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**Effectiveness of Psychosocial Treatments on Symptoms and Functional Domains in Schizophrenia Spectrum Disorders: a Prospective Study in a Real-World Setting**

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(Article begins on next page)

**Manuscript Title:** Effectiveness of Psychosocial Treatments on Symptoms and Functional Domains in Schizophrenia Spectrum Disorders: a Prospective Study in a Real-World Setting

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## **Abstract**

**Purpose:** Data of investigations suggested that psychosocial interventions are required to provide a more complete and effective treatment of schizophrenia spectrum disorders. In particular, Art therapy was found an effective psychosocial intervention in SSD. Moreover, some authors reported that Befriending was as effective as cognitive behavior therapy in the treatment of schizophrenic patients. The aim of this study is to test Befriending in comparison with Group Art Therapy in patients with SSD, in order to identify differences of effects between treatments.

**Materials and Methods:** All subjects were evaluated at baseline and after six months with the Clinical Global-Impression-Severity Scale; the 18-item Italian version of the Brief Psychiatric Rating Scale; the Coping Inventory for Stressful Situations; the Rosenberg Self-Esteem Scale; the Global Assessment of Functioning scale; and the Personal and Social Performance scale. Statistical analysis was performed with chi-square tests for categorical variables and analyses of variance for continuous variables to compare the two groups at baseline. A two-way analysis of variance for repeated measures was performed for clinical and psychosocial variables.

**Results:** A significant improvement over trial duration (within-group effect) was observed for both treatments in psychosocial functioning, self-esteem, and thought disturbance. Befriending was found superior to Art therapy (between-group effect) in improving psychosocial functioning. Both interventions were found efficacious in improving emotion-oriented coping strategies (within group effect), with a significant difference (between group effect) favoring Befriending.

**Conclusions:** both interventions, in spite of some differences of efficacy, can be considered an important contribution to improve the patients' real-world functioning.

**Keywords:** Schizophrenia; Group Art Therapy; Befriending intervention; real-world functioning; integrated treatment

## Introduction

Patients suffering from severe and chronic psychiatric disorders, such as schizophrenia spectrum disorders, showed a high degree of impairment in main areas of everyday life, as planning and attending to multiple tasks, producing and receiving verbal and non-verbal communication, forming and maintaining relationships, taking care of themselves, and accessing community services [1-5].

Integrated approach that includes psychopharmacological and psychosocial interventions is required to provide a more effective treatment of schizophrenia spectrum disorders. In schizophrenia, results provided by pharmacotherapy are only partial and limited to improve some core symptoms and functional domains, such as negative symptoms, cognitive functioning, social functioning, and subjective quality of life. Unfortunately, a considerable number of patients show persistent positive symptoms despite an ongoing medication regimen. Another relevant issue to consider when dealing with these patients is that treatment of schizophrenia in hospital has increasingly been replaced by community-based care. Thus, the burden of illness-related impairment has more heavily fallen on patients and their relatives. For these reasons, authors suggested that a multimodal approach to treat schizophrenia is essential for a correct clinical practice able to meet complex patient's demands [6,7].

Evidence-based practices include assertive community treatment, cognitive behavior therapy for psychosis, cognitive remediation, family psychoeducation, illness self-management training, social skills training, supported employment, art therapy [8,9]. These treatment modalities induced a significant improvement in a broad range of outcomes related to different dimensions of psychopathology (e.g., psychotic symptoms, relapses, and hospitalizations), psychosocial functioning (e.g., work, social relationships, independent living skills), and associated impairments (e.g., cognitive functioning) [10].

In particular, psychosocial interventions for patients with schizophrenia spectrum disorders including recreation and leisure activities were found efficacious in increasing community involvement, developing planning skills, and learning new coping abilities [5].

We decided to test Art therapy in the present study, as it is an intervention commonly used in severe mental disorders and recommended by the main guidelines for psychosocial therapies [11,12].

In recent years, the interest for Befriending, a form of social support including emotional support, informational guidance, and practical assistance, increased. Befriending was chosen as the comparison intervention, in line with other studies that used this model to compare the efficacy of psychotherapies such as cognitive-behavioral therapy in patients with psychosis [13,14]. In particular, some authors suggested that Befriending was as effective as cognitive behavior therapy in the treatment of schizophrenic patients [15,16].

