

In flight again with wings that were once broken; effects of post-traumatic growth and personal resources on burnout recovery

Post-traumatic growth

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Judith Semeijn

*Faculty of Management, Science & Technology,
Open University of the Netherlands, Heerlen, The Netherlands and
Research Centre for Education and the Labour Market,
Maastricht University, Maastricht, The Netherlands*

Joris Van Ruysseveldt

*Faculty of Psychology & Educational Sciences,
Open University of the Netherlands, Heerlen, The Netherlands*

Greet Vonk

Et Emergo, Loenen, The Netherlands, and

Tinka van Vuuren

*Faculty of Management, Science & Technology,
Open University of the Netherlands, Heerlen, The Netherlands and
Loyalis Kennis & Consult, Heerlen, The Netherlands*

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Abstract

Purpose – Adequate recovery from burnout is important to understand. The purpose of this paper is to investigate whether post-traumatic growth (PTG) contributes to higher engagement and reduced symptoms of burnout and whether this process is mediated by personal resources.

Design/methodology/approach – In a cross-sectional survey, 166 Dutch workers who had fully recovered from burnout were questioned on their level of PTG, their personal resources (optimism, resilience and self-efficacy), and their levels of engagement and burnout.

Findings – Fully recovered workers scored somewhat higher on current burnout level, but did not differ from norm group workers in their engagement level. Moreover, PTG appeared to positively affect both higher engagement and lower burnout levels, which is fully mediated by personal resources.

Research limitations/implications – Post-traumatic growth (PTG) impacts on engagement and burnout levels amongst workers who have recovered from burnout by enhancing personal resources. The role of personal resources and the impact of PTG on engagement and burnout complaints following (recovery from) burnout deserve further investigation.

Practical implications – Management can support workers who have (recovered from a) burnout, by being aware of their (higher) engagement, and facilitate the enhancement of PTG and personal resources.

Originality/value – This study is one of the first to study the role of PTG after (recovery from) burnout and reveals valuable findings for both research and practice.

Keywords Engagement, Personal resources, Burnout complaints, Burnout recovery, Post-traumatic growth (PTG)

Paper type Research paper



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1. Introduction

Today, workers need to do more work in less time, and therefore may risk not being able to handle the work demands leading to burnout. Burnout is an affliction characterized by exhaustion, cynicism and inefficacy (Maslach *et al.*, 2001). However, little is known on how workers who have experienced a burnout, recover and regain or renew their personal resources during this recovery process. Moreover, little is known on how this recovery process affects current levels of engagement and burnout. This study aims to address these knowledge gaps.

People who have had a burnout often experience residual complaints like poorer cognitive performance (Deligkaris *et al.*, 2014) and express chronic complaints (Leiter *et al.*, 2013). But can adequate recovery also be helpful in diminishing these complaints? Can adequate recovery enable people to flourish (again), resulting in higher engagement levels and less burnout symptoms? In other words, can one fly again with wings that were once broken?

Addressing these questions, this study focuses on the role of post-traumatic growth (PTG) in the recovery process following burnout. PTG can be defined as “the experience of positive change that occurs as a result of the struggle with a highly challenging life crisis” (Tedeschi and Calhoun, 2004, p. 1). Since burnout can be qualified as a stressful life event, relevant insights for the recovery process may be drawn from research into the positive effects of stressful life events (Linley and Joseph, 2004; Helgeson *et al.*, 2006), e.g. enhanced personal resources, such as self-efficacy, increased personal strength and the reoccurrence of positive attitudes (Joseph *et al.*, 2005). In this respect, this study builds on underlying theoretical notions surrounding the innate and natural tendency of humans to move toward growth and development, such as in the organismic valuing (OV) theory, also after adversity (see e.g. Cho and Park, 2013; Joseph and Linley, 2005).

Moreover, research into the job demands-resources (JD-R) model (Demerouti *et al.*, 2001; Xanthopoulou *et al.*, 2007) shows that personal resources can be independent predictors of engagement, but also help prevent workers from burning out (Kalimo *et al.*, 2003). However, to the best of our knowledge, research into the prevalence and consequences of PTG is not yet applied into the context of recovery following burnout. Therefore this study investigates whether the process of PTG is associated with an increase in personal resources after recovery from burnout. Moreover, we study whether PTG contributes to higher engagement and lower burnout symptoms and whether this process is mediated by (increased) personal resources.

Insights into the role of PTG during the recovery process of burnout and the extent to which personal resources can be regained or renewed can derive valuable practical-based knowledge, for example, possible actions an organization can undertake for workers who have experienced a burnout and are recovering.

The study uses data from Dutch workers who have fully recovered from burnout. Norm scores for the Dutch working population are used as reference. In the next sections, we develop the theoretical background of our study. First, centered on the JD-R model, the theory associated with burnout and engagement and the role of personal resources in the energetic and motivational process are discussed. Next, the concept of PTG and its relation to personal resources is explained. Finally, we outline the mediating role of personal resources in the relationship between PTG on the one side and burnout and engagement on the other.

