

THE EFFECTS OF YOGA ON MOOD IN PSYCHIATRIC INPATIENTS

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The effects of yoga on mood were examined in 113 psychiatric inpatients at New Hampshire Hospital. Participants completed the Profile of Mood States (POMS) prior to and following participation in a yoga class. Analyses indicated that participants reported significant improvements on all five of the negative emotion factors on the POMS, including tension-anxiety, depression-dejection, anger-hostility, fatigue-inertia, and confusion-bewilderment. There was no significant change on the sixth POMS factor, vigor-activity. Improvements in mood were not related to gender or diagnosis. The results suggest that yoga was associated with improved mood, and may be a useful way of reducing stress during inpatient psychiatric treatment.

Yoga is a widely practiced form of meditation and relaxation, with approximately 20 million regular yoga practitioners in the U.S. and Europe (Feuerstein, 1998). While yoga enjoys widespread use in the general population, its utility for persons with severe psychiatric symptoms has received little attention. People with severe mental illnesses often experience prominent negative emotions (Bartels & Drake, 1989), cognitive difficulties (Heaton et al., 1994), sensitivity to stress (Nuechterlein & Dawson, 1984), and poor physical health (Dixon, Postrado, Delahanty, Fischer & Lehman, 1999). Many of these difficulties are worst during periods of psychiatric hospitalization, when symptoms are exacerbated and stress is high due to living in a highly controlled and confined environment. Yoga may be a promising activity that could lower the

stress of being in a hospital and distress due to persistent symptoms.

This study was conducted in order to evaluate the effects of a yoga program at New Hampshire Hospital. Yoga is one of a variety of different group activities offered at the hospital, with other groups focusing on skills training, psychotherapy, recreational activities, wellness, or work. Because of the use of yoga to reduce stress among persons in the general population, we hypothesized that participation in yoga would improve negative emotions among psychiatric inpatients.

Method

Participants

The participants were 113 psychiatric inpatients at New Hampshire Hospital (NHH). People were admitted to NHH

from any one of ten local community mental health centers in New Hampshire. The average length of stay for acute admissions was 10 days.

All information except psychiatric diagnosis was obtained via a self-report questionnaire. The gender composition included 59 (52.2%) women, 52 (46.0%) men; 2 participants (1.8%) were missing data on gender. Mean age was 27.7 ($SD = 12.83$) years old (range: 14-81). Diagnostic composition of the group included 43 (38.1%) mood disorder (including bipolar disorder, major depression, dysthymic disorder), 36 (31.9%) psychotic disorder (including schizophrenia, schizoaffective disorder, schizophreniform disorder, delusional disorder, brief reactive psychosis), 9 (8.0%) borderline personality disorder, 5 (4.4%) adjustment disorder, and 20 (17.7%) other.

Yoga Program

The Yoga Program has been in operation at NHH for the past 8 years. The program is based on the principles of Hatha Yoga, and is modeled after the program described by Kabat-Zinn (1990). Yoga is offered once per week and lasts approximately 45 minutes.

Yoga classes consist of gentle stretching and strengthening exercises done slowly with the attention focused on breathing and sensations that are experienced as the participants assume various yoga postures. Participants are guided through the sequence of postures, with their awareness focused on moving their bodies and limbs. Participants are grounded in the present moment by constantly refocusing on how their bodies are feeling.

All psychiatric inpatients were invited to participate in the Yoga Program. The format of the program included: *welcome* (introduction to the class), *centering* (awareness of present posture, attention to breathing), *warm-ups* (gentle movements to open major

joints and muscle groups), *classical yoga postures* (a sequence of yoga postures with focus on deep breathing, body sensation, relaxation, and gently pressing into the extremities of the body), and *relaxation* (lying in a comfortable position with attention on deep complete breathing and body sensations).

Measures

Changes in mood were evaluated with the Profile of Mood States (POMS) (McNair, Lorr & Droppleman, 1992). The POMS is a 65-item self-report questionnaire in which individuals rate their current mood on 5-point scales ranging from "not at all" to "extremely." Factor analyses of the POMS have yielded six factors, including tension-anxiety, depression-dejection, anger-hostility, fatigue-inertia, confusion-bewilderment, and vigor-activity. The first five factors are scored negatively (higher scores correspond to more negative emotions). The sixth factor (vigor-activity) is scored positively (higher scores correspond to greater vigor).

Procedure

When participants arrived for the class the POMS surveys were already placed on the mats and chairs. An explanation of the survey was read out loud, which explained that the hospital (NHH) was using the information from the survey

for quality assurance purposes (the survey was approved by the State of New Hampshire Institutional Review Board). The survey included basic demographic information and the POMS. Participants were informed that they could participate in the Yoga Program without completing the survey. Participants were invited to complete the POMS before and after the yoga session.

Results

In order to evaluate changes in the POMS subscales from before the yoga class to after the class, paired *t*-tests were computed for the first class attended by the participants. The results of these analyses are summarized in Table 1. Inspection of the table indicates that participants reported statistically significant improvements in all five of the negative emotion factors on the POMS: tension-anxiety, depression-dejection, anger-hostility, fatigue-inertia, confusion-bewilderment. In contrast, the sixth factor, vigor-activity, did not change significantly from before to after the yoga session.

