one round of japa meditation. Japa could be performed in any circumstance. For instance, one may be sitting or walking. The essential instruction was that one attempts to be fully attentive to the chanting. The treatment group was taught to chant the maha mantra (“hare krishna hare krishna krishna krishna hare hare/hare rama hare rama rama rama hare hare”), and the alternate mantra group was taught to chant the alternate mantra (“sarva dasa sarva dasa dasa dasa sarva sarva/sarva jana sarva jana jana jana sarva sarva”). The sarva dasa pseudo-mantra was a theoretically meaningless combination of Sanskrit syllables concocted by the researcher. This alternate (or placebo) mantra was made up of the same syllabic pattern as the maha mantra. This was intended to control for the effects of syllabic pattern and to help isolate the effects of the mantras themselves. Members of both groups were instructed that this was an experiment on the efficacy of chanting the particular combination of words that they learned to chant. Participants were instructed to chant three rounds per day, which requires about 20 to 25 minutes per day, and participants kept a log of how many japa rounds they actually chanted each day.

## RESULTS AND DATA ANALYSIS

Effects of outliers were assessed and treated as directed in Nunnally and Bernstein (1994) and Cohen and Cohen (1983). By this assessment method, which considers percentage of scores that are more than two standard deviations from the mean, with about 5% expected to be outliers of this magnitude, and the similarity or difference of the signs of outlying scores, all data were retained for analysis.

Neither gender, tested by chi-square, or mean age, tested by one-way ANOVA, differed significantly between groups at the .05 level. Also, chanting frequency, as calculated from the chanting logs kept by the participants, did not statistically differ by group, as evaluated by *t* tests.

Cronbach's alpha for the five dependent measures, calculated from pretest scores, ranged from .82 to .94. The sattva subscale of the VPI had an alpha of .86, alpha for the rajas subscale was .82, and alpha for the tamas subscale was .87. For the ICS, alpha was .94, and for the GCS, alpha was .90. For each measure, the observed alpha was less than that reported in the literature. Still, all



of the scores were in the acceptable range, as Nunnally and Bernstein (1994) explain that, for group comparisons, an alpha of .70 is satisfactory.

The main hypotheses of this experiment were that chanting the maha mantra would decrease stress, depression, rajas, and *tamas* and would increase *sattva*, from pretest to posttest. These changes were additionally predicted to be significantly greater, at the .05 level, than any similar changes in the dependent variables occurring in the alternate mantra or control groups. Changes in pretest to follow-up scores were expected to be in the same direction as for pretest to posttest for each variable, although the changes for pretest to follow-up were predicted to be smaller than the pretest to posttest changes.

A repeated-measures MANOVA was performed to assess whether the overall effects of the different treatments (groups) resulted in a significant effect for the three-way interaction of Time  $\times$  Response  $\times$  Group. The repeated measures analysis included multivariate tests for time and treatment main effects, as well as their interactions, across responses. Effect sizes were calculated using  $R^2$ . Pillai's Trace (Type III sums of squares,  $F = 2.84$ ,  $p < .0003$ ;  $df = 20, 100$ ; proportion of variance explained [PVE] = .226) allowed the null hypothesis to be rejected. Contrasts within the multivariate model were performed to assess whether individual outcome measures were significant at both the posttest and follow-up periods. Table 1 shows the mean scores at each time period for each group.  $F$  test scores are also displayed in Table 1, with significant differences indicated by an asterisk (\*).

*ICS (stress)*. Table 1 shows that the means for the maha mantra group decreased on the ICS from pretest to posttest, and also from pretest to follow-up, although the follow-up mean was greater than the posttest mean, as predicted by the hypothesis. These changes for the maha mantra group were greater than changes for the other two groups. The pretest to posttest  $F$  score = 6.79,  $p < .05$ , PVE = .081. The pretest to follow-up  $F$  score = 4.81,  $p < .05$ , PVE = .077.

*GCS (depression)*. The means for depression from pretest to posttest show that, as hypothesized, the groups differ significantly, with the maha mantra group experiencing the largest drop in depression scores compared to the other two groups, a difference that was not observed at the follow-up period. The pretest to posttest  $F$  score = 13.17,  $p < .01$ , PVE = .185. The pretest to follow-up  $F$  score = 1.90, which is not a statistically significant result.

