The cognitive behavioural prevention of suicide in psychosis: A clinical trial

Nicholas Tarrier a, James Kelly b, Sehar Maqsood b, Natasha Snelson b, Janet Maxwell c, Heather Law b, Graham Dunn c, Patricia Gooding c,⁎

a Department of Psychology, Institute of Psychiatry, London, UK
b Greater Manchester West Mental Health NHS Foundation Trust, UK
c Faculty of Human and Medical Sciences, University of Manchester, UK

Article history:
Received 10 April 2014
Accepted 26 April 2014
Available online 19 May 2014

Abstract

Background: Suicide behaviour in psychosis is a significant clinical and social problem. There is a dearth of evidence for psychological interventions designed to reduce suicide risk in this population.

Aims: To evaluate a novel, manualised, cognitive behavioural treatment protocol (CBSPp) based upon an empirically validated theoretical model.

Methods: A randomly controlled trial with independent and masked allocation of CBSPp with TAU (n = 25, 24 sessions) compared to TAU alone (n = 24) using standardised assessments. Measures of suicide probability, and suicidal ideation were the primary outcomes and measures of hopelessness, depression, psychotic symptoms, functioning, and self-esteem were the secondary outcomes, assessed at 4 and 6 months' follow-up.

Results: The CBSPp group improved differentially to the TAU group on two out of three primary outcome measures of suicidal ideation and suicide probability, and on secondary outcomes of hopelessness related to suicide probability, depression, some psychotic symptoms and self-esteem.

Conclusions: CBSPp is a feasible intervention which has the potential to reduce proxy measures of suicide in psychotic patients.

© 2014 Elsevier B.V. All rights reserved.
of suicide schema in people experiencing suicidality, psychosis, and post-traumatic stress disorder (Pratt et al., 2010; Taylor et al., 2010b,c; Panagioti et al., 2012c).

The Cognitive Behavioural Prevention of Suicide in psychosis protocol (CBSPp) (Tarrier et al., 2008; Tarrier et al., 2013) was founded on the SAMS. Thus, the specific cognitions targeted by CBSPp are information processing biases, and appraisals of defeat, entrapment, emotional dys-regulation, social isolation, and poor interpersonal problem solving (Tarrier et al., 2013). Although CBSPp arose from work with psychosis and post-traumatic stress disorder, it has the potential to be applied trans-diagnostically (Tarrier et al., 2013).

The aim of this study was to evaluate the CBSPp protocol. As far as we are aware this is the first evaluation of a suicide prevention intervention that has been intentionally derived from an empirically validated theoretical model of suicide (Johnson et al., 2010a,b; Pratt et al., 2010; Taylor et al., 2010b,c; Johnson et al., 2011; Taylor et al., 2011; Panagioti et al., 2012a,b,c).

Specifically, it was hypothesised that CBSPp in addition to Treatment As Usual (TAU) would have significant advantages over TAU alone in reducing 1) measures reflecting suicidal behaviour including hopelessness, and, 2) measures associated with other symptom clusters of psychosis including depression, thought disorder, and low self-esteem.

2. Method

This was a single blind randomised control trial, which aimed to test the feasibility and potential efficacy of a novel intervention (CBSPp) designed to reduce suicidal behaviours in those suffering from schizophrenia spectrum disorders. Participants assigned to the treatment condition plus TAU were compared to those allocated to a TAU condition alone.

2.1. Participants

Ethical approval was obtained from Stockport Research Ethics Committee (08/H1012/97).

Between April 2009–October 2010 Community Mental Health Teams (CMHT), Early Intervention (EI) teams, and Assertive Outreach (AO) teams across four National Mental Health Service trusts including, Greater Manchester West, Manchester Mental Health and Social Care, Pennine Care and Five Boroughs in the North West of England, were approached to facilitate recruitment.

