**A Pilot Evaluation of a Strengths-Based CBT Intervention Module with College Students**

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**Background:** Interventions focusing on positive experiences have moderate effects on distress, protective factors and quality of life. While many of these positive interventions focus on the development of additional abilities and coping strategies to foster positivity, only few try to work with the individual’s already existing repertoire for positive adaption to life. **Aims:** To evaluate the ‘Personal Model of Resilience’ (PMR) intervention by Padesky and Mooney (2012) with a focus on resilience strategies already developed. **Method:** In a pre‒post design, intervention and control samples of college students (*n* = 53) are compared with regard to distress, protective factors and quality of life. **Results:** Compared with the control group, the PMR group shows significant improvements in distress, protective factors (self-esteem, optimism) and quality of life with medium to large effect sizes. **Conclusions:** The PMR is a promising intervention module. It requires further evaluation in clinical contexts, with larger samples, and long-term follow-up assessments.

**Key words:** personal model of resilience, cognitive behavioural intervention, resource orientation

# Introduction

Positive psychology was introduced to make psychological knowledge on healthy development and flourishing fruitful for psychology and psychological interventions (Seligman et al., 2005). Since 2000, researchers have explored its potential to complement approaches that focus on a reduction of problem factors and symptoms (Seligman and Csikszentmihalyi, 2000) that may be associated with stress (Lazarus and Folkman, 1984). Recent meta-analyses testify to the broad range of positive interventions that have been evaluated in the last 15 years (Sin and Lyubomirsky, 2009; Bolier et al., 2013) . The overview of empirical support for the positive brief interventions for general public and patients by Bolier et al. (2013) shows that these interventions aim to cultivate and increase a breadth of positive feelings, behaviours or cognitions: gratitude, kindness, optimism, hope, forgiveness, personal strengths, goals, well-being, happiness, positive life experiences, positive self-statements and best possible selves. Typical outcome criteria for such interventions are symptomatology (depression, anxiety, stress), protective factors (particularly optimism, hope, self-esteem, positive affect, happiness) as well as quality of life. Effects of positive interventions are generally small, but respectable considering the short duration of most interventions: on average, positive interventions reach small between group effect sizes of *d* = 0.23 for depressive symptoms, 0.20 for psychological and 0.34 for subjective well-being at post-test (Bolier et al., 2013).

A closer look at targets of positive interventions in the meta-analysis by Bolier et al. (2013) reveals that two approaches can be differentiated:

* Most interventions try to support the development of additional abilities and coping strategies that foster an individual’s adaption to challenges and improve their quality of life. Thus while the person in this context is regarded as capable of positive emotions, thoughts and behaviours, s/he is still regarded as deficient, as someone who does not yet display the full positive potential and thus has to be supported or educated in this respect. The focus here is on developing some new positive process (like gratitude, loving kindness or positive goals) or countering a negative process (like negative thinking) to foster well-being and growth. For example, hope therapy (Snyder, 2000) presents the tenets of the approach and its connection to goal pursuit. Then the therapist helps to identify meaningful goals and breaks them down into more manageable parts. To pursue the goals the therapist supports the planning of alternative routes in case of setbacks. Moreover, s/he teaches the patient to replace low-hope elements with positive, hopeful thoughts.
* In contrast, only very few positive interventions try to draw on the person’s already existing options, their *resources* in dealing with daily life, daily hassles or times of crisis. One example of this approach is the positive diary: the person is asked to note three positive experiences per day in order to become more aware of good things already happening and how s/he contributes to them (Seligman et al., 2005).

