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Identifying Psychological Mechanisms Underpinning a Cognitive Behavioural Therapy Intervention for Emotional Burnout

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Abstract

One hundred employees of a UK government department were randomly assigned to one of two conditions: (1) a worksite, group-based, CBT intervention called Acceptance and Commitment Therapy (ACT; *n* = 43), which aimed to increase participants' psychological flexibility; and, (2) a waitlist control group (control; *n* = 57). The ACT group received three half-day sessions of training spread over two and a half months. Data were collected at baseline (T1), at the beginning of the second (T2) and third (T3) workshops, and at six months follow-up (T4). Consistent with ACT theory, analyses revealed that, in comparison to the control group, a significant increase in psychological flexibility from T2 to T3 in the ACT group mediated the subsequent T2 to T4 decrease in emotional exhaustion in the ACT group. Consistent with a theory of emotional burnout development, this significant decrease in emotional exhaustion from T2 to T4 in the ACT group prevented the significant T3 to T4 increase in depersonalization seen in the control group. Strain also decreased from T2 to T3 in the ACT group, only, but no mediator of that improvement was identified. Discussion focuses on implications for theory and practice in the fields of ACT and emotional burnout.

Key words: Acceptance and commitment therapy, burnout, psychological flexibility

Introduction

Interventions designed to reduce emotional burnout either target individual employees or aspects of the organisation (Ross & Altmaier, 1994; Schaufeli & Buunk, 2003). Although workplace factors have generally been found to have a more important role in burnout development (Maslach, 2003), individual-focussed programs have been more prominent in both practice and research than have organisational-focused interventions (Halbesleben & Buckley, 2004; Maslach, 2003). Individual-focussed programs aim to help employees deal more effectively with the stress that results in emotional burnout. At this level of intervention cognitive behavioural therapy (CBT) programs have been found to be reasonably effective (see Schaufeli & Enzmann, 1998); however, the research base suffers from a number of inadequacies. A key one, which we seek to address in the present study, is the dearth of research examining the psychological mechanisms of change by which emotional burnout interventions work (Hatinen, Kinnunen, Pekkonen, & Kalimo, 2007). This is problematic, because, if we do not understand why such an intervention works, we are unable to maximise its effectiveness. We also cannot test and advance any theory upon which the intervention is based. To address these lacunae, in the present study, we specified and tested a model by which a CBT intervention reduces emotional burnout. To do so, we integrated theory and research from a specific CBT theory with theory and research on emotional burnout development. We hypothesised that a psychological process specified by the CBT, known as *psychological flexibility*, may act as an initiating mechanism in burnout reduction, whilst a widely researched model of burnout development may explain the latter stages of burnout alleviation.

Psychological flexibility and work

Psychological flexibility is a primary individual determinant of mental health and behavioural effectiveness, according to an empirically based theory of psychopathology, *Acceptance and Commitment Therapy* (ACT; Hayes, 1987; Hayes, Strosahl, & Wilson, 1999). It refers to people's ability to focus on their current situation, and depending upon the opportunities afforded by that situation, take action towards achieving their goals and values, even in the presence of difficult or unwanted psychological events (e.g., challenging thoughts, feelings, physiological sensations, images, and memories) (Bond, Flaxman, & Bunce, 2008). People may find it difficult to focus on their current situation when their attention is directed towards altering, suppressing, avoiding, or otherwise controlling their psychological events. Consistent and deliberate attempts to regulate one's internal experiences require constant effort, and therefore may often detract from the psychological

resources people have available to attend to their current environment. As a result, people may often fail to recognise, and/or respond effectively to, goal-relevant opportunities existing within their current situations. In the long term, taking this kind of rigid, controlling–or psychologically inflexible–stance towards one's internal experiences may interfere with goal attainment.

Conversely, people may be better able to focus on their current situation, and notice and respond effectively to goal-related opportunities, if they can relinquish consistent, and unhelpful, efforts to control their internal experiences. This involves observing one's thoughts and feelings from a noncontrolling, nonelaborative, and nonjudgmental perspective: A way of thinking commonly described as *mindful* (Brown & Ryan, 2003; Kabat-Zinn, 1990; Linehan, 1993a; Marlatt & Kristeller, 1999). By adopting a mindful approach, people are less focussed on their internal experiences, and therefore better able to engage, or cope, with their immediate environments. This, in turn, facilitates better mental health (Baer, 2003; Hayes, Luoma, Bond, Masuda, & Lillis, 2006) and improved goal-focussed behaviour.

Consistent with this analysis, research has highlighted key relationships between psychological flexibility and important workplace behaviours. Higher levels of psychological flexibility correlate with, and longitudinally predict, better mental health and job performance (Bond & Bunce, 2003; Bond & Flaxman, 2006), as well as job-related learning (Bond & Flaxman, 2006). Effects such as these have been found even after controlling for other widely researched, work-relevant individual characteristics, such as negative affectivity and locus of control (Bond & Bunce, 2003), emotional intelligence (Donaldson & Bond, 2004), and the Big Five personality traits (Bond, Hayes, Baer, Carpenter, Guenole, et al., 2011). Unlike personality traits, psychological flexibility, whilst stable over time (e.g., Bond & Bunce, 2003), is an individual characteristic that can also be enhanced, and research has shown that such enhancement can, in turn, improve work-related behaviour; for example, randomised controlled trials show that an increase in psychological flexibility is the mechanism, or mediator, by which ACT interventions improve general mental health (Bond & Bunce, 2000; Flaxman & Bond, 2010), and innovation potential (Bond & Bunce, 2000).

Interestingly, research indicates that mental health intervention strategies unrelated to ACT may also produce their benefits through improving psychological flexibility. For example, research shows that coping and emotion regulation strategies appear to improve psychological health and hedonic functioning, because they enhance psychological flexibility (Kashden, Barrios, Forsyth, Steger, 2006); furthermore, Flaxman and Bond (2010) showed that cognitive behaviour therapy techniques that focus on cognitive reappraisal reduce

psychological distress, in part, because those techniques improve psychological flexibility. It appears, then that psychological flexibility may be a general psychological process that regulates mental health and behavioural effectiveness; as a result, effective coping strategies (e.g., cognitive reappraisal) may produce their benefits, in part, as a result of improving psychological flexibility.

Emotional burnout development

Emotional burnout is a psychological syndrome that has been found to relate to a number of negative consequences for both employees and organisations; these consequences include health problems, depression, reduced productivity, absenteeism, and job turnover (Jackson & Maslach, 1982; Leiter & Maslach, 1988; Schaufeli & Enzmann, 1998; Shirom, 1989). Whilst several conceptualisations of the syndrome exist, in defining emotional burnout, we draw on the work of Maslach and colleagues, who describe it as a three-component construct. The first component is *emotional exhaustion*, which refers to feelings of being emotionally overextended and depleted of emotional resources; the second is known as *depersonalization*, and refers to workers' negative, callous, or excessively detached feelings towards their clients/customers (Maslach, Schaufeli, & Leiter, 2001). The final component is known as *reduced personal accomplishment*, and refers to feelings of incompetence and lack of achievement at work (Maslach, Schaufeli, & Leiter, 2001). In the present study we restrict our analyses to the emotional exhaustion and depersonalization components of burnout; these are generally considered to be the core components (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Green, Walkey, & Taylor, 1991), whilst personal accomplishment is often treated as a separate scale. Conceptually, personal accomplishment has been argued to largely reflect a personality characteristic similar to self-efficacy (Cordes & Dougherty, 1993; Shirom, 1989). This criticism has been supported by empirical research indicating that personal accomplishment holds relatively low correlations with the two other burnout components (Lee & Ashforth, 1996), and shows a different pattern of correlations with other work-related variables (Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998).

