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Running head: Mediating factors

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Transformational leadership and depressive symptoms among employees:

Mediating factors

Research paper

### **Abstract**

**Purpose.** The study aims to examine whether the link between transformational leadership and depressive symptoms among employees is mediated by such personal resources as occupational self-efficacy, perceived meaningfulness of the work, and work-related rumination.

**Design/methodology/approach.** The study was conducted using questionnaires among 557 Finnish municipal employees in various occupations. The statistical analysis was based on structural equation modeling. A multiple mediation model enabled us to investigate the specific indirect effects of each mediator. Model comparison was applied to ascertain whether the mediation should be considered as full or partial. **Findings.** Results based on model comparison showed that the proposed factors fully mediated the negative relationship between transformational leadership and depressive symptoms. Thus high level of transformational leadership was associated with high levels of occupational self-efficacy and perceived meaningfulness of the work, and low level of work-related rumination during off-job time, which, in turn, were associated with low level of depressive symptoms. The fully mediated model explained 36% of the variance in depressive symptoms. All of the three mediators made a unique contribution to this relationship. **Research limitations / implications.** The results imply that transformational leadership behaviors may decrease depressiveness among employees through strengthening the personal resources of employees. However, as the study is cross-sectional, causal relationships can only be hypothesized. **Originality/value.** The study sheds new light on the possible processes through which transformational leaders may exert their health-promoting effects on employees even in terms of depressive symptoms.

## Introduction

The role of leadership in employee well-being is of great importance but is not yet well understood. In recent years, however, an increasing amount of research on this issue has been conducted. Positive leader behaviors such as support, feedback, trust, confidence, and integrity have been found to be related to high levels of affective well-being and low stress levels in employees (see Skakon et al., 2010, for a review). Likewise, a meta-analysis of 27 studies found moderate evidence that leadership is associated with job well-being (Kuoppala et al., 2008).

Regarding specific leadership styles, transformational leadership especially has been related to positive employee outcomes (Skakon et al., 2010). Burns (1978) originally introduced the construct of transformational leadership in contrast to transactional leadership in the context of political leadership, and the construct was further developed by Bass (1985). Several scholars have addressed the topic of transformational leadership since then and even earlier with the construct of charismatic leadership (Lowe et al., 1996). In addition, several definitions and options for its measurement have been proposed (Carless et al., 2000; Podsakoff et al., 1990). Transformational leadership is a well-known predictor of employee job performance (see Wang, 2011 for a recent meta-analysis) and job satisfaction, motivation, and satisfaction with the leader (Judge and Piccolo, 2004). Employee health and well-being are still far less studied criteria in this regard, although the last ten years have seen a growing interest in the associations between transformational leadership and employees' psychological health (see Skakon et al., 2010).

Podsakoff et al. (1990) sum up their review of transformational leadership in six behaviors characterizing transformational leaders, i.e. identifying and articulating a vision, providing an appropriate model, fostering the acceptance of group goals, high performance expectations, providing individualized support, and intellectual stimulation. In other words, transformational leaders motivate and inspire others through an attractive vision of the future, serve as an example and role model for employees, promote cooperation among the employees toward a common goal, and stimulate others intellectually by questioning assumptions and approaching situations in new

ways (Bass and Avolio, 1994; Podsakoff et al., 1990). Further, transformational leaders expect high performance and quality in terms of employees' work while at the same time paying attention to the individual developmental needs and concerns of the employee as a whole person (Bass and Avolio, 1994; Podsakoff et al., 1990). Presumably the most used description of transformational leadership, however, is the composition of the four i's, namely idealized influence, inspirational motivation, intellectual stimulation, and individual consideration (Bass and Avolio, 1994).

The present study addresses transformational leadership style in relation to depressive symptoms among employees. We consider depressive symptoms as a highly topical outcome as depression is among the leading causes of disability worldwide (Murray and Lopez, 1996) with substantial work-related indirect costs in the form of productivity loss resulting from absenteeism and reduced productivity at the workplace (Greenberg et al., 2003; Lippa et al., 2007). In 2000, the workplace costs of depression in the United States were estimated to be \$51.5 billion (Greenberg et al., 2003). In the occupational health psychology literature, transformational leadership has mainly been studied in relation to affective or general psychological well-being, i.e. positive emotions and lack of distress (Arnold et al., 2007; Kelloway et al., 2012; Nielsen et al., 2008; Tafvelin et al., 2011) while research on more specific outcomes like depression is scarce.

Recently there has been a call for studies focusing on mediators between leadership and followers' well-being (Skakon et al., 2010) and on processes through which transformational leaders exert their influence (Bono and Judge, 2003). In this study, three factors are examined as possible mediators between transformational leadership and employees' depressive symptoms, namely occupational self-efficacy beliefs, perceived meaningfulness of the work, and (low-level) work-related rumination. Drawing on the Conservation of Resources (COR) theory (Hobfoll, 1989), these constructs can be seen as personal resources, i.e., aspects of self that are generally linked to resiliency (Hobfoll et al., 2003). They are based on an employee's subjective appraisal of his/her relation to the work and each of these mediators has been shown to covary with well-being, as shown later in this article. Investigation of the mediating processes enhances our understanding

of why leadership is essential to workplace health and well-being. To the best of our knowledge, no research has so far been published on the mediating factors between leader behavior and depressive symptoms of employees except for one study investigating abusive supervision (Tepper, 2000).