Participants were recruited into the study if they were: (a) aged between 18 and 65; (b) had a DSM IV diagnosis of schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder or psychotic disorder not otherwise specified; (c) identified as having previous suicide attempts or experiencing current suicidal ideation; (d) under the care of an appropriate clinical team and currently in contact with mental health services; (e) receiving appropriate anti-psychotic medication; and, (f) not currently receiving CBT or other empirically validated psychological treatments. Participants were excluded if they: (a) currently suffered serious suicidal intent and were currently considered a danger to themselves; (b) had a primary diagnosis of bipolar depression or substance induced psychosis; and, (c) suffered from an organic brain disease.

2.2. Procedure

Mental health staff identified potential participants on their case load who met the recruitment criteria. Once diagnosis was confirmed and written consent was obtained, the baseline assessments were administered by research assistants (RAs) independent of therapy. Following the baseline assessment, participants were randomised using a clinical data management system and allocated to either the experimental treatment group where participants were to receive CBSPp plus TAU or the control group where participants were to receive only TAU. Randomisation was controlled by staff not directly linked to the trial to ensure independence and blindness to the trial allocation arms.

Participants were informed of the randomisation outcome via a letter, which also contained a note reminding them not to disclose any information about their care or treatment during assessments which would break the blind requirement. In cases where the RAs were unblinded, protocols were followed whereby unblinding was documented and the assessment packs were scored by another RA. Masking was further maintained by ensuring that therapists and RAs were located in different offices so that therapy files and assessment data were stored separately. In addition, clinical staff were repeatedly instructed not to disclose any knowledge of therapy or group allocation to assessors. Participants who were allocated to the treatment arm were then contacted by one of the trial therapists to arrange their first session. Therapists were given a copy of the completed baseline assessments prior to starting therapy sessions to aid their clinical formulations and prevent unnecessary repetition of questioning of participants.

Participants were assessed at baseline, then at 4 and 6 month follow up time points. Prior to each assessment point, care coordinators were approached by a member of the research team to obtain a comprehensive risk assessment.1

A routine telephone follow up call was made the day after each assessment and seven days later to ensure that the assessments had not caused any distressing after-effects for the participant.

2.3. Measures/assessments

Standardised measures consisting of a short semi-structured clinical interview and self-report questionnaires were used.

2.3.1. Primary outcome measures

These were measures of suicidal thoughts and behaviours as follows:

1) The Beck Scale for Suicidal ideation; BSS (Beck and Steer, 1991). The BSS is a 21-item questionnaire with three response options assessing suicidal ideation, planning and intent in the past week, and previous attempt history.

2) The Adult Suicidal Ideation Questionnaire; ASIQ (Reynolds, 1991). The ASIQ is a 25 item scale, assessing suicidal intent in adults. Respondents report the frequency of thoughts about death in the last month using a 7 point Likert scale.

3) The Suicide Probability Scale; SPS (Cull and Gill, 1982). The SPS consists of 36 statements with 4 subscales (hopelessness, suicidal ideation, negative self-evaluation, and hostility). Responses are measured on a 4 point Likert scale.

2.3.2. Secondary outcome measures2,3

These were included to reflect mood and psychotic symptoms.

1) Calgary Depression Scale (Addington et al., 1990).

2) The Beck Anxiety Scale (Beck et al., 1988).

3) The Beck Hopelessness Scale (Beck et al., 1974).

4) The Positive and Negative Symptom Scale; PANSS (Kay et al., 1987).

5) The Psychotic Symptoms Ratings Scales; PSYRATS (Haddock et al., 1999).

6) Self Esteem Rating Scale (Lecomte et al., 2006).

7) Global Assessment of Functioning; GAF (DSM (IV), 1994) which provides a total score and two sub-scales of symptoms and disability, scores.

1 History of self-neglect, environmental risk, relapse risk, self-harm, and harm to others.

2 We acknowledge that primary and secondary outcome measures may be correlated as is often found in mental health research.