2. Theoretical background

2.1 Burnout and engagement

With respect to burnout, the three-dimensional conceptualization of Maslach (1993) is the most widely used definition (Schaufeli *et al.*, 2008). These three dimensions are exhaustion, cynicism and inefficacy. Exhaustion is the most recognizable dimension of burnout (Maslach *et al.*, 2001) manifesting as a feeling of being “no longer able to give of themselves at a psychological level” (Maslach and Jackson, 1981, p. 99). Cynicism, also described as “depersonalization” (Maslach and Jackson, 1981; Maslach *et al.*, 2001), means “having a distant and negative

attitude toward one's job" (Mäkikangas *et al.*, 2011, p. 94). Inefficacy, also referred to as "reduced professional efficacy," describes the feeling of being no longer effective in fulfilling one's job responsibilities (Maslach and Leiter, 1997). Although the burnout concept has not been conceived as straightforward, literature indicates its development has inspired and further specified scholarly understanding beyond that of a social and work related phenomenon, to establishing it as an important indicator of work related (un)well-being (Schaufeli and Maslach, 2017). Diagnosing a burnout is not easy to do well (see e.g. Korczak *et al.*, 2010), and some professionals argue it does not exist as a validated (clinical) syndrome at all. Despite this, the prevalence of burnout is well documented and studied (see e.g. Carod-Artal and Vázquez-Cabrera, 2013). Current research advocates a focus on the first two dimensions, i.e., exhaustion and cynicism, because of their stronger interrelatedness, and more comparable antecedents and outcomes (Van den Broeck *et al.*, 2013).

Work engagement, on the other hand, is defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli *et al.*, 2002, p. 74). Vigor is characterized by high levels of energy and mental resilience while working. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, and challenge. Absorption "is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work" (Schaufeli *et al.*, 2002, p. 74). Vigor and dedication may however be considered as the main components (Bakker *et al.*, 2008). Current research into engagement therefore often focuses on these two dimensions (Van den Broeck *et al.*, 2013).

Although it is recognized that burnout and engagement are not opposites, burnout is seen as the negative antipode of engagement (Gonzalez-Roma *et al.*, 2006). Schaufeli *et al.* (2008) showed that burnout and engagement produced highly similar, but reversed patterns of correlations concerning subjects such as excess work, job characteristics, work outcomes, social relations and perceived health (Schaufeli *et al.*, 2008).

2.2 The role of personal resources for burnout and engagement

A respected and popular model explaining burnout and work engagement is the JD-R Model (Demerouti *et al.*, 2001; Bakker and Demerouti, 2007, 2017). The JD-R model distinguishes between two categories of work characteristics: job demands and job resources. Job demands are defined as "those physical, social, or organizational aspects of the job that require sustained physical and/or psychological effort and are, therefore, associated with physiological and/or psychological costs" (Demerouti *et al.*, 2001, p. 501). Job resources are defined as "those physical, social, or organizational aspects of the job that are functional in achieving work-related goals, reduce job demands and the associated physiological and psychological costs and stimulate personal growth and development" (Demerouti *et al.*, 2001, p. 501). Job demands and job resources are relevant for burnout and engagement in different ways: job demands are linked to burnout through the energetic process, while job resources are linked to engagement through the motivational process (Bakker and Demerouti, 2007). The energetic process reflects the energy depleting potential of job demands, which can gradually result in impaired health and further exhaustion. The motivational process reflects the positive role of job resources in meeting job demands and basic needs, resulting into higher engagement levels and less cynicism.

In 2007, the JD-R model was expanded to include personal resources (Xanthopoulou *et al.*, 2007). Personal resources refer to, for example, mental and emotional competence, self-esteem, self-efficacy, optimism, faith and resilience (Xanthopoulou *et al.*, 2007; Bakker and Demerouti, 2007). The importance of personal resources is confirmed in many studies (see e.g. Bakker, 2011; Xanthopoulou *et al.*, 2009). Indeed, personal resources are considered the most important factor in explaining the variance in the level of engagement as compared to other factors like job resources and previous levels of engagement (Bakker and Demerouti, 2007; Bakker, 2011). Personal resources thus contribute (directly) to the motivational process.

Noteworthy, Kalimo *et al.* (2003) showed that personal resources also prevent workers from burning out during a long time period (Kalimo *et al.*, 2003). Personal resources are considered to play a buffering role in the energetic process as well (see also Bakker and Demerouti, 2017; Upadaya *et al.*, 2016). Despite its merits, the JDR-model has also been criticized (see e.g. Schaufeli and Taris, 2014; Taris and Schaufeli, 2016). It is argued that the model is essentially heuristic in nature, implying that although many questions and issues can be derived from the JDR-model perspective, it does not offer much specific insights in terms of exactly how and why the phenomena can be explained. Additional theories are therefore needed to explain the relevant theoretical processes. For example, the earlier job demands control (JD-C) model of Karasek (1979) and Karasek and Theorell (1990) can be helpful in explaining why particular demands interact with particular resources (Schaufeli and Taris, 2014). And Self-determination theory can explain how and why job resources affect work engagement (see e.g. Van den Broeck *et al.*, 2013). In this study, we focus on the mediating role of personal resources such as resilience, optimism and self-efficacy in the context of recovery from burnout, whilst also using the more specific theoretical underpinnings of the process of post-traumatic growth.

As a first step, we test their direct effects. Personal resources have found to contribute to higher work engagement and lower burnout for people who recovered from (severe) illnesses (such as breast cancer, see e.g. Hakanen and Lindbohm, 2008). We expect that personal resources contribute likewise with regard to workers who have recovered from a burnout. Therefore our *H1a* and *H1b* are:

H1a. Amongst workers who have fully recovered from burnout, there is a positive relationship between personal resources (resilience, optimism, self-efficacy) and the current engagement level.