### *Transformational leadership and depressive symptoms*

Depression is a multifaceted mood disorder characterized by a cluster of symptoms, such as despondent mood and loss of pleasure, interest and energy (Hammen and Watkins, 2008).

Depression should be conceived of as a dimensional rather than as a categorical phenomenon (Prisciandaro and Roberts, 2005). Hence, experiencing depressive symptoms does not necessarily mean a clinical, diagnostic case.

So far leader behavior has not been a central focus in the research on occupational risk factors for depression, although the effect of psychosocial work characteristics on depressive symptoms is well-established. High job strain (defined by high demand and low decision authority) and low social support have been shown to be prospective risk factors for common mental disorders (see Stansfeld and Candy, 2006, for a review) as well as specifically for depression (Bonde, 2008; Mausner-Dorsch and Eaton, 2000; Melchior et al., 2007; Niedhammer et al., 1998; Paterniti et al., 2002; Rau et al., 2010; Wang, 2005). Therefore leadership deserves more research attention in relation to depression.

There is some evidence that leader behavior matters in this regard. First, Tepper (2000) found abusive supervision (i.e., “sustained display of hostile verbal and nonverbal behaviors, excluding physical contact”, p. 178) to predict subsequent depressive symptoms. Second, Munir et al. (2010) showed that transformational leadership was both cross-sectionally and prospectively related to depression. However, either of these studies controlled for the baseline level of depression. To the best of our knowledge, the study by Munir et al. (2010) is the only study so far to examine the relationship of transformational leadership style and depressive symptoms overall. Despite the lack of studies linking transformational leadership and depressiveness, several studies

have found positive relationships between transformational leadership and employee well-being (Arnold et al., 2007; Kelloway et al., 2012; Nielsen et al., 2008; Tafvelin et al., 2011), and negative relationships with employee burnout (Corrigan et al., 2002; Hetland et al., 2007; Seltzer et al., 1989), and job-related stress (Seltzer et al., 1989; Sosik and Godshalk, 2000).

In addition, studies concerning social support at work have implicitly associated leader behavior and employee mental health, as in the social support literature support from the leader is one type of social support. For example, in the large-scale longitudinal Whitehall II Study, social support composed of support from colleagues, support from supervisors, and clarity and information from supervisors, predicted low scores on a psychiatric disorder scale and low-level psychiatric sickness absences across 5.3 (average follow-up) years (Stansfeld et al., 1997). Furthermore, lack of instrumental support from colleagues and supervisors has been related to diagnostic depression (Waldenström et al., 2008). Additionally, supervisor support has acted as a moderator in the relationship between social stressors at work and depressive symptoms so that under low-support conditions, depressive symptoms were exacerbated by social stressors (Dormann and Zapf, 1999). In the Finnish Public Sector Study, low relational justice – meaning unfair and inconsiderate behaviors of leaders – predicted subsequent physician-diagnosed depression but only prior to adjustment for psychological distress at baseline (Ylipaavalniemi et al., 2005). Furthermore, low workplace social capital (three out of eight questions directly related to one's supervisor) predicted physician-diagnosed depression prospectively even after adjusting for psychological distress at baseline (Kouvonen et al., 2008). Thus, leadership is a prominent aspect of workplace social relations contributing to employee depression.

#### *The role of personal resources as mediators*

In this study, three psychological factors identified in earlier research and conceptualized in the present study as personal resources of employees, are examined as potentially mediating factors between transformational leadership and depressive symptoms of employees.

*Self-efficacy*, referring to an individual's expectations that (s)he can successfully execute behavior to achieve certain outcomes and thus exercise control in relation to events affecting one's life (Bandura, 2000), has been studied in different contexts as an important predictor for sustained action, performance and various health outcomes. The negative association between self-efficacy and depressive symptoms, meaning that those high in self-efficacy are low in depressive symptoms, has been reported in several studies (e.g., Maciejewski et al., 2000).

Research on self-efficacy as a mediator between leadership and various employee outcomes has yielded mixed results (van Knippenberg et al., 2004). Cross-sectional research has found that employee self-efficacy and team efficacy both serve as links between transformational leadership and employees' psychological well-being (Nielsen et al., 2009). In another study, an employee's self-efficacy and trust in the leader fully mediated the relation between transformational leadership and perceived work stress and stress symptoms, and partially mediated the link between transformational leadership and job satisfaction (Liu et al., 2010). Nevertheless, a relationship between transformational leadership and employee self-efficacy has not been found in all studies (e.g., Felfe and Schyns, 2002). In a longitudinal study by Nielsen and Munir (2009), transformational leadership and self-efficacy were related only cross-sectionally (at Time 2) when the relationship between transformational leadership and affective well-being was fully mediated by self-efficacy.

According to Bandura (2000), it is more appropriate to investigate self-efficacy as a context-specific construct than in general terms. We therefore measured occupational self-efficacy (Rigotti et al., 2008) which is relevant in the study context and supposedly more susceptible to change according to leader behaviors than general self-efficacy.

