Work-Related Self-Efficacy as a Moderator of the Impact of a Worksite Stress Management Training Intervention: Intrinsic Work Motivation as a Higher-Order Condition of Effect

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Abstract

Employees with low levels of work-related self-efficacy may stand to benefit more from a worksite stress management training (SMT) intervention. However, this low work-related self-efficacy/enhanced SMT benefits effect may be conditional on employees also having high levels of intrinsic work motivation. In the present study, we examined this proposition by testing three-way, or higher-order, interaction effects. One hundred and fifty-three UK government employees were randomly assigned to a SMT intervention group (n = 68), or to a waiting list control group (n = 85). The SMT group received three half-day training sessions spread over two and a half months. Findings indicated that there were significant overall reductions in psychological strain, emotional exhaustion and depersonalization in the SMT group, in comparison to the control group. Furthermore, there were significant higher-order Group (SMT vs. control) × Time 1 Work-Related Self-Efficacy × Time 1 Intrinsic Work Motivation interactions, such that reductions in emotional exhaustion and depersonalization at certain time points were experienced only by those who had low baseline levels of work-related self-efficacy and high baseline levels of intrinsic work motivation. Implications for work-related self-efficacy theory and research and SMT research and practice are discussed.

Key words: Work-related self-efficacy, intrinsic work motivation, stress management training, moderation, higher-order interaction effects

Introduction

Bandura (1988) suggested that individuals with low levels of self-efficacy may have poorer coping mechanisms and experience higher levels of strain. Consistent with this, work-related self-efficacy has been found to moderate the impact of workplace stressors on various indices of occupational strain, such that relationships are stronger, and thus more problematic, for employees with low levels of work-related self-efficacy, relative to employees with high levels of work-related self-efficacy (Jex & Bliese, 1999; Lu, Siu, & Cooper, 2005; Panatik, O'Driscoll, & Anderson, 2011; Schaubroeck, Lam, & Xie, 2000). In the present study, we extended this line of research by examining whether work-related self-efficacy could moderate the impact of a worksite stress management training (SMT) intervention on several occupational strain outcomes. Specifically, since employees with low levels of work-related self-efficacy may have poorer coping mechanisms and be more susceptible to the impact of workplace stressors, it is possible that these employees may also stand to benefit more from interventions designed to reduce the impact of workplace stressors. This proposition is consistent with research indicating that employees with high levels of psychological strain show stronger SMT intervention effects, relative to employees with low levels of psychological strain (Flaxman & Bond, 2010).

However, work-related self-efficacy is typically not found to moderate all of the stressor-strain relationships tested within discrete studies (see Jex & Gudanowski, 1992; Lu et al., 2005; Panatik et al., 2011; Schaubroeck et al., 2000). This has led some researchers to suggest that studies examining work-related self-efficacy as a moderator may be failing to account for the influence of other key variables (e.g., Jex, Bliese, Buzzell, & Primeau, 2001). In the present study, we suggest that intrinsic work motivation may be important to the hypothesised low work-related self-efficacy/enhanced SMT benefits effect. Specifically, whilst employees with low levels of work-related self-efficacy may stand to benefit more

from SMT, they may also struggle to persist in their efforts during the SMT because they dwell more on obstacles and their own deficiencies. However, if these employees find their work intrinsically motivating, and want to strive to do well in it, they may persist in their efforts during the SMT regardless of their unhelpful thoughts about the situation and themselves. To examine the combined effects of work-related self-efficacy and intrinsic work motivation as moderators of a SMT, we tested three-way, or higher-order, interaction effects. That is, we examined whether the benefits of the SMT were experienced only by those employees who have both low baseline levels of work-related self-efficacy and high baseline levels of intrinsic work motivation.

Self-Efficacy and Occupational Strain

Self-efficacy derives from Bandura's (1986) social cognitive theory and describes people's judgements of their own abilities to execute courses of action required to deal with certain situations. A central proposition of social cognitive theory is that self-efficacy is a key determinant of successful performance. Specifically, if people believe in their ability to perform a specific task, then they will activate sufficient effort that, if executed well, will lead to successful task completion. On the other hand, if people do not believe in their ability to perform a specific task, then they will cease their efforts prematurely and will be more likely to fail. Further to its implications for performance, Bandura also noted the importance of self-efficacy to people's health and wellbeing. For example, Bandura (1988) explained that when people have high levels of self-efficacy they will feel more able to cope with difficult situations and tasks, will feel less disturbed by them, and as a result will experience less strain and depression. On the other hand, when people have low levels of self-efficacy they will feel less able to cope with difficult situations and tasks, will dwell more on obstacles and their own deficiencies, and as a result will experience more strain and depression.

Bandura's propositions regarding the implications of self-efficacy for health and wellbeing have been most comprehensively examined in the context of work. In this context, research has focussed on whether work-related self-efficacy can moderate the impact of workplace stressors on employees' experiences of occupational strain. In an early investigation of this relationship, Jex and Gudanowski (1992) were unable to find any evidence of the moderating impact of work-related self-efficacy on the relationships between a number of workplace stressors and several indices of occupational strain. However, in a follow-up study involving a much larger sample size, Jex and Bliese (1999) found that employees with low levels of work-related self-efficacy responded more negatively, in terms of psychological and physical strain, to long work hours and work overload, than did those employees with high levels of work-related self-efficacy. Since these two early investigations, several other studies have also found evidence to suggest that the impact of workplace stressors on experiences of occupational strain is stronger, and thus more problematic, for employees with low levels of work-related self-efficacy, relative to employees with high levels of work-related self-efficacy (e.g., Lu et al., 2005; Panatik et al., 2011; Schaubroeck et al., 2000).

In sum, theory and research suggest that employees with low levels of work-related self-efficacy may be more vulnerable to the impact of workplace stressors. However, to our knowledge, no research has examined how such employees respond to interventions designed to reduce the impact of workplace stressors. We suggest that whilst it is useful to document the relations between work-related self-efficacy and stress-related variables, it is also important to understand how the construct may facilitate or constrain real-world efforts to reduce occupational strain. Thus, in the present study, we examined whether work-related self-efficacy moderated the impact of SMT on occupational strain outcomes.

SMT and Work-Related Self-Efficacy

There are two broad kinds of occupational stress management intervention; those focussed on altering the organisation, and those focussed on helping the individual. Organisation-focussed interventions typically attempt to redesign some aspect of the employees' work, or refine some elements of the management process, in order to reduce occupational stress exposure (Flaxman & Bond, 2006). Individual-focussed interventions, on the other hand, typically attempt to enhance employees' personal coping resources for dealing with stress, and help them to find better ways to manage challenging or unwanted emotional responses (e.g., anxiety or worries) (Flaxman & Bond, 2006). This latter type of intervention is typically referred to as SMT (van der Klink, Blonk, Schene, & van Dijk, 2001). SMT varies widely in its technical components, but may involve one or several of the following sets of skills, techniques and activities: Cognitive Behaviour Therapy (CBT) techniques, relaxation techniques, meditation and deep breathing exercises, journaling activities, time-management skills and exercise (Richardson & Rothstein, 2008). In two prominent meta-analyses (see Richardson & Rothstein, 2008; van der Klink et al., 2001) CBT-focussed SMT was found to be the most effective methodology for improving health- and work-related outcomes, over and above other individual-focussed approaches (specifically, relaxation-based and multi-modal approaches) as well as organisation-focussed approaches. In the present study, we examined the impact of a SMT intervention based on the principles of a contextual CBT technology known as Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999).

