Clinical change in anger, shame, and paranoia after a structured cognitive-behavioral group program: Early findings from a randomized trial with male prison inmates

Nélio Brazão · Carolina da Motta · Daniel Rijo · Maria do Céu Salvador · José Pinto-Gouveia · João Ramos

Abstract

Objectives This study’s main goal was to assess the efficacy of a structured cognitive-behavioral group program, Growing Pro-Social (GPS), in reducing anger, paranoia, and external shame in male prison inmates.

Methods In this randomized trial, a treatment group (n=24) was compared to a control group (n=24) and both groups were assessed at pre- and post-treatment. Participants answered the State-Trait Anger Expression Inventory, the Paranoia Scale, and the Other as Shamer scale. Treatment effects were tested using ANCOVA with baseline as covariate and condition as fixed factor. Additionally, in order to assess significant clinical change after intervention, the Reliable Change Index (RCI) was computed.

Results At baseline, no significant differences between conditions were found. ANCOVA with baseline as covariate showed significant differences between groups at post-treatment. When compared to controls, treatment subjects showed lower scores in anger-trait (temperament and reaction subscales) and paranoia. Concerning clinical change, a high percentage of treatment subjects presented improvements in anger, paranoia, and external shame; the majority of controls showed significant deterioration in the same variables. After treatment, differences between groups were observed in the distributions by clinical change categories for anger-trait and its subscales, and paranoia. No differences between groups were found in anger-state and external shame.
Conclusions  These results point out the GPS’s ability to promote significant change in cognitive- and emotional-relevant variables associated with antisocial behavior.

Keywords  Anger · Antisocial behavior · Clinical change · External shame · Growing Pro-Social · Paranoia

Introduction

Meta-analytic research (Andrews et al. 1990; Garret 1985; Lipsey 1995; Lipsey and Wilson 1998; Lösel 1995; McGuire 2001; Redondo et al. 1997, 1999) has shown that multimodal programs have a significant impact on the reduction of recidivism in offenders. These studies pointed out that cognitive-behavioral-based programs are among the most effective, namely when cognitive variables are included as targets for change (Bogestad et al. 2009; Hollin et al. 2013; Pearson et al. 2002; Wilson et al. 2005). It has been suggested that these interventions can be improved in order to achieve even better outcomes in recidivism reduction obeying to the risk–need–responsivity (RNR) model (Andrews and Bonta 2010a, b; Andrews et al. 2006; Andrews and Dowden 2005; Dowden and Andrews 2000, 2004). The RNR model is based on “human service principles”, which state that recidivism reduction should be achieved through some type of treatment instead of punishment. Research has shown that punitive strategies actually increase criminal recidivism (Andrews and Bonta 2010a, b; Caldwell and Rybroek 2005; Lipsey 2009; Lipsey et al. 2010; McGuire 2011, 2013). The RNR model also argues that more intensive interventions should be applied to offenders evaluated as being at higher risk of recidivism (risk principle), since they present more criminogenic needs (e.g., antisocial personality). Because these kinds of variables fall into the dynamic risk factors category (thus, changeable), they should be a major focus in any intervention program (need principle). This model recognizes the importance of the therapeutic relationship but also adds that a structured, cognitive behavioral intervention is an important component of effective programs (responsivity principle).

Cognitive-behavioral programs usually include different modules or sessions addressing cognitive, emotional, and behavioral skills, assumed to be lacking in antisocial individuals. Nevertheless, each of these skills tends to be seen as independent from the others instead of seeing them as intertwined variables (Rijo et al. 2007). For example, emotional control sessions are carried out as if emotional control was totally independent from social reasoning or interpersonal behavior (Brazão et al. 2013). Another misconception of traditional approaches has to do with the methodologies adopted: there is a tendency to give preference to reasoning and school-like activities (e.g., paper and pencil), rather than experiential tasks that would be more suitable for increasing self-knowledge as well as promoting cognitive, emotional, and behavioral change (Brazão et al. 2013; Rijo et al. 2007). In order to overcome some of these limitations, Rijo et al. (2007) developed a new cognitive-behavioral rehabilitation program, the GPS—Growing Pro-Social, adapting its contents and methodology to the characteristics of the target population, and to the RNR model.

GPS is based on the developments of the cognitive-behavioral therapies for personality disordered individuals (Rafaeli et al. 2011; Safran and McMain 1992; Safran and Segal 1990; Young 1990; Young et al. 1993; Young and Klosko 1994; Young and Lindemann 1992; Young et al. 2003), which conceptualize recurrent antisocial
behavior as the result of cognitive malfunctioning in the attribution of meaning, underlying cognitive distortions, and cognitive core structures responsible for social information processing. GPS aims to achieve behavioral change not only through the rehearsal of prosocial behaviors but also through the promotion of change in the cognitive and emotional correlates of antisocial behavior. The ultimate goal is to promote change in the dysfunctional cognitive structures underlying antisocial behavior (Brazão et al. 2013; Rijo et al. 2007) by following a progressive strategy of change (for a program overview, see the intervention section).

Although a considerable amount of research has recognized the role that cognitive malfunctioning plays in the onset and maintenance of antisocial behavior, recent developments in cognitive-behavioral therapies highlight the importance of evolutionary variables, such as anger, shame, and paranoia, in psychopathology (Gilbert et al. 2005, 2009; Gilbert and Procter 2006; Gilbert et al. 2009; Matos and Pinto-Gouveia 2010; Matos et al. 2012; Nestor 2002; Novaco 2010).

From an evolutionary perspective, seeking dominance and displaying threat behaviors towards others can be conceptualized as a strategy to cope with the experience of shame and the consequent threat it represents to our position in the social rank (Gilbert 1997, 2002). Many antisocial individuals, when faced with increased perceived threats and competitiveness, tend to use aggressive behaviors (externalizing anger) as a defensive strategy against feelings of insecurity, instead of displaying a submissive strategy (Gilbert 1998). Anger is also a common response to rejection by others, criticism, and social put-down (Downey et al. 1998a, b; Gilbert and Miles 2000). From this point of view, anger can be seen as an effective coping strategy against perceived attacks on the self. The perception of being inferior, incompetent, and socially devalued, which generally arises during the experience of shame (Farmer and Andrews 2009; Tangney and Dearing 2002; Thomaes et al. 2011; Tracy and Robins 2004), can lead to the expression of anger. This shame-induced anger-state is often perceived as a particular anger-state where hostility prevails, called “humiliated fury” (Thomaes et al. 2011). The available empirical evidence points out that shame is a predictor of aggressive behavior and criminal recidivism (Hosser et al. 2008), and that anger plays a major role in the motivation to attack (Tangney and Dearing 2002; Lobbelstael et al. 2009).