Burnout has long been recognised as a serious occupational hazard, particularly for those working in people-oriented professions (Maslach & Goldberg, 1998). In response to this, a considerable research effort has focussed upon understanding how the syndrome develops. As well as investigating the broad antecedent conditions that may trigger burnout (see Burke & Richardson, 1993; Cordes & Dougherty, 1993; Maslach, Schaufeli, & Leiter, 2001; Shirom, 1989), researchers have sought to uncover the specific causal sequence by

which the individual components develop (Golembiewski, Munzenrider, & Stevenson, 1986; Lee & Ashforth, 1993; Leiter & Maslach, 1988; Taris, Le Blanc, Schaufeli, & Schreurs, 2005; van Dierendonck, Schaufeli, & Buunk, 2001). There is a compelling body of research which indicates that the three individual components are not necessarily co-occurring phenomena, but rather a set of symptoms that may inter-relate and result from an underlying causal process (Taris et al., 2005). An understanding of this causal process should aid in refining the theory, as well as promoting an earlier and more effective intervention for the problem (Lee & Ashforth, 1993; van Dierendonck et al., 2001).

There appear to be two prominent *process* models within the burnout literature; firstly, Golembiewski, Munzenrider, and Stevenson (1986) suggested that job stress directly affects depersonalization (which is seen a dysfunctional method of coping) that over time leads to a reduced sense of personal accomplishment. As depersonalization increases and personal accomplishment decreases, eventually the person becomes emotionally exhausted. The alternative model put forward by Leiter and Maslach (1988) maintains that chronic job stress leads to emotional exhaustion, which in turn leads to workers psychologically withdrawing themselves from the people with whom they work (i.e. depersonalization), in an attempt to cope with this stress. Finally, as depersonalization persists, the achievement of work goals seems further thwarted and personal accomplishment declines. Whilst research has not unequivocally confirmed the temporal sequence of either of these models, a certain relationship within the Leiter and Maslach (1988) model has received ample empirical support; specifically, that higher levels of emotional exhaustion trigger higher levels of depersonalization (Maslach et al., 2001; Taris et al., 2005).

Identifying the mechanisms underlying emotional burnout alleviation

As noted, people with higher levels of psychological flexibility are less distracted and controlled by their internal experiences, and therefore are better able to engage with their immediate environment, which in turn, facilitates better mental health and performance. Consistent with this analysis, it is possible that ACT training will lead to improvements in emotional burnout, and general mental health (conceptualized herein as strain) in the present study. We included a measure of strain in the present study as this would allow us to relate our findings to those of previous ACT worksite intervention studies which have targeted employee mental health. In addition to our predictions regarding improvements in emotional burnout and strain, it is important to consider the psychological mechanisms by which these changes may occur. As previously explained, research has indicated that psychological flexibility is the mechanism, or mediator, by which ACT interventions improve strain (Bond

& Bunce, 2000; Flaxman & Bond, 2010); therefore, in the present study we may expect to find this same mediation effect. Since the emotional exhaustion component of burnout is often considered to be synonymous with strain (Maslach, 2003; Maslach et al., 2001), we may expect to find that increases in psychological flexibility also mediate improvements in this outcome. Finally, consistent with research evidence relating to the causal relationships amongst burnout components (see Leiter & Maslach, 1988; Maslach et al., 2001; Taris et al., 2005), it is possible that decreases in emotional exhaustion and strain, which occur as a result of earlier increases in psychological flexibility, will lead to, or mediate, decreases in depersonalization. Based upon this theoretical account, we proposed the following four hypotheses:

Hypothesis 1: ACT training will lead to significant decreases in emotional burnout when compared with a control group (see Figure 1. Path *a*).

Hypothesis 2: ACT training will lead to significant decreases in strain when compared with a control group (see Figure 1. Path *a*).

Hypothesis 3: Increases in participants' psychological flexibility that result from the ACT training will account for, or mediate, the decreases in their levels of emotional exhaustion and strain (see Figure 1. Path *b*+*c*).

Hypothesis 4: Decreases in participants' emotional exhaustion and strain that result from increases in psychological flexibility, will account for, or mediate, reductions in depersonalization (see Figure 1. Path *b*+*c*+*d*).

Taken together, these hypotheses led us to anticipate the following sequence of changes in the study variables: psychological flexibility will increase first; this will be followed by a decrease in emotional exhaustion and strain, which in turn, will be followed by a reduction in depersonalization (see Figure 1.)

[Insert figure 1 about here]

Method

Participants

Participants were employees of a large UK government department who had volunteered to take part in a workplace intervention advertised as "work-life effectiveness training." Participants were recruited by means of notices posted on the organisation's intranet webpage and within the weekly staff bulletin. Recruitment was restricted to

employees occupying customer facing roles within the organisation, as we considered these employees to be at highest risk of emotional burnout and strain (see Maslach, Jackson, & Leiter, 1996). One hundred and thirty six participants from across the UK volunteered for the training. Of these, 100 participants (83% female) completed all aspects of the programme and so constituted the current sample. Within this group, 43 were randomly assigned to the ACT group, and 57 to the waitlist control group. The mean age of the participants was 47 (range 31-59) and 93% classified their ethnicity as "White British". On average they had worked in their current job for 59 months (4.9 years). Thirty four percent reported GCSE or O level as their highest educational qualification (normally obtained at age 16), whilst 47% reported that they held A level/diploma/NVQ or equivalent qualifications (normally gained at age 18 or above). Seventeen percent indicated that they held an undergraduate degree, whilst two percent reported that they held a postgraduate degree.

Measures

General Health Questionnaire (GHQ-12; Goldberg, 1978; 1992). This 12-item scale is typically used to assess general mental health, and in the context of the present study, served as the index of strain (see Bond & Bunce, 2000). Respondents were asked to rate the frequency with which they had experienced symptoms associated with strain (e.g., "have you recently lost much sleep over worry?" and "have you recently been able to enjoy your normal day-to-day activities?") along a 4-point scale (e.g., *less than usual* to *much more than usual*). We used the Likert scoring method whereby values of 0, 1, 2, or 3 are assigned to each of the four response options (see Banks et al., 1980). Higher scores on the GHQ indicate greater levels of strain. There was good internal consistency for the GHQ across the four time points in the present study (Cronbach alphas: .93, .93, .94, and .94 for Times 1, 2, 3, and 4 respectively). Item-total correlation coefficients for the GHQ ranged from .49 to .83 at T1; .53 to .79 at T2; .56 to .82 at T3; and, .57 to .81 at T4.