Whilst there is good evidence for the impact of SMT, there is a lack of understanding of person-level moderators (Bunce, 1997). By understanding the impact of person-level moderators, the specific effects of SMT on certain groups of employees can be more fully understood. Bunce (1997) suggested that there may be several person-level variables that could act as moderators of SMT, but paid particular attention to the possibilities offered by

pre-training levels of strain and individual differences (e.g., locus of control, self-efficacy and mastery). In terms of pre-training levels of strain, there are a number of studies which indicate the presence of moderation, but nevertheless fall short of testing it formally (e.g., Carrington et al., 1980; Peters, Benson, & Porter, 1977a; Peters, Benson, & Porter, 1977b; van der Klink et al., 2001). To formally test moderation it is necessary to establish that that the relationship between a focal variable *F* on an outcome variable *Y* is one in which the direction or size depends on a moderator variable *M*; this is also called an interaction effect (Hayes & Matthes, 2009). We have identified only one study that has used formal moderation analysis to test the impact of pre-training levels of strain on SMT outcomes and this was carried out by Flaxman and Bond (2010). These authors found that participants with high pre-training levels of psychological strain showed greater intervention effects as a result of a SMT, than individuals with low pre-training levels of psychological strain. Moving on to individual differences, once again we have identified only one study that used formal moderation analysis and this was carried out by Friedman, Lehrer, and Stevens (1983). These authors examined the degree to which locus of control moderated the impact of both self-directed and guided SMT strategies on teachers' levels of anxiety and strain. They found that whilst both SMT strategies were effective in reducing strain, locus of control did not moderate the impact of these training programmes.

As can be seen from the brief review above, work-related self-efficacy has not yet been examined as a moderator of SMT despite the fact that Bunce (1997) noted the potential importance of this construct in this capacity. We suggest that since employees with low levels of work-related self-efficacy may have poorer coping mechanisms (Bandura, 1988), and may be more vulnerable to workplace stressors (Jex & Bliese, 1999; Lu et al., 2005; Panatik et al., 2011; Schaubroeck et al., 2000), it is possible that these employees will stand to benefit more from the SMT. This proposition is supported by the aforementioned research which indicated

that employees with high levels of strain at the beginning of the SMT experienced greater intervention gains (Flaxman & Bond, 2010).

Work-Related Self-Efficacy and Intrinsic Work Motivation

Whilst several studies have found evidence to suggest that employees with low levels of work-related self-efficacy may be more vulnerable to workplace stressors (Jex & Bliese, 1999; Lu et al., 2005; Panatik et al., 2011; Schaubroeck et al., 2000), moderation effects were not found for all of the stressor-strain relationships examined. These inconsistent findings have led some researchers to examine the role other key variables whilst analysing the influence of work-related self-efficacy in the stressor-strain relationship. For example, Jex et al. (2001) investigated coping style alongside work-related self-efficacy in the stressor-strain relationship. These researchers found that high levels of work-related self-efficacy only mitigated the stressor-strain relationship when they were accompanied by high levels of problem-focussed (as opposed to emotion-focussed) coping. Problem-focused coping styles are those aimed at managing stressors at their source, whilst emotion-focussed coping styles are those directed at dealing with emotions caused by the stressor (Lazarus & Folkman, 1984). In other words, Jex et al. (2001) found that the beneficial effect of high levels of work-related self-efficacy were only realised when people were also attempting to be active in their attempts to resolve stressful situations. In the present study, we suggest that whilst analysing the influence of work-related self-efficacy on SMT outcomes, it may be important to also consider the influence of intrinsic work motivation.

Intrinsic work motivation is defined as "the degree to which a person wants to work well in his or her job, in order to achieve intrinsic satisfaction" (Warr, Cook, & Wall, 1979 p. 135). There are several prominent theories which discuss intrinsic motivation, but the most influential and widely known of these are self-determination theory (SDT; Deci & Ryan, 1985, 2000) and flow theory (Csikszentmihalyi, 1988). Whilst these theories differ

considerably in their theoretical propositions, a conjecture that is common to both of them is that higher levels of intrinsic motivation relate to greater task engagement and enhanced goal focus. Consistent with this, intrinsic motivation, and variables consistent with this construct, have been found to be associated with superior training outcomes. For example, Facteau, Dobbins, Russell, Ladd, and Kudisch (1995) found that trainees who perceived intrinsic value in attending training demonstrated more motivation to attend the training and to learn. In another study, Kontoghiorghes (2001) found that intrinsic factors such as a sense of recognition were more influential on training retention than extrinsic factors such as pay and promotion. Finally, Dysvik, and Kuvaas (2008) found that for employees with high levels of intrinsic motivation there was a positive relationship between perceived training opportunities and organisational citizenship behaviours, whereas there was no relationship for employees with low levels of intrinsic motivation.

Whilst employees with low levels of work-related self-efficacy may stand to benefit more from SMT, such employees may also struggle to persist with the SMT. Indeed, Bandura (1988) noted that when people have low levels of self-efficacy they may dwell more on obstacles and their own deficiencies. This characteristic may make employees with low levels of work-related self-efficacy struggle to persevere with the SMT, even though they have greater overall potential for improvement. However, if employees with low levels of work-related self-efficacy find their work intrinsically motivating, they may feel driven to persist in their efforts during the SMT regardless of their unhelpful thoughts about the situation and themselves. Therefore, we suggest that the low work-related self-efficacy/enhanced SMT benefits effect will be conditional upon employees finding their work intrinsically motivating.

The Present Study

As noted, CBT-focussed SMT has been found to be a highly effective methodology for improving health-related outcomes in the workplace (Richardson & Rothstein, 2008; van

der Klink et al., 2001). Consistent with this research, it is possible that in the present study the SMT will lead to significant reductions in employee's psychological strain, emotional exhaustion and depersonalization when compared with a control group. Furthermore, theory and research suggest that employees with low levels of work-related self-efficacy may be more vulnerable to workplace stressors (Bandura, 1988; Jex & Bliese, 1999; Lu et al., 2005; Panatik et al., 2011; Schaubroeck et al., 2000), and for this reason they may be more susceptible to the potential gains of SMT. This proposition is further supported by research indicating that employees with high levels of psychological strain show greater SMT intervention effects (Flaxman & Bond, 2010). However, research has indicated that the moderating impact of work-related self-efficacy may not always be straightforward and it may be necessary to account of the influence of other key variables (Jex et al., 2001). In the present study, we suggest that whilst employees with low levels of work-related self-efficacy may stand to benefit more from SMT, they may also struggle to persist in their efforts during the SMT. For this reason we suggest that the hypothesised low work-related self-efficacy/enhanced SMT benefits effect may be conditional upon employees having high levels of intrinsic work motivation. To investigate these effects we examined three-way, or higher-order, interactions between group (SMT vs. control), Time 1 work-related self-efficacy levels and Time 1 intrinsic work motivation levels. Taken together, the aforementioned theories and empirical findings lead us to the following two hypotheses:

Hypothesis 1: The SMT will lead to significant reductions in psychological strain, emotional exhaustion and depersonalization when compared with a control group.