From an action regulation perspective (Grawe, 2004) interventions that draw on already existing action tendencies seem particularly fruitful: here the person can use automatized cognitive and behavioural pathways that require less attention and planning, are not easily disturbed by competing intentions and support self-attribution of successful actions. The ‘Personal Model of Resilience’ (PMR)[[1]](#footnote-1) evaluated in this study focuses explicitly on the person’s already available repertoire. It was developed by Padesky and Mooney (2003, 2012) from a cognitive-behavioural perspective for clients with depression or anxiety. Padesky and Mooney (2012) define resilience ‘as the ability to cope and adapt in the face of adversity and/or to bounce back and restore positive functioning when stressors become overwhelming’ (2012, p.1), regarded as an integral part of each and every person’s life experience (see also Ryff et al., 1998). Padesky and Mooney (2012) assume that the skills involved in resilience develop particularly in contexts where people pursue personally relevant projects: because such projects are important to them, and they often experience positive feelings in these contexts, they are strongly motivated to keep going and not give up even when things are not easy. At the same time, people tend to regard progress in these areas as just happening, and thus to overlook or even disregard their personal active contributions. In the PMR, therapists focus on these resilience skills of the person, analyse them collaboratively with patients and try to make them fruitful for coping with current challenges and stressful life events. The PMR is supposed to either stand alone or be integrated into a more comprehensive cognitive behavioural therapy (CBT) psychotherapeutic approach (e.g. Kuyken et al., 2009). Like other positive interventions, the model aims ‘to promote happiness, resilience, courage, and other positive qualities’ (Padesky and Mooney, 2012, p. 1). The four steps of the PMR were split into three consecutive sessions to facilitate validation of the PMR and behaviour experiments for the participants:

* Session 1 (90 min)
  + *Step 1 – search for talents/strengths.* In the first session the intervention starts with setting the problems aside. Instead it focuses on ‘talent areas’ of the person: areas of strengths and enjoyment the person has pursued for a long time, such as hobbies, personal relationships, education, interests, skills, etc. (e.g. ‘playing piano’). Challenges and obstacles the person has encountered in the talent area are highlighted (e.g. ‘serious illness of my daughter when I was planning to play at the wedding of my best friend’). Next, resilience strategies for dealing with these problems are identified (e.g. ‘I asked my parents for support, allowed myself not to play perfectly, tried to relax’).
  + *Step 2 – construct personal model of resilience (PMR).* Through analysis of the person’s strategies to deal with challenges and obstacles in the talent area the therapist extracts generalized resilience strategies (e.g. flexibility, social support, optimism, faith, tenacity). Strategies are systematized into a personal model of resilience including all relevant behaviours, thoughts, attitudes and metaphors. The person reviews and validates his/her PMR until the next session and adds additional relevant aspects (e.g. ‘when tired I allow myself to just improvise’).
* Session 2 (90 min)
  + *Step 3 – apply PMR.* In the second session, the PMR is reviewed collaboratively, including the person’s additional strategies. Then a current problem area is selected (e.g. ‘getting my Master’s thesis finished’). Specific obstacles the person is confronted with are identified (e.g. ‘not enough time for writing’, ‘difficulties to formulate my ideas clearly’, ‘my perfectionism’). Potential helpful resilience strategies are chosen from the PMR (e.g. flexibility, social support, challenge perfectionism). Strategies are specified and applied to the context of the current problem (e.g. ‘flexibility: search for alternative places to write’, ‘social support: ask fellow students to give feedback’, ‘allow myself to be just good enough’). Behavioural experiments are developed to test the feasibility of these strategies (e.g. ‘I ask fellow students for feedback and see what this leads to’) as homework until the next session.
* Session 3 (30 min)
  + *Step 4 – evaluation and transfer.* In the third session behavioural experiments are evaluated and individual resilience strategies are refined and adjusted if necessary. The person is encouraged to apply further strategies from the PMR and/or choose other developmental areas.