Deriving *meaning from one's work* can be considered essential to one's well-being, as beliefs imparting a sense of purpose and meaning is among the components of positive well-being and functioning (Ryff, 1989). Meaning at work predicted mental health and vitality in a 5-year follow-up study (Burr et al., 2010), and meaning at work has been prospectively predicted by job

demands and job resources, including quality of leadership (Clausen and Borg, 2011).

Meaningfulness in the frame of coherence theory refers to the experience that demands in relation to one's inner and outer environment are challenges worthy of investment and engagement (Antonovsky, 1987). Thus, because of its motivational potential, the experience of meaningfulness is the most central aspect of the sense of coherence (Antonovsky, 1987). Sense of coherence, comprising of comprehensibility, manageability, and meaningfulness, has been shown to mediate the effects of work characteristics, including leadership relations, on well-being (Feldt et al., 2000). Earlier research has shown that transformational leaders promote employees' experience of their work as meaningful, which in turn promotes employees' well-being (Arnold et al., 2007; Nielsen et al., 2008). In addition, followers of transformational leaders have been found to view their work as more important and as more self-congruent, which lends empirical support to the motivational effects of transformational leaders (Bono and Judge, 2003). Transformational leaders' inspirational way to motivate and their ability to literally imbue the work with meaning together with consideration for individuals make these results understandable (Bass and Avolio, 1994).

The present study aims to go beyond earlier research in several ways. First, self-efficacy and meaningfulness of work are known to mediate the relationship between transformational leadership and employee well-being (e.g., Arnold et al., 2007; Liu et al., 2010; Nielsen et al., 2008, 2009) but have not earlier been studied as mediators in relation to depressive symptoms. Second, even though research has identified several mediators in the relationship between transformational leadership and employee well-being, we are so far unaware of the unique effects of these identified mediators. In other words, as leaders are supposed to affect employees through several factors, investigating single mediation models or models with aggregated mediators entails the problem of specification error (Mathieu et al., 2008; Taylor et al., 2008). Specifying a multiple mediator model the present study treats the mediators as separate constructs in the same model and also

shows their unique effects, that is, effects after taking the other mediators into account (Preacher and Hayes, 2008).

In addition to the two mediators identified by earlier research, we introduce a new candidate for mediation. The third possible mediator, *work-related rumination*, refers to mental strain and recurrent, persistent thoughts in an uncertain situation when an individual experiences a discrepancy between a given situation and an important personal goal (Mohr et al., 2006). Mohr and colleagues originally conceptualized this construct as cognitive irritation, which, together with emotional irritation (irritability, anger), forms a higher-order construct of irritation (Mohr et al., 2006). As we only utilize the cognitive, ruminative part of the construct, we use the more familiar term work-related rumination (e.g., Cropley and Purvis, 2003). Ruminative thinking has been shown to predict depressive symptoms in longitudinal studies (e.g., Nolen-Hoeksema et al., 1999) and even diagnostic depressive disorders (Nolen-Hoeksema, 2000).

Work-related rumination parallels the concept of (low-level) psychological detachment from work, i.e. the ability to mentally detach oneself from work during off-job time (Fritz et al., 2010, Sonnentag and Fritz, 2007). Work-related rumination as a concept differs from the concept of psychological detachment in that it refers solely to the negative side of thinking about work during off-job time, e.g., concentrating on problems. Low psychological detachment predicts emotional exhaustion over time (Sonnentag et al., 2010) and mediates the relationship between job demands and fatigue at work (Kinnunen et al., 2011). Irritation including both cognitive and emotional aspects has been found to mediate the effects of social (also supervisor-related) stressors on depressive symptoms (Dormann and Zapf, 2002). We assume leaders to be in an important position either to promote or impede employees' process of mentally switching off from work-related issues during free time, although as far as we are aware leader impact in this regard has not yet been examined. In the present study we are interested to investigate whether transformational leadership style contributes to employees becoming psychologically detached from work-related problems during their off-job time, which means displaying low-level work-related rumination.

### *The present study*

The present study bases its hypotheses on the Job Demands–Resources (JD-R) model (Bakker and Demerouti, 2007) and on the COR theory (Hobfoll, 1989) behind it. In light of the JD-R model and earlier evidence on the positive effects of transformational leadership, we consider transformational leadership to be a work-related resource for an employee. Resources in the JD-R model refer to those aspects of the job that are “functional in achieving work goals, reduce job demands and the associated physiological and psychological costs, and stimulate personal growth, learning, and development” (Bakker and Demerouti, 2007, p. 312). According to the JD-R model, lack of job resources, for example, lack of transformational leadership, is linked to ill-being, of which depression is one symptom.