Hypothesis 2: There will be a significant three-way Group (SMT vs. control) × Time 1 Work-Related Self-Efficacy × Time 1 Intrinsic Work Motivation interaction, such that the benefits of the SMT will be experienced only by those who have low baseline

levels of work-related self-efficacy and high baseline levels of intrinsic work motivation.

Method

Design

We collected data from two identical SMT interventions that were conducted across two UK government departments. Findings from the first of these two SMTs have already been published in a previous article (Data transparency statement can be found in Appendix A). Both interventions utilised a randomised control trial (RCT) design which compared a CBT-focussed SMT to a waiting list control group. Questionnaires were distributed at the beginning of the first workshop (baseline; Time 1), two and a half months after this at the beginning of the final workshop (Time 2) and again six months after that final training workshop (follow-up; Time 3).

Participants

Participants were employees of two UK government departments who had volunteered to take part in the SMT, which was advertised as "work-life effectiveness training." Recruitment was restricted to employees occupying customer facing roles. These employees were responsible for providing help and advice to customers, resolving customer problems, keeping records of communication and correspondence with customers and managing customer caseloads. Participants were recruited by means of notices posted on the departments' intranet web pages, advertisements via staff mailing lists and through word-of-mouth by team-leaders and managers. A total of 216 employees volunteered for the training. Of these, 153 participants (71%) completed all elements of the training programmes. Within this sample, 68 participants were randomly allocated to the SMT, and 85 were allocated to the waiting list control group. The mean age of the participants was 46.2 years (range 19-63)

and 79% were female. On average, they had worked in their current job for 4.4 years and had worked in the same line of employment for 18.3 years.

Outcome Variables

Psychological strain. Within the present study, the General Health Questionnaire (GHQ-12; Goldberg, 1992) was used as an index of psychological strain. The GHQ-12 is a shortened version of the original GHQ-60 designed to measure psychological distress within the general community and medical settings. Responses are indicated along a scale signifying the frequency of a particular symptom or behaviour using a four-point scale from (e.g., *better than usual* to *much less than usual*). Higher scores on the GHQ indicate a higher probability of minor to moderate clinical symptoms (e.g., depression and anxiety). Within the current study the GHQ scoring method was used whereby values of 0, 0, 1, or 1 are assigned to each of the four response options. There was good internal consistency for the GHQ across the three time points in the current study (Cronbach alphas: .91 at Time 1; .93 at Time 2; and .92 at Time 3).

Emotional exhaustion and depersonalization. Within the present study the Maslach Burnout Inventory-Human Services Survey (MBI-HSS; Maslach, Jackson, & Leiter, 1996) was used to measure emotional exhaustion and depersonalization. The human services version of the MBI was considered appropriate in the current study on account of the participant's customer facing human service job roles. The nine-item subscale that measures emotional exhaustion assesses people's feelings of emotional fatigue and a sense of no longer being able to give of themselves on an emotional level. The five-item subscale that measures depersonalization assesses people's negative and/or cynical attitudes towards their client/customer group. Higher scores on the MBI-HSS subscales of emotional exhaustion and depersonalization indicate more severe burnout symptoms. Respondents indicated the frequency with which they experienced a given feeling on a seven-point scale ranging from 0

(*never*) to 6 (*every day*). Internal consistency for the emotional exhaustion subscale across the three time points was good (Cronbach alphas: .91 at Time 1; .92 at Time 2; and .91 at Time 3). Internal consistency for the depersonalization subscale across the three time points in the present study was good (Cronbach alphas: .76 at Time 1; .81 at Time 2; and .74 at Time 3).

Moderator Variables

Work-related self-efficacy. Within the present study the personal accomplishment subscale of the MBI-HSS was used to measure work-related self-efficacy. Personal accomplishment is described as the self-evaluation component of burnout (Maslach, 1998). Conceptually, it has been argued to reflect the personality characteristic of self-efficacy (Cordes & Dougherty, 1993; Shirom, 1989), and empirically it has been found to show strong positive correlations with other work-related self-efficacy measures (e.g., Brouwers & Tomic, 2000; Schwarzer & Hallum, 2008). Whilst part of the MBI-HSS measure, the eight-item personal accomplishment subscale is often treated as a separate scale on account of its low correlations with the two other burnout components (Lee & Ashforth, 1996). Higher scores on this MBI-HSS subscale equates to higher levels of work-related self-efficacy. Respondents indicated the frequency with which they experienced a given feeling on a seven-point scale ranging from 0 (*never*) to 6 (*every day*). Internal consistency for this MBI-HSS subscale at Time 1 in the current study was good (Cronbach alpha was .72.)

Intrinsic work motivation. Within the present study, the Warr et al. (1979) intrinsic work motivation scale was used. This 6-item measure of work motivation indicated participants desire to perform to the best of their abilities because of the satisfaction inherent in their work. Respondents indicated their level of agreement with each item on a Likert-type scale ranging from 1 (*No, I strongly disagree*) to 7 (*Yes, I strongly agree*). Higher scores on the scale indicate higher levels of intrinsic work motivation. Internal consistency for scale at Time 1 in the current study was acceptable (Cronbach alpha was .67.)

SMT Intervention

A "two-plus-one" format (Barkham & Shapiro, 1990) was used to deliver the SMT. Under this format each participant was required to attend three, three-hour training sessions, two of which occurred on consecutive weeks and a third which occurred two months after this initial training phase. A group format was used to deliver the training and each group consisted of between eight and 12 employees. For both government departments participants worked in different centres across the UK. Therefore, we selected three geographical locations for each department and assigned participants randomly to each location for the training. The workshops took place during work hours in the onsite conference room facilities of the different centres. The first author, who had received prior training in ACT, delivered the training sessions. A selection of sessions were recorded and rated for adherence to ACT treatment protocols by the second author who has expertise in ACT interventions for workplace use.

The SMT was delivered using standardized protocols developed from two ACT manuals designed for group worksite interventions (see Bond, 2005; Bond & Hayes, 2002), and the training had two core objectives. The first objective was to increase people's awareness of their thinking patterns, as well as the impact that these thinking patterns can have on their daily work and personal lives. This objective was achieved using acceptance and mindfulness processes, which help people increase their present moment awareness and approach internal experiences from a curious and open perspective. The second objective was to teach participants how to orient themselves towards their goals and desired life directions, and how to take steps towards these. This objective was achieved using commitment and behavioural activation processes which help people to fully contact the present moment and clarify and take steps towards their meaningful directions, both in their work and their personal lives.

Homework assignments, handouts, training session summary sheets and CD's were used to support practice of the training techniques outside of the sessions. Participants were also asked not to discuss the training content with anybody in their department until the study was complete.

Procedure

Once the SMT had been advertised, employees were given a two-week period in which to sign up to the study. At the end of that time, we randomly allocated all participants to either the SMT or the waiting list control group. Participants were emailed the details of their training dates and location (participants allocated to the waiting list control group were given training dates that began after the end of the study period) and were informed that they would be required to fill out questionnaires at several intervals during the course of the training. We measured outcome and moderator variables at the beginning of the first workshop (baseline; Time 1), and then the outcome variables two months after this at the beginning of the final workshop (Time 2) and again six months after a final training workshop (follow-up; Time 3). All questionnaires were emailed to participants via their work email address, they were then filled out electronically and returned (within five days) to the research group via email.