Padesky and Mooney (2012) call for investigation of their intervention in non-clinical and clinical samples. In order to evaluate the PMR in this pilot study we chose a sample of first-year students who are confronted with stressors from various sources (Ross et al., 1999): (1) interpersonal (e.g. social activities and conflicts); (2) intrapersonal (e.g. changes in sleeping, eating, self-regulation and responsibilities); (3) academic (e.g. workload); and (4) environmental (e.g. technical problems). As stress, depressive and other symptoms are prevalent among students at transition to university (e.g. Fisher and Hood, 1987; Dyson and Renk, 2006) and resilience strategies enhance quality of life in students (Tempski et al., 2015), this vulnerable sample is the focus of this resilience intervention originally developed for depression and anxiety. In line with this research and other positive intervention studies ( Sin and Lyubomirsky, 2009; Bolier et al., 2013), the focus is on the following outcome criteria: reduction of distress (general symptomatology, depression and anxiety; e.g. Fisher and Hood, 1987; Dyson and Renk, 2006), protective factors related to resilience (Werner et al., 1971) like optimism (e.g. Herman-Stahl and Petersen, 1996) and self-esteem (e.g. Dumont and Provost, 1999) as well as quality of life (e.g. Tempski et al., 2015).

# Method

## Study design

The intervention was evaluated in an intervention group‒control group design with a sample of first-year psychology students. Assessments were made pre-treatment (T-1) and post-treatment (T-2) for the intervention group; the control group was assessed parallel to the intervention group without any intervention in between. Assessments were filled out online (LimeSurvey platform). Treatment for the intervention group consisted of three weekly individual face-to-face sessions (90 min/90 min/30 min) following the rationale for the PMR by Padesky and Mooney (2003, 2012) described above. The Ethics Committee of the Faculty of Psychology, Ruhr-University Bochum, Germany, approved the study which was conducted between November 2009 and March 2010.

## Sample

In an introductory course students were invited to volunteer for the study in return for credits. One hundred and seventeen students registered (about 80% of the cohort); 84 completed the pre-treatment online assessment (T-1). They were assigned a random number and sequentially invited to the intervention. Students not responding within 3 weeks or having problems with the dates offered for the intervention (*n* = 4) as well as those not invited to the intervention due to a higher random number (*n* = 39) were allocated to the control group. As participants were free to follow the invitation to participate in the intervention self-selection bias was possible. In order to control for such effects, intervention and control group participants were matched by propensity scores as recommended by Miller and Chapman (2001). These were calculated via regression analysis for age, gender, number of semesters of study, and degree programme (Rosenbaum and Rubin, 1983; Bacher, 2002). In random order, nearest neighbours were matched with increasing strictness and reducing sample size. At a propensity score cut-off value of 0.1 there were no more significant baseline differences in measured covariates. Fifty-eight participants could be matched, 26 could not be matched and were excluded, and a further five dropped out due to missing post-test data.

## Counsellors and counsellor training

Treatments were provided by two Master’s level students (age: 25 and 29 years; 1 female, 1 male)of a Master’s programme in clinical psychology including basic courses and workshops about counselling and behaviour therapy techniques as part of their Master’s thesis. They were trained and supervised by the third author (U.W.) who had taken part in a workshop and gained permission to use the PMR from Padesky and Mooney at the European Association of Cognitive and Behavioural Therapies (EABCT) meeting in Prague (2003). U.W. is accredited as a CBT therapist in Germany (25+ years therapeutic experience) and has published substantially on resource activation in psychotherapy (e.g. Willutzki and Teismann, 2013).

## Intervention

The intervention consisted of three individual face-to-face sessions (90 min/90 min/30 min) in three consecutive weeks following the rationale described in the introduction of this paper (see also Padesky and Mooney, 2012). Worksheets provided by Padesky and Mooney (2003) in their PMR workshop were translated by the third author (U.W.) and cross-checked by a psychotherapy researcher of German origin living in Great Britain for 30+ years. The intervention was offered to psychology students starting their studies in autumn 2009 during their first semester of studies.