H1b. Amongst workers who have fully recovered from burnout, there is a negative relationship between personal resources (resilience, optimism, self-efficacy) and the current burnout level.

2.3 Personal resources as a result of post-traumatic growth

Since burnout can be qualified as a stressful life event, we will draw on relevant insights from research on the positive effects of stressful life events, i.e., PTG (Tedeschi and Calhoun, 2004; Tedeschi *et al.*, 2018). We aim to explore the extent to which PTG positively affects personal resources. Growth following adverse experiences is not a new concept (Splevins *et al.*, 2010). Within the field of growth following adversity (Joseph *et al.*, 2012) different concepts are applied. Examples are benefit finding (Splevins *et al.*, 2010), thriving (O'Leary and Ickovics, 1995), stress-related growth (Park *et al.*, 1996) and adversarial growth (Joseph and Linley, 2005). However, PTG (Tedeschi and Calhoun, 2004) is the most widely used term and over time has become the standard concept.

The most recently developed model for PTG is the “affective-cognitive processing model” (Joseph *et al.*, 2012). This model is based on the OV theory (Joseph and Linley, 2005) and the “assumptive beliefs” model of Janoff-Bulman (1989). An important aspect of the OV-theory is the idea that humans are intrinsically motivated to move toward growth and therefore, in this model growth is viewed as a natural and innate tendency of human beings (Cho and Park, 2013; Joseph and Linley, 2005). The “affective-cognitive processing model” not only describes the process underlying the occurrence of post-traumatic growth, but it can also be used as an affective-cognitive processing framework to guide clinical practice (Joseph *et al.*, 2012). The model suggests an iterative process in which growth can occur, through event cognition, appraisal mechanisms, emotional states and coping. This iterative process repeats itself until discrepancies between pre-trauma assumptive world views and post-trauma information are resolved. When people are confronted with a trauma, their

world view is affected and will change by either assimilation (changing one's view of the stressor) or accommodation (changing one's world view or view on themselves) (Cho and Park, 2013; Joseph and Linley, 2005).

PTG is a phenomenon that has the quality of a transformation (Tedeschi and Calhoun, 2004). This implies that changes are permanent and that the development of people in some domains surpasses levels of functioning before the adverse experience occurred (Tedeschi and Calhoun, 2004). Positive growth is the permanent result of an intense process which is described by Tedeschi and Calhoun as "not simply a return to baseline – it is an experience of improvement that for some persons is deeply profound" (Tedeschi and Calhoun, 2004, p. 4).

Positive changes have been reported previously for different groups who experienced some kind of trauma. Examples are people who were exposed to terror incidents or experienced other traumatic events (e.g. shipping disasters, plane crashes, car accidents, hurricanes, earthquakes), people who experienced bereavement, people with medical problems (e.g. cancer, heart attack, brain injury, HIV/AIDS, etc.) and people with traumatic relationship experiences (e.g. relationship breakdown, parental divorce) (Joseph *et al.*, 2012; Cho and Park, 2013). However, to the best of our knowledge, no studies have dealt with PTG after experiencing a burnout, despite burnout arguably being a significant life event with crises-like properties too. As 30–70 percent of people who experienced any kind of trauma report having experienced positive changes (see e.g. Joseph *et al.*, 2012), we argue that PTG may be associated with (full) recovery from burnout through the development and advancement of personal resources such as resilience, optimism and self-efficacy.

As Van den Heuvel *et al.* (2010) argue, personal resources are not static and can be developed by specific personal development interventions or coaching and they can also increase after significant life experiences. The theory of PTG explicitly argues that growth after adversity is connected to personal experiences in becoming more connected to others, and finding personal strength, and perspective (Joseph *et al.*, 2005) Moreover, Tedeschi *et al.* (2007) explicitly argue that PTG does not equal growth in resources, but is associated with changes in resources. Therefore we hypothesize:

H2. Amongst workers who have fully recovered from burnout, PTG and personal resources (resilience, optimism and self-efficacy) are positively related.

2.4 Personal resources as a mediator between PTG and burnout and work engagement

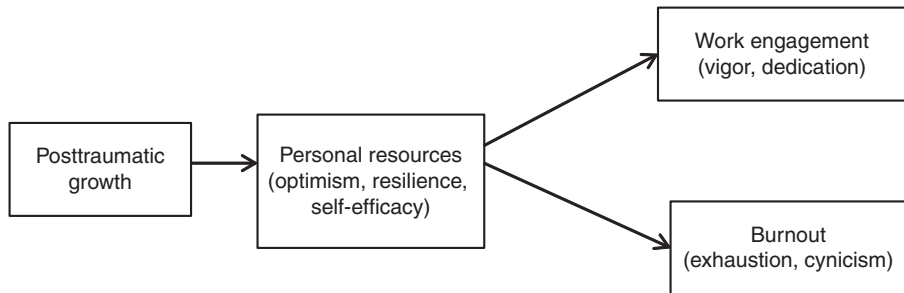
The JD-R model explains why and how personal resources can impact engagement and burnout levels (see e.g. Bakker and Demerouti, 2017). The literature on PTG suggests that PTG advances levels of personal resources (Van den Heuvel *et al.*, 2010; Joseph and Linley, 2005). Therefore, one may expect that PTG contributes to higher current work engagement and lower current burnout levels, whereas this relationship is mediated by the level of personal resources. More specifically, we assume that more PTG is associated with higher levels of resilience, optimism and self-efficacy, and, in turn, these personal resources are related to lower levels of current burnout and higher levels of current work engagement (see e.g. Bakker and Demerouti, 2007). Therefore we expect:

H3a. Amongst workers who have fully recovered from burnout, personal resources (resilience, optimism and self-efficacy) mediate the positive relation between PTG and the current level of work engagement.