Additionally, individuals with negative beliefs about the self and others tend to adopt external attributions (blaming others) as a self-preserving bias, thus triggering paranoid schemas (Bentall and Kaney 1996). Paranoia can be conceptualized as a defense system against the perception of threats in order to protect the individual in a social context where he/she perceives him/herself as an undesirable social object, due to the loss of attractiveness of the self (Gilbert 1998). However, while individuals feeling shame tend to compete for social status (Gilbert 1997, 1998, 2002), individuals with paranoid beliefs seek to protect themselves from malevolent intent from others (Gilbert at al. 2005), who, in turn, are seen as powerful and hostile, able to cause physical harm, or even to kill (Gilbert et al. 2005; Gumley et al. 2011).

While the majority of the research on rehabilitation programs for antisocial individuals chooses reduction in recidivism rates as the preferred measure of its efficacy, less is known about the cognitive and emotional variables underlying behavioral change (Skeem et al. 2009). Further research is needed to assess not only behavioral change but also change in other variables associated with the origins and maintenance of
antisocial behavior. In this randomized trial, we looked at significant changes in shame, anger, and paranoia in male prison inmates after GPS completion. We hypothesized that GPS can reduce paranoia, shame, and anger, because it engenders a less-threatening view of others. GPS tries to promote a different view of others, and to increase self-confidence about oneself when relating to them. After GPS completion, participants are expected to see themselves as more worthy individuals, thus decreasing the severity and frequency of feelings of shame. If change occurs at this level, it is likely that paranoia will also decrease, as a consequence of seeing others as less threatening. Following these assumptions, we can also expect that an individual more confident about oneself and others should experience a decrease in the frequency and intensity of anger feelings, assuming that anger could result, at least partially, from a strategy to cope with shame and perceived external attacks.

Methods

This trial was designed in accordance with the CONSORT (Consolidated Standards of Reporting Trials) 2010 Statement recommendations for reporting randomized trials.

Participants

Participants were selected from male prison inmates aged between 19 and 40 years old from three Portuguese prisons. The initial selection of prisoners met a set of exclusion criteria: (1) the presence of cognitive impairment (given that this kind of intervention is not suitable for the cognitively impaired) or psychotic disorders (experiential strategies used in GPS are not suitable for psychotic patients), (2) active substance use (cessation or at least substantial reduction of drug or alcohol use must precede the GPS treatment), (3) being sentenced exclusively for sexual offenses (sex offenders are generally assigned to more specific intervention programs), and (4) remaining in prison for at least 12 months (program length) from the beginning of the program.

A sample of 60 Portuguese prison inmates who did not meet the exclusion criteria was invited to participate (see Fig. 1). After this first selection, four inmates declined to participate. A total of 56 inmates were then randomly assigned to treatment and control conditions. Subjects in the treatment group attended the 40 sessions of the GPS for 12 months, while the control group did not participate in any intervention program. From the initial 27 treatment group subjects, two dropped out of the program and one was transferred to another prison during the intervention. These three subjects were excluded from further analysis because it was not possible to obtain post-treatment measures. From the 29 controls, three refused to answer the second evaluation and another two were transferred to another prison. These five subjects were also excluded from analysis.

Table 1 presents the main demographic characteristics of both groups (only completers’ characteristics are reported). The groups were similar regarding age, years of education, marital status, and socioeconomic status.
Table 2 summarizes legal and criminal sample features. Concerning sentence length, no differences were found between groups. However, the controls presented, on average, a longer sentence than the treatment subjects, and that difference corresponds to a moderate effect. Groups were also compared regarding the number of crimes for which they were sentenced to prison, as well as the legal category of the most severe crime for which they were sentenced. No differences in the distributions were found between groups. Nevertheless, there were more individuals with several crimes in the control group than in the treatment group. This difference corresponds to a moderate effect. Subjects were further divided into primary and relapse categories (according to the existence of previous sentences in their criminal records). Equivalent distributions were found for this variable.

**Measures**

Subjects reported on the measures of anger, paranoia, and external shame before the start and after the *terminus* of the intervention program (or the equivalent time period
for the control group). Socio-demographic and legal data on participants were collected from prison staff members.

Other as Shamer scale (OAS; Allan et al. 1994; Portuguese version by Matos et al., unpublished)

The OAS is an 18-item scale that assesses a subject’s perception of being negatively judged by others. Each item is rated on a five-point Likert scale reporting how frequently one experiences the feelings described in each statement (0 = never to 4 = almost always) (Goss et al. 1994).

The original version revealed a high internal consistency in both clinical and non-clinical samples (α=0.96 and 0.92, respectively) (Goss et al. 1994); in the Portuguese version, Cronbach’s alpha was 0.91 (Matos et al., Other as Shamer: Portuguese version and psychometric properties of an external shame measure, unpublished). In the current study, internal consistency was 0.86.

Paranoia Scale (Fenigstein and Vanable 1992; Portuguese version by Lopes and Pinto-Gouveia, unpublished)

This scale is a 20-item self-report measure developed to assess paranoid ideation in non-clinical individuals. Items are rated on a five-point Likert scale (1 = never to 5 = always), where higher scores indicate the existence of more paranoid ideation, for example, suspicion of conspiracy against the self; of being observed, judged, or talked behind their back; that other people or instances can exert some kind of thought-control; and lack of trust in others (Fenigstein and Vanable 1992). The original study presented internal consistencies ranging between 0.78 and 0.89 for the general population (Fenigstein and Vanable 1992). In a Portuguese clinical sample (C. Barreto, pers. comm., June

Table 1 Socio-demographic sample characteristics by group

| Marital status       | Treatment Group (n=24) | Control Group (n=24) | t     | p     | Cohen’s d | Fisher’s p | Cramér’s V |
|----------------------|------------------------|----------------------|-------|-------|-----------|------------|------------|
|                      | Mean  | SD      | Mean  | SD      |           |            |            |
| Single               | 19    | 79.17   | 18    | 75      | 3.06      | 0.66       | 0.26       |
| Married              | 0     | 0       | 2     | 8.33    |           |            |            |
| Civil union          | 2     | 8.33    | 2     | 8.33    |           |            |            |
| Divorced             | 3     | 12.50   | 2     | 8.33    |           |            |            |
| Socioeconomic status |         |         |         |         |           |            |            |
| Low                  | 21    | 87.50   | 24    | 100     | 4.36      | 0.27       | 0.31       |
| Medium               | 2     | 8.33    | 0     | 0       |           |            |            |
| High                 | 1     | 4.17    | 0     | 0       |           |            |            |
18, 2012), internal consistency was 0.92, whereas in the current sample internal consistency was 0.85.

State-Trait Anger Expression Inventory (STAXI; Spielberger 1988; Portuguese version by Silva et al. 1999)

STAXI was developed to assess anger experience and expression as a multidimensional construct evaluating two main components of anger: (1) anger-state, an emotional state with subjective feelings of variable intensity, and (2) anger-trait, a more stable predisposition to evaluate several situations as unpleasant and frustrating, as well as a tendency to react more frequently with intense anger-states (Spielberger 1991).

STAXI is a 44-item questionnaire divided into three parts: the first assesses anger-state (how one feels in the present moment), the second assesses anger-trait (how one generally feels), and the third assesses anger-expression (how one generally reacts or behaves when feeling enraged or angry). According to Spielberger (1988), anger-trait encompasses two factors: temperament and angry reaction. For the purpose of the present study, only the anger-state and anger-trait were selected.

