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Development of an Integrated Psychosocial Treatment to Address the Medical Burden Associated with Bipolar Disorder

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Abstract

We developed an integrated psychosocial treatment for bipolar disorder to decrease the disproportionate medical burden associated with this illness. Three treatment modules, Nutrition/weight loss, Exercise, and Wellness Treatment (NEW Tx) were administered in twelve 60-minute group sessions over 14 weeks. After the first group ($N = 4$) had completed the treatment, it was revised, and then a second group ($N = 6$) completed the revised treatment. Participants completed all of the study assessments and attended 82% of the sessions. Both groups added over 100 minutes of weekly exercise to their baseline duration. Participants in the second group showed improvements in their quality of life, depressive symptoms, and weight. It appears that NEW Tx may be a feasible intervention with promising pilot data for reducing the medical burden in bipolar disorder, but future research is needed to further evaluate the efficacy of NEW Tx.

Keywords

bipolar disorder; psychosocial treatment; diet; exercise; cognitive-behavioral therapy

Individuals with bipolar disorder (BD) are at higher risk than the general population for developing comorbid medical conditions, such as diabetes, hypertension, hyperlipidemia, and obesity. These medical conditions increase the risk for cardiovascular disease^{1–4} and are associated with high rates of morbidity and mortality^{5,6} and medical visits and admissions,⁷ while complicating the treatment and course of BD.^{8,9} Moreover, the medical burden associated with BD appears to be increasing with the growing use of second-generation antipsychotics with their risk of metabolic syndrome.^{10–12} Experts highlight the need for better assessment and monitoring of somatic health issues and medical burden as well as use of behavioral interventions to reduce this burden in BD.^{13,14}

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This medical burden may be due in part to the poor eating and nutritional habits of individuals with BD,^{15,16} who tend to have fewer than two meals per day and to consume more carbohydrates, sucrose, and sugared beverages than the general population, and who report difficulty obtaining or cooking food. These behaviors increase the likelihood that individuals with BD will consume unhealthy pre-packaged or prepared foods. Interventions aimed at increasing healthy, nutritious eating have produced better outcomes in both clinical¹⁷ and non-clinical¹⁸ populations. In addition to nutritional deficits, individuals with BD are more likely to be obese compared with the general population, with 38% of individuals with BD being overweight and 29% being obese.¹⁹ Research examining the use of adjunctive pharmacologic strategies to treat weight gain associated with psychotropic medications for BD have found only limited benefit.²⁰ Data concerning use of such strategies in samples with pediatric bipolar disorder²¹ and schizophrenia²² have been even less promising. Thus, adjunctive psychosocial interventions have become increasingly important in addressing the behavioral antecedents that lead to poor nutrition and overeating.²³

Individuals with BD also tend to have a sedentary lifestyle, which contributes substantially to their medical burden¹⁶ and increases their morbidity and mortality.²⁴ Exercise has been demonstrated to improve a number of important risk factors, such as cardiorespiratory fitness, weight, high-density lipoprotein cholesterol level, and fasting insulin level.^{25,26} Exercise may be dually beneficial for individuals with BD because it has also been found to improve mood. Two recent meta-analyses found that exercise for unipolar depression was superior to no treatment at all, and was as efficacious as other empirically-supported psychotherapies.^{27,28} However, many of these studies had several methodological limitations, such as not assessing outcomes at baseline, not standardizing the treatment, having small sample sizes, and lacking a control group as well as feasibility and acceptability measures. In one larger, well controlled study in a sample of patients with unipolar depression, exercising 3 days/week for 45 minutes was found to be as effective in reducing depressive symptoms as an antidepressant (i.e., sertraline),^{29,30} and recent research has provided preliminary support for a therapeutic role of physical activity in samples of patients with BD.³¹ Given the duality of benefits that exercise appears to have for mental health, psychosocial interventions to increase lifestyle activity are needed.

The goal of this study was to develop an integrated psychosocial treatment to reduce the disproportionate medical burden in individuals with BD. The intervention is composed of three modules: Nutrition/weight loss, Exercise, and Wellness Treatment (“NEW Tx”). NEW Tx builds upon previous empirical studies of diet and exercise interventions in healthy populations and the limited literature on lifestyle modifications in populations with BD. The wellness module uses cognitive-behavioral therapy (CBT) strategies for BD to enhance healthy lifestyle choices and increase adherence to the nutrition and exercise modules. We pilot tested NEW Tx in a group format, revised the treatment, and then pilot tested the revised NEW Tx in a second group. Data from both groups are presented in this article.