Results

Participant Attrition

Participant attrition resulted from participants failing to attend one or more of the training workshops, and/or failing to return a questionnaire by the required date at one or more of the three assessment points. Overall, 23% (33 people) of the SMT group and 26% (30 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

study or biographical measures between participants who completed the study and those who did not complete the study. Taking attrition into account, the analyses below were based on the following group sizes: SMT = 68 and control = 85. There were no significant differences between the SMT and control groups at baseline on any of the study or biographical measures.

Bivariate Correlations

The means, standard deviations, and zero-order correlations for the Time 1 study and biographical variables are presented in Table 1. As can be seen, depersonalization was significantly and negatively correlated with age and time in line of work and therefore these biographical variables were controlled for in all subsequent analyses involving depersonalization.

[Insert table 1 about here]

Intervention Analysis

We conducted a 2 × 3 repeated measures multivariate analysis of covariance (MANCOVA) to test our first hypothesis that the SMT will lead to significant reductions in psychological strain, emotional exhaustion and depersonalization when compared with a control group. Group (SMT vs. control) served as the between-subjects factor, time (Time 1 vs. Time 2 vs. Time 3) as the within-subjects factor and age and time in line of work as the covariates[1]. Analyses revealed a significant overall group by time interaction ($F(6, 144) = 2.48$, $p < .05$, $\eta^2 = .09$) when all study and biographical variables were included. As there were significant multivariate effects, repeated measures ANOVAs and ANCOVAs were performed for each of the variables in turn. Where significant main or interaction effects were found, within- and between-groups simple contrasts were carried out.

[1]For all of the ANOVA/ANCOVA effects discussed, 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.

Psychological strain outcomes. As can be seen in Table 2, there was a significant group by time interaction for psychological strain. Within-groups simple contrasts indicated that in the SMT group there was a significant decrease in psychological strain between Time 1 and Time 2 ($F(1, 67) = 4.60$, $p < .05$, $\eta^2 = .06$), and between Time 1 and Time 3 ($F(1, 67) = 4.42$, $p < .05$, $\eta^2 = .06$), while no significant changes in psychological strain were observed in the control group. Between-groups simple effects contrasts, with Time 1 psychological strain scores entered as a covariate, showed that psychological strain was significantly lower in the SMT group at Time 2 ($F(1, 150) = 8.29$, $p < .01$, $\eta^2 = .05$), and at Time 3 ($F(1, 150) = 6.68$, $p < .01$, $\eta^2 = .04$).

[Insert table 2 about here]

Emotional exhaustion outcomes. As can be seen in Table 2, there was a significant main effect for time, and a significant group by time interaction, for emotional exhaustion. Within-groups simple contrasts indicated that in the SMT group there was a significant decrease in emotional exhaustion between Time 1 and Time 2 ($F(1, 67) = 6.89$, $p < .01$, $\eta^2 = .09$), and between Time 1 and Time 3 ($F(1, 67) = 18.88$, $p < .001$, $\eta^2 = .22$), while no significant changes in emotional exhaustion were observed in the control group. Between-groups simple effects contrasts, with Time 1 emotional exhaustion scores entered as a covariate, showed that emotional exhaustion was significantly lower in the SMT group at Time 3 ($F(1, 150) = 5.45$, $p < .05$, $\eta^2 = .04$), but not at Time 2.

Depersonalization outcomes. As can be seen in Table 2, there was a significant group by time interaction for depersonalization. Within-groups simple contrasts indicated that in the SMT group there was a significant decrease in depersonalization between Time 1 and Time 3 ($F(1, 67) = 4.43$, $p < .05$, $\eta^2 = .06$), but not between Time 1 and Time 2, while no significant changes in depersonalization were observed in the control group. Between-groups simple effects contrasts, with age, time in line of work and Time 1 depersonalization scores

entered as covariates, showed that depersonalization was significantly lower in the ACT group at Time 3 ($F(1, 148) = 4.29$, $p < .05$, $\eta^2 = .03$), but not at Time 2.

Moderation Analysis

We carried out two stages of analysis to test our second hypothesis that there will be a significant three-way Group (SMT vs. control) × Time 1 Work-Related Self-Efficacy × Time 1 Intrinsic Work Motivation interaction, such that the benefits of the SMT will be experienced only by those who have low baseline levels of work-related self-efficacy and high baseline levels of intrinsic work motivation. In the first stage we sought to uncover the presence of significant moderation effects. To do this we standardised (i.e. created *z* scores) our continuous moderator variables (i.e. Time 1 work-related self-efficacy and Time 1 intrinsic work motivation) and then computed the cross-products of these and our dichotomous predictor variable [i.e. group (SMT vs. control)] in order to create two two-way interaction terms (i.e. Group × Time 1 Work-Related Self-Efficacy and Group × Time 1 Intrinsic Work Motivation), and one three-way interaction term (i.e. Group × Time 1 Work-Related Self-Efficacy × Time 1 Intrinsic Work Motivation). Then, for each of the three outcomes (i.e. psychological strain, emotional exhaustion and depersonalization) in turn, we constructed hierarchical multiple regression models in which we entered: Time 1 scores of the outcome variable under examination and any biographical variables that correlated with either the outcome or moderator variables under examination at Time 1 in Step 1 (these control variables were also standardised); the predictor variable (i.e. group) and the two standardised moderator variables in Step 2; all two-way interaction terms in Step 3; and the three-way interaction term in Step 4[2]. Significant three-way interaction effects in Step 4 of

[2] Based on Cohen (1988), the standardized regression coefficients that resulted were regarded small, medium, or large if they met or exceeded the values of .10, .30, and .50, respectively.

the regression models indicate the presence of the moderation effects relevant to Hypothesis 2.

In the second stage of analysis we first plotted regression lines representing the relationship between the predictor variable of group (control was coded as 0 and SMT was coded as 1) and the outcome variables (e.g., emotional exhaustion at Time 3) at combinations of low (1 *SD* below the mean) and high (1 *SD* above the mean) levels of the two moderator variables of Time 1 work-related self-efficacy and Time 1 intrinsic work motivation. For ease of reference, we will refer to the different moderator combinations as: (1) high efficacy-high motivation; (2) high efficacy-low motivation; (3) low efficacy-high motivation; and (4) low efficacy-low motivation. We then conducted a simple slopes analysis to determine the statistical significance of these regression lines. The actions taken in the analyses above are consistent with the recommendations of Aiken and West (1991), Cohen, Cohen, West, and Aiken (2003), Dawson (2014), Dawson and Richter (2006), Holmbeck (1997), and West, Aiken, and Krull (1996).

Moderation of psychological strain. As can been seen in Table 3, the Group × Time 1 Work-Related Self-Efficacy × Time 1 Intrinsic Work Motivation interaction effect was not significant in Step 4 of the hierarchical regression models for psychological strain at Time 2 or Time 3. This suggests that a combination of baseline work-related self-efficacy and baseline intrinsic work motivation levels did not moderate the impact of the SMT on psychological strain at Time 2 or Time 3.

[Insert table 3 about here]

Moderation of emotional exhaustion. As can been seen in Table 4, the Group × Time 1 Work-Related Self-Efficacy × Time 1 Intrinsic Work Motivation interaction effect was significant in Step 4 of the hierarchical regression model for emotional exhaustion at Time 3. However, this higher-order interaction effect was not significant in Step 4 of the

hierarchical regression model for emotional exhaustion at Time 2. This suggests that a combination of baseline work-related self-efficacy and baseline intrinsic work motivation levels moderated the impact of the SMT on emotional exhaustion at Time 3, but not at Time 2.