3 Other measures relating to recovery were included in this pilot trial but have not been included in this data analysis because they were not relevant to suicidality. These were the Subjective Experiences of Psychotic Symptoms Scale and an unpublished scale about the process of recovery.
2.4. Training and monitoring/supervising trial therapists

Trial therapists were two clinical psychologists (JK, JM) who had extensive experience in delivering CBT for psychosis.

Prior to the commencement of the trial, the therapists received extensive training to familiarise them with the therapy manual. During the trial, group supervision with the treatment developer (NT) was provided fortnightly and peer supervision occurred weekly.

2.5. Intervention

CBSP was based upon a treatment manual (Tarrier et al., 2008; Tarrier et al., 2013) and was derived from an explanatory model of suicide behaviour; the SAMS (Johnson et al., 2008a). The intervention consisted of three phases to address and change the three components of the SAMS. Modification of:

1) Information processing biases.
2) Appraisals, of defeat, entrapment, social isolation, emotional dysregulation and inter-personal problem solving.
3) Suicide schema.

In addition, the sessions focused on the processes thought to underlie resilience to suicide.

The psychological therapy consisted of up to 24 individual therapy sessions delivered twice a week across 12 weeks at a convenient location for the participant (usually their home). Telephone contact or SMS messaging was utilised as appropriate, to support the therapy sessions.

2.6. Statistical analysis

All analyses used Stata version 11 (StataCorp, 2009). Random effects (i.e. random intercepts) models for repeated measures data were fitted to both 4- and 6-month outcome variables with the baseline value of the outcome variable being used as a covariate (allowing for a follow-up time by covariate interaction in all models). Stata’s xtreg command was used. After preliminary examination of the data, treatment effects were assumed to be the same for both follow-up times, the estimate of the effect of treatment arising from fitting the random effect model being that which is common to both follow-up times. Because most, if not all, of the outcomes were positively skewed, confidence intervals for the treatment effects were routinely estimated through the use of the bootstrap (Efron and Tibshirani, 1993) using the percentiles based on the results of 1000 replications (using the trial participant as the sampling unit).

3. Results

Of the 131 potentially eligible participants, 49 were randomised, 25 to CBSP plus TAU and 24 to TAU alone (see Fig. 1). Of the CBSP group,

---

**Fig. 1.** Flow diagram of recruitment and treatment allocation Consort Diagram.

---
There were improvements on a number of key measures over the trial. CBSPp in addition to TAU successfully, and significantly, reduced the estimated primary outcome measures of the probability of suicide and suicidal ideation (as measured by the ASIQ but not the BSS) compared to TAU alone. Associated secondary outcomes of depression, self esteem, psychotic symptoms overall, positive and general psychotic symptoms, and the GAF symptoms score were also improved as was hopelessness (as measured by the Suicide Probability Scale but not by the BHS). There were no significant group differences in anxiety, negative symptoms, or psychotic symptoms measured by the PSYRATS, nor on measures of overall functioning and disability using the GAF. Thus, it is important to note that the intervention not only improved suicidal thoughts and behaviours but also improved some of the known risk factors for suicide, such as, depression and some symptoms of psychosis.

