**Systems Training for Emotional Predictability and Problem Solving in Older Adults with Personality Disorders: A Pilot Study**

**Abstract**

**Background:** Systems Training for Emotional Predictability and Problem Solving (STEPPS) is a cognitive behavioural therapy based group treatment program 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. Patients were screened for possible neurocognitive disorders. 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 program. 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 program 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.

**Key words**

STEPPS, borderline personality disorder, emotion regulation, older adults

**Introduction**

The effects of psychotherapeutic treatment for adults with a borderline personality disorder (BPD) have been extensively studied. It has been concluded that there is evidence for a substantial role for psychotherapy in the treatment of patients with BPD (Stoffers-Winterling et al., 2012, Storebø et al., 2020). Replicatory studies, however, are necessary. Moreover, for reasons of generalizability, research among other age groups is needed. One of the interventions studied, is the Systems Training for Emotional Predictability and Problem Solving (STEPPS), developed in the USA by Blum and colleagues (2002). STEPPS is a manualized group treatment program for patients with BPD. It consists of twenty weekly group meetings. There is also evident attention to the system of the patient, as family members and friends are involved in the treatment.

STEPPS is based on the premise that patients with BPD lack skills to deal with their emotion regulation difficulties. To achieve emotional stability, patients learn basic emotion and behaviour management skills based on cognitive behavioural therapy (Blum et al., 2002 and 2012). The treatment consists of three steps. In the first step, patients receive psychoeducation. Awareness is raised about patients’ BPD, vulnerability in regulating emotions and typical thought, feeling and behaviour patterns that define the disorder. At the same time, patients become aware of their ability to learn new skills and change. In the second step, patients are taught five emotion management skills. These skills include (1) distancing from intense emotions and observing without judgement, (2) describing and communicating feelings more effectively, (3) awareness of cognitive filters and challenging corresponding thoughts, (4) shifting attention from negative feelings to activities that evoke neutral or positive feelings, and (5) managing difficult situations with problem solving strategies. In the final third step, eight behaviour management skills are taught. These skills include setting goals, healthy eating, sleeping, exercise, leisure, physical health, self-harm avoidance, and relationship behaviours. Patients identify their current functioning and problems in these areas. Next, they set goals in these skill areas and track steps towards these goals. Also, throughout the STEPPS-program, relaxation, mindfulness and breathing skills are exercised as a means to distance oneself from high emotional tension. Furthermore, during the treatment, patients keep track of their Emotional Intensity Continuum, in which they learn to recognize (patterns in) rising emotions and their own influence on these emotions. Finally, key family members, friends or professionals, chosen by the patient as the reinforcement team, are invited to participate in educational group sessions.

To date, three randomized controlled trials (RCTs) have been conducted investigating the effectiveness of STEPPS. In an American RCT with 124 adult patients with BPD, adding STEPPS to treatment as usual (TAU) appeared to be effective in reducing the affective, cognitive, interpersonal, and impulsive symptoms of BPD, as well as in reducing impulsivity, negative affectivity, and improving mood and general functioning (Blum et al., 2008). In the one-year follow-up, these gains were maintained. Predictors of response and drop-out were investigated in an exploratory study with 164 participants (Black et al., 2009). Higher baseline clinical severity predicted better response to the treatment. Higher impulsivity, on the other hand, was found to be a significant predictor of early discontinuation. In a Dutch RCT, 42 adult patients with BPD attending STEPPS, were compared to 37 patients allocated to TAU (Bos et al., 2010). STEPPS appeared to be more effective in reducing general psychiatric problems, general BPD-severity and increasing quality of life, but not in reducing impulsivity and para-suicidality. In another RCT of Bos and colleagues (2011), patients who did not fully meet the DSM-IV-criteria of BPD, were also included in the study. These patients reported personality disorders (PDs) on a screening questionnaire (i.e., Personality Diagnostic Questionnaire; Hyler, 1994), but not on the semi-structured interview that was used (i.e., Structured Clinical Interview for DSM-IV Axis II Disorders; First et al., 1997). Outcomes of the semi-structured interview were not further discussed by the authors. Similar results were found when these patients (n = 85) were included in the original RCT. There were no significant differences in outcome between patients with BPD and without BPD, indicating STEPPS is equally effective for both groups.