We approach the mediating role of personal resources from the perspective of resource gain, as proposed in the COR theory (Hobfoll, 1989), the basic tenets of which the JD-R model utilizes. The JD-R model has been seen as an application of the more general COR theory in the work context (Hakanen et al., 2008). Firstly, the basic tenet of COR theory is that people strive to obtain, retain, protect, and foster resources and actual or potential loss of these valued resources is threatening to them and causes stress (Hobfoll, 1989, 2002). Secondly, the theory posits that resources are linked to other resources and thus “there is a general tendency for enrichment of resources among those who possess a solid resources reservoir” (Hobfoll, 2002, p. 318). Opposite to the resource accumulation is loss spirals, which develop due to a lack of resources to offset loss (Hobfoll 1989; see also Demerouti et al., 2004). The idea of personal resources has actually been incorporated into the JD-R model (Bakker and Demerouti, 2007; Xanthopoulou et al., 2007, 2009), and the suggestion of job resources fostering the development of personal resources (resiliency beliefs) has gained support in several studies (Hakanen et al., 2008; Mauno et al., 2007; Weigl et al., 2010; Xanthopoulou et al., 2007, 2009).

As the personal resources are not trait-like but susceptible to change, positive leader behavior is assumed to foster the development of personal resources, which in turn are assumed to

be linked to low-level depressive symptoms. Using relevant factors identified in earlier research on health effects of leadership, and drawing on the JD-R model and the COR theory behind it, we present the following hypotheses (see Figure 1):

**Hypothesis 1a.** Transformational leadership is positively related to employees' occupational self-efficacy beliefs.

**Hypothesis 1b.** Transformational leadership is positively related to perceived meaningfulness of the work.

**Hypothesis 1c.** Transformational leadership is negatively related to work-related rumination of employees.

Lack of personal resources can be seen as an antecedent to depressive symptoms and enhancing these resources presumably has an inhibiting or alleviating effect on depressive symptoms. Therefore we assume these personal resources to be linked to low-level depressive symptoms and hypothesize the following:

**Hypothesis 2a.** Occupational self-efficacy of employees is negatively related to their depressive symptoms.

**Hypothesis 2b.** Perceived meaningfulness of the work is negatively related to employees' depressive symptoms.

**Hypothesis 2c.** Employees' work-related rumination is positively related to their depressive symptoms.

The aim of the study is to examine the mediating role of these factors and therefore the final hypothesis is

**Hypothesis 3.** The relationship between transformational leadership and employees' depressive symptoms is mediated by occupational self-efficacy, perceived meaningfulness of the work, and work-related rumination of employees.

[ Insert Figure 1 around here ]

## Methods

### *Participants and procedure*

The present study is part of a larger research project entitled Rewarding and Sustainable Health-promoting Leadership (Re-Su-Lead) conducted in three countries, but the work at hand concerns only the Finnish sample of that project. To recruit participants, we contacted human resource management in nine municipalities and introduced the research project by sending them a short letter describing the project. Two weeks thereafter we called the human resource managers to elicit their decision on the participation. Four out of nine municipalities agreed to participate in the study. The human resource management in these four municipalities decided themselves which employee groups they would have participate in the study. Our main criterion for participation was that the participants should work in units each having a leader.

The data were collected through paper and electronic questionnaires in the Spring of 2011. The participants completed questionnaires on their work and psychological health and rated behaviors of their immediate supervisors. Of the 891 eligible municipal employees contacted, 557 returned the completed questionnaire after two reminders, yielding a response rate of 62.5%. The only background information available concerning all the employees contacted was gender. The proportion of women in the final sample was found to be significantly higher than the proportion of women among all employees invited to participate in the study (85% vs. 81%). In other words, women were over-represented as study participants ( $\chi^2(1) = 6.076, p < .05$ ). The mean age of the participants was 48 years ( $SD = 9.7$ ). Further description of the sample is provided in Table 1.

[Insert Table 1 around here]

### *Measures*

*Transformational leadership.* The Global Transformational Leadership Scale (GTL; validated by Carless et al., 2000) was used to measure employees' perceptions of transformational leadership. The GTL has shown a high degree of convergent validity in relation to lengthier questionnaires such as the Multifactor Leadership Questionnaire (MLQ) and the Leadership Practices Inventory

(Carless et al., 2000). In addition, the subscales of the better established MLQ measure have been found to be very highly correlated (Lowe et al., 1996) which is an argument to use a shorter, global measure of transformational leadership. The GTL measure includes seven items describing various transformational leadership behaviors, e.g., “My immediate superior treats staff as individuals, supports and encourages their development”. The items were scored from 1 (*to a very small extent*) to 5 (*to a very large extent*).

*Depressive symptoms* were measured with the Major Depression Inventory (MDI) which was validated by Bech et al. (2001). The measure consists of 12 questions concerning the two last weeks, e.g., “How much of the time you have felt low in spirits or sad?”, and rated on a scale from 0 (*at no time*) to 5 (*all the time*). Of the items about being restless or subdued and having reduced or increased appetite only the higher value is counted within the total score.

*Occupational self-efficacy* was measured with the 6-item measure developed and validated by Rigotti et al. (2008). The items (e.g., “I can remain calm when facing difficulties in my job because I can rely on my abilities”) were scored from 1 (*totally disagree*) to 7 (*totally agree*).

*Perceived meaningfulness of the work* was assessed with 3 items (e.g., “Do you feel that the work you do is important?”) from the Copenhagen Psychosocial Questionnaire (COPSOQ), a lengthy questionnaire on psychosocial work characteristics validated by Pejtersen et al. (2010). The rating scale ranged from 1 (*to a very small extent*) to 5 (*to a very large extent*). *Work-related rumination* was measured with the 3-item scale (e.g., “Even at home I often think of my problems at work”) developed and shown to be valid by Mohr et al. (2006). The rating scale ranged from 1 (*totally disagree*) to 7 (*totally agree*). Concerning descriptive study results, all the study constructs were counted as mean-based sum variables.