Maslach Burnout Inventory - Human Services Survey (MBI-HSS; Maslach, Jackson, & Leiter, 1996). The two individual MBI-HSS subscales of emotional exhaustion and depersonalization were utilised in the present study. The 9-item scale measuring emotional exhaustion assesses feelings of emotional fatigue and a lack of energy and vitality. Items include "I feel emotionally drained from my work" and "I feel fatigued when I get up in the morning and have to face another day on the job". The 5-item scale measuring depersonalization assesses negative and/or cynical attitudes towards one's client/customer group. Items include "I feel I treat some recipients as if they were impersonal objects" and "I've become more callous toward people since I took this job". Higher scores indicate higher

levels of emotional exhaustion and depersonalization. On each scale, respondents were asked to rate the frequency with which they experienced a given feeling on a 7-point scale ranging from 0 (*never*) to 6 (*every day*). Internal consistency for the emotional exhaustion scale across the four time points was good (Cronbach alphas: .94, .94, .93, and .92 for Times 1, 2, 3, and 4 respectively). Item-total correlation coefficients for emotional exhaustion ranged from .67 to .84 at T1; .67 to .86 at T2; .62 to .87 at T3; and, .52 to .86 at T4. Internal consistency for the depersonalization scale across the four time points in the present study was adequate (Cronbach alphas: .68, .74, .68, and .78 for Times 1, 2, 3, and 4 respectively). Item-total correlation coefficients for depersonalization ranged from .27 to .64 at T1; .26 to .63 at T2; .24 to .63 at T3; and, .30 to .75 at T4.

Acceptance and Action Questionnaire - II (AAQ-II; Bond et al., 2011). This 7-item scale assesses psychological inflexibility, or experiential avoidance; this describes the rigid dominance of internal private experiences, over environmental contingencies, in guiding values-based action. Respondents indicated their level of agreement with each item on a Likert-type scale ranging from 1 (*never true*) to 7 (*always true*). Items included "Emotions cause problems in my life" and "My painful experiences and memories make it difficult for me to live a life that I would value". Higher scores on the AAQ-II indicate greater levels of psychological inflexibility, however items were reverse scored for the purpose of the present study such that higher scores indicated greater levels of psychological flexibility. There was good internal consistency for the AAQ-II across the four time points in the present study (Cronbach alphas: .89, .92, .89, and .91 for Times 1, 2, 3 and 4 respectively). Item-total correlation coefficients for the AAQ-II ranged from .65 to .73 at T1; .68 to .79 at T2; .56 to .79 at T3; and, .66 to.80 at T4.

ACT intervention

We delivered the ACT intervention using a "two-plus-one" format (Barkham & Shapiro, 1990), whereby each participant attended three, three-hour training sessions, two of which occurred on consecutive weeks with a third that occurred two months later. The training was delivered in groups of between eight and 12 employees during their normal working hours. As participants worked in different branches across the UK, we selected three different geographical locations for the training and randomly assigned participants to one of the locations. The first author, who had received prior training in ACT, delivered the training sessions. To ensure adherence to ACT treatment protocols, a selection of the training sessions were digitally recorded and assessed by the second author, who developed the first ACT interventions for the workplace (Bond & Bunce, 2000; Bond & Hayes, 2002).

The training adhered to standardized protocols developed from two ACT manuals designed for group worksite interventions (Bond, 2005; Bond & Hayes, 2002), and it had two key objectives; firstly, to increase present moment awareness and undermine unhelpful avoidance of, and entanglement with, one's thoughts and emotions. Secondly, to teach people acceptance and mindfulness as an alternative strategy for dealing with problematic thoughts and feelings, and demonstrate how these may be used to facilitate values-based actions. The training consisted of various metaphors, mindfulness, and cognitive defusion techniques, as well as values and goals clarification exercises in order to help participants learn "how to deal with psychological barriers to effective and enjoyable living". The first session aimed to question the workability of popular coping strategies, undermine unhelpful avoidance strategies, introduce acceptance as an alternative strategy, and allow participants to practice acceptance using mindfulness-focussed exercises. The second session aimed to further explore acceptance and how a lack of awareness and automatic thinking can cause internal struggles, identify and record participants' most important goals and values, and highlight how acceptance and mindfulness facilitate values-based actions. The final session aimed to further practice acceptance and mindfulness, discuss barriers and stumbling blocks to values-based actions, and troubleshoot any questions or issues participants had after practicing these techniques over the last two months.

The training was supported by the use of homework assignments, handouts and CD's, and participants were given summary sheets of the main concepts and points of discussion after each of the three sessions. Participants were also asked not to discuss the training with anybody in their organisation, for the duration of the study.

Procedure

Once the training had been advertised, employees were given a two-week deadline by which to sign-up. At the end of that time, we randomly allocated all participants to either the ACT or the control group. We then emailed participants to provide them with details of their training dates and their location. (Participants assigned to the wait-list control group were given training dates that began after the end of the study). We measured outcome and mediator variables at the beginning of the first workshop (baseline; Time 1), one week after this at the beginning of the second workshop (Time 2), two months after this at the beginning of the final workshop (Time 3), and again six months after a final training workshop (follow-up; Time 4). This arrangement is consistent with the two-plus-one training model (Barkham & Shapiro, 1990), as well as previous research (Bond & Bunce, 2000), and allowed us to examine changes in participants' responses across three key time intervals. Questionnaires at

all time points were emailed to all participants (in both the intervention and control group), filled out electronically and returned (within five days) to the research group via email.

Results

Attrition resulted from non-attendance at one or more of the training workshops, and/or failure to return a questionnaire by the specified date at one or more of the four assessment time points. Overall 30% (18 people) of the ACT group and 24% (18 people) of the control group failed to complete all aspects of the programme and were therefore excluded from the analyses. There were no significant differences on any of the Time 1 measures, including on biographical variables, between participants who completed the study and those who did not. As a result of attrition, the analyses below were based on the following group sizes: ACT = 43 and control = 57. No significant group differences on any variable at Time 1 were observed between the ACT and control groups.

Table 1 presents, separately for the ACT and control groups, the means and standard deviations of all study and biographical variables at each assessment point. Table 2 presents their intercorrelations. None of the biographical variables was significantly correlated with any of the mediator or outcome variables and, therefore, were not controlled in the subsequent analyses.

[Insert table 1 about here]

[Insert table 2 about here]

Intervention effects

We conducted a 2 × 4 repeated measures multivariate analysis of variance (MANOVA) to test our first two hypotheses that ACT training would lead to significant decreases in participants' emotional burnout and strain, and to examine whether there were significant changes in psychological flexibility. Group (ACT vs. control) served as the between-subjects factor, and time (Time 1 vs. Time 2 vs. Time 3 vs. Time 4) as the within-subjects factor. Analyses revealed a significant overall group by time interaction ($F(12, 87) = 3.17$, $p < .001$, $\eta^2 = .30$) when all dependent and mediator variables were included. (For all analysis of variance derived effects, estimates of effect size [eta-squared, η^2] are included alongside the significance level. According to Cohen's (1988) criteria, η^2 values of .01, .09, and, .25 indicate small, medium, and large effects respectively.) As there were significant multivariate effects, repeated measures MANOVAs were performed for each of the variables. Where significant main or interaction effects were found, within- and between-subjects simple effects tests were carried out.

Psychological flexibility

As can be seen in Table 3, there was a significant group by time interaction for psychological flexibility, which is illustrated in Figure 2. Simple effects tests indicated that in the ACT group there was a significant increase in psychological flexibility between T2 and T3 ($F (1, 42) = 12.57$, $p < .001$, $\eta^2 = .23$), and a significant decrease between T3 and T4 ($F (1, 42) = 6.95$, $p < .01$, $\eta^2 = .14$), while no significant changes in psychological flexibility were observed in the control group. Between group simple effects tests, with T1 psychological flexibility scores entered as a covariate, showed that psychological flexibility was significantly lower in the ACT group at T2 ($F (1, 97) = 4.62$, $p < .05$, $\eta^2 = .05$), but there were no other significant differences between the two groups at any other time points.

