

# Leadership, followers' mental health and job performance in organizations: A comprehensive meta-analysis from an occupational health perspective

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## Summary

The present meta-analysis investigates the associations between leadership, followers' mental health, and job performance by taking into account different groups of leadership constructs including transformational leadership, relations-oriented leadership, task-oriented leadership, destructive leadership, and leader–member exchange. Six categories of mental health-related outcomes are considered representing both negative and positive mental health states of followers, namely, affective symptoms, burnout, stress, well-being, psychological functioning, and health complaints. Meta-analytic models are used to estimate the association between these categories of leadership and mental health. Our results reveal that transformational leadership, a high quality of relations-oriented and task-oriented leadership behavior, as well as a high quality of leader–follower interaction are positively associated with mental health. In contrast, destructive leadership is strongly negatively associated with mental health. In addition, the mediation effects of leadership on job performance *via* mental health are estimated. Results partially support the mediating role of mental health concerning the relationship between leadership and job performance. Our results emphasize the importance of leadership as an occupational health factor, and they may serve as basis for the planning and designing of occupational health policies and interventions despite existing research limitations. Copyright © 2016 John Wiley & Sons, Ltd.

**Keywords:** leadership; mental health; meta-analysis; occupational health; performance

## Introduction

Organizational leadership research has traditionally focused on the identification of causal mechanisms linking leaders' traits and behaviors to an improvement in key organizational performance indicators (e.g., net sales, profit margins, and return on investment) and/or employee performance or motivation (e.g., organizational commitment, job satisfaction, employee turnover; *cf.* Fleishman et al., 1991). Much leadership research has been guided by two fundamental goals: to develop selection criteria for “effective” leadership personnel and to design training programs for the improvement of leader performance in organizations (Bass & Bass, 2008; Yukl, 2013). Even large-scale international studies such as the GLOBE research program have been conducted, in particular, to identify which specific leader characteristics and behaviors contribute to or impede “effective leadership” (House & Javidan, 2004), and facilitate “successful” managerial leader selection, counseling, and training in multinational organizations (Dorfman, Hanges, & Brodbeck, 2004). Because of the popularity of this research paradigm,

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leadership theories usually have proposed different mechanisms that may optimize this process and the attainment of pre-determined organizational goals, without taking into account (1) the potential occupational health risks or benefits associated with leadership (Nyberg, Bernin, & Theorell, 2005) and (2) the association of such health risks and benefits with performance.

However, the findings of recent reviews indicate that, from an occupational health perspective, leadership is not a neutral element; it may also be an important determinant of work-related health outcomes in organizations (Gregersen, Kuhnert, Zimmer, & Nienhaus, 2011; Kuoppala, Lamminpaa, Liira, & Vainio, 2008; Nyberg et al., 2005; Skakon, Nielsen, Borg, & Guzman, 2010). It has been acknowledged, for instance, that the potential effects of leaders on followers' mental health may result not only from the exposure to positive leadership styles such as inspiring and motivating leadership (Kuoppala et al., 2008), but also from destructive leadership behaviors such as aggression and authoritarianism (Schyns & Schilling, 2013; Tepper, 2007). Nonetheless, these reviews within the leadership literature have several limitations restricting their generalizability concerning their implications for followers' mental health. (1) They investigate how "effective" a set of leadership behaviors is in enhancing organization-related outcomes such as job satisfaction, job well-being, job performance, sick leave, disability pension, employee retention, and work alienation (Kuoppala et al., 2008; Nyberg et al., 2005). Thus, strictly speaking, they are not focusing on followers' mental health outcomes, but rather on the potential financial consequences of followers' outcomes for the organization. (2) Three reviews comprise narrative descriptions of research results, and therefore do not include meta-analytic estimates of associations (Gregersen et al., 2011; Nyberg et al., 2005; Skakon et al., 2010; Tepper, 2007), which limits the conclusions that can be drawn (for instance about the extent of concrete health risks due to adverse health consequences, about possible interventions, etc.). (3) The two existing meta-analyses investigate the associations of specific and relatively narrow leadership behaviors (destructive leadership; *cf.* Schyns & Schilling, 2013), or only of selected leadership styles (transformational leadership, consideration, and initiating structure; *cf.* Kuoppala et al., 2008), and, consequently, do not consider a large body of research conducted on the basis of various leadership concepts and processes such as emotional and interactional aspects of leadership. Moreover, the scope of mental health outcomes included in the meta-analysis of Kuoppala et al. (2008) is limited and comprises only well-being and job satisfaction, but does not consider, for instance, negative health states (e.g., symptoms of burnout, depression, anxiety, etc.). In addition, the authors do not report how they classified the studies in their different leadership categories. Therefore, a comprehensive meta-analysis focusing exclusively on specific mental health outcomes, and describing explicitly how leadership is being conceptualized and categorized in different leadership styles and/or behaviors, is still missing.

