Abstract

**Purpose:** To examine the effect of Raja-yoga group therapy on the immediate well-being of psychiatric outpatients compared to a standard method, namely supportive-dynamic group psychotherapy.

**Methods:** Seventy-two psychiatric outpatients, the subjects, with DSM IV-R mood, anxiety and other disorders, underwent group therapy utilizing Raja-yoga treatment. The current Axis V GAF scores of the subjects were between 55 and 70. The principal author, a psychiatrist led the treatment, which consisted of teaching the philosophy of Raja-yoga, its breathing exercises (pranayama), a few of its postures, and meditation. The subjects rated their sense of well-being at the start of and at the end of each session, on a subjective, Likert scale. The same psychiatrist also treated a group of seven private psychiatric outpatients, who served as controls, with supportive-dynamic group psychotherapy. They had DSM IV-R mood and anxiety disorders. The current Axis V GAF scores of the controls were between 60 and 70. Self-reported scores of well-being of the controls were collected in the same manner. The differences in scores in the two groups were compared statistically.

**Results:** Subjects attended an average number of 5.5 sessions. Controls attended an average of 7.7 sessions. Subjects experienced an average improvement in well-being of 34%, whereas controls experienced an average improvement of 8%. Age, gender, ethnicity, diagnosis, or the number of treatment sessions did not predict the effectiveness of the Raja-yoga group therapy but a low baseline score of well-being did. There was no predictor revealed for effectiveness in the controls.

**Interpretation:** Raja-yoga group therapy conferred an immediate, substantial improvement on psychiatric outpatients' sense of well-being, much more so than supportive-dynamic psychotherapy. To our knowledge, such data are previously unreported. We propose that Raja-yoga treatment shows promise as an alternative form of group psychotherapy.

**Key words**

Group Therapy; Pranayama; Psychiatry; Psychotherapy; Raja-yoga; Immediate; Well-being

**Introduction**

Originating in ancient India, yoga is a complex discipline of philosophy, physical exercise, breath-practices and meditation. In developed countries, yoga is now well embraced as a modality for supporting better health. Yoga's benefits are being uncovered in scientific studies, continually. Yoga helps to alleviate a wide spectrum of physical and mental conditions, such as asthma [1], hypertension [2], insulin-resistance and cardiovascular disease [3], chronic pain [4], cancer [5], immune disorders [6], infection [7], depression [8], anxiety [9], posttraumatic stress disorder...
The breathing component of yoga practice is called pranayama. Studies on pranayama suggest that its benefit is through activation of the parasympathetic system via vagal mechanisms, and via stretch receptors in respiratory muscles [13]. Additionally, the pranayamas also improve certain neuropsychiatric parameters [14-21], with benefits being immediate [17-20].

Mindful of such benefits of yoga and heeding the call for additional treatments to reduce morbidity and mortality of psychiatric patients [22], the principal investigator (J. Bhopal), a psychiatrist, who has practiced psychiatry since 1995, developed a Raja-yoga group therapy program, in 2013, as an alternate therapy for patients at the Psychiatric Outpatient Department of Richmond Hospital, BC, Canada. An audit of the project is presented here.

Methods

The Research Ethics Board of the University of British Columbia approved the study. This being a retrospective audit, the study data, including demographics and self-reported scores for treatments were collected from patients’ charts. The data in both subjects and controls pertain to the period 2013-2015.

Subjects were referred by the Psychiatric Outpatient Department of Richmond Hospital, BC, Canada, or by physicians in the local community. Inclusion criteria included age 19 years of age or older, and psychiatric diagnoses of DSM IV-R mood disorders, anxiety disorders, pain disorder, ADHD, and stable schizophrenia. Exclusion criteria were active psychosis, active addiction, and active suicidal ideation or behaviour.