This randomized study tested the effectiveness of Befriending in comparison with Group Art Therapy in patients affected by schizophrenia spectrum disorders attending a facility for psychiatric outpatients rehabilitation in the city of Turin, Italy. We hypothesized that the two psychosocial interventions had different effects on specific clinical and functional domains. This comparison study was designed in order to identify these differences. The 2 modalities were assessed by means of a

comprehensive evaluation battery of clinical and functional outcome domains, embedded with a psychiatric and psychosocial treatment regimen representative of the usual setting and modality of care of Italian psychiatric rehabilitative centers.

## **Methods**

### *Participants*

All participants to the study attended two day centers of the Department of Mental Health “Azienda Sanitaria Locale Torino 1”, both located in the south area of the city of Turin, Italy, which serves a catchment area of approximately 250000 habitants. According to the study design, patients included in the trial were consecutively admitted from January 2014 to December 2014 to the two rehabilitation centres and received a diagnosis of schizophrenia spectrum disorder made by an expert clinician (Paola Bozzatello) according to the Diagnostic and Statistical Manual of Mental Disorders - Edition 5 [17]. Diagnosis was confirmed with the Structured Clinical Interview for DSM-IV disorders [18]. Diagnosis and assessment were performed at the Department of Neuroscience and Mental Health “Struttura Semplice Complessa a Valenza Dipartimentale, University Hospital “Città della Salute e della Scienza” of Turin.

Subjects were excluded if they had a current or past co-diagnosis of autistic disorder or another pervasive developmental disorder, a history of severe head injury (coma  $\geq$  48 hours), or a diagnosis of mental disorder due to a general medical condition. They were also excluded if they had been hospitalized in psychiatric facilities in the 6 months prior to evaluation, and if they had been prescribed a significant change of antipsychotic medications during the previous 3 months (according to clinical judgement). We included only patients with stable schizophrenia spectrum disorders who did not change dosage and type of antipsychotic treatments during the study. The mean  $\pm$  standard deviation dose of antipsychotics received by patients was calculated as chlorpromazine equivalent dose and was  $340.6 \pm 72.4$  mg/day.

All patients recruited in the trial were randomly allocated to one of the two psychosocial interventions, Group Art Therapy and Befriending. Research Randomizer (Urbaniak and Plous, Social Psychology Network Wesleyan University, Middletown, CT), a free web-based service for randomization, was used. Sample size was determined in order to obtain a statistical power  $>0.80$ .

In this trial, patients were considered completers if they attended at least 70% of the planned sessions. Subjects were evaluated using a semistructured interview to assess demographic and clinical variables. Data were collected on age, gender, education, age at onset of schizophrenia (report of first psychiatric visit), length of illness, and antipsychotic treatments. All patients received the standard care provided in community mental health services in Italy (psychopharmacological treatment, psychiatric monitoring at least on a monthly basis, home care when required).

Written informed consent was obtained from all subjects entering the study. The trial was carried out in accordance with the Declaration of Helsinki of 1995 (as revised in Edinburgh in 2000) and was approved by the Local Ethical Committee.

### *Instruments used*

All subjects were evaluated at baseline (T0) and after six months (T1) with the following evaluation instruments: the Clinical Global-Impression-Severity Scale; the 18-item Italian version of the Brief Psychiatric Rating Scale; the Coping Inventory for Stressful Situations; the Rosenberg Self-Esteem Scale; the Global Assessment of Functioning scale; and the Personal and Social Performance scale [19-24]. Information for ratings was acquired from patients and confirmed by medical records and, when possible, by the main care-giver.

The Clinical Global Impression is a clinician-rated instrument to make a global assessment of illness and consists of three different measures: severity of illness, global improvement, and efficacy index (comparison between patient's baseline condition and a ratio of current therapeutic benefit and severity of side effects). In this study we considered the first scale: severity of illness. It is a seven-point scale that requires the clinician to rate the severity of illness at the time of assessment: (1) normal, (2) borderline mentally ill, (3) mildly ill, (4) moderately ill, (5) markedly ill, (6) severely ill, and (7) extremely ill. Score is ranged between 1 and 7.