Besides these three RCTs, other research designs have been used. A recent systematic review of the current studies concluded that STEPPS seems to be an effective treatment for patients with severe BPD (Ekiz et al., 2022). In recent years, STEPPS is no longer regarded solely as a treatment for BPD, but instead as a treatment program for patients with emotional intensity disorders, also present in other PDs (Black & Blum, 2017). Therefore, STEPPS can be used as a transdiagnostic treatment program, which might be sufficient as a stand-alone treatment, but can also be offered as part of a stepped-care treatment program.

To date, no studies have been conducted into the effects of STEPPS in older adults. However, PDs persist into old age with a prevalence rate between 10% - 14.5% in the general population (Penders et al., 2020). Furthermore, PDs in later life are associated with various adverse health outcomes (Cruitt & Oltmanns, 2018). 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 (such as anxiety, depression and somatization) do not appear to abate over the course of life (Frías et al. 2017). McMahon et al. (2019) found considerable age-related differences in expression of BPD symptoms among 34,481 community-dwelling people, aged between 20 and 90 years. There were significant age differences for two out of the nine DSM-criteria for BPD. Furthermore, several cross-sectional studies have been conducted on the symptoms of BPD in older adults. Compared to 97 younger adults with BPD (mean age = 21.1, SD = 2.2, range = 18 to 25 years), 46 older adults in mid-adulthood with BPD (mean age = 51.3, SD = 5.7, range = 45 to 68 years) reported less impulsive tendencies, repetitive self-harming behaviour and affective instability, but more feelings of chronic emptiness and social impairment (Morgan et al., 2013). In a study with 169 outpatients with BPD, the younger age group (16 to 25 years) reported more physical/verbal aggression and suicide attempts, while the older age group (46 years and older) reported higher depression severity, more somatization and anxiety symptoms, and greater functional impairment (Frías et al., 2017). Case studies and expert opinion research suggest that features of BPD can be exacerbated in old age due to contextual changes (van Alphen et al., 2012; Videler et al., 2019). These findings suggest that there are empirical indications that emotion regulation problems in PDs persist into old age, albeit that the manifestation can change.

So far, only two studies have been published examining treatment effectiveness of PDs as the main focus of treatment in later life. In a small RCT, Lynch et al. (2007) investigated the effects of the combination of Dialectical Behaviour Therapy (DBT) and pharmacotherapy versus pharmacotherapy alone in 34 older adults with co-morbid PDs and depression. The combination of DBT and pharmacotherapy resulted in less depressive symptoms, interpersonal sensitivity and aggression. A remarkable aspect of this study is that patients receiving pharmacotherapy alone had a comparable remission of PDs (n = 7) as patients receiving combination therapy (n = 9; Van Alphen et al., 2007). Pharmacological treatments alone, however, are not associated with remission of PDs (Paris, 2011). Moreover, only four out of the 21 participants receiving DBT had BPD. Most participants had an obsessive-compulsive PD (n = 11) or avoidant PD (n = 7). This is remarkable, since DBT was specifically designed for patients with BPD (Linehan et al., 1991). In another study examining treatment effectiveness of PDs in later life, Videler and colleagues (2018) used a multiple-baseline design to investigate schema therapy in eight older adults with cluster C PDs (avoidant, dependent and obsessive-compulsive PD). Treatment decreased the credibility of dysfunctional core beliefs, symptom severity, and improved quality of life with high effect sizes and seven participants remitted from their PD diagnosis. With only these two studies, psychotherapeutic treatment of PDs in older adults is still a highly underexplored topic, especially for older adults with BPD (Penders et al., 2020).

