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BRIEF CLINICAL REPORT

# Systems training for emotional predictability and problem solving in older adults with personality disorders: a pilot study

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## Abstract

**Background:** Systems Training for Emotional Predictability and Problem Solving (STEPPS) is a cognitive behavioural therapy-based group treatment programme for patients with borderline personality disorder (BPD). STEPPS has demonstrated its effectiveness for (younger) adults. However, there are no studies into the effects of STEPPS for older adults.

**Aim:** The aim was to explore the outcome of STEPPS in older adults with personality disorders.

**Method:** In this naturalistic pre- vs post-treatment study, older patients with a personality disorder, reporting emotion regulation difficulties, were included. The primary outcome was BPD symptoms. Secondary outcomes included psychological distress and maladaptive personality functioning.

**Results:** Twenty-four patients, with a mean age of 63.9 years ( $SD=4.6$ ), completed the 19-week programme. Nine patients (23.1%) did not complete the treatment. There were no significant differences in age, gender or global severity between completers and patients dropping out. There was a significant pre- vs post-treatment decrease of BPD symptoms, with a large effect size (Cohen's  $d=1.577$ ). Self-control improved significantly and demonstrated a large effect size ( $r=.576$ ). Furthermore, identity integration improved significantly, with a medium effect size (Cohen's  $d=.509$ ). No significant differences were reported for most domains of psychological distress and maladaptive interpersonal personality functioning.

**Conclusions:** The findings in this pilot study suggest STEPPS is a feasible treatment programme for older adults with personality disorders and emotion regulation difficulties. Adaptations to the program, for a better fit for older adults, however, might be needed.

**Keywords:** borderline personality disorder; emotion regulation; older adults; STEPPS

## Introduction

Systems Training for Emotional Predictability and Problem Solving (STEPPS; Blum *et al.*, 2002) is a manualized, cognitive behavioural therapy-based group treatment programme for patients with borderline personality disorder (BPD). STEPPS is based on the premise that patients with BPD lack skills to deal with their emotion instability. To achieve emotional stability, patients learn basic

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emotion and behaviour management skills (Blum *et al.*, 2002). A recent systematic review of the current studies concluded that STEPPS seems to be an effective treatment for patients with BPD (Ekiz *et al.*, 2022). To date, no studies have been conducted into the effects of STEPPS in older adults. Personality disorders (PDs) persist into old age with a prevalence rate between 10 and 14.5% in the general population (Penders *et al.*, 2020). However, BPD symptoms do seem to change over the course of life. Symptoms like impulsivity, self-harm and anger appear to decrease, while interpersonal disturbances, emotional dysregulation and affective symptoms do not appear to abate over the course of life (Frías *et al.*, 2017). These findings suggest that emotion regulation problems in PDs persist into old age, albeit the manifestation can change. Adequate treatment options for older adults with PDs are needed. STEPPS might connect to the psychotherapy expectations of older adults, as it places emphasis on psychoeducation, and is highly structured, skill-enhancing and problem-focused (Laidlaw and Thompson, 2008). The aim of the present study was to explore the outcome of STEPPS in older adults with (B)PDs.

## Method

### Participants

The sample was obtained from patients attending STEPPS at an out-patient clinical centre of expertise for personality disorders and developmental disorders in older adults in The Netherlands. Inclusion criteria were: a recent (<1 year before the start of STEPPS) diagnosis of at least one PD (determined with the Structured Clinical Interview for DSM-5 Personality Disorders, SCID-5-PD), at least three traits of BPD, emotion regulation difficulties, age of at least 55 years, and motivation to participate in the programme. Exclusion criteria were patients with neurocognitive, autism spectrum, and major substance abuse disorders, acute comorbid psychiatric conditions disabling the treatment of the PD, IQ-score lower than 85, and patients not proficient in Dutch.

### Measures

The primary outcome measure of this study was changes in severity of BPD symptoms. This was measured with the Borderline Evaluation of Severity over Time (BEST), a self-report questionnaire used to assess the severity of BPD symptoms. This measurement is incorporated in STEPPS and is completed by patients on a weekly basis.

Secondary outcome measures were psychological distress and severity of maladaptive personality functioning assessed by the Symptom Questionnaire-48 (SQ-48) and the Severity Indices of Personality Problems - Short Form (SIPP-SF). SQ-48 contains subscales for depression, anxiety, somatization, agoraphobia, aggression, cognitive problems, social phobia, work functioning, and vitality. SIPP-SF contains five domains: (1) self-control, the ability to control emotions and impulses; (2) identity integration, the ability to tolerate frustration and experience life as meaningful; (3) relational functioning, the ability to maintain and engage in relationships; (4) responsibility, the ability to set realistic goals and achieve those goals; and (5) social concordance, the ability to cooperate with others.