Gender, age, living with a spouse, and negative life events were tested as covariates, as they have been shown to be linked to depression (Kendler et al., 1999; Kessler et al., 2008; Kessler et al., 2003). The respondents were asked if during the past year they had experienced any major life event which had affected their well-being negatively (like divorce, serious disease, death of a

close one). The response options were 1 (*no*), 2 (*yes, one*), and 3 (*yes, several*). Of the participants, 31% had experienced at least one such life event during the past year.

## **Results**

### *Descriptive results*

The means and reliabilities of the study variables are presented in Table 2. All of the reliabilities are well above the acceptance level of .70. As shown in the table, the correlations among the study variables were as expected.

[ Insert Table 2 around here ]

### *Testing the hypothesized mediation model*

The multiple mediation model hypothesized was analyzed with structural equation modeling (SEM) using Mplus program version 5.2 (Muthén and Muthén, 1998–2008). As a method of estimation we used maximum likelihood with robust standard errors (MLR) except for the bootstrapping method, which requires ML estimation. All study constructs were treated as latent variables. To avoid problems in interpretation due to simultaneous estimation of measurement and structural models, the two-step approach recommended by Anderson and Gerbing (1988) was followed. The first step refers to the analysis of the measurement model(s), and the second step consists of testing the relationships of the latent constructs in the structural model.

The measurement models (M1–M4) tested are shown in Table 3. As seen in the table, the measurement models of depressive symptoms (M3), all the mediators (the 3-factor model M2) as well as of all the five study variables together (M4) provided acceptable fit to the data. However, the measurement model of transformational leadership (M1) showed higher than acceptable values of RMSEA. Nevertheless, the whole 5-factor model (M4) showed good model fit, and therefore we decided to maintain a confirmatory line and not to modify the transformational measure. The factor loadings of all the measures were acceptable varying from .53 to .91. Only one of the transformational leadership items had a lower loading (.33) than other items. In all, the analysis of the measurement model showed that the constructs in the model on the one hand were each one-

dimensional, and on the other hand were separate from each other. Thus the analysis supported both construct validity and divergent validity of the measures and further model estimation was justified.

[ Insert Table 3 around here ]

Altogether we estimated three SEM models. Following the guidelines of Anderson and Gerbing (1988), first a null model (in which all parameters between the constructs are fixed at zero) was estimated. The null model was compared with the full mediation model (in which there is no direct path between transformational leadership and depressive symptoms). Finally, the full mediation model was compared to a partial mediation model (in which there is a direct path between transformational leadership and depressive symptoms in addition to the paths via the three mediators). These three sequential nested models were compared with each other with the scaled Satorra-Bentler  $\chi^2$ -difference test.

The comparisons, shown in Table 4, showed that the full mediation model fitted the data significantly better than the null model, but when the full mediation model was compared to a partial mediation model the result of this comparison was non-significant. In other words, adding the direct path from transformational leadership to depressive symptoms to the model did not make the model fit significantly better than the fully mediated model. In addition, we found the direct path to be non-significant when scrutinizing the paths in the partial model. Thus, the fully mediated model is to be considered as the best fitting one.

[ Insert Table 4 around here ]

The models compared were estimated without any covariates. However, knowing the common risk factors for depression we wanted to control for the effects of background factors (gender, age, living with a spouse and negative life events) in the final model. Of these, gender and negative life events proved significant and were thus included in the final model shown in Figure 2. The model explains 36% of the variance in depressive symptoms. All the regression paths were statistically significant but they were not very strong. As seen in the figure and supporting

hypotheses 1a-1c, transformational leadership is positively associated with occupational self-efficacy and perceived meaningfulness of the work and negatively associated with work-related rumination. Occupational self-efficacy and perceived meaningfulness of the work in turn are negatively related to depressive symptoms of employees, whereas work-related rumination is positively related to depressive symptoms. Thus, hypotheses 2a-2c also received support.

Hypothesis 3 concerns the testing of the indirect effects. For this purpose methodologists have recommended bootstrapping, a nonparametric resampling procedure, as the sampling distribution of indirect effects is seldom normal (Bollen and Stine, 1990; MacKinnon, 2004; Preacher and Hayes, 2008). Bootstrapping is a computation-intensive method in which an empirical sampling distribution is created through resampling the original sample (Hayes, 2009). Taking into account the non-normal distribution of depressive symptoms and in order to access robust estimates of the indirect effects, we used Mplus program to compute recommended bias-corrected confidence intervals for the indirect effects based on bootstrap (MacKinnon, 2004; Preacher and Hayes, 2008). The specific indirect effect is significant if no zero occurs in the confidence interval.