*VPI sattva*. According to the study's hypothesis, *sattva* was predicted to increase for the maha mantra group relative to the alternative mantra or

**TABLE 1: Analysis of Covariance of Posttest and Follow-Up Scores With Pretest Scores as the Covariate**

	<i>ICS (Stress)</i>		<i>GCS (Depression)</i>		<i>VPI Sattva</i>		<i>VPI Rajas</i>		<i>VPI Tamas</i>	
	M	SD	M	SD	M	SD	M	SD	M	SD
Pretest										
Maha	32.6	10.6	28.8	10.5	70.4	7.9	51.9	8.9	49.8	10.4
Alternate	36.6	19.3	32.0	12.3	67.3	8.3	56.2	7.7	52.3	10.6
Control	27.1	14.0	21.1	8.3	73.7	7.4	44.4	9.7	40.6	13.3
Posttest										
Maha	22.0	6.9	21.1	6.7	77.3	4.9	50.7	6.7	43.5	7.2
Alternate	40.4	23.2	30.4	15.6	66.4	9.1	51.4	9.3	49.1	10.7
Control	28.1	16.5	20.3	8.9	72.9	7.0	46.1	9.8	41.5	13.0
Follow-up										
Maha	25.8	8.8	24.1	10.1	72.0	6.9	53.5	10.7	46.2	7.5
Alternate	35.9	9.1	32.3	15.0	65.7	9.9	52.0	9.5	50.5	9.7
Control	28.3	14.3	21.5	9.1	73.8	6.9	45.0	9.9	40.3	13.1
<i>df</i>	1		1		1		1		1	
<i>F</i> test of posttest score	6.79*		13.17**		5.72*		1.40		8.96**	
<i>F</i> test of follow-up score	4.81*		1.90		.09		.71		4.99*	

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

control groups. The data supported this hypothesis from pretest to posttest, although not from pretest to follow-up. The pretest to posttest  $F$  score = 5.72,  $p < .05$ , PVE = .061. The pretest to follow-up  $F$  score = .09, which is not a statistically significant result.

*VPI rajas.* There were no significant results for rajas. The pretest to posttest  $F$  score = 1.40, and the pretest to follow-up rajas score = .71.

*VPI tamas.* The groups differed in tamas from pretest to posttest, and this difference was statistically significant. The large drop for the maha mantra group was also maintained with a significant difference between the groups in the pretest-follow-up comparison. The pretest to posttest  $F$  score = 8.96,  $p < .01$ , PVE = .118. The pretest to follow-up  $F$  score = 4.99,  $p < .05$ , PVE = .079.

#### DISCUSSION AND APPLICATIONS FOR SOCIAL WORK PRACTICE

A primary hypothesis of this study was that the maha mantra group would decrease stress more than the other groups at the .05 level from pretest to posttest. This was confirmed (see Table 1), with an  $R^2$  effect size of 8.1%. Results also confirmed the pretest to posttest hypothesis concerning depression, as the maha mantra group showed significantly decreased scores, with an effect size of 18.5%. Sattva predictions were also realized, as the maha mantra group increased sattva scores from pretest to posttest compared with both of the other groups, with an effect size of 6.1%. For tamas, the maha mantra group scores were significantly decreased from pretest to posttest, with an effect size of 11.8%. Results for rajas from pretest to posttest were not significant.

The results of this controlled trial provide some evidence that the maha mantra can significantly affect stress and depression change scores and can do so to a greater degree than an alternate (placebo) mantra. Similar results were found for the sattva and tamas modes of personality as described in Vedic theory.

These results largely support Vedic assertions about the maha mantra. An explanation for the nonsignificant rajas results is also found in the Vedas, where it is described that rajas is an intermediate mode between tamas and sattva (Wolf, 1999). Therefore, it is conjectured that some rajas transformed into sattva, as predicted by Vedic theory, but some tamas transformed into rajas, and thus the level of rajas remained constant.

Pretest to follow-up comparisons were significant only for stress and *tamas*, with effect sizes of 7.7% and 7.9%, respectively. Vedic theory (Prabhupada, 1976) suggests that when one withdraws from the association of the *maha mantra*, or any *sattvic* influence, the effects of *sattva* will diminish and effects of *rajas* and *tamas*, such as stress and depression, will increase. Follow-up results indicate that the effects of chanting did diminish after a 1-month follow-up period in which no chanting was performed.

Rosenthal (1997) explained that generalizability of a study is the degree to which similar findings will be observed in a different context or setting. As this study did not employ random sampling, the sampling method of the experiment does not allow statistical generalization to any population other than the 61 people who participated in the study. Generalizability is enhanced or reduced by replication studies, none of which have yet been performed for the *maha mantra*. Rosen et al. (1999) emphasize the importance of replicability of studies for contributing to a meaningful body of knowledge on the effectiveness of interventions. They defined a study as replicable when it was described in sufficient detail to enable its implementation with integrity by a practitioner not involved in the study. Detailed procedures are provided for the *maha mantra* study to facilitate replication so that this intervention can continue to be assessed.