[Insert table 3 about here]

[Insert figure 2 about here]

Strain

As can be seen in Table 3, there was a significant group by time interaction for strain, which is illustrated in Figure 3. Simple effects tests indicated that in the ACT group there was a significant decrease in strain between T2 and T3 ($F (1, 42) = 9.78$, $p < .01$, $\eta^2 = .19$), while in the control group there was a significant increase in strain between T2 and T3 ($F (1, 56) = 14.29$, $p < .01$, $\eta^2 = .20$). Between group simple effects tests, with T1 strain scores entered as a covariate, showed that strain was significantly lower in the ACT group at T3 ($F (1, 97) = 12.99$, $p < .001$, $\eta^2 = .12$), but not at T2 or T4.

[Insert figure 3 about here]

Emotional exhaustion

As can be seen in Table 3, there was a significant group by time interaction for emotional exhaustion, which is illustrated in Figure 4. Simple effects tests indicated that in the ACT group there was a significant decrease in emotional exhaustion between T1 and T4 ($F (1, 42) = 5.66$, $p < .05$, $\eta^2 = .12$), between T2 and T3 ($F (1, 42) = 5.83$, $p < .05$, $\eta^2 = .12$), and between T2 and T4 ($F (1, 42) = 7.17$, $p < .01$, $\eta^2 = .15$), while no significant changes in emotional exhaustion were observed in the control group.

[Insert figure 4 about here]

Depersonalization

As can be seen in Table 3, there was a significant group by time interaction for depersonalization, which is illustrated in Figure 5. Simple effects tests indicated that in the ACT group there was a significant decrease in depersonalization between T2 and T4 ($F (1, 42) = 4.51$, $p < .05$, $\eta^2 = .10$), while in the control group there was a significant increase in

depersonalization between T2 and T4 ($F (1, 56) = 6.82$, $p < .01$, $\eta^2 = .11$). In addition, simple effects tests indicated that in the control group there was a significant increase in depersonalization between T1 and T4 ($F (1, 56) = 8.60$, $p < .01$, $\eta^2 = .13$), and between T3 and T4 ($F (1, 56) = 4.80$, $p < .05$, $\eta^2 = .08$), despite no significant changes in depersonalization being observed in the ACT group. Between group simple effects tests, with T1 depersonalization scores entered as a covariate, showed that depersonalization was significantly lower in the ACT group at T4 ($F (1, 97) = 4.44$, $p < .05$, $\eta^2 = .04$), but not at T2 or T3.

[Insert figure 5 about here]

To summarise, consistent with Hypotheses 1 and 2, statistically significant reductions in strain and emotional burnout (emotional exhaustion and depersonalization) were found in the ACT group relative to the control group. In addition, and as anticipated, statistically significant increases in psychological flexibility were found in the ACT group relative to the control group. The observed sequence of changes in the above variables was partially consistent with our expectations. We found that psychological flexibility improved first; specifically, in the ACT group there was a significant increase in the two months following the second workshop (i.e. between T2 and T3), but these improvements were not maintained over the latter part of the study (i.e. between T3 and T4). Decreases in strain in the ACT group also occurred in the same time interval as the increase in psychological flexibility (i.e. between T2 and T3). For emotional exhaustion, decreases were found in the ACT group across several time intervals, with the most robust decline occurring between T2 and T4. Decreases in depersonalization in the ACT group also occurred between T2 and T4. These latter findings indicate that reductions in exhaustion and depersonalization continued even after increases in psychological flexibility had ceased, and are consistent with the temporal sequence that we anticipated. However, we also expected to see reductions in depersonalization occurring after decreases in emotional exhaustion, which was not demonstrated by our findings. Mediation analyses will now be used to examine the causal relations amongst these variables.

Mediation analyses

We examined our two mediation hypotheses, below, using a nonparametric bootstrapping procedure advocated by Mackinnon (2000), and Preacher and Hayes (2004). Bootstrapping involves repeatedly sampling from the dataset and estimating the indirect (i.e. mediated) effect in each of these resampled sets. This process is repeated one thousand times (by default, although a higher number of samples can be requested), allowing an empirical

approximation of the sampling distribution of the indirect effect to be built. This sampling distribution is then used to construct bias corrected and accelerated confidence intervals (BCa CIs) for this indirect effect. Interpretation of the bootstrap data involves determining whether zero is contained within the 95% CIs; if it is, this indicates a lack of statistical significance.

Mediation of emotional exhaustion and strain

Our third hypothesis was that increases in psychological flexibility would account for, or mediate, the decreases in emotional exhaustion and strain seen in the ACT group. We examined the degree to which T2 to T3 increases in psychological flexibility mediated the T2 to T4 decreases in emotional exhaustion observed in the ACT group. To model T2 to T4 changes in emotional exhaustion, T2 scores were entered into the bootstrap analysis as a covariate, and T4 scores were entered as the dependent variable. (This, in effect, represented the change in the DV from T2 to T4). Similarly, to model T2 to T3 changes in psychological flexibility, T2 scores were entered as a covariate, and T3 scores were entered as the mediator (again, representing the change in this variable from T2 to T3). Group (ACT vs. control) was entered as the independent variable. The results of these analyses can be seen in Table 4. Findings indicate that, in the ACT group, the significant T2 to T3 increase in psychological flexibility mediated the significant T2 to T4 decrease in emotional exhaustion (estimate = 0.8938; BCa 95% CI 0.0417, 2.7432). These results suggest that, as hypothesised, increases in psychological flexibility accounted for the significant decreases in emotional exhaustion that were seen in the ACT group.

As psychological flexibility and strain showed changes over the same time intervals (i.e. concomitant effects), we did not examine whether increases in psychological flexibility mediated decreases in strain; however, it is conceivable that the T2 to T3 decreases in strain may mediate the significant reductions in emotional exhaustion between T2 and T4. Such a finding could indicate that ACT is having its impact on emotional exhaustion through decreasing people's levels of strain, rather than by increasing their levels of psychological flexibility. To rule out this possibility, we utilised the same bootstrap mediation procedure to determine whether the decrease in strain from T2 to T3 accounted for, or mediated, the decreases in emotional exhaustion seen in the ACT group from T2 to T4. The results of these analyses (see Table 4) indicated that this latter mediation model was non-significant (estimate = 1.0158; BCa 95% CI -0.1097, 2.8965). This finding indicates that, consistent with our mediation model, emotional exhaustion has its basis in (low levels of) psychological flexibility, rather than strain.

[Insert table 4 about here]

Mediation of depersonalization

Our fourth hypothesis was that the decrease in participants' emotional exhaustion and strain (as a result of an increase in psychological flexibility), would in turn mediate the reduction in their levels of depersonalization. As previously noted, decreases in depersonalization in the ACT group occurred in the same time interval as decreases in exhaustion (i.e. between T2 and T4), and thus are inappropriate for analysis in the present study. However, findings also indicated significant T3 to T4 increases in depersonalization in the control group with no concurrent significant changes in the ACT group. Thus, we examined whether the decrease in emotional exhaustion from T2 to T4 (that was found to relate to an earlier increase in psychological flexibility) *buffered against* a T3 to T4 increase in depersonalization in the ACT group. We used the same mediation strategy as before, and the results of these analyses can be seen in Table 4. Findings indicate that, in the ACT group, the significant T2 to T4 decrease in emotional exhaustion accounted for, or mediated, the maintenance of depersonalization levels between T3 to T4 (estimate = 0.3721; BCa 95% CI 0.0425, 1.1302). Thus, decreasing levels of emotional exhaustion over time may have acted as a protective factor in preventing an increase in depersonalization in the ACT group.