[Insert table 4 about here]

To interpret the nature of the significant moderation effect we plotted the regression lines for the four moderator combinations representing low (i.e. -1 *SD*) and high (i.e. +1 *SD*) levels of the two moderator variables, and then determined the statistical significance of these individual regression lines by conducting a simple slopes analysis. As can been seen in Figure 1, for high efficacy-high motivation individuals, emotional exhaustion at Time 3 was roughly equal in the SMT group and the control group. The slope of this regression line was found to be non-significant ($B = 0.01$, $t = 0.09$, $p = .93$). This suggests that for individuals with high baseline levels of both work-related self-efficacy and intrinsic work motivation, the SMT did not have a significant impact on emotional exhaustion at Time 3. For high efficacy-low motivation individuals, emotional exhaustion at Time 3 was lower in the SMT group, compared to the control group. However, the slope of this regression line was found to be non-significant ($B = -0.29$, $t = -1.84$, $p = .07$). This suggests that for individuals with high baseline work-related self-efficacy, but low intrinsic work motivation, levels, the SMT did not have a significant impact on emotional exhaustion at Time 3. For low efficacy-high motivation individuals, emotional exhaustion at Time 3 was once again lower in the SMT group, compared to the control group. The slope of this regression line was found to be statistically significant ($B = -0.45$, $t = -2.84$, $p < .01$). This suggests that for individuals with low baseline work-related self-efficacy, but high baseline intrinsic work motivation, levels, receiving the SMT led to significantly lower levels of emotional exhaustion at Time 3. Finally, for low efficacy-low motivation individuals, emotional exhaustion at Time 3 was

once again lower in the SMT group, compared to the control group. However, the slope of this regression line was found to be non-significant (B = -0.11, t = -0.97, p = .34). This suggests that for individuals with low baseline levels of both work-related self-efficacy and intrinsic work motivation, the SMT did not have a significant impact on emotional exhaustion at Time 3. In sum, those with low levels of work-related self-efficacy and high levels of intrinsic work motivation were the only group to benefit from the SMT in terms of their emotional exhaustion levels.

[Insert figure 1 about here]

Moderation of depersonalization. As can been seen in Table 5, the Group × Time 1 Work-Related Self-Efficacy × Time 1 Intrinsic Work Motivation interaction effect was significant in Step 4 of the hierarchical regression model for depersonalization at Time 2. However, this higher-order interaction effect was not significant in Step 4 of the hierarchical regression model for depersonalization at Time 3. This suggests that a combination of baseline work-related self-efficacy and baseline intrinsic work motivation levels moderated the impact of the SMT on depersonalization at Time 2, but not at Time 3.

[Insert table 5 about here]

To interpret the nature of the significant moderation effect we used the same procedures as before. As can been seen in Figure 2, for high efficacy-high motivation individuals, depersonalization at Time 2 was slightly lower in the SMT group, compared to the control group. However, the slope of this regression line was found to be non-significant (B = -0.16, t = -1.78, p = .08). This suggests that for individuals with high baseline levels of both work-related self-efficacy and intrinsic work motivation, the SMT did not have a significant impact on depersonalization at Time 2. For high efficacy-low motivation individuals, depersonalization at Time 2 was roughly equal in the SMT group and the control group. The slope of this regression line was found to be non-significant (B = 0.06, t = 0.47 p

= .64). This suggests that for individuals with high baseline work-related self-efficacy, but low intrinsic work motivation, levels, the SMT did not have a significant impact on depersonalization at Time 2. For low efficacy-high motivation individuals, depersonalization at Time 2 was lower in the SMT group, compared to the control group. The slope of this regression line was found to be statistically significant (B = -0.56, t = -4.42, p < .001). This suggests that for individuals with low baseline work-related self-efficacy, but high baseline intrinsic work motivation, levels, receiving the SMT led to significantly lower levels of depersonalization at Time 2. Finally, for low efficacy-low motivation individuals, depersonalization at Time 2 was higher in the SMT group, compared to the control group. The slope of this regression line was found to be statistically significant (B = 0.18, t = 2.01, p < .05). This suggests that for individuals with low baseline levels of both work-related self-efficacy and intrinsic work motivation, the SMT led to significantly higher levels of depersonalization at Time 2. In sum, those with low levels of work-related self-efficacy and high levels of intrinsic work motivation were the only group to benefit from the SMT in terms of their depersonalization levels. However, those with low levels of work-related self-efficacy and low levels of intrinsic work motivation responded negatively to the SMT in terms of their depersonalization levels.

[Insert figure 2 about here]

Summary of Findings

To summarise, consistent with Hypothesis 1, we found significant reductions in psychological strain, emotional exhaustion and depersonalization in the SMT group, relative to the control group. Specifically, in the SMT group there was a significant decrease in psychological strain, emotional exhaustion and depersonalization between Time 1 and Time 3, and a significant decrease in psychological strain and emotional exhaustion between Time 1 and Time 2, while no significant changes in these variables were observed in the control

group. Furthermore, psychological strain, emotional exhaustion and depersonalization were all significantly lower in the ACT group, relative to the control group, at Time 3, and psychological strain was significantly lower in the ACT group, relative to the control group, at Time 2. Partially consistent with Hypothesis 2, we found significant three-way Group (SMT vs. control) × Time 1 Work-Related Self-Efficacy × Time 1 Intrinsic Work Motivation interaction effects for emotional exhaustion at Time 3, and depersonalization at Time 2. Further probing of these interaction effects indicated that only those employees with low baseline levels of work-related self-efficacy and high baseline levels of intrinsic work motivation experienced benefits from the SMT in terms of their emotional exhaustion at Time 3 and depersonalization at Time 2. Furthermore, those employees with low baseline levels of both work-related self-efficacy and intrinsic work motivation appeared to experience losses from the SMT in terms of their depersonalization levels at Time 2.

Discussion

In the present study we investigated the impact of a SMT on occupational strain outcomes over a nine-month assessment period. We also examined whether the benefits of the SMT were experienced only by those employees who have both low baseline levels of work-related self-efficacy and high baseline levels of intrinsic work motivation. Our findings first indicated that psychological strain, emotional exhaustion and depersonalization all decreased over time, whilst no significant changes in these outcomes were found for the control group. These findings are consistent with Hypothesis 1 and suggest that CBT-focussed SMT is a highly effective methodology for reducing occupational strain outcomes. Our findings also indicated that only employees with low baseline levels of work-related self-efficacy and high baseline levels of intrinsic work motivation experienced benefits from the SMT in terms of their emotional exhaustion levels at Time 3 and depersonalization levels at

Time 2. Furthermore, employees with low baseline levels of both work-related self-efficacy and intrinsic work motivation appeared to experience losses from the SMT in terms of their depersonalization levels at Time 2. These findings are partially consistent with Hypothesis 2 and suggest that employees with low levels of work-related self-efficacy in combination with high levels of intrinsic work motivation may be more susceptible to the potential benefits of SMT, at least in terms of the outcomes of emotional exhaustion and depersonalization.