Internal consistency of the different subscales ranged from 0.73 to 0.93 (Spielberger 1988), while in the Portuguese version the same values ranged between 0.60 and 0.85 (Silva et al. 1999). In the present study, internal consistency values were 0.81 for anger-state, 0.80 for anger-trait, 0.78 for anger temperament and 0.61 for anger reaction.
Interventions

Growing Pro-Social (GPS; Rijo et al. 2007) is a manualized group rehabilitation program for individuals with antisocial behavior. It is run in small groups, ranging from 8 to 12 participants, in 40 weekly sessions, which are grouped into five sequential modules. The theoretical framework underlying GPS is based on a cognitive-interpersonal perspective (Rafeeli et al. 2011; Safran and McMain 1992; Safran and Segal 1990; Young 1990; Young et al. 1993, 2003; Young and Klosko 1994; Young and Lindemann 1992), which conceptualizes aggressive behavioral patterns as a result of distorted views of the self and others.

In an effort to improve the traditional group exercises in this kind of program, GPS sessions include experiential exercises. Participants are encouraged to achieve insight through systematic questioning about the reactions noticed during the activities (guided discovery approach), and to apply this knowledge to real-life situations (Brazão et al. 2013; Rijo et al. 2007). The program was built to promote gradual change in behavior and emotional reactions, while working towards a more adaptive information processing style. The ultimate goal of GPS is to promote change in particular dysfunctional core beliefs about the self and others, which underlie social information processing (e.g., social isolation/alienation, mistrust/abuse, and defectiveness/shame), and are related to antisocial and aggressive behavior (Ball and Cecero 2001; Bernstein 2008; Calvete 2008; Chakhssi et al. 2012; Thimm 2010; Tremblay and Dozois 2009). It is expected that a change at a cognitive level (e.g., less endorsement of dysfunctional core beliefs and cognitive distortions) will encourage prosocial behavior.

Concerning the program’s structure, GPS consists of 40 sessions, each lasting about 90 min. Sessions must be carried out by two psychologists who should be skillful in cognitive-behavioral therapy. As summarized in Table 3, sessions are grouped into five modules, preceded by an initial session for the presentation of the program. While modules 1 and 2 are focused on interpersonal behavior and communication skills, modules 3, 4, and 5 directly address cognitive and emotional variables. GPS ends with a final session, and follow-up sessions can be carried out afterwards. The extension of each module varies depending on the contents and the time needed to achieve the defined goals.

Treatment subjects attended the GPS program for about 12 months, in addition to the Treatment As Usual (TAU) delivered at Portuguese penitentiaries: supervision of school frequency, occupational and job-related tasks, and sentence-planning supervision over time. Subjects in the control group received TAU and did not attend the GPS sessions or any other kind of structured intervention during the research period.

Procedures

At each prison, individuals who did not meet the exclusion criteria were invited to participate in the study. An explanation about the research project and a brief overview of the treatment program were presented and inmates were invited to participate voluntarily. Subjects were then randomly assigned to the treatment or control conditions using a random number table. At the first meeting, prison staff explained the aims of the study to the selected inmates and asked for their informed consent.
Data collection was carried out by psychologists of the national prison system (not responsible for the GPS delivery) and by the authors of this paper. Subjects in the treatment group were assessed a week before the first session of GPS and 1 week after its terminus, while individuals in the control group were assessed with the same time interval. All treatment completers attended at least 80% of the GPS sessions (32 or more sessions). At each prison, two senior psychologists specially trained and supervised in the program’s methodology by the authors were chosen to deliver the GPS intervention. At the time of the study, these psychologists already had experience in delivering the GPS intervention.

Data analysis

Data analysis was carried out in accordance with the treatment received (TR) principle, in which outcomes were measured by comparing the outcomes for inmates who completed the program with those in the control group. Treatment and control groups were compared at baseline, using independent-samples t tests. Between-group differences in outcome measures at post-treatment were tested with ANCOVA with baseline

| Modules                          | Number of sessions | Contents summary                                                                                                                                 |
|----------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Initial session                  | 1                 | Presentation of the participants, the structure, and the methodology of the program                                                               |
| 1. Human communication           | 5                 | The communication process and its obstacles; verbal and non-verbal communication skills, the ambiguity of human communication; the (in)congruence between digital and analogical languages |
| 2. Interpersonal relationships    | 10                | Behavioral styles (assertive, aggressive, passive and manipulative) in relationships; self-concept and interpersonal behavior; ideas about others and interpersonal behavior; specific interpersonal contexts and assertive behavior; negotiation as a strategy to deal with conflicts |
| 3. Cognitive distortions         | 6                 | Understanding cognitive distortions (thinking errors); identifying and changing cognitive distortions: selective abstraction, overgeneralization, mind reading, crystal ball, minimization, disqualifying the positive experiences, dichotomous thinking, labeling, and personalization |
| 4. Function and meaning of emotions | 7                  | The diversity of the emotional experience; the nature and function of emotions: sadness, shame, fear, anger, guilt, and happiness |
| 5. Dysfunctional core beliefs    | 10                | The role of core beliefs about the self and others; dysfunctional core beliefs and their influence in giving meaning to reality; identifying and changing relevant core beliefs: failure, social isolation/alienation, mistrust/abuse, defectiveness/shame, emotional deprivation, abandonment/instability, grandiosity/entitlement; fighting core belief’s influences in thoughts, emotions, and behavior |
| Final session                    | 1                 | Reflection and consolidation of learning, and generalization of gains made during the program                                                       |

Adapted from “From multimodal programs to a new cognitive-interpersonal approach in the rehabilitation of offenders”, by N. Brazão et al. 2013, Aggression and Violent Behavior, 18, 640
as covariate and condition as a fixed factor. Additionally, within-group t tests were performed for each group. All effect sizes were calculated using Cohen’s d.

In order to evaluate intra-subject clinical change, the Reliable Change Index (RCI; Jacobson and Truax 1991) was used. According to the literature, this is an index that ensures very high reliability (Atkins et al. 2005). The RCI was designed to test the effectiveness of a particular therapy or program. Instead of focusing on the differences of mean scores, it provides information about treatment effects for each individual, allowing to test whether an individual improves or deteriorates in comparison to his initial assessment (Conboy 2003). In order to ascertain whether the observed change in the individual is in fact genuine and not just due to measurement errors, and whether the change places the individual inside the norms of functional groups (Conboy 2003), RCI allows the testing of the null hypothesis of no clinically meaningful change, depending on the normal distribution (Maaseen 2001), and taking into account the measurement error of the instruments (Jacobson and Truax 1991). This index is computed using the formula:

\[
RCI = \frac{(X_{post} - X_{pre})}{\sqrt{2SD_0(1-\alpha)^2}},
\]

where \(X_{post}\) represents the result of the individual in the post-test, \(X_{pre}\) represents the result of the individual in the pre-test, \(SD_0\) represents the standard deviation of the variable in a normal sample, and \(\alpha\) represents the internal consistency of the scale in the present sample.