## Evaluation measures

Intervention effects were assessed by measures of psychological distress (symptomatology: Brief Symptom Inventory [BSI]), protective factors (self-esteem: Rosenberg Self-Assessment Scale [RSES]; optimism: Life Optimism Test [LOT]) and quality of life (Munich Quality of Life Dimension List [MLDL-V]). In addition, the intervention was evaluated directly by the intervention group. Wording of the evaluation instruments was adjusted to the non-clinical context (for example, replacing ‘therapy’ by the term ‘session’).The following measures were used for baseline and/or post-treatment evaluation:

* *BSI* (*pre and post*)*.*The BSI (Derogatis, 1993) with 53 items is the short form of the symptom checklist (SCL)-90-R. Psychopathology symptoms during the past 7 days are assessed on a 5-point scale from ‘not at all’ to ‘very strongly’ with nine scales (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism). Scales are aggregated as mean score across all items into the Global Severity Index (GSI) that is widely used in psychotherapy research as general measure of distress (Franke, 2000). The German version (Franke, 2000) has an internal consistency (Cronbach’s alpha) of α = 0.95 for the GSI in our sample.
* *RSES* (*pre and post*)*.* The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) is a one-dimensional questionnaire with ten items about self-esteem. Cronbach's alpha of the German version (Ferring and Filipp, 1996) in this study is α=.86.
* *LOT* (*pre and post*)*.* The LOT was designed by Scheier and Carver (1985) to assess optimism in contrast to pessimism. The questionnaire consists of 12 items with four filler items. As recommended, pessimism items were inverted and combined with optimism items into a single optimism scale. Cronbach’s alpha for the German version (Wieland-Eckelmann and Carver, 1990) is α = 0.85 in our sample.
* *MLDL-V* (*post only*)*.* The MLDL-V (Heinisch et al., 1991) asks respondents to directly estimate changes in quality of life in comparison with the beginning of the study. It consists of 19 items with a 10-point-scale ranging from ‘0 = deterioration’ across ‘4.5 = no change’ to ‘9 = improvement’ in the specific dimensions. As a measurement it directly asks for change in reference to a specific p/oint of time. Like goal attainment scaling it was provided post-only, asking for the change experienced since before the first PMR session. Items are aggregated into four subscales (‘physical condition’, ‘psyche’, ‘social life’ and ‘everyday life’). Reliability (Cronbach’s α) is between α = 0.74 and 0.86 in this sample.
* *Direct intervention evaluation* (*post only questionnaire, intervention group only*)*.* Three additional dichotomous questions (yes/no) ask whether (a) the intervention was useful, (b) participants experienced changes (e.g. in thinking, feeling, action) in their lives, and (c) the intervention had an impact on the subjects’ dealing with difficult situations.

## Statistical analysis

The sample was matched by propensity scores (see sample section) to avoid systematic bias or selection effects (Miller and Chapman, 2001). Concerning sample characteristics (age, sex, semester, degree programme), intervention and control groups were compared through *t*-tests for continuous and χ2-test for categorical variables. For the evaluation measures given at T-1 and T-2 (BSI, RSES, LOT) one-way analyses of variance (ANOVA) were used for pre-treatment scores to ensure that there were no significant baseline differences between groups after matching the samples and balancing the groups on covariates. To reduce further bias, one-way analyses of covariance (ANCOVA) with pre-treatment scores as covariates and group as fixed factor were used to test for intervention effects as recommended by Dimitrov and Rumrill (2003). Within-groups changes were analysed by *t*-tests for dependent samples. For the MLDL-V, which was only assessed post-treatment, ANOVAs were performed to compare intervention and control group. Between-group effect sizes were obtained from ANOVA and ANCOVA group comparisons as partial eta squared. Level of satisfaction with the treatment in the intervention group is reported. Data were processed using IBM SPSS Statistics 22.

<Please insert Table 1 about here>

# Results

## Descriptive results

The matched sample (*n* = 53) consisted of 43 female (81%) and 10 male (19%) psychology students. Eighty-one per cent were enrolled in the degree programme ‘Bachelor of Psychology’ and 19% in the ‘Bachelor of Occupational Psychology’; 93% were in their first semester, 7% in their third semester. Average age was 22.0 years (SD = 4.8). Intervention and control groups did not differ significantly in terms of age (*t*1,51 = 0.23, *P* = 0.82), number of semesters of study (*t*1,51 = 0.12, *P* = 0.91), degree programme (χ2 = 3.65, d.f. = 1, *P* = 0.06) and gender (χ2 = 3.65, d.f. = 1, *P* = 0.06).