H3b. Amongst workers who have fully recovered from burnout, personal resources (resilience, optimism and self-efficacy) mediate the negative relation between PTG and the current burnout level.

Our research model and hypotheses are graphically represented in Figure 1.

Figure 1.
The research model



2.5 Other variables influencing the level of PTG

In the context of this study, several specific variables need to be included because they may influence the level of PTG (see e.g. Joseph *et al.*, 2005). As a consequence they might impact the results of this study if we do not statistically control for them. First of all, gender and age will be included, since women tend to experience higher levels of growth than men and in general PTG is negatively related to age (Linley and Joseph, 2004). Furthermore since this study investigates the occurrence of PTG after burnout several factors that are relevant for, or can (at least partly) be influenced by, employers, may be included; the form of treatment or counseling, medication and time since the traumatic event (diagnosis of burnout). The form of treatment is important, because treatment can only deal with the negative traumatic consequences or symptom reduction, or it can (also) focus on growth or positive changes (Linley and Joseph, 2004; Joseph *et al.*, 2012). The form of professional support or treatment during recovery from burnout may therefore influence the level of PTG. Medication is included because Joseph *et al.* (1993) found indications that those who use medication are in poorer psychological health than those who do not, and this may have consequences for the recovery process. Finally, time since the traumatic event is included: while some studies report that growth is not related to the time since the event (Joseph *et al.*, 2005), others indicate a positive relationship between time since event and PTG (e.g. Feigelman *et al.*, 2009). In the case of recovery following burnout, the impact of time since the occurrence of this traumatic event is so far unknown. In the next section, we describe the procedure we used to decide on whether or not to include a specific control variable into our structural research model.

3. Method

3.1 Participants and procedure

In this study e-mail and social media were used to invite workers to participate in the research. More specifically, potential participants were recruited via LinkedIn and Facebook, and from networks for burnout coaches and people who had suffered burnout. Potential participants received a promotional e-mail that explained the general purpose of the study and how their data will be handled, in accordance to the current accepted ethical standards and regulations for research. The e-mail and social media messages contained an URL enabling respondents to complete the questionnaire online. Respondents were included in the research sample on the basis of two inclusion criteria: having a job and being recovered from a burnout (self-report) which was diagnosed within the last 20 years by a general practitioner, a medical officer at work, a psychologist, or a psychiatrist. This 20 year period was chosen because a study of Feigelman *et al.* (2009) showed proceeding PTG until approximately 20 years after occurrence of the traumatic event.

An online survey tool was used to collect data. In addition to validated scales for the concepts under study, information was also gathered about age, gender, time since the

diagnosis of burnout, education and the self-reported use of medication and experience of other stressful life events.

Of the 385 persons who responded our call 185 met our inclusion criteria on being in employment, having had their burnout diagnosed by a professional as indicated above, and now being fully recovered from the burnout (all self-reported measures). In total, 19 respondents were excluded; 12 respondents who reported their burnout diagnosis as self-diagnosis, 3 who reported the diagnosis by a coach, a physiotherapist, or an alternative therapist, and 1 who reported that a burnout was not diagnosed after all. The other 3 respondents did not report important personal information and were also excluded from the study. In total 166 burnout recovered workers were included in this study. The mean age of respondents is 47.62 years ($SD = 9.26$) and 66 percent is female. The level of education (1 = secondary education and lower; 2 = nonacademic higher education; 3 = university) is high (more than 90 percent held a degree in higher education or university).

3.2 Measures

3.2.1 Work engagement. In our research model the latent construct of work engagement is represented by two observed variables: vigor and dedication. These were measured with the Utrechtse Bevlogenheids Schaal (Utrecht Work Engagement Scale, UWES-9) (Schaufeli and Bakker, 2004). Vigor was measured by three items including “At my work, I feel strong and vigorous.” Dedication was measured by three items including “I am enthusiastic about my job.” Each item was answered on a seven-point frequency scale (0 = never, 6 = always). Reliability for this scale is 0.93 (Schaufeli and Bakker, 2004). In this study Cronbach’s α was 0.83 for vigor and 0.92 for dedication.

3.2.2 Current burnout level. In our model the latent construct of burnout is represented by two observed variables: emotional exhaustion and cynicism. The Dutch version of the Maslach Burnout Inventory (Schaufeli and Van Dierendonck, 2000) was used to assess these variables, each consisting of five items. Emotional exhaustion was measured with five items including “At the end of the working day I feel empty.” Cynicism was measured with five items including “I doubt the significance of my work.” Each item was answered on a seven-point frequency scale (0 = never, 6 = always). In general the reliability of all subscales comply the criterion of 0.70 (Schaufeli and Van Dierendonck, 2000). In this study Cronbach’s α is 0.91 for emotional exhaustion and 0.82 for cynicism.

3.2.3 Personal resources. In our research model the latent construct of personal resources is represented by three observed variables: resilience, optimism and self-efficacy.