Participants were able to be in as many yoga sessions (conducted weekly) as they chose. Among the 113 participants who participated in at least one group

TABLE 1—CHANGES IN PROFILE OF MOOD STATES (POMS) SUBSCALES FROM BEFORE FIRST SESSION TO AFTER FIRST SESSION

POMS Subscale	Before Session Mean (SD)	After Session Mean (SD)	<i>t</i> -value	<i>p</i>
Tension-Anxiety	5.70 (4.77)	3.33 (4.44)	6.67	.000*
Depression-Dejection	5.56 (5.17)	3.31 (4.35)	6.82	.000*
Anger-Hostility	4.36 (4.64)	2.34 (4.29)	5.63	.000*
Fatigue-Inertia	5.75 (5.36)	3.16 (4.5)	6.51	.000*
Confusion-Bewilderment	6.42 (4.12)	4.95 (3.37)	5.12	.000*
Vigor-Activity	8.22 (5.16)	8.85 (5.04)	1.41	.16

* Meets Bonferroni Bounds correction for multiple statistical tests at $p < .05$ level.

and who completed pre-post POMS ratings, 38 (33.6%) participated in two or more groups and completed another set of pre-post POMS ratings. To evaluate changes in mood for participants who were in more than one yoga session, we conducted a similar set of paired *t*-tests to that described above comparing the POMS ratings before and after the *last* yoga class in which they participated. The pattern of results was nearly identical to that found for the first group: *t*-tests were significant for all five of the negative emotion factors on the POMS (*ts* = 4.75, 4.11, 3.54, 4.69, 2.67) for tension-anxiety, depression-dejection, anger-hostility, fatigue-inertia, confusion-bewilderment, respectively, *dfs* = 37, *ps* < .01, whereas the sixth factor, vigor-activity, did not change significantly from before to after the last yoga session, *t* = 1.49, *df* = 37, *ns*. Thus, participants showed similar improvements in negative mood from before to after their first yoga class as before and after their last yoga class.

To evaluate whether gender or diagnosis (mood disorder vs. psychotic disorder) were differentially related to changes in mood in the first yoga session, we performed six repeated measures analyses of variance, with the pre-post POMS subscales as the repeated dependent variables, and gender and diagnosis as the independent variables. Significant gender by time, diagnosis by time, or gender by diagnosis by time interactions would indicate differential rates of change on the POMS subscales as a function of gender or diagnosis. None of the interaction effects from these analyses were significant, indicating that both men and women, as well as people with mood and psychotic disorders, reported comparable improvements in mood from before to after the yoga class.

Discussion

The findings indicated that participation in the Yoga Program was associated with significant improvements in the five negative emotions subscales on the POMS (tension-anxiety, depression-dejection, anger-hostility, fatigue-inertia, confusion-bewilderment), whereas the sixth subscale (vigor-activity) did not change significantly. The fact that one POMS subscale did not change, in contrast to the others, suggests that participants' responses to the POMS were specific to negative emotions, and did not reflect a general response bias in completing the POMS. Finally, participant gender and diagnosis were unrelated to improvements in negative mood, suggesting that all the inpatients were able to benefit equally from yoga.

Participants who attended more than one class showed similar benefits in mood from the first to the last class. This finding raises the question as to why greater benefits of yoga were not observed in participants who participated in more than one yoga class, as might be expected when people learn more about how to do yoga. It is possible that the relatively small sample size of individuals who participated in multiple classes limited the statistical power to detect greater improvement in mood with more yoga experience. Alternatively, taking a break from the routine of inpatient treatment, and sharing in a relaxing, non-socially demanding experience may confer major benefits in terms of negative mood, even in the absence of formal learning of yoga techniques. More research is needed to address this intriguing question.

The findings provide support for the feasibility of conducting yoga classes in inpatient settings with acutely ill and long-term ill individuals. Furthermore, participation in the class was associat-

ed with significant improvements in negative moods from before to after the class, including reductions in confusion, and these improvements were evident in both the first and the last class people participated in. These results are consistent with the beneficial effects of yoga on mood reported by people in the general population (Arpita, 1990), and suggest that yoga may be a useful adjunctive treatment for people receiving psychiatric inpatient treatment.

The present study was not a controlled study, and thus it is possible that the observed improvements in negative mood could be attributed to factors other than participation in the Yoga Program, including demand characteristics (i.e., participants reporting improved mood following yoga because they believed they were expected by staff to report such improvements). It is also possible that another type of relaxation group not based on the principles of yoga would produce similar benefits in mood. However, the positive results of this study support the feasibility and possible benefits of yoga, suggest that controlled research to evaluate the effects of yoga on mood in psychiatric inpatients is warranted. In addition to more rigorously evaluating the effects of yoga on mood in psychiatric inpatients, controlled research should examine the possible longer-term effects of participation in yoga on client behavior in the hospital. For example, it is possible that participation in yoga is associated with fewer requests for p.r.n. medication, assaults, and need for seclusion and restraint due to reduced stress levels.

The present study provided encouraging results for the potential role of yoga in an inpatient psychiatric setting. There is a pressing need for more research to establish which therapeutic activities are most beneficial for psychiatric inpatients. Controlled research

is needed to examine the effects of yoga in hospitalized persons.

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