Based on a bootstrap of 5,000 resamples and the standardized results with 95% confidence interval (CI), all of the tested indirect effects between transformational leadership and depressive symptoms were significant. Hypothesis 3 was thus supported. The standardized estimate for the indirect effect was -0.070 (95% CI = -0.116 to -0.023) for occupational self-efficacy, -0.036 (95% CI = -0.070 to -0.003) for perceived meaningfulness of the work, and -0.041 (95% CI -0.078 to -0.004) for work-related rumination. The standardized estimate for the total indirect effect was -0.147 (95% CI = -0.203 to -0.091).

## **Discussion**

The purpose of this study was to examine the role of mediators in the negative relationship between transformational leadership and depressive symptoms among employees. With the design of multiple mediation we aimed to investigate specific indirect effects, that is, unique contributions

of the three mediators conceptualized as personal resources of employees. The results supported our hypotheses (1–3) regarding the relations between transformational leadership, the expected mediators, and depressive symptoms. The results revealed firstly that the relationship between transformational leadership and depressive symptoms of employees is fully mediated through these mediators. Secondly, regarding the specific mediator effects, the results showed that all of the three mediators occupational self-efficacy, perceived meaningfulness of the work and work-related rumination have unique mediating effects. Overall, although the indirect effects were significant, they were not strong.

The fully mediated model yielded the best fit to the data. This result implies that leaders are unlikely to influence depressivity in employees directly, but they do affect the antecedents enhancing or reducing employees' susceptibility to depressive symptoms. Therefore the role of personal resources, resiliency beliefs (see Xanthopoulou et al., 2007) or psychological capital (Luthans et al., 2006), all of them capturing the same kind of phenomena, is extremely important in investigating how leaders affect their employees. This is in line with the resource gain and resources loss processes outlined in COR theory (Hobfoll, 1989) and the idea of transformational leaders changing the way their followers feel and think about themselves in relation to their work (Bono and Judge, 2003). Initial level of job resources (in our study transformational leadership) either furthers the resource gain process through personal resources, thereby preventing depressive symptoms, or conversely, lack of favourable leader behaviors diminishes the preventing potential of personal resources thereby increasing the likelihood of depressive symptoms. Thus transformational leadership appears to fit well into the definition of job resources in the JD-R model. Job resources in the model are not only important in their own right but also reduce the psychological costs resulting from job demands (Bakker and Demerouti, 2007).

Most earlier studies have examined mediators between leadership and employee well-being outcomes based only on single mediator models. However, leaders' influence on employee well-being is believed to be mediated through several factors. Thus multiple mediator models are

needed to avoid specification errors, that is, biased parameter estimates resulting from omitted mediators (Mathieu, 2008; Preacher and Hayes, 2008). In this study the mediators were used as separate constructs in the same model, which enables us to judge the independence of the effect of a given mediator. Confidence intervals based on the bootstrap method showed that all the three mediators between transformational leadership and depressive symptoms have a unique mediating effect on a statistically significant level. That is, the three mediators indeed have effects independent of each other.

Our results replicate the result of Munir et al. (2010) on the negative relationship between transformational leadership and depressive symptoms of employees, and are in accordance with earlier findings on the mediating role of self-efficacy and meaningfulness of work in the relationship between transformational leadership and employee well-being and job satisfaction (Nielsen et al., 2009; Nielsen and Munir, 2009). Our result regarding the mediating role of work-related rumination provides new insight into how transformational leaders may exert their health and well-being promoting influence. Followers of transformational leaders may experience less psychological strain at work, so that they have less need to ruminate on work-related issues in their leisure time. Even if transformational leaders are demanding in terms of quality and provide their followers with challenges (Bass and Avolio, 1994), their followers have shown lower burnout and stress levels (Corrigan et al., 2002; Hetland et al., 2007; Seltzer et al., 1989; Sosik and Godshalk, 2000). This may be due to the supportive and empowering leadership behaviors (e.g., Carless et al., 2000) they exhibit besides the high performance expectations. It is important to note that the mediating effect of work-related rumination, albeit small, is independent of the effects of self-efficacy beliefs and meaningfulness of work which transformational leaders are known to influence.

Besides its strengths, this study has some limitations which have to be taken into account in interpreting the results. First, like most studies so far on transformational leadership and employee well-being, this study is cross-sectional and based on data from a single source (the employees

themselves). It is entirely possible that employees who are prone to depressive symptoms and low in well-being rate their leaders more negatively than their colleagues who are high in well-being. On the other hand it can be argued that in occupational health it is in any case the employee's subjective experience of one's leader that matters, and not any objective rating. Indeed, a recent study supports the notion that it is the individual-level rather than group-level appraisals that matter in this regard (Kelloway et al., 2012). Second, the gender constellation in our sample deserves attention. Our sample was female-dominated and it remains unclear whether the same kind of mediators would work for male participants alone.

As far as we know, the longitudinal studies investigating leader behavior (van Dierendonck et al., 2004) or transformational leadership (Nielsen et al., 2008; Nielsen and Munir, 2009; Tafvelin et al., 2011) in relation to employee well-being have failed to find direct effects from leader behavior to employee well-being over time (with baseline level of well-being controlled for). This fact possibly reflects the stability of the constructs and the timely challenges in measuring posited cause and effect in leader-employee effect chains. Despite this, reciprocal effects between leader behavior and employee well-being have been suggested (van Dierendonck et al., 2004; Nielsen et al., 2008). As leaders and employees interact as human beings, it is almost self-evident that they both affect each other. Therefore, it is also possible that leaders do behave in a different ways towards people who are high or low in well-being, as noted by van Dierendonck et al. (2004).