The controls were from the principal investigator’s private outpatients. Controls had DSM IV-R mood and anxiety disorders. The same psychiatrist, namely the principal investigator, treated both the controls and the subjects. The controls received long-term supportive-dynamic group psychotherapy. Both the controls and the subjects concurrently received routine psychiatric care (i.e., medications, etc.). The DSM IV-R Axis V Global Assessment of Functioning Scale (GAF) was employed to assess the level of psychiatric impairment in both the subjects and the controls.

The subjects and the controls received 120-minute long, weekly sessions of group treatment. The number of participants in each group session ranged from 7 to 10. Our data on well-being consists of self-reported scores. This is comparable to other studies on yoga where self-reported scores are generally utilized [4,8,9,10,11,12]. Indeed, well-being is a subjective phenomenon.

The agenda of each type of session was as below:

The Raja-yoga 120-minute group session was structured as follows

1. 2 minutes : At the start of the class the subjects were asked to rate their sense of well-being on a Likert scale of zero to 10, where zero is suicidal and 10 is optimally well.
2. 8 minutes : Introductions, where the subjects exchanged names and briefly stated their issues.
3. 5 minutes : The subjects chanted the word Om in unison.
4. 10 minutes : The subjects hummed the hum of the bumblebee, called braahmari, in unison.
5. 8 minutes : Practice of the technique of equal in-out breathing, called bhastra. This practice was encouraged continually during the physical yoga exercises, and the meditation.
6. 20 minutes : The therapist outlined, didactically, the theory and practices of the eight steps of Raja-yoga, namely: a. Pro-social behaviour, termed yam. b. Self-care, niyam. c. The yogic physical exercises, asanas. d. The breath exercises, pranayamas. e. The practice of withdrawing the senses, termed pratihaara, done in a lying down posture. f. Selection of a focus for meditation, termed dharana. g. Continuous attention on the selected focus, termed dhyana. h. Visualizing a state of consciousness of “oneness”, termed samadhi. The latter was practiced near the end of the class, for fifteen minutes in “dead man pose”, known as shavasana.
7. 10 minutes : Comfort break.
8. 10 minutes : The yogic physical exercises, asanas.
9. 10 minutes : Alternate nostril breathing, termed anulom vilom.
10. 5 minutes : Sniffing out, termed kapaal baati.
11. 5 minutes : The breath of victory, termed ujayee.
12. 20 minutes : “Dead man pose”, known as shavasana.
13. 5 minutes : Laughter yoga.
14. 2 minutes : At the end of the class the subjects were asked to rate their sense of well-being on a Likert scale of zero to 10, where zero is suicidal and 10 is optimally well.

The subjects were given instruction booklets outlining the daily homework of the practices to be done between the weekly sessions.

The 120-minute control group session was structured as follows:

1. 2 Minutes : At the start of the session, controls were asked to rate their sense of well-being on a Likert scale of zero to 10, where zero is suicidal and 10 is optimally well.
2. 55 minutes : Introductions, where the controls exchanged names and spoke of their issues, for approximately 6
minutes each.
3. 6 minutes : Comfort break.
4. 55 minutes : The therapist explored psychodynamics using the “here and now” and “there and then” technique.
5. 2 minutes : At the end of the session, controls were asked to rate their sense of well-being on a Likert scale of zero to 10, where zero is suicidal and 10 is optimally well.

Statistical analyses
Statistical analyses of the collected data were performed using SPSS. The differences in intra-group and inter-group scores were analyzed by the paired Student’s t test, Wilcoxon rank-sum test, and Mann-Whitney U test. Potential predictors for treatment effectiveness were analyzed by linear regression, Pearson correlation coefficient, ANOVA, the paired Student’s t test, and the Wilcoxon rank-sum test.

Results

Demographics
The mean age and range, gender, ethnicity, and the DSM IV-R diagnoses are shown in Table 1.