Due to the concomitant changes observed between psychological flexibility and strain, we cannot establish unequivocally whether increases in former accounted for, or mediated, decreases in latter. Nevertheless, we examined whether T2 to T3 decreases in strain mediated the T2 to T4 decreases in depersonalization observed in the ACT group. We utilised the same bootstrap mediation procedure as before, the results of which can be seen in Table 4. Our findings showed that this model was significant (estimate = 0.5602; BCa 95% CI 0.0202, 1.4615). This finding suggests that both strain and emotional exhaustion may act to alter depersonalization levels; this provides further support for our model and is consistent with the proposition that emotional exhaustion and strain are conceptually similar constructs (Maslach, 2003; Maslach et al., 2001).

As our findings show that there is a significant increase in psychological flexibility between T2 and T3, it is conceivable that these increases may mediate the significant decrease in depersonalization between T2 and T4, and maintenance of depersonalization between T3 and T4. Such a finding could indicate that ACT is having its effects through a single mechanism (i.e., psychological flexibility), and counter the idea that decreases in feelings of exhaustion and strain may lead to a reduction in depersonalization. To rule out this possibility, we utilised the same bootstrap mediation procedure to determine whether increases in psychological flexibility from T2 to T3 accounted for, or mediated, the decreases

in depersonalization between T2 to T4, and the maintenance of depersonalization levels between T3 to T4 seen in the ACT group. The results of these analyses (see Table 4) indicated that both the former (estimate = 0.1878; BCa 95% CI -0.1742, 0.9637), and the latter models (estimate = -0.0340; BCa 95% CI -0.4441, 0.4011) were non-significant. This finding indicates that, consistent with our mediation model, depersonalization has its basis in emotional exhaustion and strain, which in turn have their basis in psychological flexibility.

To summarise, consistent with Hypotheses 3 and 4, in the ACT group T2 to T3 increases in psychological flexibility mediated T2 to T4 decreases in emotional exhaustion, and in turn, T2 to T4 decreases in emotional exhaustion buffered against an increase in depersonalization between T3 to T4. Further mediation analyses also ruled out the possibility of alternative mediation pathways for the above effects, and therefore provided additional support for our model. Unfortunately, there were certain aspects of our model that we were unable to examine; due to concomitant effects we could not establish whether increases in psychological flexibility mediated decreases in strain, or whether decreases in emotional exhaustion mediated decreases in depersonalization.

Discussion

In the present study we utilised theory and research to specify and then test a model of psychological mechanisms that underpin a CBT intervention for emotional burnout. To examine this model, we randomly assigned participants to an ACT or waitlist control group and measured outcome and mediator variables at four time points over a nine-month assessment period. Broadly, the results of our investigation supported our proposed model. In accordance with Hypotheses 1 and 2, statistically significant reductions in emotional burnout (both emotional exhaustion and depersonalization) and strain were found in the ACT group relative to the control group. A statistically significant increase was also found in psychological flexibility in the ACT group, and the observed sequence of changes in the study variables was partially consistent with our expectations. Using mediation analyses to formally test this sequence, we found that in support of Hypothesis 3, increases in psychological flexibility mediated decreases in emotional exhaustion. Consistent with Hypothesis 4, decreases in emotional exhaustion buffered against increases in depersonalization.

Findings indicating that ACT led to significant improvements in employees' emotional burnout and strain, and that increases in psychological flexibility mediated the improvements observed in the exhaustion component of burnout, are consistent with both

ACT theory (Hayes, 1987; Hayes et al., 1999), and ACT worksite intervention research (Bond & Bunce, 2000; Flaxman & Bond, 2010). Our findings thus lend support to the growing evidence base demonstrating the beneficial impact of increasing psychological flexibility on workers' mental health. Findings indicating that emotional exhaustion may be further causally related to depersonalization are consistent with the process model of burnout development put forward by Leiter and Maslach (1988), and its supporting research (see Maslach et al., 2001; Taris et al., 2005). Taken together, the findings from this study deepen our understanding of the processes by which a CBT may reduce emotional burnout. In doing so, it not only supports important hypotheses of two key, and complementary, theories of emotional distress: ACT and emotional burnout; it also shows the utility of, where possible, combining key psychological components of distinct but complementary models to produce a more detailed comprehension of emotional distress.

Limitations

As would be expected with field research of this kind, there are some potential limitations that must be taken into account when drawing conclusions from the results. Firstly, findings relating to the latter stages of our burnout alleviation model must be interpreted with some caution. It has been suggested that inferences about causality in mediator-outcome relationships are stronger when a clear gradient can be demonstrated (see Kazdin, 2007; Nock, 2007). In our model, we were unable to demonstrate a clear gradient since decreases in emotional exhaustion were found to *maintain* levels of depersonalization, rather than reduce them. However, it has also been acknowledged that whilst mediation analysis is commonly based on these kinds of dose-response (or linear) relations, in some instances this relation will not exist; when this occurs, it does not mean that variables are not causally related, but rather that inferences about mediation are more complicated (Kazdin, 2007). As our hypothesis regarding the exhaustion-depersonalization link was based on an empirically founded model and consistent research findings (Leiter & Maslach, 1988; Maslach et al., 2001; Taris et al., 2005), we are confident in our interpretation of our findings. However, a clearer gradient in the relationship between exhaustion and depersonalization would allow us to posit stronger conclusions. Future research should therefore seek to further examine decreases in emotional exhaustion as a mechanism underpinning reductions in depersonalization.

A further limitation of our mediation analyses concerns the issue of temporality. Recent discussions indicate that the most effective demonstration of mediation is achieved when changes in the putative mediator are shown to *precede* changes in the outcome variable

(see Kazdin, 2007; Nock, 2007). However, in the present study, due to the pattern of our findings, we were unable to demonstrate mediation in the complete absence of time interval overlap. One factor that may have contributed to this was the timing of assessment points. Specifically, no significant changes in our variables were found between T1 and T2, suggesting that one week may not be a sufficient amount of time for significant changes to occur. Whilst our assessment points were arranged in accordance with the two-plus-one training model proposed by Barkham and Shapiro (1990), in the future researchers may wish to consider using additional assessment points, or rescheduling assessment points. For instance, by lengthening the interval between T1 and T2 researchers may increase their likelihood of finding significant effects and therefore maximise upon opportunities to assess the key aspects of their models.

Another limitation relates to the randomised control trial (RCT) design that was utilised in the present study. Findings showed that both strain and depersonalization increased in the control group during the period in which it decreased in the ACT group. This may be symptomatic of a resentful demoralisation effect, whereby control group participants become resentful, despondent and show a decline in wellbeing, as opposed to no change, over the course of an investigation. This possibility was minimised however, since the randomised procedure was explained to participants at the beginning of the study, meaning that the control participants were aware that they would receive the training at a later date. In addition to this, attrition was roughly equal between the ACT and control groups suggesting that control participants were no less committed to the study than the ACT group. Finally, the training program was an additional provision that was not part of the employees' usual activities; on this basis it seems unlikely that people would feel despondent about 'missing out.' One possible explanation for this finding is that during the course of the study the organisation experienced a period of high customer demand. Whilst ACT group participants were able to utilise newly learnt skills and cope more effectively than before, control participants did not have such skills and, thus, demonstrated a typical strain reaction to this increased demand.