Theoretical Implications

As a primary implication of our findings, we believe that our investigation contributes to understanding of work-related self-efficacy in the context of occupational strain. Firstly, our findings provide some support for Bandura's (1988) proposition that self-efficacy has important implications for people's health and wellbeing. Whilst previous research has indicated that work-related self-efficacy may influence how employees respond to workplace stressors (Jex & Bliese, 1999; Lu et al., 2005; Panatik et al., 2011; Schaubroeck et al., 2000), our study suggests that the construct may also have some influence over how employees respond to real-world efforts to manage workplace stressors. Studies of this kind are very much needed given that the health implications of work-related self-efficacy appear to have been somewhat neglected by research. Indeed, Jex and Bliese (1999) noted that the majority of research on work-related self-efficacy has focussed on training and performance management issues. From a review of the literature, it appears that the majority of research still focuses on these issues, with far less research devoted to occupational health. Secondly, our findings provide some support for the notion that the occupational strain implications of work-related self-efficacy may be complex. Consistent with research indicating that the impact of work-related self-efficacy in the stressor-strain relationship may be conditional on other variables (e.g., Jex et al., 2001), our study suggests that the low work-related self-efficacy/enhanced SMT benefits effect may be conditional on high intrinsic work motivation.

These findings suggest that if future researchers intend to model the impact of work-related self-efficacy on occupational strain, they may wish to consider the multifaceted nature of the construct and account for this in their studies.

Our findings also have implications for the advancement of knowledge and understanding in the field of SMT moderation. As noted earlier, whilst there is good evidence for the impact of SMT, the research base has been criticised for its lack of attention to person-level moderators (Bunce, 1997). Understanding such moderators would allow researchers to better predict the specific effects of SMT for certain groups of employees, and would broadly elevate the methodological sophistication of the research base. To our knowledge, this is the first study to find some evidence to suggest that work-related self-efficacy and intrinsic work motivation may be important in determining the beneficial impact of SMT. These findings thus offer a novel contribution to the SMT moderation research base by demonstrating the potential importance of previously untested person-level variables. Furthermore, to our knowledge, this is the first study to find some evidence for higher-order interactions between moderators in the context of SMT. These findings thus offer a further novel contribution to the SMT moderation research base by demonstrating that more complex interactions between variables can influence the impact of SMT. In the context of the present study, our findings speak to how broader character configurations can impact people's responses to SMT.

Practical Implications

Firstly, our findings provide support for the continued use of SMT to address health decrements in employees. Workplace stress can have deleterious consequences for both individuals and organisations. For individuals, workplace stress has been linked to an array of health impairments including psychological strain (Stansfeld & Candy, 2006), emotional burnout (Lee & Ashforth, 1996) and musculoskeletal pain (Finestone, Alfeeli, & Fisher, 2008). For organisations, workplace stress can lead to a reduction in desirable workplace

behaviours, such as organisational commitment (Jamal, 1990), as well as an increase in undesirable behaviours, such as absence duration (Bakker, Demerouti, de Boer, & Schaufeli, 2003) and turnover intention (Jamal, 1990; Leong, Furnham, & Cooper, 1996). Although it is impossible to eliminate workplace stress, organisations may attempt to diminish its impact through the provision of SMT. Our findings indicate that a SMT led to significant reductions in employees' psychological strain, emotional exhaustion and depersonalization, in comparison to a control group. This is consistent with previous research (see Richardson & Rothstein, 2008; van der Klink et al., 2001), and further strengthens the evidence base demonstrating the beneficial impact of SMT on employee health and wellbeing.

Secondly, we believe that our findings have the potential to inform procedures around how organisations go about managing occupational strain. From our results it would appear that for employees with low baseline levels of work-related self-efficacy and high baseline levels of intrinsic work motivation, the SMT lead to positive outcomes on two of the outcome variables; however, for employees with low baseline levels of both work-related self-efficacy and intrinsic work motivation, the SMT lead to negative outcomes on one of the outcome variables. This latter group of employees may thus represent a particularly vulnerable subsection for whom other, or additional, forms of development activity may be beneficial. Indeed, for these employees, it may be beneficial to attempt to enhance motivation prior to the delivery of SMT in order to enhance intervention outcomes. There have been similar activities carried out in the generic organisational training field where the need to enhance motivation to learn prior to training is widely acknowledged (Knowles, Holton, & Swanson, 2005; Salas & Cannon-Bowers, 2001). Alternatively, on account of their high vulnerability, it may be beneficial to channel these employees into more individualised forms of development such as coaching or counselling, rather than including them in group training interventions. Beyond focussing only on vulnerable employees, organisations may consider attempting to

enhance intrinsic motivation more broadly. Given that intrinsic work motivation may be beneficial to employees who are more vulnerable to workplace stressors, and that it is likely that many, and if not most, employees will become vulnerable at one point or another, setting up a work environment that is inherently motivating may be a more proactive way to manage occupational strain. One approach to enhancing the motivational potential of work is through effective job design (e.g., Humphrey, Nahrgang, & Morgeson, 2007).

Limitations

The first limitation of this study relates to concerns around the number of statistical tests carried out. Specifically, due to the complexity of our analyses we carried out a large number of statistical tests, and only found significant moderation effects for two outcome variables at specific time points. This may be concerning because when studies include multiple statistical tests the probability of obtaining a significant result is inflated, making it easier to conclude that a hypothesised effect has been found (Maxwell, 2004). However, it is important to also note that interaction effects, and particularly higher-order interaction effects, are notoriously difficult to detect using hierarchical multiple regression analysis due to issues around measurement error and loss of statistical power (Aguinis, 1995; Frazier, Tix, & Barron, 2004). Furthermore, we detected the same higher-order interaction effect for two outcome variables, making it seem unlikely that this is a spurious result. Therefore, despite concerns over multiple tests, we maintain that our moderation effects should be considered important, and whilst perhaps not fully supportive, at the very least indicative of our moderation hypothesis.

The second limitation of this study relates to the relatively high attrition rate. Indeed, attrition is a common problem in workplace interventions (Flaxman & Bond, 2006) and in the present study it was affected by work scheduling (e.g., difficulty securing time off), travel issues (e.g., being unable to travel easily to the destination of the training), and sick leave

(e.g., people being absent on the day of the training or assessment). Whilst much of the attrition in the present study was the result of people not returning questionnaires, rather than not attending the training, the level of attrition should nevertheless be considered when drawing conclusions from the results.

Directions for Future Research

Beyond appraisals of one's work environment and receptiveness to SMT, future researchers may wish to further examine the impact of work-related self-efficacy in the context of occupational strain. For instance, future researchers may wish to further examine the impact of work-related self-efficacy on strain reduction by examining how the construct relates to employees' attempts to recover from workplace stressors outside of work. To explain, recovery is described as unwinding from one's job during non-work time and it is thought to be important for decreasing the negative effects of workplace stress (Geurts & Sonnentag, 2006). Given that work-related self-efficacy influences how employees respond to workplace stressors, it is conceivable that the construct may also impact how employees attempt to recover from these stressors when they are outside of work. For example, it is possible that work-related self-efficacy may predict evening recovery experiences or indeed longer-term recovery experiences after periods of significant workplace stress. However, as we have done in the present study, when examining these research questions, future researchers may wish to consider the sophistication of their research methodologies. Indeed, research on work-related self-efficacy and occupational strain to date has been criticised for being predominantly cross-sectional in nature (Peng, Schaubroeck, & Xie, 2015) and for focussing on simply documenting relations between work-related self-efficacy and stress-related variables (Jex & Bliese, 1999).