According to Wise (2004), if the results are greater than 0.84 we can assert, with a confidence interval of 80 %, that real, reliable, and significant change has been verified; however, if the result exceeds 1.28 or 1.96, that confidence interval increases to 90 and 95 %, respectively. On the contrary, if the result is less than 0.84, we can say that deterioration has occurred. For the interpretation of the RCI in this study, three broad categories were defined to encompass different confidence intervals: “global improvement” (GI), “global deterioration” (GD) and “no change” (NC). To compare both groups in the distributions by clinical change categories, Chi-square statistics with Fisher’s exact tests with a 0.05 level of significance was performed. Effect sizes of the differences found in the distributions by clinical change category between groups were calculated with Cramér’s V.

Results

Baseline differences

Baseline differences between groups were compared for all outcome measures (see Table 4). No differences were found between the control and treatment groups at the onset of the study. However, in the STAXI Temperament subscale, controls presented a lower score when compared with treatment subjects, and, although this difference failed to reach statistical significance, the effect size was moderate.

Analysis of covariance

ANCOVA with baseline as covariate demonstrated that there was a significant difference between the groups in the majority of the outcomes at post-treatment (see Table 5).
When compared with the control group, the treatment group had significantly lower scores at the end of GPS in anger-trait (total score and subscales) and paranoia. These differences correspond to strong or moderate effects. For anger-state and external shame, no differences between groups were found. However, the treatment group had lower scores at post-treatment in these variables when compared to the control group. For external shame, the difference was near the threshold of significance and the effect was moderate.

Within-group $t$ tests of changes

Additionally, within-group $t$ tests were also carried out in each group (see Tables 6 and 7). In the treatment group, significant differences were found between baseline and post-treatment for anger-trait, with subjects presenting a lower score after GPS completion. The observed effect size was moderate. For the reaction subscale, a similar result was found but the difference failed to reach statistical significance. For the remaining variables, no significant differences were found between pre- and post-treatment.

Table 4 Baseline differences on the outcome measures by group

| Outcome measures   | Treatment Group ($n=24$) | Control Group ($n=24$) | $t$  | $p$  | Cohen’s d |
|--------------------|--------------------------|------------------------|------|------|-----------|
| Mean SD            | Mean SD                  |                         |      |      |           |
| Anger-state        | 12.00 2.95               | 11.38 3.09             | 0.71 | 0.47 | 0.20      |
| Anger-trait        | 17.79 4.13               | 17.42 4.71             | 0.29 | 0.77 | 0.08      |
| Temperament        | 6.75 2.59                | 5.79 1.64              | 1.53 | 0.13 | 0.44      |
| Reaction           | 7.79 1.67                | 7.88 2.32              | -0.14| 0.88 | 0.04      |
| Paranoia           | 47.21 10.61              | 50.25 10.96            | -0.97| 0.33 | 0.28      |
| External shame     | 24.83 10.22              | 23.13 9.70             | 0.59 | 0.55 | 0.17      |

Table 5 Means and SDs of the outcome measures by group at post-treatment, and analysis of covariance

| Outcome measures  | Treatment Group ($n=24$) | Control Group ($n=24$) | $F$  | $p$  | Cohen’s d |
|-------------------|--------------------------|------------------------|------|------|-----------|
| Mean SD           | Mean SD                  |                         |      |      |           |
| Anger-state       | 11.58 2.88               | 12.12 3.79             | 0.41 | 0.52 | 0.16      |
| Anger-trait       | 16.29 4.40               | 19.50 5.79             | 10.43| 0.022| 0.62      |
| Temperament       | 6.25 2.00                | 7.12 2.77              | 8.17 | 0.006| 0.36      |
| Reaction          | 6.95 2.42                | 8.70 2.44              | 7.84 | 0.007| 0.72      |
| Paranoia          | 45.58 12.36              | 59.37 15.25            | 11.53| 0.001| 0.99      |
| External shame    | 22.33 13.98              | 29.04 12.28            | 3.70 | 0.061| 0.50      |
In the control group, significant differences were found between baseline and post-treatment time points for the majority of the variables (with the exception of anger-state), with subjects presenting higher scores when measured at the post-treatment time point. The observed effect sizes were all moderate.

Clinical change in anger, paranoia, and external shame after GPS completion

Data relating to clinical change in anger, paranoia, and external shame on both groups are presented in Table 8. Results indicated differences between groups in the distribution by clinical change categories for anger-trait. For this variable, the number of subjects falling into the global improvement category in the treatment group was identical to the number of subjects falling into the global deterioration category in the control group. Differences in the distributions between groups for this variable had a strong effect. Similar results were found for the anger-trait subscales (temperament and anger reaction). For the temperament subscale, there were differences between both distributions and the effect size was moderate; for the anger reaction subscale, there were also differences in the

| Table 6 | Within-group \( t \) test of changes in treatment group |
|---------|----------------------------------------------------------|
|         | Pre-treatment | Post-treatment | \( t \) | \( p \) | Cohen’s d |
|         | Mean   | SD | Mean   | SD | |
| Outcome measures |          |          |          |          |          |
| Anger-state | 12.00 | 2.94 | 11.58 | 2.88 | 0.47 | 0.64 | 0.14 |
| Anger-trait | 17.97 | 4.13 | 16.29 | 4.40 | 2.32 | 0.029 | 0.39 |
| Temperament | 6.75 | 2.59 | 6.25 | 2.00 | 1.51 | 0.14 | 0.21 |
| Reaction | 7.79 | 1.66 | 6.95 | 2.42 | 1.69 | 0.10 | 0.40 |
| Paranoia | 47.20 | 10.61 | 45.58 | 12.36 | 0.78 | 0.43 | 0.14 |
| External shame | 24.83 | 10.22 | 22.33 | 13.98 | 0.72 | 0.47 | 0.20 |

| Table 7 | Within-group \( t \) test of changes in control group |
|---------|----------------------------------------------------------|
|         | Pre-treatment | Post-treatment | \( t \) | \( p \) | Cohen’s d |
|         | Mean   | SD | Mean   | SD | |
| Outcome measures |          |          |          |          |          |
| Anger-state | 11.38 | 3.09 | 12.12 | 3.79 | -0.91 | 0.37 | 0.21 |
| Anger-trait | 17.42 | 4.71 | 19.50 | 5.79 | -2.32 | 0.029 | 0.39 |
| Temperament | 5.79 | 1.64 | 7.12 | 2.77 | -2.96 | 0.007 | 0.58 |
| Reaction | 7.88 | 2.32 | 8.70 | 2.44 | -2.09 | 0.047 | 0.34 |
| Paranoia | 50.25 | 10.96 | 59.37 | 15.25 | -3.24 | 0.004 | 0.68 |
| External shame | 23.13 | 9.70 | 29.04 | 12.28 | -2.44 | 0.023 | 0.53 |

© Springer
distributions between groups, with a moderate effect size. No differences between groups were found for anger-state. Results in the Paranoia Scale indicated a clear difference between the distributions by clinical change categories in both groups: a high percentage of individuals in the treatment group presented significant improvements while an even higher percentage of controls revealed clinical deterioration. These differences correspond to a strong effect.