Previous reports on the reduction of suicide behaviours have tended to be secondary reports of larger studies which have had more global clinical aims. For example, the OPUS study (Nordentoft et al., 2002) was an evaluation of an integrated community treatment including assertive community treatment, anti-psychotic medication, psycho-educational family treatment and social skills training with people experiencing first episodes of psychosis. Similarly, the SoCRATES trial (Tarrier et al., 2006) was an evaluation of CBT with recent onset schizophrenia aimed to speed recovery in those suffering an acute psychotic episode. Thus, both of these studies included retrospective evaluations of suicide behaviour in trials which did not have a sole and dedicated aim to reduce such behaviour. The current study, therefore, differed markedly from previous published studies in that the intervention was derived directly from a theoretical understanding and an empirically validated model of the psychological mechanisms underlying suicidality (Johnson et al., 2008a). The core mechanisms which have been identified involve negatively biased attentional processes, negative appraisals of defeat, entrapment, social support, emotional regulation, and problem solving, and the presence of an extensive suicide schema (Pratt et al., 2010; Taylor et al., 2010a). Previous reports on the reduction of suicide behaviours have tended to be secondary reports of larger studies which have had more global clinical aims. For example, the OPUS study (Nordentoft et al., 2002) was an evaluation of an integrated community treatment including assertive community treatment, anti-psychotic medication, psycho-educational family treatment and social skills training with people experiencing first episodes of psychosis. Similarly, the SoCRATES trial (Tarrier et al., 2006) was an evaluation of CBT with recent onset schizophrenia aimed to speed recovery in those suffering an acute psychotic episode. Thus, both of these studies included retrospective evaluations of suicide behaviour in trials which did not have a sole and dedicated aim to reduce such behaviour. The current study, therefore, differed markedly from previous published studies in that the intervention was derived directly from a theoretical understanding and an empirically validated model of the psychological mechanisms underlying suicidality (Johnson et al., 2008a). The core mechanisms which have been identified involve negatively biased attentional processes, negative appraisals of defeat, entrapment, social support, emotional regulation, and problem solving, and the presence of an extensive suicide schema (Pratt et al., 2010; Taylor et al., 2010a). Previous reports on the reduction of suicide behaviours have tended to be secondary reports of larger studies which have had more global clinical aims. For example, the OPUS study (Nordentoft et al., 2002) was an evaluation of an integrated community treatment including assertive community treatment, anti-psychotic medication, psycho-educational family treatment and social skills training with people experiencing first episodes of psychosis. Similarly, the SoCRATES trial (Tarrier et al., 2006) was an evaluation of CBT with recent onset schizophrenia aimed to speed recovery in those suffering an acute psychotic episode. Thus, both of these studies included retrospective evaluations of suicide behaviour in trials which did not have a sole and dedicated aim to reduce such behaviour. The current study, therefore, differed markedly from previous published studies in that the intervention was derived directly from a theoretical understanding and an empirically validated model of the psychological mechanisms underlying suicidality (Johnson et al., 2008a). The core mechanisms which have been identified involve negatively biased attentional processes, negative appraisals of defeat, entrapment, social support, emotional regulation, and problem solving, and the presence of an extensive suicide schema (Pratt et al., 2010; Taylor et al., 2010a).
Table 2
Mean, (SD), for primary and secondary outcome measures at the three time points for the Treatment and Treatment As Usual (control) groups. Treatment effects, standard errors of the treatment effect, 95% confidence intervals, and effect sizes are also given. Significant outcome measures are marked with an asterisk (p < .05).

