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BRIEF CLINICAL REPORT

Emotional regulation for adolescents: a group-based treatment pilot study through the STEPPS programme

Ivan Llorens Ruiz[1,2], Fernando Lopez Seco[1,2,3,4,*], Adela Masana Marín[1,2,3,4], Esmeralda San Martín Águila[1], Dina Martínez Pinar[1], Sonsoles Martín Alonso[1], Elisabet Vilella[1,2,3,4] and Alfonso Gutierrez-Zotes[2,3,4]

[1]Child and Adolescent Mental Health Center, HPU Institut Pere Mata, [2]Research Departament HPU Institut Pere Mata, Universitat Rovira i Virgili, Tarragona, Spain, [3]Institut d´Investigació Sanitaria Pere Virgili IISPV and [4]Centro de Investigación Biomédica en Red del Área de Salud Mental (CIBERSAM)
*Corresponding author. Email: ferlopezseco@hotmail.es

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Abstract

Background: Borderline personality disorder (BPD) usually begins in adolescence and manifests itself in adult life. Early intervention can improve the prognosis or reduce its severity. Nevertheless, there are currently few studies of adolescent patients with severe emotion instability and borderline personality traits.

Aims: To evaluate the effectiveness of the Systems Training for Emotional Predictability and Problem Solving (STEPPS) programme in a sample of 21 adolescents (aged 13–17 years) in the Child and Adolescents Mental Health Center of Tarragona in Spain.

Method: We evaluated BPD traits using the Diagnostic Interview for Borderline Disorder-Revised (DIB-R) and the Global Clinical Impression Scale of Illness Severity for TLP (CGI-TLP). We compared pre- and post-treatment scores for the DIB-R, CGI-GI scale, general psychopathology using the Personality Inventory for Adolescents (PAI-A) and impulsivity with the Barratt Impulsivity Scale (BIS-11). The therapeutic objectives were evaluated with the Borderline Estimate Severity over Time (BEST) scale.

Results: There was a statistically significant improvement in the scores for the affective area and in the total score of the DIB-R, a decrease in the percentage of patients who failed to meet criteria for BPD, and an improvement (although not statistically significant) in the scores of the BEST scale throughout the treatment. The results of the CGI-GI scale showed global improvement in almost 72% of patients.

Conclusion: Our study suggests that STEPPS can be an effective treatment to improve BPD symptoms and is very useful in community settings with limited resources in which efficient treatment alternatives must be sought. However, this conclusion must be interpreted with caution, as there is no comparison control group.

Keywords: adolescents; BPD; community mental health; emotional instability; STEPPS group therapy

Introduction

Emotional instability may be a normal feature of adolescent development (Kaess *et al.*, 2014), but in some cases it is associated with the existence of psychopathology such as borderline personality disorder (BPD). It is characterized by affective instability, impulsivity, anger and unstable relationships. In adolescents the BPD prevalence is estimated to be between 0.9 and 14% in community samples, and up to more than 30% in hospitalized adolescents (Miller *et al.*, 2008).

The Systems Training for Emotional Predictability and Problem Solving (STEPPS) is a cognitive behavioural group-based treatment for the development of skills. The STEPPS programme has been included in the NICE guide as a therapy with evidence of efficacy

for the improvement of some of the symptoms in patients with BPD (Blum *et al*., 2008; Hill *et al*., 2016). To date, there are few studies on the effectiveness of therapy with the STEPPS model in adolescents (Schuppert *et al*., 2009, 2012). Schuppert *et al*. (2009) compared a STEPPS group with the usual treatment group. Both groups showed equal reductions in BPD symptoms over time. The group receiving STEPPS had a significant increase in internal locus of control (more sense of control over their mood swings and attributed mood changes to internal as well as external factors).

Our study assessed this therapy, in a group format, to analyse if there is an improvement of the symptomatology in the emotional instability in adolescents treated in Child and Youth Mental Health Centres. The study was carried out with a sample of adolescents with BPD traits in a treatment group using the STEPPS model. The study had several objectives: (1) improvement of the symptomatology in the affective and interpersonal dimensions measured by the Diagnostic Interview for Borderline Disorder-Revised (DIB-R); (2) decreased impulsiveness and personality traits of emotional instability and interpersonal relationship problems; and (3) improvement in the scales of global clinical impression and in the scale of evaluation of the symptomatology during the realization of the group (Borderline Estimate Severity over Time, BEST).

Method

Subjects

The sample was obtained from subjects undergoing treatment at the Infant and Adolescent Mental Health Centres of the Institut Pere Mata University Psychiatric Hospital in Reus and Tarragona (Spain).