The current state of the literature emphasizes the need for changing the research focus from "effectiveness" of leadership to a more balanced approach that also includes occupational health implications and, for instance, allows planning and designing evidence-based occupational health policies and interventions. In fact, mental health has become one of the major factors determining early retirement, disability benefits, absenteeism levels, and large societal costs such as productivity losses and medical treatment costs in the Organisation for Economic Co-operation and Development countries (OECD, 2010). Different psychosocial working conditions seem to be key factors that increase the probability of disability pension and several mental health outcomes (Samuelsson, Ropponen, Alexanderson, & Svedberg, 2013; Stansfeld & Candy, 2006). Thus, the focus on the mental health implications of leadership corresponds to the urgent need of national health systems for identifying the most efficient ways of reducing the burden of psychosocial risks and, at the same time, enhancing potential resources encountered in the work environment.

The scarcity of specific studies focusing on the health effects of leadership is partly due to the fact that managers, organizational psychologists, and industrial engineers have usually been the targeted audience of leadership research. Hence, the main contribution of the present meta-analysis is to bridge these two research areas, namely, occupational health and leadership research, by focusing on the mental health of followers given a particular leadership style, and by studying the mediation of leadership styles on job performance *via* mental health. In order to overcome the existing limitations of current leadership research and the previous reviews mentioned earlier, and

to establish the link between leadership research and occupational health, we set the following four objectives. First, we investigate the magnitude of the associations between leadership and mental health to determine whether and how strongly different leadership styles correlate with different mental health states of followers. Second, in contrast to the two existing meta-analyses in this topical area (Kuoppala et al., 2008; Schyns & Schilling, 2013), we do not *a priori* restrict our analysis to specific leadership topics or styles and synthesize the associations of leadership and mental health for a much larger array of leadership constructs including behavioral, cognitive, emotional, and interactional aspects of leadership. The research body analyzed in the present meta-analysis is therefore substantially larger and more comprehensive than in previous systematic reviews. Third, on the basis of explicit definitions of leadership and mental health (refer to the next section), we develop a more detailed and transparent classification of antecedents and criterion constructs than previous research, and include several outcomes ranging from cognitive-affective symptoms to positive mental health states. Fourth, we estimate the mediation effects of leadership on job performance *via* mental health by taking into account not only the results obtained in the present investigation, but also previous meta-analytic findings on the relationship between mental health and employee performance. Thus, we enlarge the scope of previous meta-analyses and systematic reviews by providing new evidence of the potential consequences on job performance, which may result from the association between leadership and mental health.

## The Present Research

As stated earlier, leadership is usually defined as the social influence process between leaders and followers that facilitates the accomplishment of organizational goals (Yukl, 2013). On the other hand, mental health is conceptualized in this paper as a continuum of neurophysiological and cognitive states related to thinking, mood and emotion, and behavior. Based on the conceptualization of the World Health Organization concerning mental health (WHO, 2001), this continuum is assumed to take different values on a scale ranging from negative to positive mental health states, which are defined in terms of two complementary approaches: a negative, symptom-based approach and a positive mental health approach, respectively (Figure 1). The symptom-based approach qualifies mental health in terms of presence (or absence) of psychological symptoms and