Since emotion regulation problems of (B)PDs persist into old age, adequate treatment options are highly needed. STEPPS might connect to the psychotherapy expectations of older adults, as it places emphasis on psychoeducation, is highly structured, skill-enhancing and problem-focused (Laidlaw & 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 outpatient clinical centre of expertise for personality disorders and developmental disorders in older adults, in Tilburg, the Netherlands. Patients referred to this clinical centre are 55 years of age and older. Patients were referred to the STEPPS-program by their psychologist, psychiatrist or psychiatric nurse practitioner. Before treatment, patients received information about the study, and their informed consent was obtained. Inclusion criteria were as follows: (1) The patient is recently (<1 year before the start of STEPPS) clinically diagnosed with at least one PD, determined with the use of the Dutch Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD, First et al., 2015), (2) The patient is diagnosed with at least three traits of BPD (considering the lack of age-neutrality of the DSM BPD-criteria (McMahon et al., 2019), (3) The patient reports emotion regulation difficulties, (4) The patient is at least 55 years of age, (5) The patient is motivated to participate in the program and is prepared to form a reinforcement team. Exclusion criteria were: (1) Patients with neurocognitive disorders (a cut-off of ≤ 24 on the Montreal Cognitive Assessment (MoCA; Nasreddine et al., 2005) was used to determine whether further testing was necessary), (2) Patients with an autism spectrum disorder, (3) Patients with acute comorbid psychiatric conditions disabling the treatment of the PD (e.g., psychotic disorders, a (hypo)manic episode), (4) Patients with major substance abuse disorders, (5) Patients with an IQ-score lower than 85 (patients were tested when there was a suspicion of an IQ-score lower than 85), (6) Patients not proficient in Dutch.

**Measures**

The primary outcome measure of this study was changes in severity of BPD-symptoms. Secondary outcome measures were psychological distress and severity of maladaptive personality functioning.

*Borderline personality disorder symptoms*

The Borderline Evaluation of Severity over Time (BEST, Pfohl et al., 2009) was used to assess the severity of BPD-symptoms. BEST is a self-report questionnaire, consisting of 15 items on a 5-point scale. The measurement includes three subscales: thoughts and feelings, negative behaviours, and positive behaviours. The subscales thoughts and feelings, and negative behaviours consist of items covering the DSM-5-criteria of BPD (e.g., ratings of feelings of emptiness, ratings of acts of self-harm). The subscale positive behaviours consists of items measuring positive behaviours concerning therapy goals (e.g., ratings of engaging in positive activities instead of self-destructive acts). For the total score, the scores on the first two subscales (i.e., thoughts and feelings, negative behaviours) are added together and the score on the third subscale (i.e., positive behaviours) is subtracted. By adding a correction factor, the total BEST-score ranges from 12 (best score) to 72 (worst score). BEST demonstrated high internal consistency, moderate test-retest reliability, high discriminant validity and high sensitivity to clinical change (Blum et al., 2002; Pfohl et al., 2009). This measurement is incorporated in STEPPS and is completed by patients on a weekly basis.

*Psychological distress*

The psychological distress of patients was assessed with the use of the Symptom Questionnaire-48 (SQ-48, Carlier et al., 2012). This measure is a 48-question self-report questionnaire. Items are measured on a 5-point scale, and total scores range from 0 to 148. The SQ-48 contains subscales for depression, anxiety, somatization, agoraphobia, aggression, cognitive problems, social phobia, work functioning, and vitality. For this measure, scores on work functioning and vitality are not included in the total score. Good internal consistency and good convergent and divergent validity were found in adults (Carlier et al., 2012). The SQ-48 has excellent test–retest reliability and good responsiveness to therapeutic change (Carlier et al., 2017). Van Son (2018) stated that no adapted SQ-48 norms are needed for older adults, however data on validity and reliability of the SQ-48 in older adults have never been published.