The Brief Psychiatric Rating Scale consists of 18 clinician-rated items that are rated using a 7-point scale ranging from "not present" to "extremely severe". Total score is ranged between 0 and 126. It is the sum of all items and may be used as expression of severity of illness. Five factors can be isolated and are: anxiety – depression including item 1,2,5 and 9 (guilt feelings, anxiety, and depressive mood) (score ranges between 0 and 28), anergia including item 3,13,16, and 18 (motor retardation, emotional withdrawal, and blunted affect) (score ranges between 0 and 28), thought disturbance including item 4,8,12, and 15 (conceptual disorganization, hallucinatory behavior, and unusual thought content) (score ranges between 0 and 28), activation including item 6,7, and 17 (tension and excitement) (score ranges between 0 and 21), and hostile – suspiciousness including item 10,11, and 14 (hostility, uncooperativeness, and suspiciousness) (score ranges between 0 and 21). Higher scores indicate higher severity of illness. Psychometric properties of this scale in terms of reliability, validity and sensitivity have been extensively examined [25].

The Coping Inventory for Stressful Situation is a self-report inventory of 48-item and evaluates how patients can react to various difficult, stressful, or upsetting situations. It measures stress coping strategies in three dimensions, namely task-oriented, emotion-oriented, and avoidance-oriented coping, each dimension itself comprising 16 items. Task-oriented coping entails treating a stressful situation as a problem to be solved, and tackling it directly as such. Emotion-oriented coping aims at mitigating emotional stress. Avoidance-oriented coping focuses on the postponement of dealing with current problems. Scales are ranged from 1 (not at all) to 5 (very much). Each scale score is ranged between 16 to 80. The total score is ranged between 48 to 240. This scale has demonstrated high reliability and convergent and concurrent validity [26,27].

The Rosenberg Self-Esteem Scale is a 10-items self-report scale that assesses global self-worth by measuring both positive and negative feelings about the self. All items are answered using a 4-point scale ranging from "strongly agree" to "strongly disagree". Scores are calculated as follows: for items 1, 2, 4, 6, and 7: strongly agree = 3; agree = 2; disagree = 1; strongly disagree = 0; for

items 3, 5, 8, 9, and 10 (which are reversed in valence): strongly agree = 0; agree = 1; disagree = 2; strongly disagree = 3. The scale ranges from 0 to 30. Higher score indicates a better self-esteem. Scores below 15 suggest low self-esteem.

The Global Assessment of Functioning scale and the Personal and Social Performance scale were two clinician-rated scales that were chosen to evaluate the global functioning of patients. For the aim of the study, rater was instructed to consider functioning in the month before rating, as recommended by other authors [28-30]. The GAF evaluates functioning across three domains (psychological functioning, social functioning and occupational/educational functioning) on a hypothetical continuum of mental health–illness. Total score is ranged between 1-100. Higher score indicates a better level of functioning.

The Personal and Social Performance was developed as an improvement of the Social and Occupational Functioning Assessment Scale (American Psychiatric Association, 2000), with better face validity and psychometric properties [24,31]. It measures personal and social performance within four domains/areas: socially useful activities, personal and social relationships, self-care, and disturbing and aggressive behaviour. Score is ranged between 1 and 100, divided into 10 equal intervals to rate the degree of difficulty. Higher scores represent better personal and social functioning.

All assessment scales were administered by an experienced rater (Cristiana Montemagni). Prior to this study, interviewer received training sessions for the assessment tools. Clinical rater was masked to treatment assignment.

### *Interventions*

The Art Therapy group included thirty patients attending 90-minutes sessions, once-a-week for 6 months. Art therapy was carried out according to the guidelines of the British Association of Art Therapists (11) and was aimed to stimulate self-expression, improve emotional health, and help people to develop more functional interpersonal relationships. Patients have been encouraged to use the art materials to express themselves spontaneously. Art therapists generally adopted a supportive approach, providing empathy and encouragement. They usually not interpreted interpersonal processes or images during sessions.

The approach described for art therapy sessions is in accordance with the recommendations of international literature for a pragmatic implementation of complex interventions. Therapists are encouraged to apply treatment principles in a flexible manner to meet the needs of single participants [32].