Resilience was measured with six items out of the Resilience Scale of Portzky *et al.* (2010); five questions were positively and 1 negatively phrased, including: “If needed I can work well without support from others.” Each item needs to be answered on a five-point Likert scale (1 = totally disagree, 5 = totally agree). The negative item was recoded so that higher scores refer to higher levels of resilience. The reliability for the original total scale was 0.85 (Portzky *et al.*, 2010). In this study Cronbach’s α was 0.78.

Optimism was measured with a scale based on the Life Orientation Test – Revised (LOT-R) (Scheier *et al.*, 1994). This is a six item scale (four filler items were excluded), with four positively and two negatively phrased questions, including: “In uncertain times, I usually expect the best” and “I hardly ever expect things to go my way.” Each item needs to be answered on a five-point Likert scale (1 = totally disagree, 5 = totally agree). All negative items were recoded so that higher scores refer to higher levels of optimism. The reliability for the original scale was 0.82 (Scheier *et al.*, 1994). Cronbach’s α for this scale reached 0.76 in this study.

Self-efficacy was measured with a scale based on the generalized self-efficacy scale (Schwarzer and Jerusalem, 1995). The scale is developed by Vink *et al.* (2011) and consists of 5 items, such as: “I can always manage to solve difficult problems if I try hard enough.”

Each item needs to be answered on a five-point Likert scale (1 = totally disagree, 5 = totally agree). In general reliability for this scale is 0.87 (Vink *et al.*, 2011). Cronbach's α for this scale was 0.76 in this study.

3.2.4 Post-traumatic growth. Perceptions of PTG were measured by the Dutch version of the Post-traumatic Growth Inventory (PTGI) (Jaarsma *et al.*, 2006). The PTGI was originally developed by Tedeschi and Calhoun (1996) and has been the most widely used instrument to measure PTG (Joseph *et al.*, 2012). The PTGI has 21-items and five subscales: relating to others ("Having compassion for others"), new possibilities ("I developed new interests"), personal strength ("A feeling of self-reliance"), spiritual change ("A better understanding of spiritual matters") and appreciation of life ("Appreciating each day"). Each item needs to be answered on a six-point Likert scale (0 = not at all, 5 = extremely). Missing values in the PTG scale have been filled with the means of the subscales. In general, reliability (Cronbach's α) for this scale is 0.95 (Jaarsma *et al.*, 2006). Both subscale and total scale scores can be calculated. For the current study, only the PTG total score was used. Participants were instructed to report PTG levels related to their burnout. Reliability in the current study was 0.94.

3.2.5 Control variables. Time since traumatic event (as marked by the diagnosis of burnout) was measured with a scale in which the shortest period reflected was "between now and six months ago" and the longest "between 15 and 20 years ago." Use of medication is a dichotomous variable (with 1 = yes and 0 = no). In this study, Other stressful live events (SLE's) besides Burnout were measured with a version of the List of Threatening Events (LTE) (Brugha *et al.*, 1985) which was slightly modified by Kim *et al.* (2007). Nine SLE's out of the LTE over the previous 20 years are inquired: serious illness (self), serious illness (close relative), bereavement (immediate family), bereavement (other relative or close friend), marital separation, end of relationship, problem with close friend or relative, theft or loss and severe financial problems. The choice of the events was based on the threat ratings of the reported events (Brugha *et al.* 1985). The total score is between 0 and 9. The number of other SLE's as experienced is included because – as the other control variables – they may influence PTG. Age is measured in calendar years. Gender is measured as a dummy, with 1 = man and 0 = women. Education level is measured by an ordinal scale where 0 = no education and 7 = university education.

3.3 Analysis

3.3.1 Preliminary analyses. We first calculated descriptive statistics (mean, SD). Using norm scores for the Dutch working population, we compared levels of burnout and engagement between our sample and the Dutch working population. The Dutch working population is represented by men and women, working at different educational levels in different sectors of the labor market, such as health care, services, and retail and repair (see e.g. Schaufeli, 2015; Schaufeli and Bakker, 2004). For this study, the best comparable norm scores, e.g., from the manuals of the measures, are used (Schaufeli and Van Dierendonck, 2000; Schaufeli and Bakker, 2003). Secondly, in order to limit the number of variables in our structural research model, we used correlation analyses to identify those control variables (age, gender, education, time since event, use of medication and other stressful live events) which were significantly related to our research variables. We calculated bivariate correlations between all variables. Only those control variables which were significantly associated to at least one of the research variables were included in our structural model.

3.3.2 Structural models. The proposed mediation model was analyzed by means of structural equation modeling (SEM) using AMOS 20 (Arbuckle, 2011). Optimism, resilience and self-efficacy (observed variables) represented personal resources (latent variable). Whereas vigor and dedication represented work engagement, emotional exhaustion and cynicism represented the burnout construct. To test the hypothesized relationships, two

models were tested. First, a mediation model (M1) was constructed in which personal resources mediated the relationship between PTG and work engagement and burnout respectively. Second, an alternative model (M2) was tested in which direct relationships between PTG and work engagement and burnout respectively were added to the mediation model. This enabled us to draw conclusions on the full (vs partial) nature of the hypothesized mediation. Several indices were used to determine the goodness of fit of the model (Byrne, 2010): χ^2 test, comparative fit index ($CFI \geq 0.90$), the Tucker–Lewis index ($TLI \geq 0.90$) and root-mean-square errors of approximation ($RMSEA \leq 0.06$). For the RMSEA, values below 0.06 are considered to indicate good fit. However, the RMSEA depends on model complexity. Therefore, the p -value for the test of close fit is also given, which tests the alternative hypothesis that the RMSEA is larger than 0.05. To indicate close fit, p -values should be larger than 0.05 (Jöreskog and Sörbom, 1992).