As shown in Table 1, pre-treatment distress level in BSI-GSI (global severity index) was moderate in both groups with a mean of 0.67 (SD = 0.37) for the entire sample ranging from 0.08 to 1.66. Sixty-eight per cent of the subjects were within 2 SD of the German non-patient norm (mean = 0.31; SD = 0.23; Franke, 2000), so that floor effects can be expected. Nevertheless, 32% were quite distressed with BSI-GSI > 0.77. At pre-treatment, one-way ANOVAs did not indicate any significant differences between the groups in symptom distress (BSI-GSI), optimism (LOT) and self-esteem (RSES).

## Intervention effects

One-way ANCOVAs, controlling for pre-treatment scores as covariates, indicated that the intervention group differed from the control group on all outcome measures at post-treatment (see Table 1): the intervention group showed a greater reduction of distress on the BSI-GSI as well as a greater increase in self-esteem (RSES) and optimism (LOT) with effect sizes ranging from η2p = 0.08 to η2p = 0.10. Further inquiry into subscales of the BSI shows that groups differ most on subscales ‘depression’ (*F*1,50 = 7.63, *P* < 0.01, η2p = 0.13) and ‘interpersonal sensitivity’ (*F*1,50 = 5.58, *P* < 0.05, η2p = 0.10). *t*-tests supported significant benefit for the intervention group from pre- to post-treatment in BSI-GSI (*t*27 = 2.92, *P* < 0.01), RSES (*t*27 = ‒3.01, *P* < 0.01) and LOT (*t*27 = ‒2.86, *P* < 0.01) whereas there were no significant differences in pre‒post *t*-tests for the control group. Further ANCOVAs with gender and baseline scores as covariates demonstrated no significant effect of gender in BSI-GSI (*F*1,49 = 0.37, *P* = 0.55, η2p = 0.01), LOT (*F*1,49 = 0.01, *P* = 0.94, η2p = 0.00), and RSES (*F*1,49 = 3.07, *P* = 0.09, η2p = 0.06).

ANOVAs also demonstrated greater improvements in subjectively rated quality of life change for the intervention group compared with the control group at post-treatment (Table 1): intervention and control group differed significantly on three of four MLDL-V subscales with greatest effects for the subscale ‘psyche’ and a trend in the subscale ‘everyday life’. MLDL-V effect sizes range from η2p = 0.07 to η2p = 0.18.

## Direct evaluation of the intervention by the intervention group

All participants (100%) described the intervention as useful. Eighty-nine per cent had been thinking a lot about the intervention or had noticed an impact on their management of difficult situations. Ninety-three per cent described changes in thinking, feeling or action.

# Discussion

The goal of this pilot study was to evaluate the Personal Model for Resilience (PMR) described by Padesky and Mooney (2012) in a student sample. In this three-session face-to-face intervention module, successfully managed obstacles (difficulties, crises, trauma, etc.) that participants describe in a personal talent/strengths area are analysed and strategies connected to such resilient behaviours are delineated. Subsequently, these highly individual resilience strategies are applied to current difficulties, and their feasibility is evaluated in behavioural experiments. A sample of mostly first-year students was chosen in order to evaluate the PMR model for the first time as these beginning students are confronted with many challenges, new situations and various sources of stress (Ross et al., 1999). The effects of the intervention were evaluated in an intervention-control group design with an untreated comparison group controlling for baseline differences by propensity score matching.

As hypothesized, the PMR group showed significantly greater reduction of psychological distress (symptomatology) and more increase in protective factors (self-esteem and optimism) as well as quality of life compared with the control group. Subgroup pre‒post *t*-tests substantiated these significant improvements for PMR, whereas control participants did not improve on any dimension. Average effect sizes for PMR were between η2p = 0.07 and η2p = 0.18 with a mean of η2p = 0.10. Most effects can be classified as medium, with one large effect for psychological quality of life.