METHOD

Participants

Adult participants (18 to 64 years of age) were recruited from the Massachusetts General Hospital Bipolar Clinic and Research Program (Table 1). Participants were required to have a primary diagnosis of bipolar I or II disorder (as diagnosed by the Mini International Neuropsychiatric Interview [MINI Plus]).³² Participants who were currently in a mood episode (as measured by the Clinical Global Impression for Bipolar Illness [CGI-BP])³³ were not excluded, unless their mood symptoms necessitated a higher level of care. Participants with contraindications to exercise or diet interventions, including pregnant women and

patients with neurological disorders or who had been diagnosed with a comorbid eating disorder in the past month, were excluded. Participants completed the Physical Activity Readiness Questionnaire (PAR-Q)³⁴ to determine whether they could safely participate in exercise. If participants endorsed an item on the PAR-Q, we obtained approval from their primary care physicians for them to be enrolled in the study.

Six participants (Group 1) were recruited and signed consent to participate in a “wellness study” to assist in making “healthier lifestyle choices.” Of those six patients, one dropped out of the study after the first group and a second participant did not come to the first group, attended the second, and then dropped out stating that she was “not ready” to focus on making healthier lifestyle choices. The remaining four participants were included in the Group 1 analyses.

After revising the NEW Tx manual based on participant feedback and discussion among the coauthors, we conducted a second NEW Tx group (i.e., Group 2; modifications to treatment discussed below). For Group 2, eight participants were recruited from the Bipolar Clinic and Research Program and signed consent. Of those, two participants dropped out after the first group. The remaining six participants were included in the final Group 2 analyses (Table 1).

Procedure

Both Groups 1 and 2 followed the same study procedures. Participants who were already established patients in the Bipolar Clinic and Research Program were recruited based on their interest in joining a “wellness group.” Participants met with a psychologist who completed the MINI Plus to confirm their bipolar I or II diagnoses. Prior to the first group (week 0), participants completed a structured interview with trained raters as well as self-report questionnaires, and their vital signs were recorded. Assessment visits were also scheduled at mid-treatment (Week 7) and post-treatment (week 14). Exercise duration, weight, and waist circumference were assessed at each study visit.

Description of Intervention

Each group of NEW Tx included twelve 60-minute sessions over 14 weeks. NEW Tx is composed of the following three modules: Nutrition/weight loss, Exercise, and Wellness. The nutrition module is covered first, followed by the exercise module, while the wellness strategies are integrated throughout the treatment. All treatment sessions began with a review of the homework, or weekly goals from the previous session, which involved active engagement of each participant. The discussion, which lasted approximately 10 minutes, involved reinforcing accomplishment of goals as well as validating obstacles to these goals and then engaging in a group discussion of problem-solving strategies. After this initial discussion, the group sessions typically began with approximately 15 minutes of psychoeducation to introduce the topic, or skill, for the session and explain why the topic was important for the patients’ diet and exercise program. The majority of the session (i.e., 30 minutes) was reserved for group participants to ask questions about the rationale for the group and to identify potential obstacles to using the skill, as well as strategies to help them overcome those obstacles. This allowed for the material to be disseminated in a flexible way that was personalized to meet individualized needs and to facilitate the application of the material in the patients’ own lives. Thus, the 60-minute group sessions allowed for discussion of module-specific material while also permitting the group leaders to address individual participants’ problems when they arose (e.g., a participant feeling depressed and not meeting his or her weekly goals). CBT strategies (as discussed in more detail below) were used throughout the session by the group leaders to counter negative automatic thoughts about the treatment or about diet, exercise, and weight loss and maladaptive behaviors. In addition, the group leaders encouraged and were responsive to feedback from

participants to further the collaborative nature of the treatment as well as to make modifications to improve the treatment (discussed in more detail below). An overview of each module is presented below.