4. Results

4.1 Descriptives and correlations

Descriptive statistics and correlations of the variables of interest are presented in Table I.

As can be seen from Table I, significant correlations are found between PTG and personal resources, as well as between PTG and outcome variables. As expected, personal resources are also associated with the outcome variables. Other stressful events reported seem not to have much impact on the variables of this study. Comparing average levels in our dependent variables between our sample and the Dutch working population (Schaufeli and Van Dierendonck, 2000; Schaufeli and Bakker, 2003), respondents in our sample are slightly more exhausted (1.92 compared to 1.78 for the Dutch working population) and cynical (1.63 compared to 1.34 for the Dutch working population). Using the norm scores in the manual (Schaufeli and Van Dierendonck, 2000), in our sample 9 percent suffered from very high levels of emotional exhaustion (compared to 5 percent of the Dutch working population) and 28 percent from high levels (compared to 20 percent of the Dutch working population), whereas 9 percent suffered from very high levels of cynicism (compared to 5 percent of the Dutch working population) and 24 percent from high levels (compared to 20 percent of the Dutch working population).

With regard to work engagement, respondents in our sample experienced somewhat higher levels of vigor compared to the Dutch working population (4.23 vs 4.01) and appeared to be more dedicated (4.49 compared to 3.88). Using the norm scores in the UWES manual (Schaufeli and Bakker, 2003), in our sample 8 percent experienced very high levels of vigor (compared to 5 percent of the Dutch working population) and 26 percent high levels (vs 20 percent), whereas 13 percent were very highly dedicated (compared to 5 percent of the Dutch working population) and 37 percent highly dedicated (compared to 20 percent). In conclusion, our sample is largely comparable to the Dutch working population, except for the relatively higher level of dedication at work.

Based on the correlations in Table I, only time since event and age appeared relevant covariates. We therefore added paths between age and personal resources, and between time since event and personal resources, work engagement and burnout to our structural model. Age and time since event were allowed to co-vary.

4.2 Hypotheses testing

By means of SEM, we tested whether our mediated model showed a good fit and which kind of mediation – full or partial – described the data best. The full mediation model (M1) showed good fit indices ($\chi^2(26) = 44.72$, $RMSEA = 0.066$ ($p_{\text{close}} = 0.20$), $CFI = 0.97$, $NNFI = 0.94$). The alternative model M2 (including also direct paths between PTG and work engagement and burnout respectively), did not appear to have better fit indices ($\chi^2(24) = 44.43$, $RMSEA = 0.072$ ($p_{\text{close}} = 0.13$), $CFI = 0.96$, $NNFI = 0.93$). Moreover, the

Table I.
Means, standard deviations and correlations for all variables in the study

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender (1 = female, 0 = male)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Age (in calendar years)	47.62	9.26	-0.25**	—	—	—	—	—	—	—	—	—	—	—	—
3. Educational level (1-3) ^a	2.26	0.62	0.12	0.03	—	—	—	—	—	—	—	—	—	—	—
4. Medication (1 = yes, 0 = no)	0.25	0.45	-0.07	0.15	0.06	—	—	—	—	—	—	—	—	—	—
5. Time after burnout diagnosis (1-14)	7.10	5.55	-0.02	0.34**	0.20*	0.04	—	—	—	—	—	—	—	—	—
6. Other stressful life events (0-10)	2.33	1.45	0.05	0.09	0.06	-0.03	0.04	—	—	—	—	—	—	—	—
7. Post-traumatic growth (1-6)	2.83	1.06	-0.04	-0.10	0.06	-0.08	-0.01	0.03	—	—	—	—	—	—	—
8. Optimism (1-5)	3.69	0.64	0.13	-0.14	-0.01	-0.14	0.20**	-0.02	0.35**	—	—	—	—	—	—
9. Resilience (1-5)	3.80	0.61	0.03	-0.01	0.05	0.01	0.25**	0.09	0.11	0.44**	—	—	—	—	—
10. Self-efficacy (1-5)	3.71	0.56	0.02	0.01	0.02	-0.10	0.23**	0.08	0.19*	0.52**	0.66**	—	—	—	—
11. Vigor (0-6)	4.23	1.04	0.00	-0.08	0.05	0.09	0.31**	0.14	0.26**	0.51**	0.52**	0.47**	—	—	—
12. Dedication (0-6)	4.49	1.32	0.01	0.11	0.09	0.02	0.31**	0.09	0.21**	0.43**	0.32**	0.35**	0.74**	—	—
13. Emotional exhaustion (0-6)	1.92	1.43	0.01	-0.06	0.04	0.06	-0.22**	-0.04	-0.26**	-0.47**	-0.41**	-0.28**	-0.51**	-0.39**	—
14. Cynicism (0-6)	1.63	1.31	-0.04	-0.03	-0.06	0.11	-0.29**	-0.03	-0.22**	-0.47**	-0.29**	-0.31**	-0.56**	-0.73**	0.54**

Notes: *n* = 166. ^a1 = secondary education and lower; 2 = nonacademic higher education; 3 = university. **p* < 0.05; ***p* < 0.01

difference in chi-square between M1 and M2 was not significant ($\Delta\chi^2(2) = 0.29$; ns), indicating that the direct effects can be ignored. The regression coefficients from the structural paths in M1 are presented in Figure 2.