*Maladaptive personality functioning*

The Severity Indices of Personality Problems - Short Form (SIPP-SF, derived from the SIPP-118 by Verheul et al., 2008; available online at [Questionnaires - GGz De Viersprong](https://www.deviersprong.nl/over-de-viersprong/over-de-viersprong-onderzoek/onderzoekslijn-diagnostiek/onderzoekslijn-assessment-en-indicatiestelling/sipp-main-menu/questionnaires/)) was used to assess the severity of maladaptive personality functioning. This self-report questionnaire consists of 60 statements. Patients respond on a 4-points scale in what extent the statement is applicable for them in the past three months. SIPP-SF consists of the following five domains: (1) self-control, the ability to control emotions and impulses, (2) identity integration, the ability to tolerate frustration and experience their lives 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. Scores on these domains range from 12 to 48. Lower scores indicate higher severity of maladaptive functioning. SIPP-SF has been shown to be age neutral and can be used to measure personality functioning and interpersonal functioning according to the alternative model for PDs of DSM-5 (Debast et al., 2018). Accordingly, the construct validity of the SIPP-SF has been demonstrated in older adults (Rossi et al., 2016), internal reliability was good to excellent and the criterion validity was good in predicting PDs in older adults (Van Reijswoud et al., 2021).

**Protocol and design**

In this study, the Dutch version of STEPPS (*Vaardigheidstraining Emotie Regulatie Stoornis*; VERS) was used. VERS has been studied in two RCTs by Bos et al. (2010, 2011). The Dutch STEPPS entails adjustments to the original (American) STEPPS-protocol. These adjustments include adjunctive individual sessions once every fortnight, and 19 (instead of the original 20) group sessions. The individual sessions were intended to help patients generalize newly learned skills. Group sessions 1 and 2 entail the first step of STEPPS (i.e., psychoeducation), in sessions 3 to 12 patients learn emotion management skills, and in sessions 13 to 19 behaviour management skills are taught. In this study, the individual sessions were provided by psychiatric nurses who were trained in cognitive behavioural therapy and in the STEPPS-method.

The current pilot study entails a naturalistic pre- and post-treatment research design. SQ-48 and SIPP-SF were electronically administered around week 1 and week 19 of the therapy. The BEST was administered weekly on paper. Since the BEST measures the severity of BPD-symptoms in the past week, this measure is sensitive to various daily influences. To average out these (external) influences, the mean score of week 1 and 2 were used as the pre-treatment score, and the mean scores of week 18 and 19 as the post-treatment score. Global Assessment of Functioning, presence of a mood disorder, PTSD and anxiety disorder were retrieved from the electronic patient record. The study-protocol was approved by the local ethics committee of the participating clinical centre.

**Analyses**

Obtained data were analysed using SPSS 27.0. Prior to further analyses, outcome variables were tested on the assumption of normality, using Kolmogorov-Smirnov tests. To determine differences between pre- vs. 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 paired samples *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 (Cohen, 1988; Pallant 2020) .

According to G\*Power 3 (Faul et al., 2007), for a test on differences between two dependent means, an N of 15 is needed to determine a large effect size of 0.8 with a power of 0.90 and an alpha of 0.05.

**Results**

**Participant characteristics**

In total, 39 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. These three patients participated in the STEPPS program, however, they did not meet full criteria of a PD, as measured with the SCID-5-PD. So, twenty-four patients (61.5%) completed the treatment program and were included in the present study.

Baseline characteristics of the 24 included patients and nine patients who dropped-out are presented in Table 1. There were no significant differences in age (*t*(31) = .820, *p* = .418), gender (*χ2*(1) = .000, *p* = 1.000) or Global Assessment of Functioning (*t*(31) = -.550, *p* = .587) between completers and drop-outs.

<<about here, insert table 1>>

**Treatment outcomes**

Table 2 summarizes the results of the *t*-tests and Wilcoxon signed rank tests. The statistically significant decrease in BEST-scores (*t* = 6.106, df = 14, *p* < .001) suggests participants report less BPD-related symptoms at the end of treatment. The difference between pre- and post-treatment scores on the BEST yielded a large effect size (Cohen’s *d* = 1.577). Figure 1 graphically depicts the weekly average BEST scores. The first step of the program (i.e., psychoeducation) yielded a mean drop of 3.80 (SD = 9.91) on the total score of the BEST. The second step (i.e., emotion management skills) yielded a mean drop of 11.10 (SD = 11.43). Finally, the third step (i.e., behaviour management skills) yielded a mean drop of 3.77 (SD = 7.69). Most gains seemed to be made during the second step of the treatment.