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>4 months</th>
<th>6 months</th>
<th>Treatment Effect</th>
<th>SE</th>
<th>95% CI</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treat (n = 25)</td>
<td>TAU (n = 24)</td>
<td>Treat (n = 16)</td>
<td>TAU (n = 19)</td>
<td>Treat (n = 17)</td>
<td>TAU (n = 18)</td>
<td></td>
</tr>
<tr>
<td><strong>Primary outcomes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suicidal ideation (Beck Scale for Suicidal ideation)</td>
<td>9.4 (8.9)</td>
<td>10.2 (10.2)</td>
<td>4.2 (6.0)</td>
<td>5.6 (9.0)</td>
<td>4.1 (6.5)</td>
<td>5.1 (7.2)</td>
<td>-1.31 1.36</td>
</tr>
<tr>
<td>Suicide probability (SPS)*</td>
<td>54.1 (38.8)</td>
<td>57.4 (38.1)</td>
<td>37.1 (33.6)</td>
<td>40.9 (40.5)</td>
<td>29.6 (31.3)*</td>
<td>41.5 (34.9)</td>
<td>-12.3 6.3</td>
</tr>
<tr>
<td>SPS suicidal ideation</td>
<td>84.8 (23.1)</td>
<td>83.2 (24.6)</td>
<td>67.3 (23.3)</td>
<td>73.2 (21.8)</td>
<td>67.5 (19.6)</td>
<td>70.3 (20.4)</td>
<td>-6.96 3.89</td>
</tr>
<tr>
<td>SPS hopelessness*</td>
<td>23.0 (10.0)</td>
<td>26.4 (9.4)</td>
<td>19.9 (8.3)</td>
<td>22.8 (8.0)</td>
<td>20.0 (7.1)</td>
<td>22.9 (7.8)</td>
<td>-3.8 1.70</td>
</tr>
<tr>
<td>SPS negative self-evaluation</td>
<td>15.8 (7.3)</td>
<td>16.1 (5.8)</td>
<td>15.0 (6.8)</td>
<td>15.8 (6.8)</td>
<td>14.8 (5.2)</td>
<td>13.3 (5.5)</td>
<td>0.54 0.92</td>
</tr>
<tr>
<td><strong>Secondary outcomes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression (Calgary)*</td>
<td>8.6 (4.9)</td>
<td>9.4 (4.9)</td>
<td>4.2 (4.1)</td>
<td>8.5 (6.5)</td>
<td>4.0 (3.8)</td>
<td>7.2 (5.2)</td>
<td>-3.3 1.0</td>
</tr>
<tr>
<td>Anxiety (Beck Anxiety Scale)</td>
<td>21.95 (13.31)</td>
<td>20.50 (12.94)</td>
<td>13.94 (9.65)</td>
<td>16.26 (10.13)</td>
<td>14.24 (11.42)</td>
<td>16.84 (13.28)*</td>
<td>-3.59 2.26</td>
</tr>
<tr>
<td>Hopelessness (Beck Hopelessness Scale)</td>
<td>12.44 (5.55)</td>
<td>12.63 (5.70)</td>
<td>8.25 (5.53)</td>
<td>10.21 (6.80)</td>
<td>9.18 (5.16)</td>
<td>9.78 (5.79)</td>
<td>-1.04 1.05</td>
</tr>
<tr>
<td>Self esteem*</td>
<td>68.0 (24.6)</td>
<td>67.6 (25.3)</td>
<td>88.0 (27.0)*</td>
<td>77.3 (24.7)</td>
<td>90.3 (21.9)*</td>
<td>73.4 (25.3)</td>
<td>14.5 4.9</td>
</tr>
<tr>
<td>PANSS total*</td>
<td>58.7 (10.4)</td>
<td>61.6 (16.4)</td>
<td>49.8 (12.3)</td>
<td>58.1 (17.1)</td>
<td>47.9 (11.9)</td>
<td>53.9 (12.8)</td>
<td>-7.1 2.1</td>
</tr>
<tr>
<td>PANSS general*</td>
<td>31.3 (5.2)</td>
<td>31.5 (7.8)</td>
<td>24.3 (5.6)</td>
<td>29.0 (9.0)</td>
<td>24.4 (6.6)</td>
<td>27.1 (7.8)</td>
<td>-4.5 1.2</td>
</tr>
<tr>
<td>PANSS positive*</td>
<td>14.8 (4.8)</td>
<td>16.1 (5.2)</td>
<td>14.0 (5.9)</td>
<td>15.2 (5.5)</td>
<td>12.4 (4.9)</td>
<td>14.9 (4.9)</td>
<td>-1.6 0.8</td>
</tr>
<tr>
<td>PANSS negative</td>
<td>12.6 (2.6)</td>
<td>14.0 (5.5)</td>
<td>11.6 (2.9)</td>
<td>14.0 (5.6)</td>
<td>11.1 (2.3)</td>
<td>11.9 (3.1)</td>
<td>-1.33 0.76</td>
</tr>
<tr>
<td>PSYRATS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hallucinations</td>
<td>18.79 (14.47)</td>
<td>19.08 (14.53)</td>
<td>17.81 (14.45)</td>
<td>12.00 (15.15)*</td>
<td>11.35 (14.21)</td>
<td>13.53 (15.76)*</td>
<td>2.74 2.74</td>
</tr>
<tr>
<td>Delusions</td>
<td>10.67 (6.60)</td>
<td>12.17 (8.57)</td>
<td>7.80 (8.50)*</td>
<td>9.74 (8.79)</td>
<td>7.19 (7.09)*</td>
<td>11.29 (8.12)*</td>
<td>-2.84 1.64</td>
</tr>
<tr>
<td>GAF total</td>
<td>28.7 (7.5)</td>
<td>30.4 (9.1)</td>
<td>34.0 (8.5)</td>
<td>36.6 (15.6)</td>
<td>39.2 (19.9)</td>
<td>35.7 (12.0)*</td>
<td>3.37 3.51</td>
</tr>
<tr>
<td>GAF symptoms*</td>
<td>31.2 (13.0)</td>
<td>33.9 (17.0)</td>
<td>42.8 (22.2)</td>
<td>43.2 (24.8)</td>
<td>47.5 (26.3)*</td>
<td>37.5 (15.5)</td>
<td>8.3 4.0</td>
</tr>
<tr>
<td>GAF disability</td>
<td>43.2 (11.1)</td>
<td>42.8 (9.3)</td>
<td>44.1 (5.4)</td>
<td>47.2 (12.3)</td>
<td>46.9 (15.5)*</td>
<td>44.9 (8.4)*</td>
<td>-0.02 3.35</td>
</tr>
</tbody>
</table>