The criteria for inclusion in the study were age between 13 and 17 years of both sexes, symptoms of moderate or severe instability with a Global Clinical Impression Scale of Severity Illness (CGI-SI) score ≥ 4 and/or DIB-R >6, not receiving a manual therapy, and signed informed consent of the patient and tutor. The exclusion criteria were: obtaining a clinical diagnosis psychotic or bipolar disorders, organic syndrome or mental retardation. The assignment to the type of treatment was by incidental sampling of order of arrival at the centre. The patients took part in the STEPPS programme in addition to their usual treatment, which consisted of an individual follow-up with a clinical psychologist every 3 weeks and pharmacological treatment with a psychiatrist.

Procedure

A pre- and post-evaluation at the beginning of the treatment group was performed on all subjects with all the instruments. The BEST scale, included in the STEPPS programme, was administered at the beginning of each session.

Instruments

Diagnostic Interview for Borderline Disorder-Revised (*DIB-R*) for the evaluation of the four dimensions of BPD.

Personality Inventory for Adolescents (*PAI-A*) to evaluate the psychopathology.

Barratt Impulsivity Scale (*BIS-11*)

Global Clinical Impression Scale of Severity Illness (*CGI-SI*). Severity of the disease at the time of evaluation.

Global Clinical Impression Scale of Global Improvement (*CGI-GI*). The change experienced by the patient with respect to their baseline status.

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Borderline Estimate Severity over Time (BEST). Symptoms of the emotional instability disorder and the positive or therapeutic behaviours are evaluated as strategies of coping or emotional regulation.

Statistical analysis

To compare the measurements before and after the treatment, we performed the χ^2 test for the categorical variables and the Wilcoxon test for continuous variables. The Friedman test was used to compare scores on the BEST scale throughout the sessions. The eta squared ($\eta^{2)}$ was used to calculate the effect size of the intervention.

Statistical analyses were performed using the program SPSS/PC 22.0 (IBM Corporation, Arkmonk, NY, USA).

Results

The sample consisted of 21 subjects, of which 19 were girls (90.5%) with ages ranging from 13 to 17 years (mean ± $SD = 15.5 \pm 1.2$). At the beginning of the treatment, 11 subjects (52.4%) met diagnostic criteria for BPD according to the DIB-R. In relation to the loss of subjects and disengagement from follow-up in the Mental Health Service, there were four drop-outs (19%).

For the DIB-R symptom interview, in the evaluation before and after the group, there was a significant improvement in the total score (5.3 ± 2.5 *vs* 3.8 ± 2.4, $Z = -2.75$, $p < 0.006$) and in the area affective (7.2 ± 1.9 *vs* 5.3 ± 2.5, $Z = -3.07$, $p < 0.002$). The effect size calculated by eta squared was large in the affective area of the DIB-R ($\eta^2 = 0.48$, $r = 0.71$, 95% CI 0.45–0.86) and also in the total scale ($\eta^2 = 0.37$, $r = 0.62$, 95% CI 0.37–0.81).

At the beginning of the treatment, 52.4% exceeded the diagnostic cut-off point of BPD according to the DIB-R and at the end of the treatment, only 28.6% exceeded it. However, this decrease in the number of diagnoses was not statistically significant ($\chi^2 = 2.47$, $p = 0.11$).

In the PAI-A personality inventory there was no improvement in any of the clinical scales at the end of the treatment. In the impulsivity scale BIS-11 there was no significant improvement at the end of the treatment (68.2 ± 14.5 *vs* 66.19 ± 20, $p = 0.6$).

On the BEST scale there was a decrease of 9.5 points, which does not reach statistical significance ($\chi^2 = 2.12$, $p = 0.54$). The scores are shown in Fig. 1.

Regarding the overall improvement evaluated by the referring psychologist or psychiatrist of each patient with the CGI-GI, there was an improvement in 71.4% of the subjects (47.6% improved slightly and 23.8% greatly or moderately). Of the entire sample, 19% of the subjects remain unchanged, while 9.5% worsened after the intervention. Only two patients (9.5%) needed a brief hospital admission during the treatment. The average frequency of visits to mental health emergency services was 0.33 ± 0.73.

Discussion

The objective of this study was to assess the STEPPS treatment model in a sample of adolescents with BPD traits. Our results show a significant improvement in the affective area in the DIB-R diagnostic interview. The improvement in this group of emotions and behaviours is relevant given that these symptoms are a core part of the symptoms of emotional instability. These results are in agreement with a previous study where a significant decrease in depressive symptoms was found (Blum *et al.*, 2008). We also found a decrease in the percentage of patients who failed to meet the BPD. Initially, 52.4% of the adolescents exceeded the diagnostic cut-off point of the DIB-R and at the end of the treatment only 28.6% exceeded it. This decrease was not statistically significant, probably because of the size of the sample. In our study, there was a reduction of 2 points in the affective scale of the DIB-R. It is a clinically very relevant result, as it implies a reduction