N: Nutrition/weight loss module—To enhance nutrition and promote healthy food choices, we reviewed nutritious foods (e.g., those that are high in vitamins and minerals and low in fat) in each of the food groups as well as taught participants how to calculate serving size to improve portion control. We discussed the importance of a “balanced diet” and how to make the right choices to ensure one is eating such a diet and obtaining essential vitamins and minerals, particularly those that may be beneficial for mood disorders. We also discussed which types of foods are unhealthy and why, in order to improve the likelihood of participants making healthy food choices. For example, during the third session, we brought a variety of labeled foods to the group and asked participants to name their food group as well as to predict (while blinded to the food labels) which foods were higher in calories, fat, carbohydrates, and protein. In this way, while reviewing the calorie content of foods, we were also able to reinforce the components of the nutrition module and help participants make healthy food choices. Weight loss was tracked weekly, and food diaries were used to monitor the foods and calories participants consumed on a daily basis. Participants identified a daily goal for caloric intake that would help them achieve a healthy and realistic weekly weight loss goal. We used CBT to challenge negative thoughts about the food diaries.³⁵ We also discussed positive coping strategies, or distraction activities, to replace food as a way to improve mood or “comfort” oneself. We also used psychoeducational materials and behavioral strategies (e.g., reward charts) to enhance adherence. We collaboratively set homework and weekly goals at the end of each session.

E: Exercise module—The goal of this module was to reach a healthy level of weekly exercise—exercise of moderate intensity, 5 days/week, for 30 minutes each day.³⁶ This module began by discussing the importance of and rationale for exercise. We reviewed evidence that exercise is particularly important in enhancing mood. We also discussed ways of increasing lifestyle activity (e.g., taking the stairs, standing instead of sitting, walking to the store). In this way, we approached exercise not as a task requiring sustained or extreme energy, concentration, and motivation, but as a more casual experience, which can last for a relatively short period of time and still be helpful. This paradigm shift in conceptualizing exercise as lifestyle activity is very important for individuals who have a vulnerability to think negatively about themselves, their world, and their future. In this module, we used CBT to challenge negative thoughts about exercising, which for individuals with BD is often their most significant obstacle to increasing their activity.^{35,37} We created charts to identify positive or adaptive rewards (e.g., taking a shower or bath, getting a manicure, having a favorite food or beverage in moderation) to help motivate patients to engage in their weekly exercise goals as well as discussed participants’ obstacles to adhering to these goals.

W: Wellness—This module was composed of CBT-based sessions (i.e., cognitive restructuring, problem-solving strategies) that focused on reinforcing the importance of making healthy decisions (e.g., with regard to food choices, exercise, caffeine, smoking) and increasing adherence to the nutrition and exercise modules. For example, we discussed that having five to six smaller meals throughout the day is an ideal meal plan, because it is more nutritious and would enhance their routine and energy level, as opposed to using caffeine or smoking as stimulants. We also focused on other lifestyle choices, such as explaining to participants that exercise reduces the craving for smoking³⁸ and substances³⁹ and also seems to act as a buffer against substance abuse.⁴⁰ Similarly, we encouraged participants to choose a feasible time every other day to exercise and to use adaptive rewards when they met exercise and diet goals. In this module, we also discussed important aspects of behavioral

activation, such as balancing mastery and pleasurable tasks and setting appropriate mood-dependent schedules. An important aspect of enhancing healthy lifestyle choices is accounting for mood-specific shifts in activation. Thus, we stressed the importance of having two feasible choices or plans—one for elevated moods and one for depressed moods. Both plans emphasized structure and healthy coping behaviors, but the activities varied. We also used reward charts to reinforce healthy decisions and cognitive re-structuring worksheets tailored specifically to challenge negative thinking related to participating in a diet and exercise intervention

Modifications to Treatment after NEW Tx Group 1

After we ran the first pilot group, the investigators met to revise the treatment based on the implementation of NEW Tx in Group 1 and feedback from the participants. We made several modifications. First, we removed two sessions from the nutrition/weight loss module and added them to the exercise module because participants in Group 1 had reported feeling “unsupported” in their exercise goals. Second, we added more CBT skills to the wellness module to increase adherence to the nutrition/weight loss and exercise modules. For example, we increased the assignment of cognitive restructuring tasks for homework to focus on changing negative thoughts about diet and exercise interventions. We also spent more time in session identifying rewards, to ensure that each participant had a feasible reward for each weekly goal. Third, we made goal-setting more of a group activity, so that, in Group 2, each participant identified one reward and one weekly goal in session. Fourth, we incorporated more motivational interviewing techniques to help individuals gain insight into their unhealthy behaviors and the need for change.⁴¹ Finally, the group leader gave more individual feedback during Group 2.