Additionally, future researchers may also wish to further examine the conditions under which work-related self-efficacy moderates SMT outcomes through investigating other

person- and situation-level variables. For instance, research has indicated that social support has an important role in the experience of strain (Beehr, 1995). Considering this, and the results of the present study, it might also be interesting to examine whether the low work-related self-efficacy/enhanced SMT benefits effect is further influenced by social support. In other words, whilst employees with low levels of work-related self-efficacy may stand to benefit more from SMT, they may also struggle to persist in their efforts during the SMT because they dwell more on obstacles and their own deficiencies. However, if these employees feel supported by their co-workers and manager, and feel that they have good working relationships to rely on, they may feel that they have the necessary resources to persist in their efforts during the SMT, regardless of their negative views of themselves and their situations. It might also be interesting to consider some of the other person-level variables suggested by Bunce (1997) (e.g., mastery, locus of control) as potentially important to the low work-related self-efficacy/enhanced SMT benefits effect. For instance, if employees with low levels of work-related self-efficacy believe that they have more control over different situations (i.e. internal locus of control), they may feel more able to overcome their ineffective coping and thus engaged more with the SMT, regardless of their negative views of themselves and their situations.

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Table 1
Means, Standard Deviations, and Zero-Order Correlations for Study and Biographical Variables at Time 1

	Variable	M	SD	1	2	3	4	5	6	7	8
1.	Psychological strain	0.23	0.30	-							
2.	Emotional exhaustion	2.64	1.36	.53**	-						
3.	Depersonalization	1.16	1.07	.14	.38**	-					
4.	Work-related self-efficacy	4.79	0.77	-.25**	-.29**	-.34**	-		6.15	6.15	
5.	Intrinsic work motivation	5.15	0.53	-.30**	-.13	-.20**	.36**	-			
6.	Age	46.20	7.30	-.06	.06	-.20*	.09	.02	-		
7.	Gender			-.13	-.07	.10	.07	.02	-.14	-	
8.	Time in current job (months)	53.00	37.17	.09	.04	-.11	.07	.04	.09	.03	-
9.	Time in line of work (months)	218.76	121.55	.04	-.05	-.25**	.01	.00	.24**	-.28**	.15

Note. N = 153, * $p < .05$. ** $p < .01$.

Table 2
Means, Standard Deviations, and Analysis of Variance (ANOVA) Statistics for Study Variables

Variable	SMT		Control		ANOVA			
	M	SD	M	SD	Effect	*F* ratio	*df*	η^2
Psychological strain								
Time 1	0.24	0.30	0.22	0.29	G	2.82	1, 151	.02
Time 2	0.16	0.27	0.27	0.32	T	0.38	2, 302	.00
Time 3	0.16	0.26	0.26	0.31	G × T	4.64**	2, 302	.03
Emotional exhaustion								
Time 1	2.82	1.47	2.50	1.25	G	0.32	1, 151	.00
Time 2	2.55	1.31	2.47	1.28	T	6.59**	2, 302	.04
Time 3	2.36	1.39	2.43	1.16	G × T	3.89*	2, 302	.03
Depersonalization								
Time 1	1.20	1.09	1.12	1.05	G	0.07	1, 149	.00
Time 2	1.13	1.07	1.25	1.16	T	0.67	2, 302	.00
Time 3	1.00	0.93	1.24	0.93	G × T	3.04*	2, 302	.02

Note. SMT = stress management training group; Control = waitlist control group; ANOVA = analysis of variance; T = time; G = group; η^2 = eta-squared (effect size); N = 153; *$p < .05$. **$p < .01$.

Table 3
Hierarchical Regression Models for Detecting Higher-Order Interaction Effects of Psychological Strain at Time 2 and Time 3

	Outcome variable			
Predictor variable	PsyStr T2	ΔR^2	PsyStr T3	ΔR^2
Step 1				
PsyStr T1	.13***	.17***	.12***	.18***
Step 2				
PsyStr T1	.13***	.04*	.12***	.05*
Grp	-.06**		-.05**	
WSE T1	.00		.02	
IWM T1	-.01		-.03	
Step 3				
PsyStr T1	.13***	.02	.12***	.00
Grp	-.06**		-.05**	
WSE T1	.00		.02	
IWM T1	-.01		-.03	
Grp × WSE T1	-.03		.01	
Grp × IWM T1	.04		.02	
WSE T1 × IWM T1	-.03		-.00	
Step 4				
PsyStr T1	.13***	.00	.12***	.00
Grp	-.07**		-.05*	
WSE T1	.00		.02	
IWM T1	-.02		-.03	
Grp × WSE T1	-.02		.01	
Grp × IWM T1	.04		.02	
WSE T1 × IWM T1	-.03		-.00	
Grp × WSE T1× IWM T1	.02		-.00	

Note. Values are unstandardized B coefficients; intervention group was coded 1, and control group was coded 0; ΔR^2 = change in *R*2; Grp = group; WSE = work-related self-efficacy; IWM = intrinsic work motivation; PsyStr = psychological strain; T1 = time 1; T2 = time 2; T3 = time 3; N = 153; * p = .05. ** p = .01. *** p = .001.

Table 4
Hierarchical Regression Models for Detecting Higher-Order Interaction Effects of Emotional Exhaustion at Time 2 and Time 3

	Outcome variable			
Predictor variable	EmEx T2	ΔR^2	EmEx T3	ΔR^2
Step 1				
EmEx T1	1.04***	.64***	.97***	.59***
Step 2				
EmEx T1	1.02***	.01	.98***	.02
Grp	-.09		-.16*	
WSE T1	-.09		-.02	
IWM T1	.00		.01	
Step 3				
EmEx T1	1.03***	.00	.97***	.01
Grp	-.09		-.16*	
WSE T1	-.11		-.03	
IWM T1	.01		.01	
Grp × WSE T1	.08		.06	
Grp × IWM T1	-.08		-.02	
WSE T1 × IWM T1	.02		.11	
Step 4				
EmEx T1	1.02***	.00	.92***	.02**
Grp	-.10		-.21**	
WSE T1	-.11		-.04	
IM T1	.01		-.04	
Grp × WSE T1	.08		.07	
Grp × IWM T1	-.08		-.01	
WSE T1× IWM T1	.02		.09	
Grp × WSE T1× IWM T1	.02		.16**	

Note. Values are unstandardized B coefficients; intervention group was coded 1, and control group was coded 0; ΔR^2 = change in *R*2; Grp = group; WSE = work-related self-efficacy; IWM = intrinsic work motivation; EmEx = emotional exhaustion; T1 = time 1; T2 = time 2; T3 = time 3; N = 153; * *p* = .05. ***p* = .01. ****p* = .001.