### Protocol and design

In this study, the Dutch version of STEPPS (*Vaardigheidstraining Emotie Regulatie Stoornis*; VERS) was used. The Dutch STEPPS entails adjustments to the original (American) STEPPS-protocol, including adjunctive individual sessions once every fortnight, and 19 (instead of the original 20) group sessions.

The current pilot study entails a naturalistic pre- and post-treatment research design. SQ-48 and SIPP-SF were administered around weeks 1 and 19 of the therapy. BEST was administered

**Table 1.** Pre- to post-STEPPS comparisons of outcome measures

Outcome measures	<i>n</i> <sup>‡</sup>	Mean ( <i>SD</i> ) at pre-treatment	Mean ( <i>SD</i> ) at post-treatment	<i>t</i> / <i>Z</i> -value	<i>p</i> -value	Effect size
BEST	15	42.1 (9.1)	26.1 (10.2)	6.106*	<.001	<b>1.577</b>
SQ-48	21	65.1 (23.1)	54.8 (18.9)	1.946*	.066	.425
SIPP-SF self-control	20	27.2 (7.8)	32.0 (8.8)	-2.578**	.010	<b>.576</b>
SIPP-SF identity integration	20	24.0 (8.1)	28.6 (9.3)	-2.276*	.035	<b>.509</b>
SIPP-SF relational functioning	20	28.9 (7.4)	29.9 (7.6)	-.597*	.557	.134
SIPP-SF responsibility	20	39.6 (5.6)	40.1 (7.1)	-.342*	.736	.077
SIPP-SF social concordance	20	33.3 (7.1)	35.5 (7.7)	-1.836**	.066	.411

BEST, Borderline Evaluation of Severity over Time; SIPP-SF, Severity Indices of Personality Problems - Short Form; SQ-48, Symptom Questionnaire-48.

<sup>‡</sup>Number of outcome measures available; \*Paired samples *t*-test; \*\*Wilcoxon signed rank test.

weekly. For the BEST, the mean score of weeks 1 and 2 was used as the pre-treatment score, and the mean score of weeks 18 and 19 as the post-treatment score. The study protocol was approved by the local ethics committee of the participating clinical centre.

### Analyses

Outcome variables were tested on the assumption of normality, using Kolmogorov–Smirnov tests. To determine differences between pre- and post-treatment, paired samples *t*-tests were conducted for the five normally distributed variables (i.e. BEST, SQ-48, SIPP-SF identity integration, SIPP-SF relational functioning, and SIPP-SF responsibility). Wilcoxon signed rank tests were conducted for the two variables that were not normally distributed (i.e. SIPP-SF self-control, and SIPP-SF social concordance). Furthermore, effect sizes were calculated and interpreted. For the *t*-tests, a Cohen's *d* of .2 indicated small, .5 medium and .8 large effect sizes, and for the Wilcoxon signed rank tests an *r* of .1 indicated small, .3 medium and .5 large effect sizes.

## Results

### Participant characteristics

Thirty-nine patients participated in five different STEPPS treatment groups between March 2018 and October 2020. Nine patients (23.1%) agreed to participate in the study, but did not complete the treatment. Three patients (7.7%) declined participation. Three patients (7.7%) did not meet the inclusion criteria. Therefore, 24 patients (61.5%) completed the treatment programme and were included in the present study. Sixteen (66.7%) of these 24 participants were female. Ages ranged from 56 to 72 years (mean±*SD* 63.9±4.6). Mean (*SD*) Global Assessment of Functioning at the beginning of treatment was 47.9 (7.2). Eleven (45.8%) participants were diagnosed with BPD, three (12.5%) with avoidant PD, two (8.3%) with obsessive–compulsive PD, five (20.8%) with unspecified PD, and three (12.5%) with other specified PD. There were no significant differences in age ( $t_{31}=.820$ ,  $p=.418$ ), gender ( $\chi^2(1)=.000$ ,  $p=1.000$ ) or Global Assessment of Functioning ( $t_{31}=-.550$ ,  $p=.587$ ) between completers ( $n=24$ ) and drop-outs ( $n=9$ ).

### Treatment outcomes

As can be seen in Table 1, there was a statistically significant decrease in pre- vs post-treatment scores on the BEST ( $t=6.106$ ,  $d.f.=14$ ,  $p<.001$ ), yielding a large effect size (Cohen's  $d=1.577$ ). The first step of the programme (i.e. psychoeducation) yielded a mean drop of 3.8 ( $SD=9.9$ ) on the total score of the BEST. The second step (i.e. emotion management skills) yielded a mean drop of

11.1 ( $SD=11.4$ ). The third step (i.e. behaviour management skills) yielded a mean drop of 3.8 ( $SD=7.7$ ). Most gains seemed to be made during the second step of the treatment.