Concerning external shame, no significant differences were found in the distributions between groups. However, the improvement rates of the treatment group were almost as high as the deterioration rates observed for controls, following the same tendency of the results found for paranoia.

**Discussion**

While the majority of research on the efficacy of cognitive-behavioral programs for offender rehabilitation focuses mainly on recidivism reduction as the major outcome, a recent trend (e.g., Skeem et al. 2009) focuses on the change in cognitive and emotional correlates of antisocial behavior. Following this trend, this randomized trial studied the impact of a new structured cognitive-behavioral program, Growing Pro-Social (GPS;
Rijo et al. 2007), in producing significant change in cognitive and emotional variables, which, from an evolutionary perspective, are associated with antisocial behavior. Differences between mean scores in treatment and control groups at post-treatment (statistically significant change at a group level) were analyzed, as well as within-group comparisons, but special attention was given to clinical change for each of the participants (clinical significance). Significant clinical change has been addressed in the assessment of treatment efficacy with several clinical samples but it has been used less often with offenders (Hollin et al. 2013).

Post-treatment scores in the studied variables showed significant differences between groups, with treatment subjects presenting a significant reduction in anger-trait (including the temperament and reaction subscales) and paranoia. Differences between groups for anger-state and external shame did not reach statistical significance, but inmates who attended the GPS sessions presented lower scores in these variables at post-treatment, when compared to controls. When looking at within-group comparisons, data suggested that differences at post-treatment may result not only from the improvement achieved by treatment subjects but also from the deterioration observed in controls on the majority of the studied variables. These findings raise important questions about the impact of incarceration on inmates’ psychological correlates of antisocial behavior. The worrisome deterioration observed in controls over a 1-year period in variables such as anger, shame, and paranoia, raises the question of whether traditional prison practices work towards rehabilitation or may be bolstering psychological and emotional processes related to maladaptive behavior (Ashkar and Kenny 2008; Lambie and Randell 2013; Lane et al. 2002; Myers 2003). The traditional penitentiary treatment, together with the controls’ harsh criminal features (e.g., longer sentence length), may be responsible for the observed deterioration in these subjects. From this point of view, outcomes in subjects who completed GPS may indicate that such a program can be useful in buffering this tendency to get worse over time.

Results also pointed to significant clinical changes in the treatment group, with a pattern of higher numbers of subjects falling into the global improvement category, while a similar number of subjects from the control group fell into the opposite category of global deterioration. This pattern was observed for anger-trait (and its subscales) and for paranoia. Concerning external shame, the effect size was not strong enough to distinguish both groups in terms of the clinical change category, even though the same distribution tendency was observed.

According to GPS theoretical assumptions, by the end of the program, participants should be able to look at themselves in a more valuable and healthy manner (Brazão et al. 2013; Rijo et al. 2007), thus decreasing the severity and intensity of feelings of shame. Considering the results on the association between external shame and paranoia found by Matos et al. (2012), a decrease in shame should also be accompanied by a decrease in paranoid ideation. A similar decrease in anger would also be expected, as anger could be conceptualized as a defensive strategy to cope with shame (Downey et al. 1998a, b; Gilbert and Miles 2000; Thomaes et al. 2011), and a reaction against perceived external attacks (Gilbert 1998; Gilbert et al. 2005; Gumlet et al. 2011). It is important to add that GPS provides experiences of acceptance and of social desirability (Brazão et al. 2013; Rijo et al. 2007). This may also contribute to an increase in feelings
of being more attractive in the eyes of others, and to a decrease in the fear of being attacked or threatened by competitors.

The decrease in paranoia observed in the treatment group subjects may also be attributed to the fact that GPS works towards changing participants’ view of others as malevolent and/or abusive in several different manners: first, by recognizing the subjectivity of information processing in interpersonal contexts; second, by recognizing the frequent misattribution of others’ behavior towards us; and third, by becoming conscious of cognitive distortions underlying the attribution of meaning to interpersonal behaviors (Brazão et al. 2013; Rijo et al. 2007). This knowledge may help the individual to reduce paranoid ideation through the development of less distorted/more realistic social information processing.

Concerning differences between groups for anger, a strong effect size was verified for anger-trait, and moderate effect sizes were observed in both anger-trait subscales (anger temperament and anger reaction). As previously stated, anger-trait is related to a higher propensity to experience and express anger. Thus, a decrease in this variable may suggest an increase in tolerance to mistakes, frustrations, and interpersonal stress (Spielberger 1991). The main goal of GPS module 4, Function and Meaning of Emotions, is emotional regulation, and participants are encouraged to trigger basic emotions (e.g., anger, fear, sadness, happiness), to feel them in their body and relate them to real-life scenarios. By learning about the feeling and the expression of these emotions, they are invited to discover the usefulness of the diversity of the emotional states that humans can experience. Finally, participants are challenged to assess in daily-life situations the adequacy and usefulness of their own emotional experiences (Brazão et al. 2013; Rijo et al. 2007). The specific work done in these sessions may be responsible for the change observed in anger-trait, thus contributing to a reduction in anger feelings and related disruptive behavior.

Differences between groups did not occur for anger-state. One possible explanation for this result may be that the prison environment is quite effective in constraining outbursts of anger. Bursts of anger inside prison are immediately reported and punished, and prison inmates are frequently encouraged to exert control over the externalization of negative emotional states. Another possible explanation has to do with the procedures and instructions when answering the anger-state measure. Subjects were instructed to answer these items according to their emotional state in that same moment (Spielberger 1991), which, due to research procedures, was a quiet and stable environment.

Overall, these findings show that a structured cognitive-behavioral group program can produce significant clinical changes in emotional and cognitive correlates of antisocial behavior when delivered inside a prison. Nevertheless, generalizations should be made carefully: all the subjects were male inmates and the sample size was small in both groups. Future trials should increase sample size. The GPS’s impact on behavioral change (e.g., in the reduction of disciplinary incidents and prison records) should also be tested in future studies to ascertain if changes observed in cognitive and emotional variables are reflected in a more adjusted behavioral pattern. In the present study, the integrity of GPS delivery was assured by training and supervising all senior psychologists who run the program. In future research, more systematic quality-control procedures of the program’s delivery could be implemented.
Because the GPS is divided into different modules and is carried out over a considerable period of time, further research should also focus on whether each module may have had a particular significant effect in promoting change. Follow-up studies should also focus on possible delayed effects of the intervention and the stability of change in participants’ behavior over time.