The SQ-48 total score did not demonstrate a significant difference before and after treatment (*t* = 1.946, df = 20, *p* = .066). Within the subscales of the SQ-48, however, significant decreases were found for depression (mean difference (SD) = 2.95 (6.27), *t* = 2.157, df = 20, *p* = .043, Cohen’s *d* = .471) and cognitive problems (mean difference (SD) = 1.95 (3.81), *t* = 2.346, df = 20, *p* = .029, Cohen’s *d* = .512).

A Wilcoxon singed rank test showed a statistically significant increase of SIPP-SF self-control (Z = −2.578, *p* = .010), suggesting participants report improved ability to control emotions and impulses. The effect size was large (*r* = .576). Furthermore, a *t*-test demonstrated SIPP-SF identity integration to increase significantly (*t* = -2.276, df = 19, *p* = .035), suggesting participants report an increased ability to tolerate frustration and experience their lives as meaningful. The effect size was medium (Cohen’s *d* = .509). There were no significant differences for SIPP-SF relational functioning (*t* = -.597, df = 19, *p* = .557), SIPP-SF responsibility (*t* = -.342, df = 19, *p* = .736) and SIPP-SF social concordance (Z = −1.836, *p* = .066).

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**Discussion**

STEPPS is a group treatment program 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. Present sample size consisted of patients with a mean age of 63.9, commonly described as the young-old (Jaul & Barron, 2017). 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. Results on our primary outcome measure (i.e., BEST) are in line with previous findings in uncontrolled trials (Black et al., 2008; 2013; 2018; Blum et al., 2002). In these studies medium to large effect sizes were found for the BEST.

There were no statistically 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 statistically non-significant results on most subscales for psychological distress, as measured with the SQ-48, was unexpected, since a similar measure (i.e., Symptom Checklist 90) yielded significant decreases in three RCTs on STEPPS (Blum et al., 2008; Bos et al., 2010; 2011). 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.

Thirty-three patients met the inclusion criteria and agreed to participate in our study. Nine patients (27.3%) dropped out of the program. Given the mean drop-out rate of 42.0% for participants attending STEPPS (Ekiz et al., 2022), this is a relatively low drop-out rate. It is comparable to the attrition rate of 26.2% found by Videler and colleagues (2014) in schema group therapy for older adults, but higher than the 10.3% attrition rate found in another study by Videler and colleagues (2021). In the latter study, the treatment protocol of the original group schema therapy was adapted for older adults. So, adjusting the treatment protocol to meet the needs of older adults better might positively affect the treatment completion rate. This hypothesis is relevant for future research, since STEPPS has predominantly been studied as a treatment program for younger adults.

These results indicate older adults may profit from STEPPS. Especially the skills to cope with mounting emotions seem to improve. Also, the BPD-symptoms ameliorate significantly. In contrast to what was expected, 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. Previous studies on STEPPS made no statistical comparisons between the three steps of the treatment. Visual inspection of figures and tables summarizing mean BEST-scores during multiple moments of the treatment in previous studies, present ambiguous outcomes. In some studies (i.e., Black et al., 2008; 2016), patients seem to report larger progress during the first eight weeks of STEPPS. While in another study, larger progress seemed to be reported after 11 weeks of the program (Llorens Ruiz et al., 2020). Finally, in three other studies (Blum et al., 2002; 2008; Harvey et al., 2010), there was no clear time period of 8 weeks or more in which more progress was reported. An explanation for interpersonal symptoms not improving in our sample, however, might be a finding specific to our sample of older adults. In sessions 13 to 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. Indeed, Lynch and colleagues (2007) describe modifications to the standard DBT-program for older adults with PDs. Among other things, these modifications entail an added module in which goal setting and changing life course perspective (and its consequences to specific skills in interpersonal relationships) are addressed. To the best of our knowledge, this modified DBT-program for older adults has not been studied. However, similar modifications to the STEPPS-program might increase the efficacy of the treatment. 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, while the reliability and validity of the SIPP-SF is adequate for older adults (Van Reijswoud et al., 2021), two other measurements used (i.e., BEST and SQ-48), lack psychometric properties for older adults. This limitation requires prudent evaluation of the results of these measurements, since the outcome may be subject to measurement bias. As multiple tests were performed, a final limitation of present study, is an increased risk of type I error. However, since this study is an exploratory trial, in which efficacy is explored and hypotheses for later research are formed, this increased risk seems acceptable (Li et al., 2016).