The SQ-48 total score did not demonstrate a significant difference ( $t=1.946$ ,  $d.f.=20$ ,  $p=.066$ ). Within the subscales of the SQ-48, however, significant decreases were found for depression ( $t=2.157$ ,  $d.f.=20$ ,  $p=.043$ , Cohen's  $d=.471$ ) and cognitive problems ( $t=2.346$ ,  $d.f.=20$ ,  $p=.029$ , Cohen's  $d=.512$ ).

A Wilcoxon signed rank test showed a statistically significant increase of SIPP-SF self-control ( $Z=-2.578$ ,  $p=.010$ ). The effect size was large ( $r=.576$ ). A  $t$ -test demonstrated SIPP-SF identity integration to increase significantly ( $t=-2.276$ ,  $d.f.=19$ ,  $p=.035$ ). The effect size was medium (Cohen's  $d=.509$ ). There were no significant differences for SIPP-SF relational functioning ( $t=-.597$ ,  $d.f.=19$ ,  $p=.557$ ), SIPP-SF responsibility ( $t=-.342$ ,  $d.f.=19$ ,  $p=.736$ ) and SIPP-SF social concordance ( $Z=-1.836$ ,  $p=.066$ ).

## Discussion

STEPPS is a group treatment programme for patients with BPD. To date, no studies on STEPPS have been conducted in older adults. The aim of the current study was to explore the efficacy of STEPPS in a sample of older adults with PDs. Results demonstrated decreased BPD symptoms, improved ability to control emotions and impulses, and an improved ability to tolerate frustration and experience life as meaningful. Improvements on BPD symptoms and controlling emotions and impulses demonstrated large effect sizes.

There were no significant differences between pre- and post-treatment results for other secondary outcome measures: i.e. psychological distress (total score), the ability to maintain and engage in relationships, the ability to set realistic goals and achieve those goals, and the ability to cooperate with others. The non-significant results on most subscales for psychological distress, as measured with the SQ-48, were unexpected. The small sample size in this study and the lack of specific norms of the SQ-48 for older adults may be factors contributing to a type II error for outcome on the factor psychological distress. Another explanation for a possible false negative outcome is that the STEPPS protocol needs adaptations for older adults (Melssen *et al.*, 2022), in order to decrease psychological distress. Furthermore, interpersonal symptoms of BPD seemed not to improve after STEPPS. Interpersonal skills are taught in the third step of the treatment. Participants demonstrated less progress in this part of STEPPS. An explanation for interpersonal symptoms not improving might be a finding specific to our sample of older adults. In sessions 13–19, behaviour management skills are taught. Topics in this section are goal setting, healthy eating, sleeping, exercise, leisure, physical health, self-harm avoidance, and relationship behaviours. The content of these topics in the STEPPS protocol might not be suitable for all age groups. For example, ways to build and maintain healthy relationships might differ for a studying and single adolescent *vs* a retired and married older adult. Currently, Melssen *et al.* (2022) are conducting a Delphi study to investigate whether the original STEPPS protocol should be adapted for older adults, and if so, which adaptations should be made for a better fit.

This pilot study has some methodological limitations. First, the absence of a control group limits the conclusions that can be drawn regarding effects that might be addressed to the intervention. A second limitation is the small sample size (and small number of completed outcome measurements, e.g. BEST), further underlining the necessity of replicatory studies. Third, there is possible measurement bias because two measurements used (i.e. BEST and SQ-48) lack psychometric properties for older adults.

In summary, this is the first empirical study investigating treatment of emotion regulation problems in older adults with PDs. Results suggest that STEPPS is feasible in the young old and is associated with positive outcomes. At the end of treatment, patients reported fewer

BPD symptoms, improved skills in controlling emotions and impulses, and an improved ability to tolerate frustration and experience life as meaningful. No significant changes were found in most domains of psychological distress and interpersonal skills. The next step to efficacy research is a mixed method approach of quantitative and qualitative research to evaluate necessary changes to the STEPPS protocol for older adults.

**Supplementary material.** To view supplementary material for this article, please visit: <https://doi.org/10.1017/S1352465822000443>

**Data availability statement.** The data that support the findings of this study are available from the corresponding author upon reasonable request.

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**Conflicts of interest.** All authors declare that they have no conflicts of interest.

**Ethical standards.** Authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the BABCP and BPS. All subjects were provided oral and written information concerning the study. Subjects' informed consents were documented. The study was approved by research ethics committee of GGz Breburg, Tilburg, The Netherlands (reference number CWO2018-13).

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