Conclusions

This paper focused on the GPS’s ability to promote significant change in evolutionary variables that recent research conceptualizes as associated with diverse forms of behavioral malfunctioning (Gilbert and Procter 2006; Gilbert et al. 2005, 2009; Matos and Pinto-Gouveia 2010; Matos et al. 2012; Nestor 2002; Novaco 2010) and antisocial behavior (Farmer and Andrews 2009; Gilbert 1998; Hosser et al. 2008; Lobbelstael et al. 2009; Thomaes et al. 2011). To our knowledge, this is one of the few studies that investigate the efficacy of a structured cognitive-behavioral program in this kind of variables in male prison inmates. This study provides preliminary support for the efficacy of GPS in producing clinical changes at an emotional level (anger-trait) and at a cognitive level (paranoia) in adult offenders. It is probable that a larger sample would also produce significant differences in external shame between conditions, demonstrating the GPS’s ability to induce changes in negative self-representations and feelings of shame. The findings from this study are encouraging for future research, not only for future efficacy and effectiveness testing of the GPS but also for the development of other interventions based on the manipulation of cognitive and emotional variables as therapeutic mechanisms of change in antisocial and aggressive behavior.

Acknowledgments

“GPS—Growing Pro-Social, a prevention and rehabilitation program for individuals with antisocial behavior: Efficacy studies in forensic samples” (PTDC/PSI-PCL/102165/2008) is supported by the Foundation for Science and Technology, and it is a partnership between the Research Unit of the Cognitive-Behavioral Research and Intervention Center and the General Directorship of Social Reinsertion and Prison Services of the Portuguese Ministry of Justice.

The authors would like to thank all prison staff members that collaborated in data collection, and Lara Palmeira and Sofia Gameiro for proofreading the manuscript.

References

Allan, S., Gilbert, P., & Goss, K. (1994). An exploration of shame measures: psychopathology. Personality and Individual Differences, 17, 719–722. doi:10.1016/0191-8869(94)00150-3.

Andrews, D. A., & Bonta, J. (2010a). Rehabilitating criminal justice policy and practice. Psychology, Public Policy, and Law, 16, 39–55. doi:10.1037/a0018362.

Andrews, D. A., & Bonta, J. (2010b). The psychology of criminal conduct. Newark: LexisNexis/Matthew Bender.

Andrews, D. A., & Dowden, C. (2005). Managing correctional treatment for reduced recidivism: a meta-analytic review of programme integrity. Legal and Criminological Psychology, 10, 173–187. doi:10.1348/135532505X36723.

Andrews, D. A., Zinger, I., Hoge, R. D., Bonta, J., Gendreau, P., & Cullen, F. T. (1990). Does correctional treatment work? A clinically relevant and informed meta-analysis. Criminology, 28, 369–404. doi:10.1111/j.1745-9125.1990.tb01330.x.
Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The recent past and near future of risk and/or need assessment. *Crime and Delinquency, 52*, 7–27. doi:10.1177/0011228705281756.

Ashkar, P. J., & Kenny, D. T. (2008). Young offenders’ subjective experiences of incarceration. *International Journal of Offender Therapy and Comparative Criminology, 52*(5), 584–597. doi:10.1177/0306624X08314181.

Atkins, C. D., Bedles, J. D., McGlinchey, J. B., & Bauchaine, T. (2005). Assessing clinical significance: does it matter which method we use? *Journal of Consulting and Clinical Psychology, 73*(5), 982–989. doi:10.1037/0022-006X.73.5.982.

Ball, S. A., & Cecero, J. J. (2001). Addicted patients with personality disorders: traits, schemas, and presenting problems. *Journal of Personality Disorders, 15*(1), 72–83. doi:10.1521/pedi.15.1.72.18642.

Bentall, R., & Kaney, S. (1996). Abnormalities of self-representation and persecutory delusions: a test of a cognitive model of paranoia. *Psychological Medicine, 26*, 1231–1237. doi:10.1017/S0033291700035959.

Bernstein, D. P. (2008). Agreement of raters in identifying schema modes from videotapes of therapy sessions. Paper presented at the 3rd Annual Meeting of International Society of Schema Therapy, Coimbra, Portugal.

Bogstad, A. J., Kettler, R. J., & Hagan, M. P. (2009). Evaluation of a cognitive intervention program for juvenile offenders. *International Journal of Offender Therapy and Comparative Criminology, 54*(4), 552–565. doi:10.1177/0306624X09337211.

Brazão. N., da Motta, C., & Rijo, D. (2013). From multimodal programs to a new cognitive-interpersonal approach in the rehabilitation of offenders. *Aggression and Violent Behavior, 18*, 636–643. doi:10.1016/j.avb.2013.07.018.

Caldwell, M. F., & Rybroek, G. J. V. (2005). Reducing violence in serious juvenile offenders using intensive treatment. *International Journal of Law and Psychiatric, 28*, 622–636. doi:10.1016/j.ijlp.2004.07.001.

Calvete, E. (2008). Justification of violence and grandiosity schemas as predictors of antisocial behavior in adolescents. *Journal of Abnormal Child Psychology, 36*(7), 1083–1095. doi:10.1007/s10802-008-9229-5.

Chakhssi, F., Bernstein, D. P., & de Ruiter, C. (2012). Early maladaptive schemas in relation to facets of psychopathy and institutional violence in offenders with personality disorders. *Legal and Criminological Psychology, 18*(1), 1–17. doi:10.1177/1478994912452100.

Conboy, J. (2003). Alguns medidas típicas univariadas da magnitude do efeito [Some typical univariate measures of the effect size]. *Análise Psicológica, 2*(1), 145–158. Retrieved from http://www.scielo.oecs.pt/pdf/aps/v21n2/v21n2a02.pdf.

Dowden, C., & Andrews, D. A. (2000). Effective and correctional treatment and violent reoffending: a meta-analysis. *Canadian Journal of Criminology, 42*(4), 449–467. Retrieved from http://www.questia.com/library/1G1-65954586/effective-correctional-treatment-and-violent-reoffending.

Dowden, C., & Andrews, D. A. (2004). The importance of staff practice in delivering effective correctional treatment: a meta-analytic review of core correctional practice. *International Journal of Offender Therapy and Comparative Criminology, 48*(2), 203–214. doi:10.1177/0306624X03257765.

Downey, G., Freitas, A., Michaelis, B., & Khouri, H. (1998a). The self-fulfilling prophecy in close relationships: Rejection sensitivity and rejection by romantic partners. *Journal of Personality and Social Psychology, 75*(2), 545–60. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9731324.

Downey, G., Lebott, A., Rincón, C., & Freitas, A. (1998b). Rejection sensitivity and children’s interpersonal difficulties. *Child Development, 69*(4), 1074–1091. doi:10.1111/j.1467-8624.1998.tb06161.x/abstract.

Farmer, E., & Andrews, B. (2009). Shameless yet angry: shame and its relationship to anger in male young offenders and undergraduate controls. *The Journal of Forensic Psychiatry and Psychology, 20*(1), 48–65. doi:10.1080/0306624X080220 5315.

Fenigstein, A., & Vanable, P. (1992). Paranoia and self-consciousness. *Journal of Personality and Social Psychology, 62*, 129–138. doi:10.1037/0022-3514.62.1.129 [Portuguese version by Lopes and Pinto Gouveia, 2005].