Finally, it is important to consider the moderate degree of participant attrition that occurred over the nine month assessment period. As previously noted, 30% of the ACT group and 24% of the control group failed to complete all aspects of the programme and were therefore excluded from the analyses. Whilst it is possible that participants left the study because they were not experiencing any beneficial effects, this explanation does not seem likely in the present study. There were no significant differences on any of the Time 1

measures, including on biographical variables, between participants who completed the study and those who did not. Moreover, informal feedback from the participants suggested that work scheduling, workload, and sickness absence were the main causes of non-attendance. Nevertheless, this loss of participants deserves consideration when interpreting our findings.

Implications and conclusions

A primary implication of our findings concerns the advancement of knowledge and understanding of emotional burnout and its alleviation. Firstly, our findings extend understanding of the psychological basis of emotional burnout; they indicate that depersonalization has its basis in emotional exhaustion, which in turn has its basis in psychological flexibility. We do not believe that this elaborated model of emotional distress has previously been posited or examined and, therefore, this experiment appears to represent a novel contribution to the area of occupational health and wellbeing. Secondly, our findings highlight a manipulable individual characteristic (i.e. psychological flexibility) that can be enhanced and can then have a 'knock on' effect in terms of reducing emotional burnout. That is, by increasing psychological flexibility, we can decrease emotional exhaustion, and in turn buffer against increasing levels of depersonalization. These results represent a unique and practically useful contribution to current models of emotional distress and its alleviation. Overall, by integrating understanding from the fields of ACT and emotional burnout we have gained a broader understanding of emotional distress.

Our findings also have important implications for the advancement of knowledge and understanding within the ACT field. As far as we are aware, this is the first study to indicate that the impact of psychological flexibility on aspects of emotional distress may not always be direct, but rather the result of its influence on an intermediary variable. That is, in the present study, psychological flexibility led to a beneficial impact on depersonalization through its influence on emotional exhaustion. Thus, increases in psychological flexibility acted as an early catalyst for later improvements within an extended mediation pathway. Whilst psychological flexibility has been found to have broad and comprehensive affects on various health and quality of life outcomes (Hayes et al., 2006), the findings of the present study suggest that it is also important to also look closely at more intricate pathways by which changes occur. This has clear implications for designing and testing ACT treatment programmes that target multiple health and performance outcomes within a single intervention.

The final implication of our findings concerns the development and application of technologies for reducing emotional burnout. Until now, the lack of studies examining

mechanisms of change (Hatinen et al., 2007) has meant that researchers have not been able to posit *how* emotional burnout interventions have their effects. This may have led to the design and implementation of less refined and effective interventions, ultimately yielding less robust outcomes than possible. Indeed, it has been noted that evaluations of emotional burnout programs often yield mixed results (Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007). Our results identify two specific mechanisms underlying a contextual CBT intervention for emotional burnout, and thus allow us to specify one way to effectively target the syndrome. We hope that these results may be used to guide future researchers and practitioners in the design of more effective interventions with enhanced impact, and also encourage further investigation of underlying mechanisms of change within both individual- and organisational-focussed intervention.

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Table 1
Means and Standard Deviations for Study and Biographical Variables

Variable	ACT		Control	
	M	SD	M	SD
Psychological flexibility (AAQ-II)				
Time 1	4.74	1.21	5.03	0.97
Time 2	4.65	1.13	5.11	1.04
Time 3	5.06	1.08	5.04	0.93
Time 4	4.81	1.13	5.06	1.08
Strain (GHQ)				
Time 1	1.17	0.62	1.07	0.48
Time 2	1.18	0.59	1.04	0.44
Time 3	0.94	0.59	1.25	0.54
Time 4	1.02	0.58	1.18	0.58
Emotional exhaustion (MBI-HSS)				
Time 1	2.73	1.57	2.42	1.29
Time 2	2.74	1.54	2.37	1.25
Time 3	2.44	1.37	2.34	1.30
Time 4	2.42	1.47	2.42	1.19
Depersonalization (MBI-HSS)				
Time 1	0.82	0.80	0.69	0.63
Time 2	1.01	0.94	0.73	0.67
Time 3	0.86	0.74	0.75	0.64
Time 4	0.80	0.89	0.95	0.80
Age (years)	46.65	5.34	46.16	6.53
Gender[1]				
Male	6		11	
Female	37		46	
Ethnicity				
Education				
Time in current job (months)	60.50	41.56	57.64	26.35
Time in line of work (months)	250.90	112.85	221.12	121.13

Note. ACT = Acceptance and Commitment Therapy; Control = waitlist control group; AAQ-II = Acceptance and Action Questionnaire II; GHQ = General Health Questionnaire; MBI-HSS = Maslach Burnout Inventory-Human Services Survey; N= 100; [1] = Number of male and female participants

Table 2
Intercorrelations Among the Study Variables at the Four Measurement Occasions

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	Psyflex, T1	-	.94**	.76**	.68**	-.65**	-.69**	-.31*	-.24	-.65**	-.63**	-.61**	-.55**	-.17	-.26	-.25	-.27
2.	Psyflex, T2	.86**	-	.76**	.69**	-.63**	-.69**	-.29	-.29	-.57**	-.55**	-.55**	-.47**	-.17	-.35*	-.27	-.34
3.	Psyflex, T3	.83**	.85**	-	.84**	-.65**	-.80**	-.62**	-.52**	-.51**	-.52**	-.63**	-.57**	-.21	-.28	-.32*	-.42**
4.	Psyflex, T4	.69**	.73**	.69**	-	-.58**	-.73**	-.59**	-.62**	-.45**	-.46**	-.53**	-.52**	-.26	-.26	-.25	-.41**
5.	Strain, T1	-.27*	-.32*	-.39**	-.34*	-	.83**	.46**	.40**	.58**	.51**	.59**	.50**	.23	.24	.28	.28
6.	Strain, T2	-.37**	-.48**	-.49**	-.38**	.74**	-	.66**	.59**	.55**	.66**	.59**	.55**	.26	.37*	.35*	.48**
7.	Strain, T3	-.42**	-.48**	-.62**	-.44**	.50**	.64**	-	.68**	.26	.26	.31*	.44**	.21	.20	.29	.40**
8.	Strain, T4	-.31*	-.36**	-.35**	-.58**	.46**	.40**	.49**	-	.19	.20	.22	.41**	.18	.21	.14	.45**
9.	Emotex, T1	-.37**	-.42**	-.42**	-.31*	.56**	.47**	.33*	.15	-	.93**	.88**	.84**	.18	.23	.15	.17
10	Emotex, T2	-.40**	-.48**	-.46**	-.44**	.45**	.44**	.37**	.22	.90**	-	.86**	.87**	.19	.26	.17	.15
11	Emotex, T3	-.38**	-.41**	-.45**	-.39**	.45**	.39**	.40**	.26	.86**	.92**	-	.79**	.23	.18	.23	.20
12	Emotex, T4	-.45**	-.48**	-.45**	-.47**	.47**	.36**	.30*	.35**	.78**	.78**	.78**	-	.17	.15	.11	.21
13	Depers, T1	-.08	-.06	-.05	.02	.22	.20	-.04	-.10	.50**	.44**	.27	.39**	-	.69**	.76**	.65**
14	Depers, T2	-.14	-.10	-.11	-.07	.08	.08	-.10	-.05	.36**	.36**	.24	.42**	.83**	-	.63**	.73**
15	Depers, T3	.02	-.01	-.09	-.01	.04	.00	-.09	-.03	.34*	.32*	.23	.32*	.75**	.82**	-	.73**
16	Depers, T4	-.20	-.29*	-.20	-.23	.14	.18	.12	.27*	.34*	.37**	.22	.48**	.56**	.64**	.54**	-

Note: Correlations above the diagonal: ACT group; Correlations below the diagonal: Control group; Psyflex = psychological flexibility; Emotex = emotional exhaustion; Depers = depersonalization; * $p < .05$. ** $p < .01$.