a N = 18.
b N = 19.
c N = 24.
d N = 17.
e N = 16.
f N = 16.
g N = 17.
h N = 17.
i N = 16.
j N = 17.
k N = 24.
l N = 17.
m N = 15.
n N = 15.
o N = 17.
This study has a number of weaknesses. The trial was small and attrition levels at follow up were high. However, attrition from samples that experience severe mental illnesses is often substantial because it is challenging to engage and treat such individuals. Furthermore, apart from delusions measured by the PSYRATS, there were no differential effects of drop out status across the TAU and Treatment conditions. Notwithstanding, attrition levels at follow up were high. However, attrition from samples facing a manualised novel treatment to address an important clinical life issue, to be examined further.

On the positive side, this was an adequately powered pilot trial of a manualised novel treatment to address an important clinical life threatening problem, with independent and masked random allocation, and independent and masked assessments, using standardised measures with an at risk population recruited from a geographical cohort using public health services. Evidence was supportive of this intervention and there were no obvious adverse effects. The trial was the first of its kind and, thus, was an indication of feasibility as well as being indicative of the efficacy of the novel treatment.

Role of funding source
This report/article presents independent research commissioned by the National Institute for Health Research (NIHR) UK under its Programme Grants for Applied Research scheme (RP-PG-0606-1086). The funding body had no role in the rationale, design, collection, analysis, and interpretation of data, conclusions of this study, the writing of this paper, or the decision to submit this work for publication. The views expressed in this publication are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

Contributors
Nicholas Tarrier designed this study and together with Patricia Gooding, James Kelly and Janet Maxwell developed the psychological intervention which was being trialled. Graham Dunn was responsible for the analysis of the data. Heather Law was the trial manager. Natasha Snelson and Sehar Maqsood were responsible for the day-to-day running of the trial. Nicholas Tarrier and Patricia Gooding wrote the paper. All authors have contributed to and approved the final manuscript.

Conflict of interest
None.

Acknowledgements
Acknowledgement to the Service User Consultant, Yvonne Awenat and independent members of the Service User Reference Group, Yvonne Awenat, Rory Byrne, Ellen Hodson, Sam Omar, Liz Pitt, Jason Price, Tim Rawcliffe and Yvonne Thomas, for their work on this study, and to Mary Wellford in contributing to therapist supervision.