Garrett, C. G. (1985). Effects of residential treatment on adjudicated delinquents: a meta-analysis. *Journal of Research in Crime and Delinquency, 22*, 287–308. doi:10.1177/0022278785022004002.

Gilbert, P. (1997). The evolution of social attractiveness and its role in shame, humiliation, guilt and therapy. *British Journal of Medical Psychology, 70*, 113–147. doi:10.1111/j.2044-83.41.1997.tb01893.x.

Gilbert, P. (1998). What is shame? Some core issues and controversies. In P. Gilbert & B. Andrews (Eds.), *Shame: Interpersonal behavior, psychopathology and culture* (pp. 3–38). New York: Oxford University Press.

Gilbert, P. (2002). Body shame: A biopsychosocial conceptualization and overview with treatment implications. In P. Gilbert & J. Miles (Eds.), *Body shame: Conceptualization, research and treatment* (pp. 3–54). New York: Brunner-Routledge.
Gilbert, P., & Miles, J. N. (2000). Sensitivity to social put-down: it’s relationship to perceptions of social rank, shame, social anxiety, depression, anger and self-other blame. *Personality and Individual Differences, 29*(4), 757–774. doi:10.1016/S0191-8869(99)00230-5.

Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: a pilot study of a group therapy approach. *Clinical Psychology and Psychotherapy, 13*, 353–379. doi:10.1002/cpp.507.

Gilbert, P., Boxall, M., Cheung, M., & Irons, C. (2005). The relationship of paranoid ideation and social anxiety in a mixed clinical population. *Clinical Psychology and Psychotherapy, 12*, 124–133. doi:10.1002/cpp.438.

Gilbert, P., McEwan, K., Irons, C., Broomhead, C., Ballew, R., Mills, A., & Gale, C. (2009). The dark side of competition: how competitive behaviour and striving to avoid inferiority are linked to depression, anxiety, stress and self-harm. *Psychology and Psychotherapy: Theory, Research and Practice, 82*(2), 123–136. doi:10.1348/147608308X379806.

Goss, K., Gilbert, P., & Allan, S. (1994). An exploration of shame measures: the “Other as shamer scale”. *Personality and Individual Differences, 17*, 713–717. doi:10.1016/0191-8869(94)90149-X [Portuguese version by Matos, Pinto-Gouveia, and Duarte, 2011].

Gumley, A., Gillan, K., Morrison, A., & Schwannauer, M. (2011). The development and validation of the beliefs about Paranoia Scale (short form). *Behavioural and Cognitive Psychotherapy, 39*, 35–53. doi:10.1017/S135246581000055X.

Hollin, C. R., Palmer, E. J., & Hatcher, R. M. (2013). Efficacy of correctional cognitive skills programmes. In A. Craig, L. Dixon, & T. A. Gannon (Eds.), *What works in offender rehabilitation: An evidence-based approach to assessment and treatment* (pp. 117–128). Chichester: Wiley-Blackwell.

Hosser, D., Windzio, M., & Greve, W. (2008). Guilt and shame as predictors of recidivism: a longitudinal study with young prisoners. *Criminal Justice and Behavior, 35*, 138–152. doi:10.1177/0093854807309224.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: a statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 39*(1), 12–19. Retrieved from http://www.personal.kent.edu/~dfresco/CRM_Readings/JCCP_Jacobson_ClinSIG.pdf.

Lambie, I., & Randell, I. (2013). The impact of incarceration on juvenile offenders. *Clinical Psychology Review, 33*, 448–459. doi:10.1016/j.cpr.2013.01.007.

Lane, J., Lanza-Kaduce, L., Frazier, C. E., & Bishop, D. M. (2002). Adult versus juvenile sanctions: voices of incarcerated youths. *Crime and Delinquency, 48*(3), 431–455. doi:10.1177/0011128702048003004.

Lipsey, M. W. (2009). The primary factors that characterize effective interventions with juvenile offenders: a meta-analytic overview. *Victims and Offenders, 4*, 124–147. doi:10.1080/15564880802612573.

Lipsey, M. W., & Wilson, D. B. (1998). Effective intervention for serious juvenile offenders: A synthesis of research. In R. Loeb & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 313-345). Thousand Oaks: Sape.

Lipsey, M. W., Howell, J. C., Kelly, M. R., Chapman, G., & Carver, D. (2010). *Improving the effectiveness of juvenile justice programs: A new perspective on evidence-based practice*. Washington: Center for Juvenile Justice Reform.

Lobbestael, J., Arntz, A., Cima, M., & Chakhssi, F. (2009). Effects of induced anger in patients with antisocial personality disorder. *Psychological Medicine, 39*, 5557–5568. doi:10.1017/S003329780905102.

Lösel, F. (1995). The efficacy of correctional treatment: A review and synthesis of meta-evaluations. In J. McGuire (Ed.), *What works: Reducing reoffending? Guidelines from research and practice* (pp. 63–78). London: Wiley Blackwell.

Lösel, F. (2004). The primary factors that characterize effective interventions with juvenile offenders: a meta-analytic overview. *Victims and Offenders, 4*, 124–147. doi:10.1080/15564880802612573.

Lipsey, M. W., & Wilson, D. B. (1998). Effective intervention for serious juvenile offenders: A synthesis of research. In R. Loeb & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 313–345). Thousand Oaks: Sape.

Lipsey, M. W., Howell, J. C., Kelly, M. R., Chapman, G., & Carver, D. (2010). *Improving the effectiveness of juvenile justice programs: A new perspective on evidence-based practice*. Washington: Center for Juvenile Justice Reform.

Lobbestael, J., Arntz, A., Cima, M., & Chakhssi, F. (2009). Effects of induced anger in patients with antisocial personality disorder. *Psychological Medicine, 39*, 5557–5568. doi:10.1017/S003329780905102.

Lösel, F. (1995). The efficacy of correctional treatment: A review and synthesis of meta-evaluations. In J. McGuire (Ed.), *What works: Reducing reoffending? Guidelines from research and practice* (pp. 79–111). London: Wiley Blackwell.

Lösel, F. (1995). The efficacy of correctional treatment: A review and synthesis of meta-evaluations. In J. McGuire (Ed.), *What works: Reducing reoffending? Guidelines from research and practice* (pp. 79–111). London: Wiley Blackwell.

Lösel, F. (1995). The efficacy of correctional treatment: A review and synthesis of meta-evaluations. In J. McGuire (Ed.), *What works: Reducing reoffending? Guidelines from research and practice* (pp. 79–111). London: Wiley Blackwell.

Lösel, F. (1995). The efficacy of correctional treatment: A review and synthesis of meta-evaluations. In J. McGuire (Ed.), *What works: Reducing reoffending? Guidelines from research and practice* (pp. 79–111). London: Wiley Blackwell.