Shortcomings of this study include reactive effects of the pretest, novelty effects, and experimenter effects. In this study, the researchers were aware of the group status of each participant and the researchers devised the alternate mantra. Therefore, experimenter effects must be considered. Researchers were part of the setting of the experiment, and it is possible that different results would be achieved with different researchers, thereby compromising the ecological validity of the study (Bracht & Glass, 1968). Another threat that needs to be recognized is that three members of the alternate mantra group had prior experience with yoga, mantras, meditation, or biofeedback, and it is possible that they sensed that the mantra they were chanting was not authentic, and their responses may have been influenced by this awareness.

Another drawback to this investigation is that it did not involve a randomly selected clinical sample. Therefore, practical significance of the statistically significant findings is difficult to determine. Although the random assignment of this investigation addressed some threats to internal validity, such as history and maturation, other threats, such as diffusion and resentful demoralization of participants receiving less desirable treatments, were not resolved by random assignment. Concerning internal validity, it should be noted that the alternate mantra had the same syllabic pattern as the *maha mantra*. This controlled for the effects of word pattern and served to isolate the effects of the mantras.

If a practitioner wishes to try the technique of chanting the maha mantra with a client, it is important that the client feels comfortable with the method and voluntarily agrees to practice the mantra. The practitioner can demonstrate how to chant the maha mantra according to the description provided in the intervention section of this article. As other interventions of Eastern origin have been incorporated into the mental health professions, the maha mantra can also be presented as potentially effective therapy, without reference to sectarian conceptions.

Applications of the maha mantra can include the same target problems that many other yoga, mantra, and meditational techniques have shown promise in treating. This japa study specifically dealt with stress and depression, both of which have been treated with various Eastern-style techniques. Janowiak and Hackman (1994) found that meditation is effective in relieving stress, and Kaye (1985) successfully used mantra therapy to relieve depression and anxiety in an elderly population. The literature reviews of Delmonte (1983) and Delmonte and Kenny (1985) concluded that mantras and meditation are effective in reducing anxiety and drug abuse and also in improving physiological indicators. Although Delmonte found that a mock mantra is as effective as any other mantra, the results of this japa study show that the maha mantra produced desirable effects that an alternate, or mock, mantra did not generate.

Stress is often regarded as the underlying factor in substance abuse and addictions (Ellis & Corum, 1994), which points to other potential uses for the maha mantra. Researchers such as Kremer, Malkin, and Benschhoff (1995) have been successful in using mantras and other yoga techniques in the prevention and treatment of substance abuse. According to Vedic theory (Prabhupada, 1976), substance abuse is indicative of *tamas guna*. This study indicates that the maha mantra decreased the level of *tamas guna*, suggesting that chanting may be specifically effective for prevention and treatment of drug abuse. Social workers with an inclination toward innovation and who feel comfortable with Eastern-style mantra meditation can apply the maha mantra to try to help clients with stress, depression, and related problems. Such experimental attempts can be evaluated for their success, thus providing additional information about the maha mantra's effectiveness in alleviating stress and depression.

Social workers are active in many fields, and yoga techniques are becoming increasingly popular in these fields. For example, medical social workers can note that Derr, Shaikh, Rosen, and Guadagnimo (1998) surveyed medical students and found that a majority of the students identified yoga as a beneficial complementary therapeutic technique. Cormier and Cormier (1997) describe yoga as an important and effective skill for mental health

professionals using behavioral interventions. Many hospice workers are trained and educated as social workers, and spirituality has been found to be an important component in hospice work (Millison, 1995). Lloyd (1997) urges social workers to broaden their perspective to incorporate the spiritual dimension of life, and he emphasizes that a spiritual perspective is especially important in social work connected with issues related to death and dying.

Cultural diversity is a key element of the social work profession (National Association of Social Workers, 1996) and this entails respecting the worldview and practices of cultures different from that of the social worker. In dealing with psychological issues, social workers should understand that Western paradigms may not be applicable for explicating and comprehending the psychology of indigenous peoples (Gergen, Gulerce, Lock, & Misra, 1996). Laungani (1993), in his examination of differences in cultural perspectives on stress, emphasized that in India people have been relying on yoga and mantra techniques to relieve stress long before the development of Western psychology. Familiarity with these techniques, such as chanting the maha mantra, will help social workers to appreciate and effectively work with persons from different backgrounds.

Future maha mantra japa studies can contain increased rigor, including elements such as a double-blind design, a clinical sample, and a larger sample size. Also, the alternate group could receive a treatment that has been proven effective, and then the researcher could assess whether the maha mantra is more effective in treating the target dependent variable than the other intervention. Maha mantra studies can be performed in various settings, with various populations, and tested with different target variables. For instance, from guna theory many dependent variables, such as anger control and relationship satisfaction, can be incorporated into a maha mantra study. Future studies can also experiment with different time periods for the intervention, such as 1 week, 8 weeks, or 12 weeks. In this way, the applicability and effectiveness of this technique can be evaluated across several dimensions.

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