References

Table 3
Mean (SD), baseline scores for primary and secondary outcome measures for participants who did and did not drop out in the Treated and Treatment As Usual (control) groups as analysed by univariate ANOVAs with two between subject factors of treatment status and drop out status, applied to baseline data for drop out status at each time point. Significant main effects (p < .05) are indicated with an asterisk. Significant interaction effects (p < .05) are indicated with a #.

<table>
<thead>
<tr>
<th></th>
<th>4 months</th>
<th>6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No drop outs</td>
<td>Drop outs</td>
</tr>
<tr>
<td></td>
<td>TAU</td>
<td>Treated</td>
</tr>
<tr>
<td>Primary outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suicidal ideation (BSS)</td>
<td>11.3 (9.2)</td>
<td>10.4 (9.5)</td>
</tr>
<tr>
<td>Suicidal ideation (ASIQ)</td>
<td>50.8 (38.2)</td>
<td>51.1 (39.5)</td>
</tr>
<tr>
<td>Suicide probability (SPS)</td>
<td>79.3 (25.7)</td>
<td>80.8 (25.6)</td>
</tr>
<tr>
<td>SPS suicidal ideation</td>
<td>19.2 (9.9)</td>
<td>22.3 (9.1)</td>
</tr>
<tr>
<td>SPS hopelessness</td>
<td>25.1 (9.7)</td>
<td>25.6 (9.8)</td>
</tr>
<tr>
<td>SPS negative self-evaluation</td>
<td>192.3 (9.3)</td>
<td>180.3 (3.8)</td>
</tr>
<tr>
<td>SPS Hostility</td>
<td>15.8 (6.2)</td>
<td>14.9 (6.9)</td>
</tr>
</tbody>
</table>

Secondary outcomes

<table>
<thead>
<tr>
<th></th>
<th>4 months</th>
<th>6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No drop outs</td>
<td>Drop outs</td>
</tr>
<tr>
<td></td>
<td>TAU</td>
<td>Treated</td>
</tr>
</tbody>
</table>

| Depressions (Calgary) | 8.3 (4.8) | 7.1 (4.8) | 13.6 (2.5) | 11.3 (4.0) |
| Anxiety (BAI) | 17.7 (12.2) | 20.7 (14.3) | 31.2 (10.8) | 24.2 (11.9) |
| Hopelessness (BHS) | 11.7 (5.9) | 11.4 (6.2) | 16.2 (2.9) | 14.2 (3.9) |
| Self esteem | 70.9 (26.1) | 71.8 (25.5) | 55.2 (19.2) | 60.4 (22.3) |
| PANSS general | 58.2 (15.4) | 58.0 (11.5) | 74.6 (14.4) | 60.0 (8.6) |
| PANSS general | 30.0 (7.6) | 30.6 (5.8) | 37.2 (6.4) | 32.7 (4.1) |
| PANSS positive | 149.5 (50.0) | 148.5 (5.8) | 208.2 (29.9) | 150.3 (3.6) |
| PANSS negative | 133.4 (48.8) | 127.2 (27.7) | 166.7 (76.6) | 123.2 (25.3) |
| PSYRATS hallucinations | 181.8 (14.9) | 163.3 (15.5) | 228.1 (13.7) | 238.1 (11.5) |
| PSYRATS delusions | 10.8 (8.7) | 11.8 (6.4) | 17.4 (5.9) | 8.4 (8.9) |
| GAF total | 32.2 (9.3) | 29.6 (8.5) | 23.6 (4.0) | 27.2 (5.3) |
| GAF symptoms | 36.6 (18.2) | 32.5 (12.5) | 23.6 (4.0) | 29.0 (7.4) |
| GAF disability | 43.7 (8.6) | 43.8 (10.2) | 39.6 (12.2) | 42.0 (11.1) |

|                  |           |          |           |          |
|                  | TAU       | Treated  | TAU       | Treated  |

Note: *F(1,44) = 4.1, p = .05*.


StataCorp, 2009. Stata Statistical Software: Release 11.0. Stata Corporation, College Station, TX.