The befriending group included thirty-two patients attending 45-minutes therapy sessions, twice a week for 6 months. Befriending was used as the control intervention in the present study. In this type of intervention, psychotic or affective symptoms were not addressed by the therapist and if symptoms were recalled by patients discussion of this topic was not stimulated. Sessions were conducted by a trained psychiatrist or psychologist or an experienced psychiatric nurse. In accordance with the model of Befriending therapy proposed by Sensky et al. [13], the therapist aimed to be empathic and non-directive. Sessions consisted of talking about neutral topics such as hobbies, music, sport, books, and current affairs. If the participants had troubles in verbal interactions, patient and therapist engaged in alternative activities, such as board games, walking, or playing sport. Befriending is focused to meet

participants' expectations and to promote positive experiences of therapy. Primary goals of this approach were to keep the participants engaged for the full duration of therapy and to keep the conversation or activity as close to a neutral 'pleasant chat' as possible. When topics of conversation risked to be emotionally distressing, the therapist redirected the participant to more neutral subjects [14].

During the treatment period, art therapists and befriending facilitators received monthly group supervision from a senior practitioner with relevant experience in psychiatric rehabilitation.

### *Statistical analyses*

Statistical analyses were performed using the software Statistical Package for the Social Sciences, version 23 for Windows (Chicago, IL, USA).

Analyses were planned in 2 stages. In stage 1, we performed chi-square tests for categorical variables and analyses of variance for continuous variables, in order to examine whether the two groups differed in baseline socio-demographic and clinical variables,

In stage 2, a two-way analysis of variance for repeated measures was performed for clinical and psychosocial variables. The between-subject factor was the group (befriending/art therapy), and the within-subject factor was time (baseline and discharge).

Effects of time (longitudinal dimension), group (cross-sectional dimension), and time by group (interaction effect) were examined.

In the case of a significant F from one or more analyses of variance, post-hoc pair-wise comparisons were performed using Bonferroni's test. In the case of categorical data, Fisher's exact test was used to compute the pair-wise comparisons between the groups; in order to control for Type 1 error, alpha was set at .0083 (.05/6).

### **Results**

Thirty-two patients were allocated to Befriending and 30 to Art therapy. Three patients dropped-out from the Befriending group and 5 from the Art Therapy group. Therefore, the final sample included 29 patients in the Befriending and 25 subjects in the Art Therapy.

Statistical analyses were performed on patients who completed the sessions of treatment. There were no significant differences with one-way ANOVA and chi-square test in socio-demographic and clinical characteristics between the two treatment groups. In addition, the severity of symptoms at baseline measured with the Clinical Global Impression - severity of illness - was not significantly different between groups.

Out of the fifty-four patients, twenty-seven had a diagnosis of schizophrenia (50%), thirteen a diagnosis of schizoaffective disorder (24%), seven of delusional disorder (13%), two of brief psychotic disorder (3.7%), five received a diagnosis of other psychotic disorder (9,3%). Patients' sample consisted of twenty-nine males (55%). Ten patients (19%) were single and forty-seven (87%) were unemployed. The mean age ( $\pm$ S.D.) was 46.8 ( $\pm$ 12.8), mean education ( $\pm$ S.D.), measured in years of school, was 11.2 ( $\pm$ 3.26)

years. Forty-two patients (79.2%) were treated with second-generation antipsychotics (SGAs). The mean duration of illness ( $\pm$ Standard Deviation) was 18.7 ( $\pm$ 12.0) years.

Socio-demographic and clinical variables of the two treatment groups at baseline are shown in Table 1.

Results of the evaluation scales for the two treatment groups at baseline and at the end of the study are displayed in Table 2.

Subjects showed a moderate severity of illness assessed by clinical scales (Clinical Global Impression-Severity, Brief Psychiatric Rating Scale). The global functioning was impaired (Global Assessment of Functioning scale and Personal and Social Performance scale). No significant differences between-groups were found for demographic or clinical variables at baseline.

A significant improvement over trial duration (within-group effect) was observed for both treatments in psychosocial functioning, (measured by the Personal and Social Performance scale and the Global Assessment of Functioning scale), self-esteem, (assessed by the Rosenberg Self-Esteem Scale), and thought disturbance (measured by the Brief Psychiatric Rating Scale subscale). Befriending was found superior to Art therapy (between group effect) in improving psychosocial functioning (assessed by the Personal and Social Performance scale and the Global Assessment of Functioning scale). Moreover, after both psychosocial interventions patients used more frequently emotion-oriented coping strategies, as measured by the Coping Inventory for Stressful Situation emotion domain (within group effect), with a significant difference (between group effect) favoring Befriending. No differences were found between groups for the other clinical outcomes measures.