More high-standard longitudinal studies are needed to tackle the questions of the causal order of leader behavior and employee health and well-being. As suggested by Tafvelin et al. (2011), it is important to investigate the tenure of the leader-employee relationship as a possible moderator of the longitudinal relationship between leader behavior and employee well-being. In addition, knowing that employees differ in terms of their personal resources and liability to various psychological health problems, a central theme for future psychological studies on the health effects of transformational leadership is to ascertain for which kinds of employees

transformational leadership behaviors are particularly important in relation to occupational health and performance.

The results of the present study add to the existing findings of positive relations between transformational leadership and employee health and well-being. This study specified the ways in which transformational leaders may exert their positive influence even in relation to such a pervasive psychological impairment as depressive symptoms.

### **Implications**

The scientific implications of the present study are two-fold. First, the results emphasize the role of work-related personal resources, i.e., individually structured resiliency beliefs, in the relation between leaders and their employees' psychological health. Second, the results stress the importance of examining several mediating factors between leadership and employee outcomes *simultaneously* to ascertain their unique mediating effects. Regarding implications for practice and society, this kind of knowledge has indeed practical value. Depression and depressive symptoms in working life cause human suffering in the form of impaired quality of life and, from the economic point of view, reduced productivity and lost working days. Besides the etiology of depression containing risk factors outside the work context (see e.g., Couser, 2008), the work context also merits attention in this regard. We suggest that our results also have managerial implications and encourage leaders to engage in transformational leadership behaviors to enhance employee self-efficacy, perceived meaningfulness of the work, and switching off from work-related problems at off-job time. These factors are relevant in preventing or alleviating already existing depressive symptoms of employees.

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Table 1. Background factors of the study participants.

Background factor		%
Occupational field (the four largest)	Education	21.4
	Child care	21.5
	Institutional cleaning	19.0
	Institutional catering	11.7
Highest completed education	Comprehensive school	13.0
	Upper secondary degree (vocational qualifications or matriculation examination)	40.0
	Special vocational qualifications	4.9
	Bachelor's degree or equivalent	18.1
	Master 's degree or equivalent	22.4
	Licenciate's or doctor's degree	1.6
Employment relationship	Permanent employment contract	94.7
	Full-time work ( $\geq 35$ h/week)	77.2
Domestic sphere	Cohabiting with a spouse	75.5
	Child / children at home	49.8

Table 2. Means, standard deviations and zero-order correlations of the study variables. Cronbach's alphas are shown on the diagonal.

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1 Transformational leadership	3.13	0.87	(.91)				
2 Occupational self-efficacy	5.67	0.78	.23***	(.79)			
3 Meaningfulness of work	4.13	0.72	.25***	.40***	(.80)		
4 Work rumination	3.02	1.57	-.11**	-.21***	-.17***	(.78)	
5 Depressive symptoms	0.59	0.66	-.14**	-.34***	-.27***	.46***	(.90)

\*\*  $p < .01$ , \*\*\*  $p < .001$

Table 3. Fit indices of the measurement models.

Model	$\chi^2$	<i>p</i>	df	CFI	TLI	RMSEA	SRMR
M1 Transformational leadership	126.733	0.000	14	0.949	0.923	0.120	0.043
M2 Mediators, the 3-factor model	103.457	0.000	51	0.964	0.953	0.043	0.049
M3 Depression	76.064	0.000	35	0.970	0.961	0.046	0.031
M4 All constructs, the 5-factor model	716.351	0.000	367	0.944	0.938	0.041	0.053

Note. RMSEA = root mean square error of approximation, SRMR = the standardized root mean square residual, TLI = Tucker Lewis Index, CFI = Comparative Fit Index. Taking the sample size ( $N = 557$ ) and model complexity into account, significant *p*-values are to be expected and acceptable values for CFI and TLI are  $> .92$ , for RMSEA  $< .07$ , and for SRMR  $\leq .08$  (Hair et al., 2010).

Table 4. Model comparison and the final model fit indices.

Models	$\chi^2$ (df)	RMSEA	CFI	TLI	Model comparison
					Satorra-Bentler scaled $\Delta\chi^2$
Null model	812.272 (372)	0.046	0.929	0.923	
Full mediation model	717.688 (368)	0.041	0.944	0.938	1 vs. 2 $\Delta\chi^2(4) = 88.428^{***}$
Partial mediation model	716.351 (367)	0.041	0.944	0.938	2 vs. 3 $\Delta\chi^2(1) = 1.337^{ns}$
Full mediation model with significant covariates	830.580 (422)	0.042	0.937	0.931	