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 less 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.

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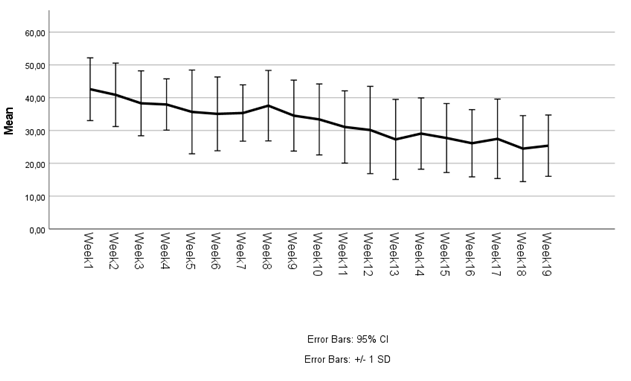
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**Figure 1**

Trend of the weekly BEST-scores



**Table 1**

Participant characteristics

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Completers (n = 24)** | **Drop-outs (n = 9)** | **Total (n = 33)** |
| Age, mean (sd) in years | 63.9 (4.6) | 62.4 (4.1) | 63.5 (4.4) |
| Age, range | 56 - 72 | 57 - 69 | 56 - 72 |
| Gender, n (%) female | 16 (66.7%) | 6 (60.0%) | 22 (66.7%) |
| Global Assessment of Functioning, mean (sd) | 47.9 (7.2) | 49.4 (6.8) | 48.3 (7.0) |
| Presence of mood disorder, n (%) | 8 (33.3%) | 3 (33.3%) | 11 (33.3%) |
| Presence of PTSD or anxiety disorder, n (%) | 2 (8.3%) | 2 (22.2%) | 4 (12.1%) |
| Presence of APD, n (%) | 3 (12.5%) | 0 (0%) | 3 (9.1%) |
| Presence of BPD, n (%) | 11 (45.8%) | 4 (44.4%) | 15 (45.5%) |
| Presence of DPD, n (%) | 0 (0%) | 1 (11.1%) | 1 (3.0%) |
| Presence of OCPD, n (%) | 2 (8.3%) | 1 (11.1%) | 3 (9.1%) |
| Presence of other specified PD, n (%) | 3 (12.5%) | 2 (22.2%) | 5 (15.2%) |
| Presence of unspecified PD, n (%) | 5 (20.8%) | 1 (11.1%) | 6 (18.2%) |

*Note:* APD = avoidant personality disorder; BPD = borderline personality disorder; DPD = dependent personality disorder; OCPD = obsessive–compulsive personality disorder; PD = personality disorder; PTSD = post-traumatic stress disorder

**Table 2**

Pre- to post-STEPPS comparisons of outcome measures

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Outcome measures** | **n†** | **Mean (sd) at pre-treatment** | **Mean (sd) at post-treatment** | ***t*- / *Z-*value** | ***p*-value** | **Effect size** | |
| BEST | 15 | 42.1 (9.1) | 26.1 (10.2) | 6.106\* | <.001 | | **1.577** |
| 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 | | **.576** |
| SIPP-SF identity integration | 20 | 24.0 (8.1) | 28.6 (9.3) | -2.276\* | .035 | | **.509** |
| 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 |

*Note:* BEST = Borderline Evaluation of Severity over Time; SIPP-SF = Severity Indices of Personality Problems - Short Form; SQ-48 = Symptom Questionnaire-48

† Refers to the number of outcome measures available

\* Paired samples *t*-test

\*\* Wilcoxon signed rank test