Assessments

Mini International Neuropsychiatric Interview (MINI Plus)—The MINI Plus³² is a short, structured diagnostic interview that is administered by a clinician and assesses for the presence of the major Axis I psychiatric disorders in the DSM-IV and ICD-10. It takes time frames into account by specifying current or lifetime disorders. The MINI is well-validated against both the Structured Clinical Interview for DSM-IV (SCID) and the Composite International Diagnostic Interview (CIDI).^{32,42,43}

Clinical Global Impressions Scale-Bipolar Version (CGI-BP)—The CGI-BP⁴⁴ is a modified version of the CGI designed specifically for use in assessing global illness severity and change in patients with BD. The CGI-BP has two subscales: The CGI-Severity scale, which indicates current severity of bipolar illness, and the CGI-Improvement scale, which indicates change in severity of illness from the rating at the baseline study assessment. Severity scores are given based on the clinician’s cumulative experience with the disorder, and range from 1 (not at all ill) to 7 (the most severely ill).

Montgomery Asberg Depression Rating Scale (MADRS)—The MADRS⁴⁵ is a 10-item clinician-rated measure of depression that is used to examine the extent of each patient’s current depressive symptoms. Scores range from 0 to 60, with higher scores indicating greater depression severity. The validity, reliability, and sensitivity to change of the MADRS are high and it is one of the most commonly used instruments in clinical trials for assessing depression.⁴⁶

Young Mania Rating Scale (YMRS)—The YMRS⁴⁷ is a commonly used clinician-rated measure for assessing the severity of DSM-IV symptoms of mania or hypomania. The YMRS is sensitive for measuring change during the course of treatment. It is the most

widely used instrument for assessing mania symptoms, and its reliability and validity are high. Scores range from 0 to 56, with higher scores indicating more symptoms of mania.⁴⁷

Physical Activity Readiness Questionnaire (PAR-Q)—The PAR-Q³⁴ is a self-report instrument that indicates whether it is necessary for someone to check with his or her physician before that person is encouraged to increase daily physical activity. Study participants completed this instrument prior to enrolling in the group.

Psychological Well-Being Scale (PWBS)—The PWBS⁴⁸ is a validated 84-item self-report questionnaire designed to examine six dimensions of psychological well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (see Ryff 1989⁴⁸ for a more detailed description of these subscales). Participants indicate on a 6-point Likert scale (i.e., “strongly agree” to “strongly disagree”) the extent to which statements are true of them. Higher scores on each subscale indicate greater well-being in that dimension.

The Range of Impaired Functioning Tool (LIFE-RIFT)—The LIFE-RIFT⁴⁹ is a clinician-rated scale that assesses psychosocial functioning in multiple domains. The items provide information about work, employment, household duties, student work, interpersonal relations with family and friends, recreation, overall life satisfaction, and global social adjustment. The LIFE-RIFT is a validated measure and has internal consistency and reliability.^{49,50}

Quality of Life—The Quality of Life Self-Assessment was used as part of Brownell’s Lifestyle, Exercise, Attitudes, Relationships and Nutrition (LEARN) Program for Weight Management.⁵¹ Brownell recommended that participants complete this assessment at pre-treatment, at the midpoint in treatment, and post-treatment to determine if their “feeling about various aspects of current daily quality of life”⁵¹ improves over the course of the weight management program. This self-report questionnaire contains 12-items that are scored on a 9-point Likert scale (from “extremely dissatisfied” to “extremely satisfied”), with higher scores indicating greater satisfaction with their life.

Exercise Questionnaire (EQ)—The EQ assessed participants’ type and duration (in minutes) of exercise; it was administered at each study visit.

Statistical Analyses

Data for each group were analyzed separately. Chi-square analyses were used to examine differences between the two groups (Table 1). We used matched pairs t-tests to examine improvement post-treatment compared with baseline (Tables 2 and 3). These analyses were repeated using the Wilcoxon matched pair non-parametric analysis, a more conservative analysis of non-parametric data.