About 53 percent of the variance in work engagement and 59 percent of the variance in burnout was explained by our model. As can be seen from Figure 2, and as expected, PTG was positively and significantly related to personal resources ($\beta = 0.38, p < 0.001$), providing support for H2. In turn, personal resources were positively related to work engagement ($\beta = 0.68, p < 0.001$) and negatively to burnout ($\beta = -0.73, p < 0.001$), providing empirical support to H1a and H1b. Additionally, our comparison of M1 and M2 confirmed the full nature of the mediations assumed in H3a and H3b. Finally, time since event, i.e., diagnosis of burnout seemed to be significantly and positively related to personal resources, indicating that the growth in personal resources increases as recovery time expands.

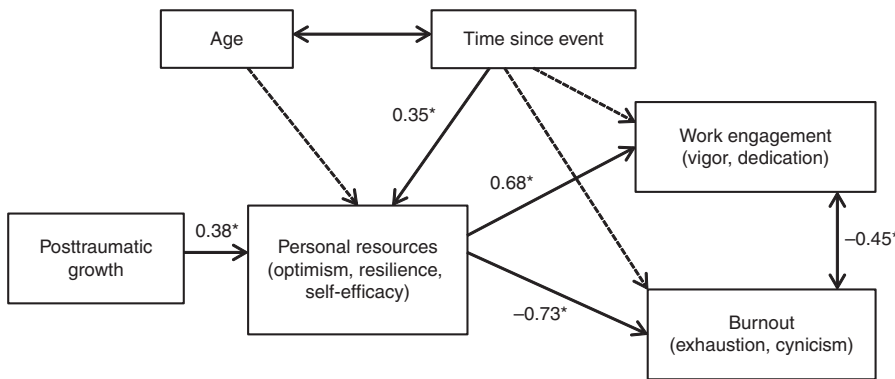
5. Discussion and conclusion

5.1 Summary of results

Based on the PTG literature (Tedeschi and Calhoun, 2004; Joseph *et al.*, 2005), the aim of this study was to investigate to what extent PTG after a diagnosed burnout is associated with lower levels of current burnout and higher levels of current engagement. Additionally, we explored whether personal resources would play a mediating role in this association.

Our research confirmed that personal resources are positively related to higher engagement on the one hand and to less burnout complaints on the other hand. This finding is in line with previous studies (e.g. Bakker, 2011; Kalimo *et al.*, 2003). As expected, a positive relation existed between PTG and personal resources, confirming lines of reasoning from the affective-cognitive processing model (Joseph *et al.*, 2012). In addition, the positive relationship between PTG and engagement and the negative relationship between PTG and burnout appeared to be fully mediated by personal resources. This might indicate that PTG helps workers who recovered from burnout to (re)develop their personal resources and, as a consequence, become engaged again in their current job, as well as experiencing less residual burnout complaints.

Our results also emphasize the importance of time, as time since the occurrence of the burnout event (and not age) played an important role in the development of personal resources. With respect to PTG, the literature suggests that people have an innate tendency toward growth which initiates processes or mechanisms that refer to coping and development (see e.g. Cho and Park, 2013; Joseph and Linley, 2005). However, our findings seem to suggest that the associated development of personal resources requires time.



Notes: Dotted lines represent non-significant paths. * $p < 0.01$

Figure 2. The empirical research model

5.2 Theoretical contribution

Our findings add to the current scientific knowledge in this domain in several ways. First, this study showed that people who recovered from a burnout do experience PTG, just like other groups who recovered from severe illnesses. This implies that further investigation of PTG in the context of the recovery process from burnout is warranted. Second, this study confirms the role of personal resources for engagement and burnout levels, (see e.g. Bakker and Demerouti, 2007; Kalimo *et al.*, 2003; Xanthopoulou *et al.*, 2007). However, in previous studies, different types of personal resources were included, such as sense of coherence, sense of competence and self-esteem. In further research, different and other types of personal resources could therefore be included in the research model.

Third and most specifically, PTG appeared to have a beneficial effect on the degree of engagement and residual burnout complaints, through the enhancement of personal resources. This suggests that PTG might be a valuable mechanism in the process of recovery from burnout for enhancing (personal) resources. Possibly, and as assumed by the affective-cognitive processing framework (Cho and Park, 2013), PTG plays a role in resolving discrepancies between a pre-trauma world view and post-trauma information that needs to be assimilated or accommodated. PTG may, in this process, relate to event cognitions, appraisal mechanisms and coping with emotional states. The exact mechanism of how PTG contributes to the advancement of personal resources, and what personal resources are mostly affected in this process, should however be further investigated, also during and in the process of counseling and therapy. Obviously, longitudinal studies are warranted to confirm this line of thought, as people with better personal resources might also have more possibilities to experience more PTG. For example, Manne *et al.* (2004) argued that emotional expression might be an important factor during PTG. From a different angle, the economic situation might also be a factor of importance, for which future research should control; as data gathering for this study includes the period of the economic crisis of 2008–2009 worldwide, one can ask what impact this has had on the process of PTG. Literature indicates a negative relation between economic crisis and mental health (Giorgi *et al.*, 2015; Mucci *et al.*, 2016) which may therefore have delayed the process of PTG. Future research could address these and other relevant issues in the developmental process during recovery after burnout.