## **Discussion**

This study was aimed to assess the effectiveness of two interventions of psychiatric rehabilitation in a sample of patients with schizophrenia spectrum disorders, in order to evaluate different effects on specific clinical and functional domains. Patients with a severe and chronic mental disease, such as schizophrenia, showed an impairment of functioning due not only to the impact of clinical symptoms, but also to the failure to achieve self-sufficiency in a range of everyday life domains. In our study, we found that Art therapy and Befriending in addition to standard care can be considered both effective rehabilitation treatments for patients suffering from schizophrenia spectrum disorders. In fact, both interventions showed a significant and similar efficacy in improving psychosocial functioning, thought disturbance, and self-esteem. Nevertheless, some specific differences between the two groups were observed. In particular, Befriending was found superior to Art therapy in improving psychosocial functioning and emotion-oriented coping strategies.

To our knowledge, few systematic studies have been performed to examine the effectiveness of Art therapy in addition to usual treatments in patients with schizophrenia and they obtained discordant results [32]. Ruddy and Milnes' systematic review [33] reported only two randomized controlled trials (RCT; total n =137) comparing Art therapy plus treatment as usual with single treatment as usual in outpatients with schizophrenia or schizophrenia-like illness. Authors reported positive effects of Art therapy in improving self-esteem and negative symptoms, but did not show any impact on psychosocial functioning or quality of life [34,35]. A

larger three-arm RCT was performed in 417 patients with schizophrenia who were randomly allocated to Art therapy plus treatment as usual, or an activity control intervention plus treatment as usual, or single treatment as usual [32]. Findings did not show any superiority of Art therapy on the global assessment of functioning or on positive and negative symptoms at 12 and 24 months. Other Authors presented somewhat discordant conclusions and reported significant effects of Art therapy compared to treatment as usual on social functioning [36,37].

In our sample we found a significant improvement of self-esteem, a finding consistent with data obtained by Green et al. [34]. We also found a significant effect of Art therapy on social functioning, but this result is rather controversial in literature, in accordance with findings by Montag and colleagues [33], but in contrast with results by Green et al. [34], Richardson et al. [35], and Crawford et al. [32].

Discordance of results on the effects of Art therapy could be due to the methodological differences among studies in terms of sample characteristics and choice of assessment measures. For example, the disagreement between our study and Richardson's trial about the efficacy of Art therapy on negative symptoms could be related to the different characteristics of our patients, that showed a lower severity of negative symptoms. In addition, the level of negative symptoms was assessed in our study by rating the domain "anergia" of the Brief Psychiatric Rating Scale (not a specific instrument, as in Richardson and colleagues's study) and this method can affect the reliability of measure.

Befriending therapy was aimed to address the social implications of mental illness engaging patients in activities with another person to develop a supportive, one-to-one relationship [38].

A small number of well-designed studies provided evidence for the effectiveness of befriending in terms of improvement of psychological and social functioning in patients with moderate to severe mental health disorders [39-43].

Findings of our study were that: (1) Befriending had better results than Art therapy to improve psychosocial functioning and (2) patients who received this rehabilitative approach were more likely to use emotion-oriented coping strategies. This result was in accordance with previous studies reporting that individuals who received rehabilitation treatments encouraging interpersonal relationships, such as Befriending, developed a higher level of coping skills to manage stress and anxiety [44,45]. The enhancement of patients' coping skills is considered one of the effective therapeutic factors of psychoeducation programs, together with therapeutic interactions (relationships) and clarification (about schizophrenia and its causal attributions) [8]. Befriending can be considered as a 'resource-oriented' therapy: it does not target the deficit of the patients, but focuses on the patient's positive resources and uses social relationships to induce therapeutic change. We can suggest the hypothesis that Befriending is superior to Art therapy in improving psychological and social functioning and in favoring emotion-oriented coping strategies because it is a model of intervention that requires the relation between the patient and another individual, who provides him the opportunity to experience a supportive and rewarding interpersonal relationship. In this interpersonal context patient may improve his abilities of emotional exchange. On the contrary, the model of Art therapy provides less chances of social interactions and can produce a lower

degree of functional improvement in patients who, because of their severe psychopathology, tend to become anxious and distracted when they are left alone.

In both treatment groups we observed a significant improvement of self-esteem. This is a relevant finding because the increasing of the individual's self-esteem, that is strictly connected to the improving of the self-efficacy, plays a crucial role in achieving a good level of real-world functioning [46]. The opportunity of using different models of rehabilitative interventions with a similar efficacy on subjects' self-confidence can be very useful in clinical practice. Moreover, the level of self-esteem is a factor that significantly affects patient's availability to engage in recovery-focused activities and sustain them over an extended time period [47].