RESULTS

Group 1

Participants in Group 1 ($N = 4$) completed all of the study assessments and attended 87.5% of the NEW Tx sessions. Over the course of the study, participants in Group 1 nearly doubled their weekly exercise from baseline, adding on average 111.3 minutes. There were no significant changes in any of the outcome measures, but three of the four participants had clinically meaningful improvements in life functioning (as measured by the LIFE-RIFT, mean change score = 7) with their post-treatment scores (< 9) indicating that they were “in recovery” at completion of the study.⁴⁹ Three of the four participants also lost weight over

the study period. The one participant who had an increase in her LIFE-RIFT score from mid- to post-treatment, indicating a decrease in life functioning, was also the one participant who gained weight, which occurred during a 2-week trip to Europe in weeks 8–10 of the intervention. Thus, she reported feeling “very guilty,” upon returning to the group as she had gained weight and decreased her lifestyle activity. This weight gain and reduced daily activity persisted until the end of the study. Her symptom scores also worsened during the trip to Europe and did not improve upon her return and for the remainder of the study. These results prompted us to add more CBT skills training and individual attention to NEW Tx for Group 2 (see discussion of “Modifications to Treatment” in the Methods section).

Group 2

Participants in Group 2 ($N=6$) completed all of the study assessments and attended 76.4% of the NEW Tx sessions. Participants in Group 2 showed significant improvements in both their weight and waist circumference (Table 2). Similar to the first group, these participants had a post-treatment LIFE-RIFT score near 9 indicating recovered status, which was a significant improvement in this group.⁵⁰ Participants also had significant reduction in their depressive symptoms and a trend in the reduction of manic symptoms (see Table 2). Similar to the first group, participants added approximately 100 minutes of weekly exercise, but this was not a significant change. Group 2 also showed greater improvement on indices of well-being than Group 1, but the scores did not significantly differ from pre- to post-treatment (Table 3).

DISCUSSION

Integrated psychosocial treatments that target the medical burden associated with severe mental illness are needed to reduce the mortality and improve the functioning of individuals with these disorders.^{10,14,52} NEW Tx incorporates validated diet and exercise interventions but is specifically tailored for individuals with mental illness. Given the low adherence rates for diet and exercise interventions among individuals with BD, NEW Tx also utilizes CBT to increase adherence and improve outcomes.

In Group 2, individuals with bipolar disorder lost weight and exercised more after receiving 12 sessions of NEW Tx. In Group 1, 75% of the participants lost weight and increased their exercise, but this trend was not statistically significant. This is likely due to not having sufficient power to detect small to even moderately large effect sizes. Additionally, participants in Group 1 went from exercising less than the recommended weekly amount for healthy adults (i.e., 150 minutes)³⁶ at baseline to exercising more than this targeted amount (i.e., 171 minutes). However, exercise in this study included “lifestyle activity,” such as walking to the grocery store or taking the stairs, which is highlighted by the high duration of weekly exercise for participants in Group 2 at baseline. We believe that the findings from these pilot groups yield preliminary evidence for the feasibility and acceptability of NEW Tx, and that future research on its efficacy for reducing medical burden is warranted.

It appears that adding more CBT strategies to NEW Tx was important, as this was the biggest difference from Group 1 to Group 2. Other studies have also found that CBT skills can increase both medication and therapeutic adherence.^{53–55} We also considered making the intervention individualized as opposed to a group format as the Group 2 participants received more individualized feedback. Although the group format appears to be a powerful motivator for group members, particularly in regards to accomplishing their weekly goals, it was difficult to administer a three-component intervention in a group format, as group members varied in the degree to which they needed each module.

Another modification for NEW Tx may be to increase the number of sessions. Participants reported that they would have liked more practice with the skills prior to ending the treatment. We are also considering increasing the focus on other unhealthy decisions, such as drinking an abundance of caffeine, smoking, and substance use, given that these either directly or indirectly (e.g., by making it more difficult to make healthy decisions) affect medical burden.

Despite the larger gains seen in Group 2, retention was lower in this group compared with Group 1. We believe that this reflects the difference in timing between when the groups were offered. Group 1 was administered from February to May whereas Group 2 met from July through October. Group 2 had more scheduling issues because several of the group members had a change in their schedules in September. For example, one member in Group 2 was not able to attend the last three sessions due to returning to a teaching position that began in September. Thus, the timing and administration of interventions should be carefully considered in regards to optimizing outcomes.