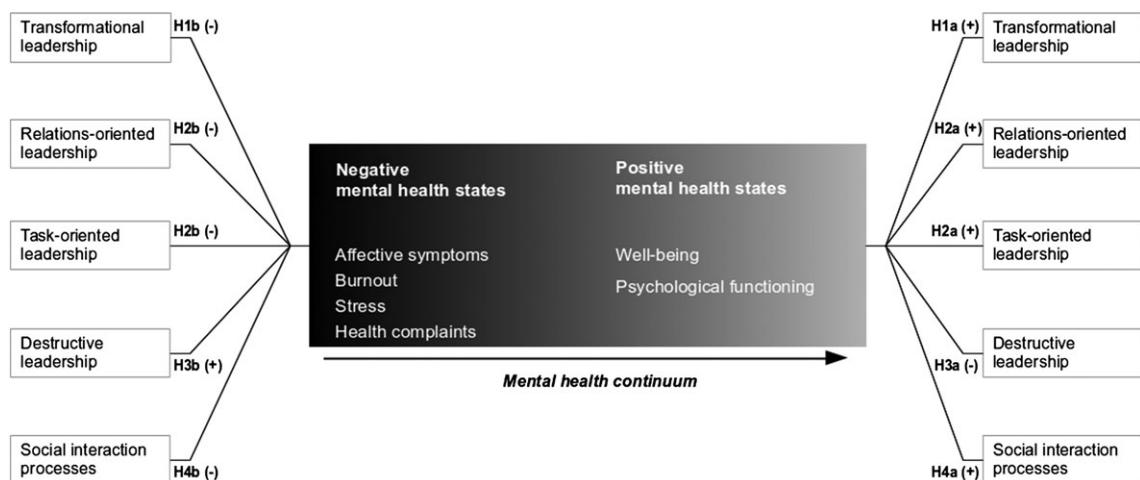


Figure 1. Variables, hypotheses, and relationships between leadership and mental health.

their severity (e.g., as represented in the International Classification of Diseases [ICD-10] system). Positive mental health can be defined as complete psychological functioning, that is, the ability and capacity to flourish, a positive sense of well-being, and the ability to cope with normal or stressful life situations (e.g., ability to love and work, efficient problem solving, and self-efficacy; Vaillant, 2003; WHO, 2001). For instance, even though mood fluctuations are a normal psychological phenomenon in everyday life, they may be associated either with a negative (clinically relevant) mental health state such as depression in case of severe and sustained depressive mood (i.e., a depressive episode), or with a positive mental health state in case of increased work motivation (e.g., when experiencing flow).

The etiology of both negative and positive mental health is multifactorial and includes a wide array of social, psychological, and biological factors ranging from life events, chronic exposure to adverse social circumstances, the quality of working and living environments, deficient coping skills, low self-esteem, poor nutrition, physical trauma, to physiological or genetic factors (Mrazek & Haggerty, 1994). Hence, an association between leadership and followers' mental health can be expected based on the assumption that leadership, as a central social influence process, may be conceived as a social factor involved in the etiology of mental health disorders or the promotion of positive mental health. Even though the number of different classifications of leadership is enormous, we considered three major categories of leadership theories in the present study. This account was informed by existing leadership taxonomies (Bass & Bass, 2008; Derue, Nahrgang, Wellman, & Humphrey, 2011; Fleishman et al., 1991; Yukl, 2013): (1) transformational/charismatic leadership theories emphasizing the role and characteristics of leaders, (2) leadership behavior theories, especially relations-oriented and task-oriented leadership, as well as destructive leadership, and (3) social interaction theories and/or leadership phenomena covering the quality of dyadic relationships, communication processes, emotional interaction and cognitive processes of the leader–follower interaction. In the following sections, the main research hypotheses of the present study are derived by taking into account the core assumptions of some of the most influential leadership theories in each of the categories mentioned earlier.

### *Transformational leadership*

In general terms, the theory of transformational leadership assumes that a specific type of leaders, that is, transforming leaders, is able to motivate followers to transcend their own self-interests for the sake of organizational goals, and to accept and achieve challenging and difficult goals that followers would not have pursued otherwise (Bass, 1985a). In spite of some ambiguities regarding the main concepts and underlying mechanisms proposed by the theory (Yukl, 1999), it is generally assumed that the behaviors of transforming leaders have a large effect on followers' job performance, job satisfaction, and feelings of trust and admiration toward the leader. The effects of transforming leaders on followers are described by the following phenomena: charisma or idealized influence of the leader on the follower, inspirational leadership, intellectual stimulation, and individualized consideration (Bass, 1985a, 1985b). A previous meta-analysis focusing on leadership criteria reported statistically significant correlations of transformational leadership and several follower outcomes including job satisfaction, satisfaction with leader, job motivation, and job and group performance (Judge & Piccolo, 2004). Three narrative reviews have concluded that transformational leadership is also strongly associated with mental health-related outcomes of followers such as lower levels of stress and burnout, and higher levels of well-being (Gregersen et al., 2011; Skakon et al., 2010; Weberg, 2010). Moreover, several studies have found some evidence supporting the notion that transforming leaders are effective in inspiring the attainment of common goals, eliciting positive motivation toward common goals, and feelings of trust (Gellis, 2000; Sosik & Godshalk, 2000; Wolfram & Mohr, 2009). Therefore, we formulate the following hypothesis:

*Hypothesis 1:* Transformational leadership will be (a) positively associated with positive mental health and (b) negatively with negative mental health (Figure 1).