Our patients showed also a significant reduction of thought disturbance with both type of interventions. The efficacy of psychiatric rehabilitation in addition to usual care on positive psychotic symptoms was previously reported in a meta-analysis about the effect of music therapy in schizophrenia [48]. These data probably indicate that rehabilitative interventions are generally effective on positive symptoms, regardless of which technique is adopted.

Our study suffers from a few limitations. A first limit is represented by the lack of a control group of subjects who did not receive any psychosocial treatment. So, when a difference was found between treatment groups we cannot exclude that the effect produced by the less effect of intervention is a placebo effect. A second limitation was that we did not evaluate the long-lasting effects of these psychosocial treatments after their discontinuation.

Despite these limitations, there are some points of strength of this study. First, data were representative of the clinical activity over a 6-month period in a geographically well-defined catchment area in the central area of one of the largest cities in Italy. Second, diagnoses were based on structured clinical interviews and all patients were evaluated by trained raters. In our opinion, another point of strength of the study is that we used broad inclusion criteria in order to select a sample rather similar to clinical population and then to obtain results that can be more reliably applied in real world settings.

The results of this study need to be replicated in larger samples. They represent a basis and a stimulus for further investigations focused on the search for mediators of efficacy of rehabilitation techniques. This line of research is very important in order to better conceptualize appropriate interventions and to tailor them for patients' specific clinical and functional characteristics. Targeted interventions not only allow a better allocation of resources, but can produce more considerable improvements of social functioning and quality of life in the real world context.

In conclusion, our study confirmed the need to include a set of psychosocial interventions for schizophrenia spectrum disorders patients among usual treatment modalities. Techniques such as Befriending and Art therapy, in spite of some differences of effects, can be considered an important contribution to the treatment instruments required by the new community model for mental health. Actually, mental health authorities and care providers increasingly acknowledge that providing an effective therapeutic model to patients with severe mental illness requires more strategies that simply prescribing effective medications and that access to psychosocial and rehabilitative interventions is essential to promote recovery and improve quality of life [49].

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**Declaration of Interest**

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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<b>Table 1. Baseline demographic and clinical characteristics of patients receiving Art therapy and Befriending</b>				
<b>Variable</b>	<b>Befriending</b>	<b>Art therapy</b>	<b>F / <math>\chi^2</math></b>	<b>P</b>
M/F	15/14	14/11	.099	.753
Age, years $\pm$ SD	46.6 $\pm$ 14.3	47.2 $\pm$ 11.1	.026	.872
Married, marital status, n (%)	7 (24)	3 (12)	1.311	.252
Education, years, mean $\pm$ SD	11.3 $\pm$ 2.92	10.9 $\pm$ 3.66	.231	.633
Employed, n (%)	4 (14)	3 (12)	.038	.845
Length of illness, years, mean $\pm$ SD	17.9 $\pm$ 13.0.03	19.7 $\pm$ 10.8	.308	.581
Previous admission, n	5.86 $\pm$ 6.62	4.32 $\pm$ 4.13	1.014	.319
Second-generation antipsychotics, n(%)	20 (69)	22 (88)	2.814	.093
CGI-S at baseline, mean $\pm$ SD	3.90 $\pm$ 1.63	4.24 $\pm$ .83	.902	.347
Data analyses were performed using one-way ANOVA for continuous variables and Chi-square for categorical variables				