Direct feedback from PMR participants was consistently positive: Most participants described it as having influenced their coping with difficult situations and leading to favourable changes in thinking, feeling and acting. All participants rated the intervention as worthwhile.

Compared with effects sizes for other positive interventions reported by Bolier et al. (2013) and Sin and Lyubomirsky (2009), the magnitudes of the effects for the PMR are similar, respectively, in the upper range with medium effect sizes for distress (including anxiety and depression), self-esteem, optimism as well as medium to large effect sizes for quality of life variables. Effects for depression and quality of life may be particularly relevant as these dimensions may protect against relapse and recurrence of psychopathology (Ruini and Fava, 2012): reducing negative affectivity and bolstering well-being and quality of life is hypothesized to contribute to recovery from stress-related imbalance by altering stress-related gene expression and stimulating dendrite networks in the hippocampus at the molecular level (Fava and Tomba, 2009). This seems particularly relevant for first-year students, as the transition to university may cause severe stress, psychopathological symptoms and especially depression ( Fisher and Hood, 1987; Dyson and Renk, 2006) with a need for strategies fostering resilience (Steinhardt and Dolbier, 2008).

Limitations of this study are possible self-selection effects that may have jeopardized randomization. While students were approached for the intervention in randomized order they were not included in the intervention group if an appointment was not possible. More distressed subjects may have cancelled the intervention or not even responded to the intervention invitation, whereas less distressed students were more open to take part in the PMR that was clearly described as an individualized approach. Moreover, even though the intervention was offered to first-year-students, more advanced students also participated. We tried to account for baseline differences via propensity score matching, so that baseline differences were eliminated. Brewin and Bradley (1989) discuss the impact of randomization on treatment outcome and demand equal motivation for groups. In our case it cannot be ruled out that students assigned to the untreated control group were disappointed (e.g. Lindström et al., 2010), whereas the prospect of receiving an intervention may have boosted the intervention group (e.g. Goossens et al., 2005). We suggest that future studies should employ a wait-list design and randomize participants after binding consent to take part in the intervention.

The impact of the study is limited by further sample characteristics; the sample is relatively small and quite healthy. On one hand, this group may have been particularly resilient and thus the intervention may have made more sense to them than to a more impaired group. On the other hand, the high level of functionality in the sample may have restricted room for further symptom reduction or improvement in protective factors and quality of life (see Sin and Lyubomirsky, 2009; Bolier et al., 2013). Future studies should involve a larger as well as clinical sample and include follow-up assessments to explore the potential of the PMR to activate patients’ resilience.

It should be kept in mind that the intervention was part of students’ mandatory participation in research projects; they were not primarily motivated to increase resilience or solve problems. The meta-analysis of positive interventions by Sin and Lyubomirsky (2009) found greater effects if participants selected the interventions themselves than when they did not choose them freely (but see also Bolier et al., 2013). Nevertheless, 32% of the matched sample were quite distressed deviating >2 SD from the German norm sample (Franke, 2000).

The modular character of the PMR and its structure make it particularly accessible for psychotherapists with a CBT background. Together with behavioural activation (Jacobson et al., 2001) and well-being therapy (Fava et al., 1998), the PMR is one of few explicitly positive interventions from a cognitive-behavioural perspective (MacLeod and Luzon, 2014). Concerning change mechanisms it draws on general, trans-theoretical and trans-diagnostic principles of change like motivational enhancement, cognitive reappraisal and the modification of behaviours and avoidance (Barlow et al., 2011) as well as resource activation (Grawe, 2004). Like other positive interventions, the PMR aims to initiate a positive cycle during which new resources and processes are activated (Fredrickson, 2001; Grawe, 2004). The intervention, which was originally created to foster positive emotions in depressed clients, in this study worked for students at a critical point of life – the transition to university (Fisher and Hood, 1987; Dyson and Renk, 2006) – without using CBT or including further methods. Thus the PMR may also work for clients faced with critical life events, stress and moderate symptoms of depression and anxiety. It could be offered as low-threshold intervention to overcome crisis and restore positive functioning or as an additional CBT-component to foster positive emotions (Kuyken et al., 2009).