Another road to follow would be to compare people with high and low scores on PTG during their recovery after burnout to gain further insights in antecedents and mechanisms that are responsible for these differences. Furthermore, it would be fruitful to more explicitly compare workers who recovered from a burnout with referent workers. In this way, more insight can be gathered on the process of (re)gaining resources and engagement and whether there are any differences between workers who recovered from burnout and referent workers. We found that employees who recovered after burnout have experienced PTG. However, the way in which an employee experiences PTG and what this means for his/her job and further career remains so far unclear. Literature indicates that positive change may occur on three domains; interpersonal relationships, self-perception and life philosophy (Joseph *et al.*, 2012). Future research could therefore investigate in which way an employee experiences PTG and how this relates to what personal resources are mostly influenced.

Fourth and finally, this study found that notwithstanding their past experiences with (diagnosed) burnout, people who recovered are equally or even more engaged compared to the reference population (Dutch workforce). Since research concerning people who experienced a burnout has so far mainly focused on residual symptoms, these findings raise questions about the relative importance of engagement and residual burnout complaints for individual functioning at work. Demerouti and Cropanzano (2010) argued that engagement tends to have stronger effects on job performance than other related constructs. Hence, it would be valuable to extend the research toward further implications at work for people who recovered after burnout, such as their productivity and job performance.

5.3 Limitations and some additional suggestions for future research

Because the present study is based on cross-sectional data, conclusions on causal relationships between the variables included cannot be drawn yet. To validate our findings, time-lagged and longitudinal designs are warranted. In addition, the current study used only self-report measures, causing risk for mono-method bias (Podsakoff *et al.*, 2012). Future studies should also include multi-source data. For example, reports of close relatives or significant others at work (such as direct supervisors) could be included. Additionally, the current study used perceived growth as a measurement for PTG, whereas several studies already indicated that perceived growth may differ from actual growth (see e.g. Cho and Park, 2013). Future research might therefore include both perceived and actual growth to further understand their relative value and effects. The same accounts for different antecedents of the PTG process in the context of recovery after burnout, to further our understanding of factors of importance, such as the economic situation, institutional factors, but also factors from the organizational and societal context, and more personal factors, such as for example personality characteristics.

Moreover, the study was conducted with a sample of working professionals, recruited through internet and e-mail. The people approached were aware of the topic “burnout” in the survey. Those (still) carrying negative thoughts/feelings with this concept might have deliberately chosen to not take part in the research (see also Schaufeli and Maslach, 2017). Thus, some form of self-selection of respondents might have taken place, comparable to the phenomenon of the “healthy worker bias” (see e.g. Hernán *et al.*, 2004). This implies that especially the most successful, healthy and happy workers might have taken part in this research. This may also be responsible for the relative high scores on work engagement within this sample. Future studies should take this type of bias into account by using different designs, such as for example comparative analysis with samples of people who are still recovering from burnout and/or people who did never have a burnout as such.

Finally, highly educated professionals were overrepresented in our sample. Therefore, our sample may not be representative for workers with other educational or professional backgrounds. Future studies into other groups of workers or with more representative samples will provide more insight in the relevance and generalizability of the findings.

5.4 Practical implications

The results of our study entail some practical implications. As research on burnout has mainly focused on residual symptoms (see e.g. Deligkaris *et al.*, 2014), burnout is connected with a considerable number of negative outcomes (Maslach *et al.*, 2001). The findings of this study may initiate a different (more positive) perspective on burnout, that can help to nuance judgments and thoughts on workers with a burnout history. More specifically, we found that employees who recovered from burnout can be at least as engaged as referent workers. Moreover, as our model suggests, their personal resources are enlarged when they experience more PTG and this leads to more engagement and less burnout. The question is however how individual employees who recovered from burnout can best capitalize on their regained resources and how the organization can facilitate them. So far, there is no one answer to how to treat burnout (see also Ahola *et al.*, 2017). Our results can contribute in diminishing stigmatization of workers who have (had) a burnout (see also Crisp *et al.*, 2000). After all, our results indicate it seems possible to recover and herewith diminish the complaints, as well as regain resources and engagement. Moreover, employers can keep in mind that it is potentially possible to positively influence and facilitate their burned-out workers already in an earlier stage, by facilitating, or advising the employee to look for a treatment or help that strives for PTG.

From a more preventive angle, employers can facilitate training groups or other invention programs to increase personal resources for all employees. Ouweneel *et al.* (2013) showed positive effects of an online self-enhancement intervention program; the intervention group experienced increased positive emotions and self-efficacy, more than a self-monitoring control group.

The intervention consisted of three types of online assignments: happiness assignments, goal setting assignments and resource building assignments.

Finally, employers and organizations can use the knowledge resulting from this study for example in job interviews by finding out what potential employees with a burnout background learned from their burnout and how they can handle possible risks together.

5.5 Conclusion

This study has shown that having had a burnout does not mean that workers end up less engaged, possibly leading to less productivity and less performance. PTG during recovery is associated with both engagement and less burnout symptoms, while their personal resources are enhanced. Although this study so far only examined cross-sectional results, it reveals the importance of PTG for people who recover from burnout. It indicates possible interesting and positive roads for further exploration in order to facilitate and optimize for workers how to come “in flight again with wings that were once broken.”

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Corresponding author

Judith Semeijn can be contacted at: judith.semeijn@ou.nl

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