<b>Table 2. Analysis of variance of score changes of clinical rating scales in the two treatment groups</b>				
<b>Rating Scales</b>	<b>Befriending</b>	<b>Art Therapy</b>	<b>ANOVA between-groups F (p)</b>	<b>ANOVA within-groups F (p)</b>
<b>Mean BPRS total score, (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	32 (10.3) 32.3 (8.95) -3 (9.01) -3.67, 3.18; p<.05	35.3 (7.95) 36.3 (12.1) -1 (7.75) -4.18,2.21; p<.05	2.230 (.141)	.285 (.596)
<b>Mean BPRS, anxiety-depression (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	9.55 (4.16) 8.53 (4.31) 1.02 (3.21) -.19, 2.25; p<.05	10.3 (3.84) 10.3 (4.7) -.1 (4.25) -1.84, 1.67; p<.05	1.505 (.225)	.853 (.360)
<b>Mean BPRS, anergia (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	6.45 (3.99) 5.80 (2.15) .65 (2.97) -.48,1.78; p<.05	7.08 (3.28) 7.84 (4.16) -.76 (4.65) -2.68, 1.16; p<.05	2.895 (.095)	.011 (.916)
<b>Mean BPRS, thought disturbance (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	6.31 (3.13) 7.56 (3.56) -1.25 (2.5) -2.20, -.30; p<.05	8.16 (3.94) 8.51 (4.53) -.35 (2.7) -1.47, .76; p<.05	2.070 (.156)	<b>5.143 (.028)*</b>
<b>Mean BPRS, activation (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	5.34 (2.49) 5.64 (2.34) -.30 (2.12) -1.10,.51; p<.05	4.80 (1.76) 5.42 (2.19) -.62 (2.65) -1.71, .47; p<.05	.546 (.463)	2.000 (.163)
<b>Mean BPRS, hostility suspiciousness (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	4.34 (2.11) 3.72 (1.29) .62 (2.13) -3.67,1.43; p<.05	4.56 (1.96) 4.50 (2.07) .06 (2.39) -.93, 1.05; p<.05	1.472 (.230)	1.230 (.273)
<b>Mean CGI-S (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	3.90 (1.63) 3.49 (1.09) .41 (1.08) -.01, .81; p<.05	4.24 (.83) 4.25 (.83) -.01 (.84) -.35, .34; p<.05	3.635 (.062)	2.207 (.143)
<b>Mean GAF (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	64.2 (15.7) 68.6 (11.6) -4.4 (7.69) -7.34,-1.48; p<.05	58.4 (10.5) 60.6 (6.83) -2.2 (6.82) -4.97, .66; p<.05	<b>5.181 (.027)*</b>	<b>10.851 (.002)*</b>
<b>Mean PSP (SD)</b> Baseline Endpoint Mean change from baseline to endpoint 95% CI of mean change; p value	67.1 (17.0) 73.8 (10.7) -6.7 (17.31) -13.31, -.14; p<.05	62.0 (13.5) 63.6 (11.3) -1.6 (7.68); -1.51, 4.83; p<.05	<b>4.974 (.030)*</b>	<b>8.446(.005)*</b>

<b>Mean Rosenberg (SD)</b>				
Baseline	26.3 (6.48)	28.5 (8.39)	2.336 (.132)	<b>5.234 (.026)*</b>
Endpoint	24.3 (4.92)	26.6 (4.69)		
Mean change from baseline to endpoint	2 (5-64)	1.9 (7.11)		
95% CI of mean change; p value	-.12, 4.17; p<.05	-.99, 4.88; p<.05		
<b>Mean CISS task (SD)</b>				
Baseline	49.1 (12.1)	53.8 (8.55)	1.190 (.280)	.180 (.673)
Endpoint	50.0 (13.7)	51.3 (12.9)		
Mean change from baseline to endpoint	-.9 (13.0)	2.5 (13.66)		
95% CI of mean change; p value	-5.84,4.05, p<.05	-3.2, 8.18; p<.05		
<b>Mean CISS emotion (SD)</b>				
Baseline	48.1±12.2	44.2 (15.3)	<b>5.270 (.026)*</b>	<b>6.275 (.015)*</b>
Endpoint	55.5±11.8	46.5 (10.3)		
Mean change from baseline to endpoint	-7.4 (14.19)	-2.3 (14.18)		
95% CI of mean change; p value	-12.83,-2.03; P<.05	-8.12, 3.59; p<.05		
<b>Mean CISS avoidance (SD)</b>				
Baseline	45.1 (11.3)	40.7 (13.0)	1.294 (.260)	1.183282)
Endpoint	45.9 (11.6)	43.9 (13.7)		
Mean change from baseline to endpoint	-.8 (14.43)	-3.2 (12.3)		
95% CI of mean change; p value	-6.29,4.68; p<.05	-8.29, 1.89; p<.05		

Clinical Global-Impression-Severity Scale = CGI-S; Brief Psychiatric Rating Scale = BPRS; Coping Inventory for Stressful Situations = CISS; the Rosenberg Self-Esteem Scale = RSES; the Global Assessment of Functioning scale = GAF; and the Personal and Social Performance scale = PSP.

\* Significant values,  $p \leq .05$ .