Table 5
Hierarchical Regression Models for Detecting Higher-Order Interaction Effects of Depersonalization at Time 2 and Time 3

	Outcome variable			
Predictor variable	Deper T2	ΔR^2	Deper T3	ΔR^2
Step 1				
Deper T1	.80***	.60***	.59***	.51***
Age	-.02		-.02*	
Time in line of work	-.00*		-.00*	
Step 2				
Deper T1	.74***	.03**	.54***	.05***
Age	-.01		-.01	
Time in line of work	-.00*		-.00*	
Grp	-.07		-.12*	
WSE T1	-.21***		-.12*	
IWM T1	.06		-.12*	
Step 3				
Deper T1	.72***	.04***	.53***	.01
Age	-.01		-.01	
Time in line of work	-.00*		-.00*	
Grp	-.08		-.13*	
WSE T1	-.22***		-.12*	
IWM T1	.08		-.11*	
Grp × WSE T1	.06		.05	
Grp × IWM T1	-.24***		-.07	
WSE T1 × IWM T1	.12*		.10*	
Step 4				
Deper T1	.72***	.02**	.53***	.00
Age	-.01		-.01	
Time in line of work	-.00*		-.00*	
Grp	-.12*		-.13*	
WSE T1	-.22***		-.12*	
IWM T1	.04		-.11	
Grp × WSE T1	.07		.05	
Grp × IWM T1	-.24***		-.07	
WSE T1× IWM T1	.09		.10	
Grp × WSE T1× IWM T1	.13**		-.00	

Note. Values are unstandardized B coefficients; intervention group was coded 1, and control group was coded 0; ΔR^2 = change in *R*2; Grp = group; WSE = work-related self-efficacy; IWM = intrinsic work motivation; Deper = depersonalization; T1 = time 1; T2 = time 2; T3 = time 3; N = 153; * p = .05. ** p = .01. *** p = .001.

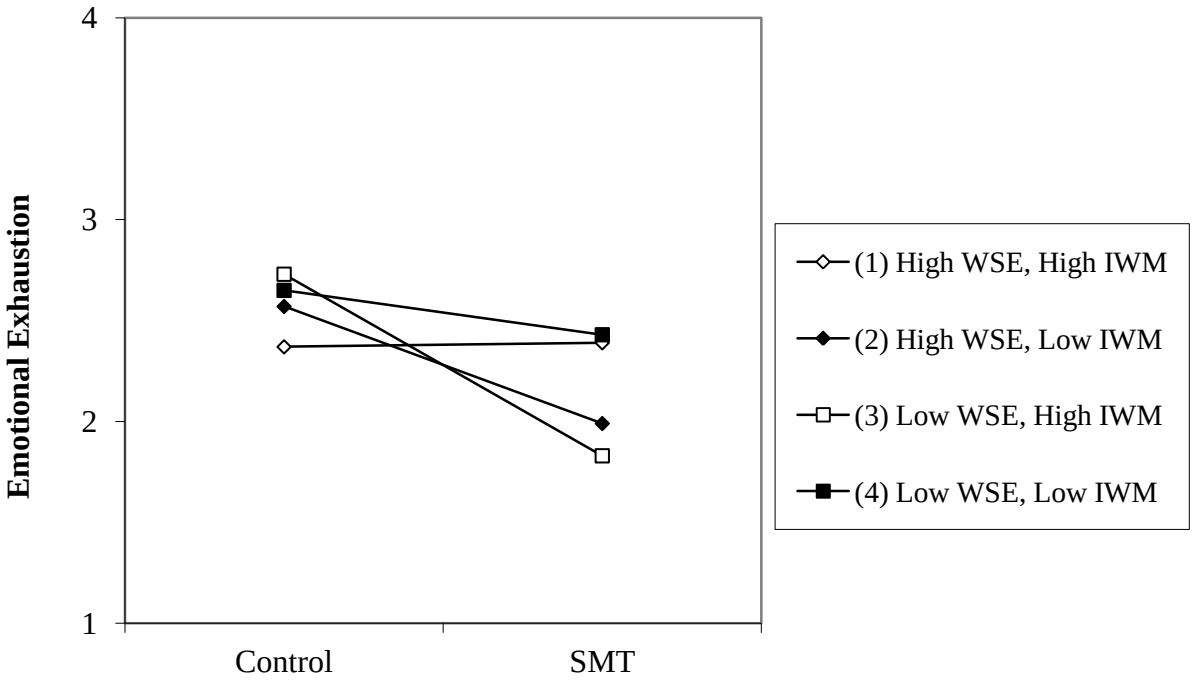

Figure 1. Emotional Exhaustion at Time 3 for Participants with Combinations of Low and High Time 1 Levels of Work-Related Self-Efficacy (WSE) and Intrinsic Work Motivation (IWM) in the Control and SMT Groups.

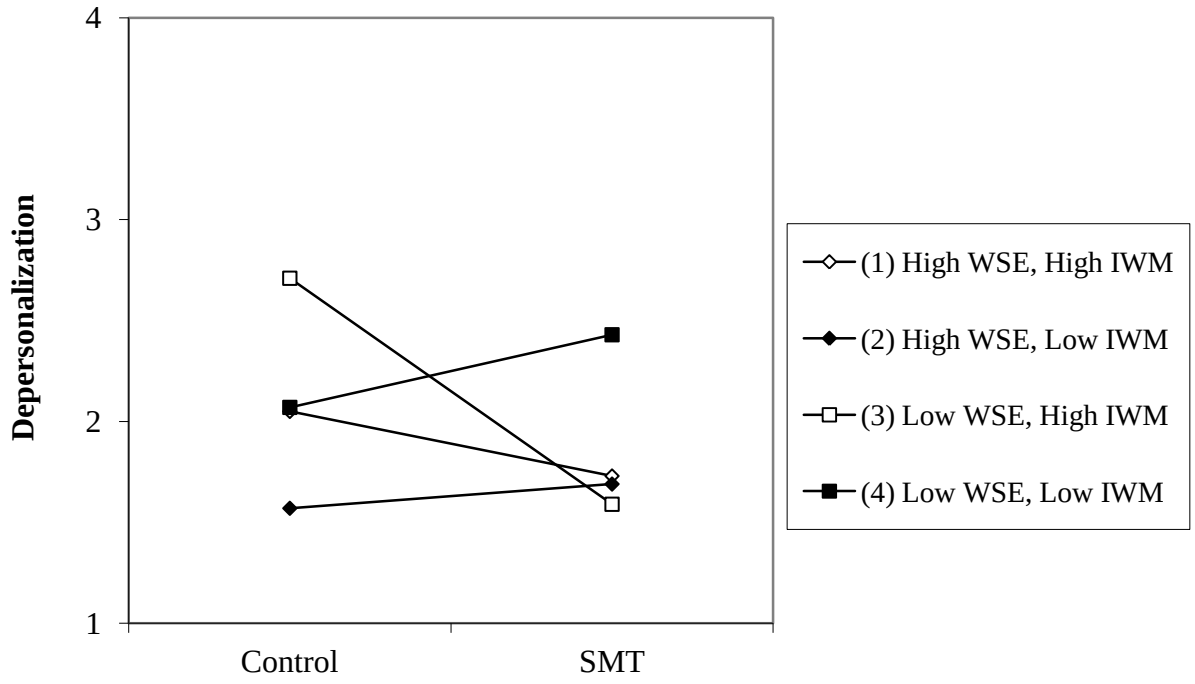

Figure 2. Depersonalization at Time 2 for Participants with Combinations of Low and High Time 1 Levels of Work-Related Self-Efficacy (WSE) and Intrinsic Motivation (IM) in the Control and SMT Groups.

Appendix A

For the present study we combined data from two identical SMT interventions that were conducted across two UK government departments. Findings from the first of these two SMTs (N = 100) have already been published in a previous article. Findings from the second of these two SMTs (N = 53) have not been published in any previous article, and we do not intend to publish these separately from the present paper. The first (published) article examined mediators of change in the context of emotional burnout reduction. The present article addresses a distinct theoretical proposition through focussing on moderators of change in the context of theory and research in self-efficacy.