Table 3
Analysis of Variance (ANOVA) Statistics for Study Variables

	ANOVA		
Variable	*F* ratio	*df*	η^2
Psychological flexibility (AAQ-II)			
Group	1.51	1, 98	.01
Time	2.41	3, 294	.02
Group × Time	3.89**	3, 294	.04
Strain (GHQ)			
Group	0.49	1, 98	.00
Time	0.06	3, 294	.00
Group × Time	8.37***	3, 294	.08
Emotional exhaustion (MBI-HSS)			
Group	0.56	1, 98	.00
Time	2.92*	3, 294	.03
Group × Time	2.67*	3, 294	.03
Depersonalization (MBI-HSS)			
Group	0.48	1, 98	.00
Time	1.83	3, 294	.02
Group × Time	4.42**	3, 294	.04

Note. AAQ-II = Acceptance and Action Questionnaire II; GHQ = General Health Questionnaire; MBI-HSS = Maslach Burnout Inventory-Human Services Survey; ANOVA = analysis of variance; η^2 = eta-squared (effect size); N= 100, *$p < .05$. **$p < .01$. ***$p < .001$.

Table 4
Bootstrapped Analysis for Detecting Mediation Effects

Outcome variable	Mediator variable	Bootstrap estimate		BCa 95% CI	
		Estimate	SE	Lower	Upper
Emotional exhaustion T2 – T4	Psychological flexibility T2 – T3	0.8938	0.5727	0.0417	2.7432
Emotional exhaustion T2 – T4	Strain T2 – T3	1.0158	0.6953	-0.1097	2.8965 (ns)
Depersonalization T3 – T4	Emotional exhaustion T2 – T4	0.3721	0.2617	0.0425	1.1302
Depersonalization T2 – T4	Strain T2 – T3	0.5602	0.3534	0.0202	1.4615
Depersonalization T2 – T4	Psychological flexibility T2 – T3	0.1878	0.2526	-0.1742	0.9637 (ns)
Depersonalization T3 – T4	Psychological flexibility T2 – T3	-0.0340	0.2147	-0.4441	0.4011 (ns)

Note. BCa = bias corrected and accelerated bootstrapping confidence intervals that contain corrections for both median bias and skew. Confidence intervals containing zero are interpreted as non-significant (ns); 1000 bootstrap samples.

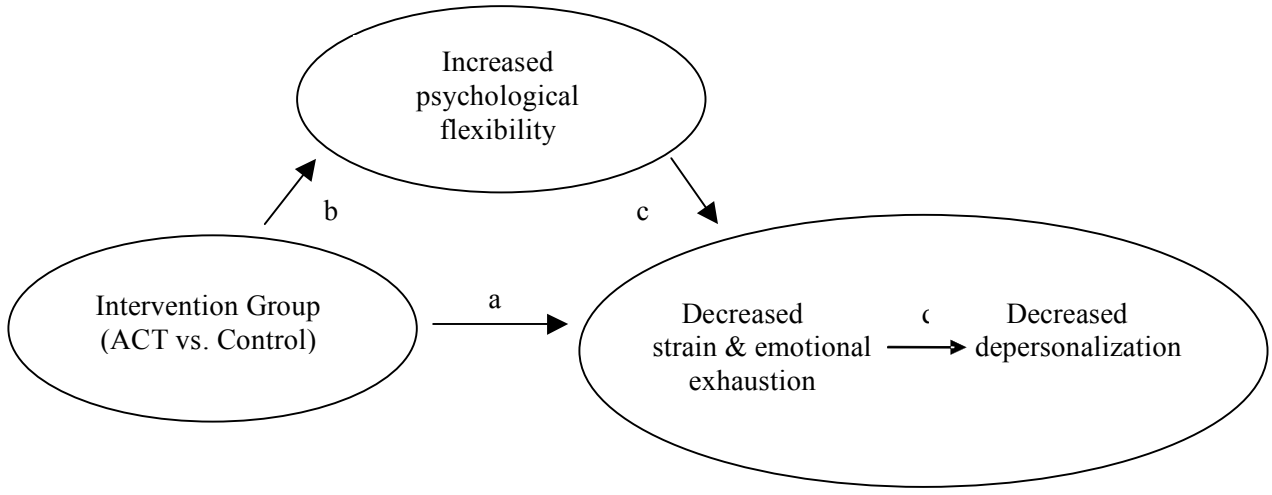

Figure 1. Diagram of emotional burnout and strain alleviation model indicating the direct (path a) and mediated (paths b, c and d) pathways of impact of ACT on outcomes variables.