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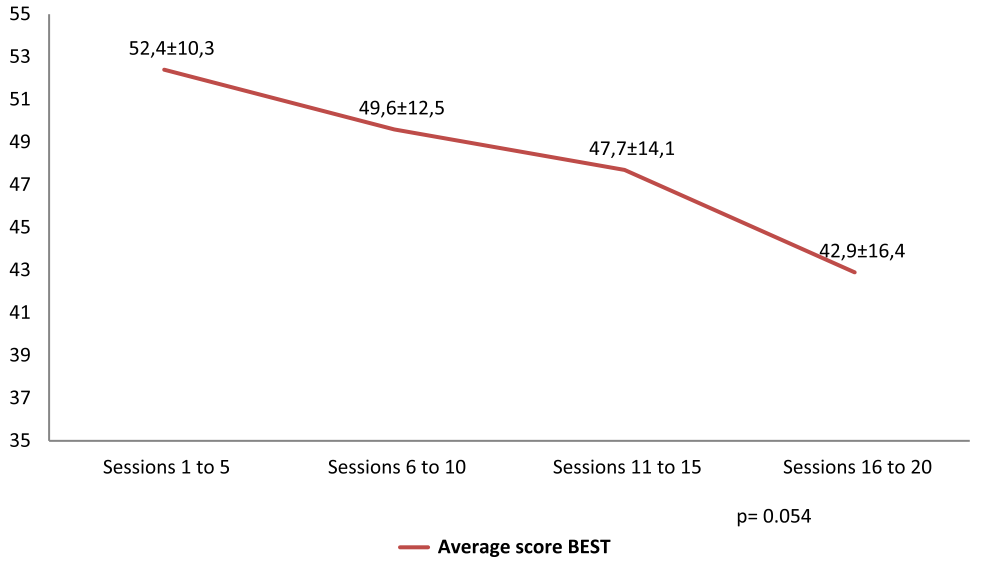

Figure 1. Average scores on the BEST scale by sessions (mean ± *SD*).

of 28.9% of the symptomatology. A previous study obtained a minor symptomatic decrease, which has been attributed to the fact that the patients initially had low scores in the specific questionnaire (Schuppert *et al.*, 2009).

The results of the CGI-GI scale showed global improvement in almost 72% of patients. On the BEST scale after the group there was also an improvement in the self-improvement scores perceived during the sessions with a tendency towards significance, going from an average score of 52.4 in the first sessions to 42.9 in the last sessions.

Considering the drop-out rate as a reference, we find that it is relatively low (16%) and similar to that obtained in other studies (Schuppert *et al.*, 2012). In this sense, it is possible that adherence to treatment could be favoured because it is a short duration treatment, well structured, with a fixed periodicity and with materials adapted to their age, which has also allowed significant improvements in mood. Nearly half (47.6%) of the sample scores below the clinical cut-off. It suggests that the intervention may be particularly effective at this earlier, less established stage of the disorder.

Limitations

The results must be interpreted with caution. We have not included a control group with only usual treatment. The lack of control group has implications for interpretation of the findings. Results could be due to non-specific effects such as spontaneous remission or therapeutic alliance. The post-treatment assessment was carried out 1 month after the end of the intervention and there are no follow-up data on the maintenance of the improvement. The sample is composed of patients of mild and moderate severity. A small percentage of our patients worsened after treatment. Other variables not evaluated in this study, such as the patient, therapist, dyadic-relational factors or type of treatment, could be determined in the treatment failure of these adolescents. More studies are necessary to analyse the worsening factors as a result of psychotherapy. A more exhaustive assessment of the already known patient variables associated with therapeutic success or failure is necessary for a greater personalization of the treatments, especially those with a group format.

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Our study has several points of interest. This is a study of the effectiveness of a manualized psychotherapeutic intervention in the adolescent clinical population, in a context of public and community treatment, where there are few studies on psychotherapy and as far as we know it is the only study with adolescents in our country. Secondly, the public mental health services of our territory have a high burden of care and lack the resources to offer longer and specialized treatments, such as DBT (dialectic-behavioural therapy) or MBT (therapy based on mentalization). Programmes such as STEPPS, added to the usual treatment, can offer supplementary help to adolescents with serious problems of emotional regulation, as it is a group intervention of shorter duration. Finally, in our study, indicators of improvement in drop-outs indicate that group intervention can indirectly improve adherence to treatment and the involvement of patients in their therapeutic process as well as in the subsequent evaluation follow-up.

In summary, this study of group treatment with the STEPPS model in adolescents shows that there is a significant improvement in global symptomatology and in the affective area, a reduction in compliance with diagnostic criteria, and a low rate of drop-outs from follow-up.

Supplementary material. To view supplementary material for this article, please visit https://doi.org/10.1017/S1352465820000454

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Ethical statements. The study conforms to the recognized standards of the Declaration of Helsinki. The study was approved by the Clinical Research Ethics Committee of the Sant Joan de Reus University Hospital. The reference number is 13-09-19/9proj2. The authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the BABCP and BPS. All families and adolescents signed an informed consent form that was specifically designed for the current study.

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