Lösel, F. (1995). The efficacy of correctional treatment: A review and synthesis of meta-evaluations. In J. McGuire (Ed.), *What works: Reducing reoffending? Guidelines from research and practice* (pp. 79–111). London: Wiley Blackwell.
McGuire, J. (2001). What works in correctional intervention? Evidence and practical implications. In G. A. Bernfeld, D. P. Farrington, & A. W. Leschied (Eds.), Implementing and evaluating effective programs (pp. 25–43). Chichester: John Wiley and Sons.

McGuire, J. (2011). Reducing recidivism of adult offenders: a review of methods and outcomes. Ousar Integrar – Revista de Reintegração Social e Prova, 8, 9–25.

McGuire, J. (2013). ‘What works’ to reduce re-offending: 18 years on. In L. A. Craig, L. Dixon, & T. A. Gannon (Eds.), What works in offender rehabilitation: An evidence-based approach to assessment and treatment (pp. 20–49). Chichester: Wiley-Blackwell. doi:10.1002/9781183206555.

Myers, D. L. (2003). The recidivism of violent youths in juvenile and adult court: a consideration of selection bias. Youth Violence and Juvenile Justice, 1(1), 79–101. doi:10.1177/1541204004238365.

Nestor, P. G. (2002). Mental disorder and violence: personality dimensions and clinical features. American Journal of Psychiatry, 159(12), 1973–1978. doi:10.1176/appi.ajp.159.12.1973.

Novaco, R. W. (2010). Anger and psychopathology. In M. Potegal (Ed.), International handbook of anger (pp. 465–497). New York: Springer.

Pearson, F. S., Lipton, D. S., Cleland, C. M., & Yee, D. S. (2002). The effects of behavioral/cognitive-behavioral programs on recidivism. Crime and Delinquency, 48(3), 476–496. doi:10.1177/00112870204800306.

Rafaeli, E., Bernstein, D. P., & Young, J. (2011). Schema therapy: Distinctive features. New York: Routledge.

Redondo, S., Garrido, V., & Sanchéz-Meca, J. (1997). What works in correctional rehabilitation in Europe: A meta-analytic review. In S. Redondo, V. Garrido, J. Pérez, & R. Barberet (Eds.), Advances in psychology and law: International contributions (pp. 449–521). Berlin: de Gruyter.

Redondo, S., Sanchéz-Meca, J., & Garrido, V. (1999). The influence of treatment programmes on the recidivism of juveniles and adult offenders: an European meta-analytic review. Psychology Crime and Law, 5, 251–278. doi:10.1080/10683169908401769.

Rijo, D., Sousa, M. N., Lopes, J., Pereira, J., Vasconcelos, J., Mendonça, M. C., … Massa, S. (2007). Gerar Percursos Sociais: Programa de prevenção e reabilitação para jovens com comportamento social desviante [Growing Pro-Social: Prevention and rehabilitation program for youths with deviant social behavior]. Ponta Delgada: EQUAL.

Safran, J. D., & McMain, S. (1992). A cognitive-interpersonal approach to the treatment of personality disorders. Journal of Cognitive Psychotherapy, 6, 59–68.

Safran, J. D., & Segal, Z. V. (1990). Interpersonal process in cognitive therapy. New York: Basic Books, Inc.

Silva, D. R., Campos, R., & Prazeres, N. (1999). O inventário do estado-traço de raiva (STAXI) e a sua adaptação para a população portuguesa [State-Trait Anger Expression Inventory adapted for the Portuguese population]. Revista Portuguesa de Psicologia, 34, 55–81.

Skeem, J. L., Polaschek, D. L., & Manchak, S. (2009). Appropriate treatment works but how? Rehabilitating general psychopathic, and high-risk offenders. In J. L. Skeem, K. S. Douglas, & S. O. Lilienfeld (Eds.), Psychological science in the courtroom: Consensus and controversy (pp. 358–384). New York: Guildford.

Spielberger, C. D. (1988). The experience, expression and control of anger. In M. Potegal (Ed.), Implementing and evaluating effective programs (pp. 20–49). Chichester: Wiley-Blackwell. doi:10.1002/9781118320655.

Thimm, J. C. (2010). Mediation of early maladaptive schemas between perceptions of parental rearing style and personality disorder symptoms. Journal of Behavior Therapy and Experimental Psychiatry, 41(1), 52–59. doi:10.1016/j.jbtep.2009.10.001.

Thomaes, S., Bushman, B., Stegge, H., Olthof, T., & Nezlek, J. (2011). Turning shame inside-out: “humiliated Fury” in young adolescents. Emotion, 11(4), 786–793. doi:10.1037/a0023403.

Tracy, J. L., & Robins, R. W. (2004). Putting the self into self-conscious emotions: a theoretical model. Psychological Inquiry, 15, 103–125. doi:10.1207/s15327965pi1502_01.

Tremblay, P. F., & Dozois, D. J. A. (2009). Another perspective on trait aggressiveness: overlap with early maladaptive schemas. Personality and Individual Differences, 46(5–6), 569–574. doi:10.1016/j.paid.2008.12.009.

Wilson, D. B., Bouffard, L. A., & MacKenzie, D. L. (2005). A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. Journal of Criminal Justice and Behavior, 32(2), 172–204. doi:10.1177/0093854804272889.

Wise, E. A. (2004). Methods for analyzing psychotherapy outcomes: a review of clinical significance, reliable change, and recommendations for future directions. Journal of Personality Assessment, 82(1), 50–59.
Young, J. E. (1990). *Cognitive therapy for personality disorders: A schema-focused approach*. Florida: Professional Resource Exchange, Inc.

Young, J. E., & Klosko, J. S. (1994). *Reinventing your life*. New York: Plume.

Young, J. E., & Lindemann, M. D. (1992). An integrative schema-focused model for personality disorders. *Journal of Cognitive Psychotherapy, 6*, 11–23.

Young, J. E., Beck, A. T., & Weinberger, A. (1993). Depression. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders* (pp. 240–277). New York: The Guilford Press.

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy. A practitioner’s guide*. New York: The Guilford Press.

Nélio Brazão Ph.D. Student in Forensic Psychology at the Faculty of Psychology and Educational Sciences, University of Coimbra. Researcher at the Research Unit of the Cognitive-Behavioral Research and Intervention Center.

Carolina da Motta M.Sc. in Clinical and Health Psychology. Researcher at the Research Unit of the Cognitive-Behavioral Research and Intervention Center.

Daniel Rijo Ph.D. in Clinical Psychology. Associated Professor at the Faculty of Psychology and Educational Sciences, University of Coimbra. Researcher at the Research Unit of the Cognitive-Behavioral Research and Intervention Center.

Maria do Céu Salvador Ph.D. in Clinical Psychology. Associated Professor at the Faculty of Psychology and Educational Sciences, University of Coimbra. Researcher at the Research Unit of the Cognitive-Behavioral Research and Intervention Center.

José Pinto-Gouveia Ph.D. in Clinical Psychology. Full Professor at the Faculty of Psychology and Educational Sciences, University of Coimbra. Head of the Research Unit of the Cognitive-Behavioral Research and Intervention Center.

João Ramos M.Sc. in Clinical and Health Psychology.