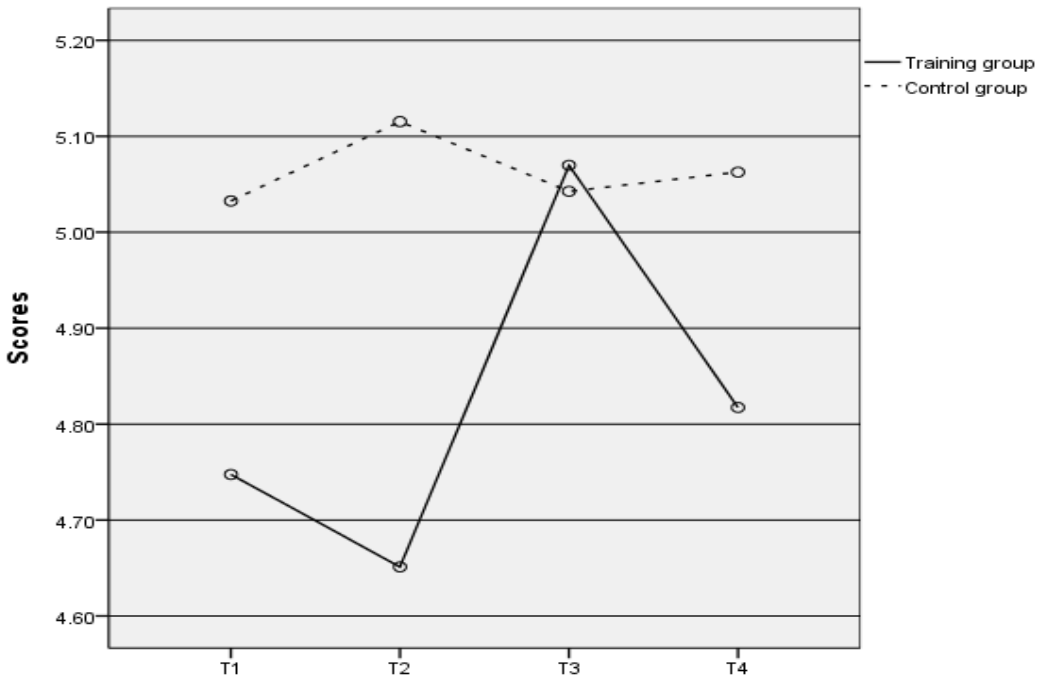

Figure 2. An illustration of changes in psychological flexibility in both groups

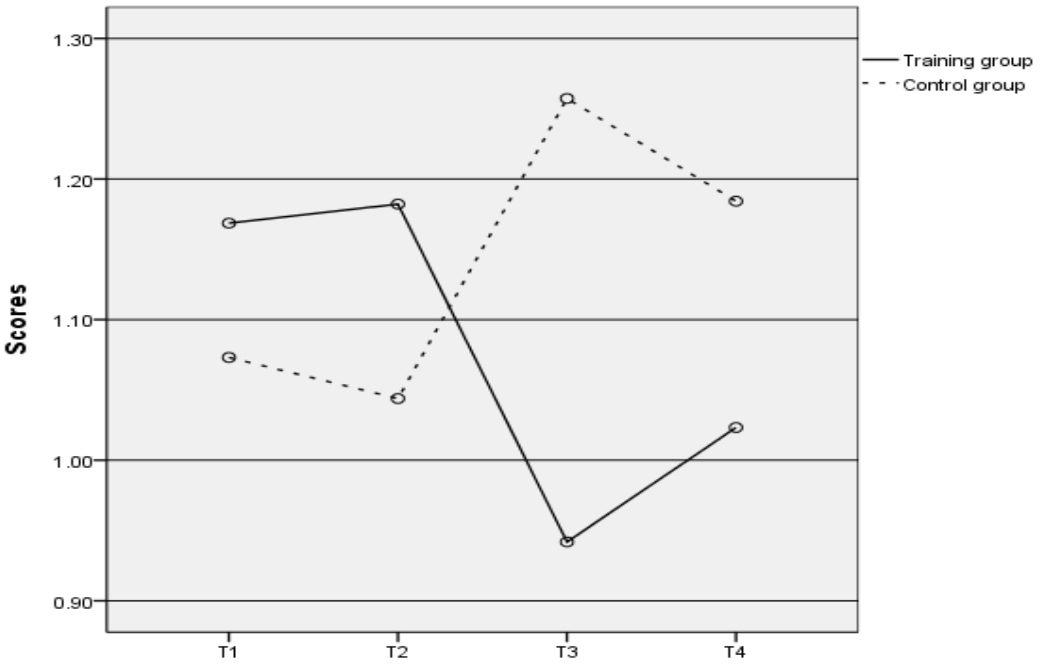

Figure 3. An illustration of changes in strain in both groups

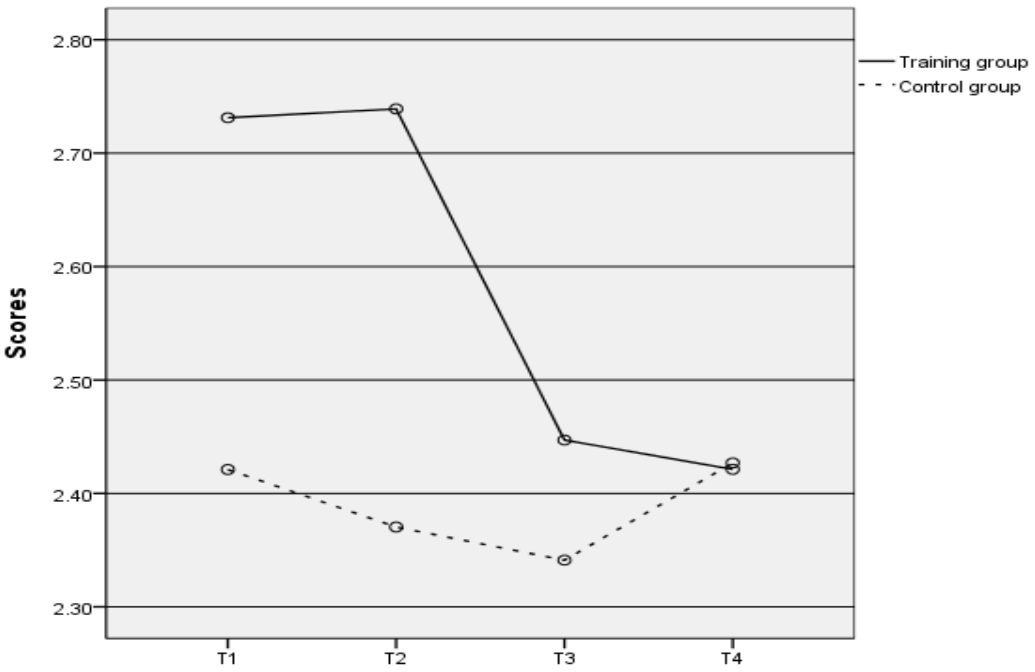

Figure 4. An illustration of changes in emotional exhaustion in both groups

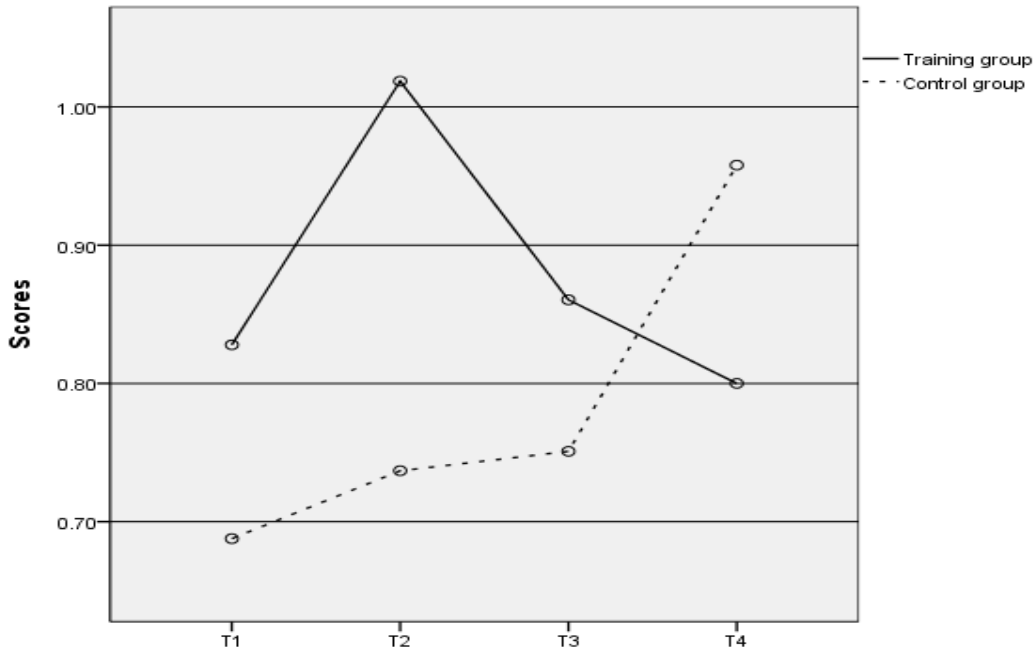

Figure 5. An illustration of changes in depersonalization in both groups