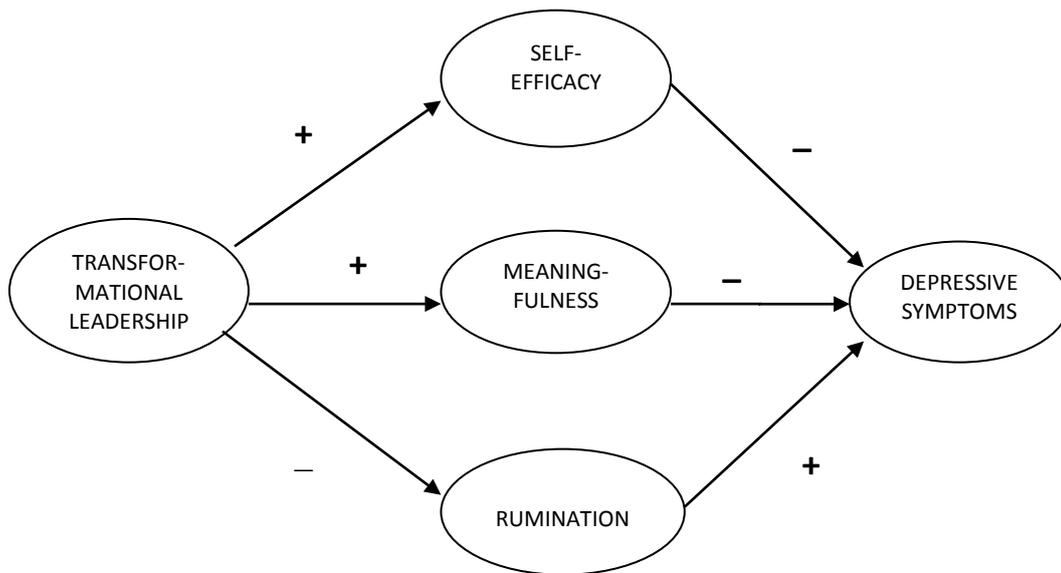


Figure 1. Hypothesized multiple mediation model.

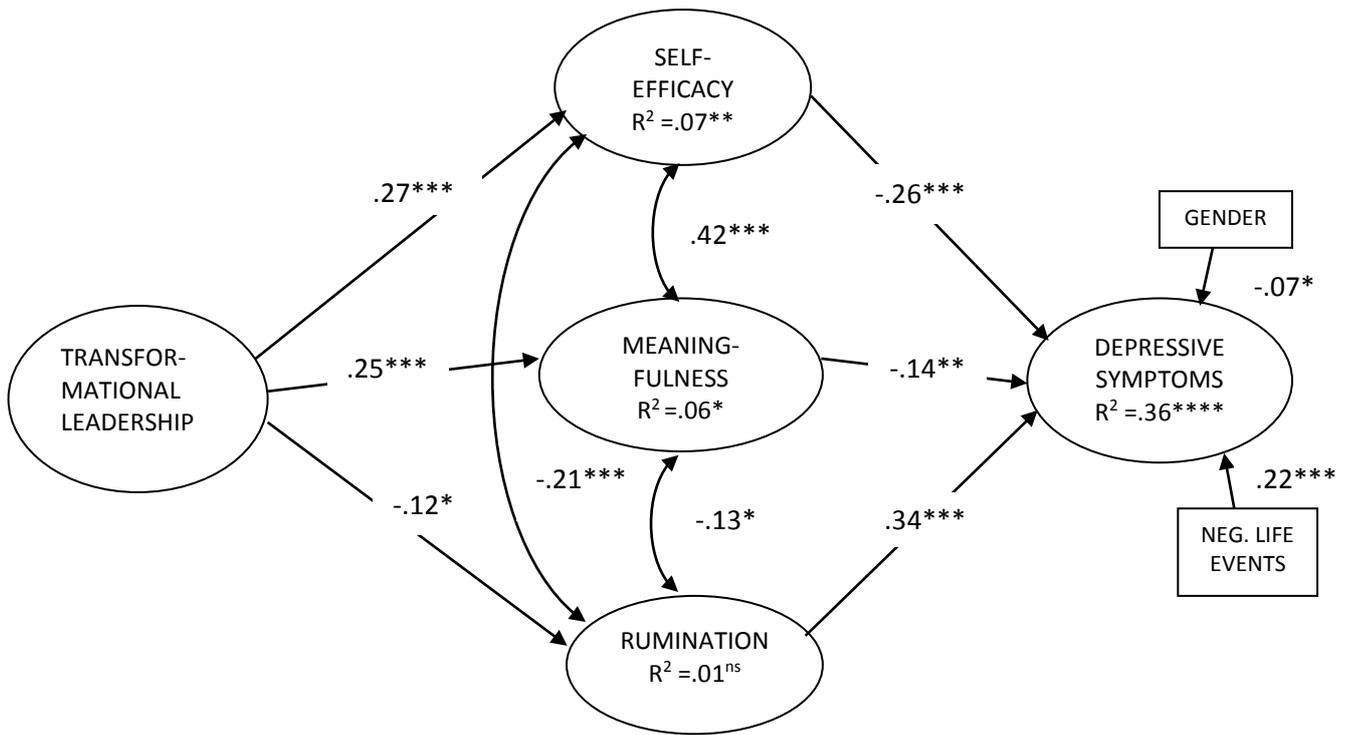


Figure 2. Multiple mediation model with standardized estimates for regression paths and explanation rates of the endogenous variables.

Note. Gender is coded 0 = female, 1 = male. Negative life events are coded 0 = none, 1 = one or several. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$