Taking limitations into account, this pilot study supports the usefulness of the ‘Personal Model of Resilience’ described by Padesky and Mooney (2012) as an approach to activate personal strengths in challenging times. Effects are similarly high compared with those of other positive interventions. The PMR can thus be characterized as a promising intervention for students in transition to university drawing systematically on positive behaviours, thoughts and experiences which are already part of the person’s repertoire.

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The study (together with a related clinical study) has been approved by the ethics committee of the Faculty of Psychology at Ruhr-University Bochum.

*Conflicts of interest*: Philipp Victor, Tobias Teismann and Ulrike Willutzki have no conflict of interest with respect to this publication.

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**Table 1.** Distress (symptomatology) and protective factors (self-esteem, optimism) before (pre-treatment) and after the intervention (post-treatment); changes in quality of life directly assessed by participants (MLDL-V) after treatment (descriptives, ANOVAs and ANCOVAs)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **PMR**  (*n* = 28) | | |  | **Control**  (*n* = 25) | | |  |  |  |  |
|  |  | Mean | SD |  |  | Mean | SD |  |  | **Intervention effect** |  | η2p |
| **Distress (BSI GSI)** |  |  |  |  |  |  |  |  |  |  |  |  |
| Pre-treatment |  | 0.71 | 0.37 |  |  | 0.63 | 0.36 |  |  | *F*1,51 = 0.53a |  |  |
| Post-treatment |  | 0.53 | 0.33 |  |  | 0.71 | 0.61 |  |  | *F*1,50 = 4.12b\* |  | 0.08 |
| **Self-esteem (RSES)** |  |  |  |  |  |  |  |  |  |  |  |  |
| Pre-treatment |  | 2.24 | 0.50 |  |  | 2.37 | 0.51 |  |  | *F*1,51 = 0.96a |  |  |
| Post-treatment |  | 2.46 | 0.43 |  |  | 2.32 | 0.60 |  |  | *F*1,50= 4.16b\* |  | 0.08 |
| **Optimism (LOT)** |  |  |  |  |  |  |  |  |  |  |  |  |
| Pre-treatment |  | 28.32 | 5.48 |  |  | 27.40 | 5.96 |  |  | *F*1,51 = 0.34 a |  |  |
| Post-treatment |  | 31.14 | 6.31 |  |  | 27.64 | 5.51 |  |  | *F*1,50 = 5.33b\* |  | 0.10 |
| **Changes in quality of life since pre-treatment (MLDL-V)** | | | | | | | | | | | | |
| Physis |  | 5.34 | 0.81 |  |  | 4.76 | 1.02 |  |  | *F*1,51 = 5.20c\* |  | 0.09 |
| Psyche |  | 6.39 | 1.09 |  |  | 5.31 | 1.29 |  |  | *F*1,51 = 10.96c\*\* |  | 0.18 |
| Social life |  | 5.50 | 1.08 |  |  | 4.70 | 1.47 |  |  | *F*1,51 = 5.11c\* |  | 0.09 |
| Everyday life |  | 5.37 | 0.90 |  |  | 4.86 | 1.05 |  |  | *F*1,51 = 3.58c† |  | 0.07 |
| Mean intervention effect |  |  | |  |  |  | |  |  |  |  | 0.10 |

aPre-treatment between group effects based on one-way ANOVAs. bPost-treatment between group effects based on one-way ANCOVAs with pre-treatment scores as covariates. cPost-treatment between group effects based on one-way ANOVAs. η2p: partial eta squared of ANOVA and ANCOVA between group effects. †*P* ≤ 0.10, \**P* ≤ 0.05, \*\**P* ≤ 0.01.

1. While the authors use ‘resilience’ as a key term, their approach is only loosely connected to the resilience discussion and research in developmental psychology (e.g. Werner et al., 1971; Luthar & Cicchetti, 2000). [↑](#footnote-ref-1)