There are several limitations of this pilot study. These include lack of a finalized treatment manual, measures of treatment integrity, standardized assessment of acceptability, a blinded, independent rater, and laboratory monitoring (i.e., lipid profile, glucose levels). Due to the small sample size of both groups, we did not have sufficient power to detect meaningful clinical differences and, thus, these results should be interpreted with caution. In addition, the study sample was predominantly college-educated (90%) and only 60% of participants were currently employed, so that the sample may not be fully representative of typical populations with severe mental illness. Administering the treatment in a group format also proved to be difficult as it was not always possible to tailor the modules to meet participants' individualized treatment goals or to address differences in their past experience with the NEW Tx modules (i.e., use of diet, exercise, and wellness skills). Nevertheless, there is a critical need to develop integrated treatments to reduce the medical burden associated with BD, and this study is a first step in developing and testing such a treatment. NEW Tx may be a possible solution to this public health need as adherence to sessions was high (> 80%) and preliminary data suggest that the intervention reduced risk factors for cardiovascular disease, such as weight and sedentary lifestyle. We hope to further develop this intervention to meet the treatment needs of individuals with severe mental illness. We are currently seeking grant funding to further explore this treatment modality.

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Table 1

Demographics of Groups 1 and 2

	Group 1 (N = 4) n (%)	Group 2 (N = 6) n (%)	χ^2	p
Female	3 (75%)	2 (33%)	1.67	0.197
Age (years) *	60.0 (\pm 6.7)	50.2 (\pm 10.2)	1.68	0.131
Caucasian	3 (75%)	5 (83%)	2.19	0.335
Completed college	4 (100%)	5 (83%)	1.67	0.644
Married	1 (25%)	4 (67%)	2.50	0.475
Employed	2 (50%)	4 (67%)	0.28	0.598
On disability	0 (0%)	2 (33%)	1.67	0.197
Bipolar I disorder	4 (100%)	5 (83%) [†]	0.74	0.389

* Given that age is a continuous variable, the means and standard deviations are presented for each group and an independent samples t-test is reported to test for group differences.

[†] One participant in Group 2 had bipolar II disorder.

Table 2

Clinical outcomes for NEW Tx Group 2

	Pre-treatment Mean (\pm SD)	Post-treatment Mean (\pm SD)	t	p	Effect size (r)
Weight (lbs)	191.3 (\pm 33.7)	182.3 (\pm 32.7)	3.61	0.015 ^a	0.13
Waist (cm)	40.3 (\pm 7.3)	38.6 (\pm 6.7)	3.80	0.013 ^a	0.12
Weekly exercise (min) [*]	233.8 (\pm 65.0)	333.1 (\pm 167.1)	-1.46	0.204	0.36
CGI-BP	3.5 (\pm 1.4)	2.7 (\pm 1.0)	1.75	0.141	0.32
MADRS	20.3 (\pm 11.1)	11.5 (\pm 7.3)	4.05	0.010 ^a	0.42
YMRS	13.2 (\pm 11.3)	7.3 (\pm 7.2)	1.03	0.349	0.29
LIFE-RIFT [†]	11.8 (\pm 3.4)	9.3 (\pm 2.6)	3.73	0.014 ^a	0.38
Quality of Life [‡]	51.5 (\pm 19.3)	68.8 (\pm 21.7)	-2.47	0.056 ^a	0.39

^{*} Weekly exercise (min) is the average weekly duration of exercise before versus after the completion of the exercise module of NEW Tx.

[†] Improvement in quality of life over the study period is indicated by a decrease in total score on the LIFE-RIFT, but an increase on the Quality of Life scale.

^a All significant analyses remained significant when using a Wilcoxon matched pair non-parametric analysis.

SD: standard deviation; CGI-BP: Clinical Global Impression Scale-Bipolar Version; MADRS: Montgomery Asberg Depression Rating Scale; YMRS: Young Mania Rating Scale; LIFE-RIFT: Range of Impaired Functioning Tool

Table 3

Psychological well-being outcomes for Group 2

Subscale of Psychological Well-Being Scale	Pre-treatment Mean (\pm SD)	Post-treatment Mean (\pm SD)	t	p	Effect size (r)
Environmental mastery	53.0 (\pm 9.2)	56.7 (\pm 11.5)	-0.56	0.603	0.17
Personal growth	57.2 (\pm 10.3)	61.3 (\pm 11.0)	-1.55	0.182	0.19
Positive relations with others	60.0 (\pm 13.5)	59.0 (\pm 15.5)	0.21	0.846	0.03
Autonomy	52.3 (\pm 9.0)	57.5 (\pm 6.2)	-1.76	0.139	0.32
Purpose in life	48.8 (\pm 9.0)	56.8 (\pm 6.4)	-1.87	0.121	0.45
Self-acceptance	48.0 (\pm 7.3)	48.2 (\pm 10.3)	-0.04	0.972	0.01