Comparison of the effectiveness of the two group treatments
We compared the mean scores of pre-session and post-session well-being (*= statistically significant, p=0.000) for both the subjects and the controls. Table 2 shows the results. Each session of Raja-yoga group resulted in a 34% reported mean improvement in well-being scores in the subjects (pre-session scores vs. post session scores 5.6 vs. 7.5, p<0.000, paired Student’s t test), By contrast, each session of the control group resulted in an 8% reported mean improvement (pre-session scores vs. post session scores 5.8 vs. 6.3, p<0.000, Wilcoxon rank-sum test). This was a four-fold higher effectiveness in the subjects compared to the controls (34% vs. 8%, p<0.000, Mann-Whitney U test).

Predictors of the effectiveness of Raja-yoga
Univariate analysis of all parameters (such as age, gender, ethnicity, diagnosis, the total number of the sessions attended, baseline score of well-being at the beginning of each session, and post class score of well-being at the end of each session) revealed that the baseline score of well-being was the only predictor for effectiveness in the subjects (negative predicting value) [Table 3]. There was no predictor revealed for effectiveness in the controls.

Interpretation
Our study showed a striking intra-sessional improvement in subjects’ well-being of 34%, even from the very first session. By contrast, there was only an 8% intra-sessional in the controls.

Why such a difference? We propose the following reasons:

The main foci of each Raja-yoga session were on the breathing element and meditation. Both of these induce calming. However, the
The effect of the Raja-yoga group therapy was the same regardless of age, gender, ethnicity, diagnosis, and the total number of sessions attended. Interestingly, there was an inverse correlation between the effectiveness of the Raja-yoga group therapy with the baseline well-being score. A lower baseline score yielded greater improvement at the end of the session. In other words, subjects who had less well-being at the beginning of a Raja-yoga session benefited more than those who had higher initial well-being. This finding may be compared to medication therapies. Generally speaking, those patients with moderate-severe psychiatric illness stand to gain more from medications than do those with mild illness. A difference here is that, apart from benzodiazepines, most psychotropic medications do not confer an immediate sense of well-being. Indeed, many psychotropic medications induce unpleasant side effects before delivering benefits. On the contrary, Raja-yoga group therapy, when practiced properly, does not have the disadvantage of adverse effects.

In comparison, the main foci of the control group, the supportive-dynamic psychotherapy, were different. Supportive-dynamic psychotherapy has a noble two-fold approach. Firstly, the supportive element is aimed at giving immediate relief from emotional distress. Secondly, the dynamic component is designed to enhance insight. The latter requires active analysis by the therapist, which the patient often experiences as a psychological intrusion. Hence, this act of the therapist may cause distress to the patient. Such distress could explain the lower resultant well-being at the end of the session.

The differences in our results could also be due to the possibility that the therapist might have been more experienced in Raja-yoga therapy than in supportive dynamic therapy. However, this is unlikely, as the therapist had over 20 years of experience in practicing supportive-dynamic therapy.

Attendance rates were challenging, as they often are in psychiatric outpatient clinics. Despite this, the Raja-yoga group therapy program was popular with patients. Many patients, who had heard of the program, asked to be referred to it. The psychiatrists in the department also showed great interest. One psychiatrist, who was not involved in the study, expressed a desire in starting a similar program in the inpatient ward. Certainly, Raja-yoga therapy brings an eclectic and exciting promise as an alternative form of psychotherapy.

Raja-yoga is a complex discipline. While a deep appreciation of the philosophy of Raja-yoga might take a lifetime to develop, we noted that 20 minutes of didactic explanation, at each session, provided sufficient impetus to subjects to change their philosophy of life in terms of pro-social behavior, self-care, and meditation.

Future research efforts could examine various factors such as the reproducibility of our results, the feasibility of introducing such programs into routine psychiatric care, and the durability of Raja-yoga group therapy. Unanswered questions include: what is the dose required for optimal effect, what is the extent of compliance with homework, and are the techniques of this novel form of treatment teachable to psychiatric professionals?

**Conclusion**

Psychiatric outpatients undergoing Raja-yoga group therapy reported a striking, immediate improvement in well-being compared to a control group undergoing supportive-dynamic psychotherapy.

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