### *Relations and task-oriented leadership behaviors*

The relations-oriented and task-oriented leadership behaviors and similar behavioral constructs such as consideration and initiating structure were proposed in early leadership research. For the most part, relations-oriented behaviors include concern for the problems of subordinates, participative leadership, conflict-solving abilities, and respect and support toward subordinates, among others (Bass & Bass, 2008). Task-oriented behaviors concern, for instance, a well-defined assignment of tasks to subordinates, an emphasis on the achievement of groups' goals, a focus on production and organizational deadlines, performance planning and monitoring, and the clarification of work tasks (Yukl, 2013). A previous meta-analytic review including a large body of research found statistically significant correlations between consideration and initiating structure and follower job satisfaction and motivation (Judge, Piccolo, & Ilies, 2004). Some studies suggest that relations-oriented and task-oriented leadership behaviors correspond to some extent to resources that leaders may offer to their employees. For instance, the task-oriented leadership scale of Nyberg and colleagues implies that most of the leadership effects on health are represented as resources concerning an efficient information flow, a clear formulation of goals and sub-goals, and sufficient power in relation to responsibilities (Nyberg et al., 2009). The associations between relations-oriented and/or task-oriented leadership behaviors and mental health-related outcomes including affective symptoms and burnout have also been mediated by several job resources such as the level of social support, trust in the leader and the organization, social climate, job control at work, and reduction of role ambiguity and role conflict (Bobbio, Bellan, & Manganelli, 2012). Even though relations-oriented and task-oriented leadership behaviors are heterogeneous and cover different aspects of leader behavior, it is possible to broadly conceptualize the causal pathways of both behavioral types of leadership within the general framework of the Job-Demands-Resources Model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Hence, certain relations-oriented and task-oriented leadership behaviors may represent different resources that enhance employees' ability to complete work tasks, improve the availability of material means to accomplish those tasks, and help employees solving potential disturbances at the production, administrative, and social level of the organization. Hence, we predict:

*Hypothesis 2:* Relations-oriented and task-oriented leadership behaviors will be (a) positively associated with positive mental health and (b) negatively with negative mental health (Figure 1).

### *Destructive leadership*

Destructive leadership may be defined as leadership behavior that violates social norms in the organization or implies aggressiveness toward subordinates such as abusive supervision, authoritarianism, manipulative behaviors, aggressiveness, narcissism, or psychopathic behaviors of leaders (Einarsen, Aasland, & Skogstad, 2007; Tepper, 2007). Even though most leadership research is concerned with "effective" leadership behaviors, several findings reveal that destructive leadership is not uncommon in the workplace environment, and may have serious consequences for both organizational stability and performance as well as followers' health (Aasland, Skogstad, Notelaers, Nielsen, & Einarsen, 2010; Kelloway, Barling, & Hurrell, 2006). Recent findings suggest that diverse destructive leadership behaviors are mediated by followers' stress reactions, emotional exhaustion, supervisor-directed deviance, and conflict with co-workers (Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007; Wu & Hu, 2009).

From an occupational health perspective, destructive leadership thus represents a risk factor to the extent that it may deteriorate mental health by at least two mechanisms related to the workplace aggression components of the construct. The first mechanism relates to the existence of a threatening or stressful situation (e.g., aggression, supervisor bullying, or other forms of potentially harmful behaviors), which elicits a hyperactivity of neuroendocrine processes including heightened alertness, and affective or neurotic symptoms (Contrada, 2010; Dallman &

Hellhammer, 2010). The second mechanism concerns the specific negative emotions and behaviors of followers elicited when they are confronted with aggressive supervisors. Retaliation and displacement of aggression are two of the most common phenomena elicited by aggression (Berkowitz, 1989; Dollard, Doob, Miller, Mowrer, & Sears, 1939). Retaliation (or revenge) refers to an aggressive response of followers toward aggressive leaders (Hershcovis & Barling, 2010). On the other hand, because followers are commonly “subordinates” (or at least economically dependent on a labor contract), it is not always possible (or advisable) to retaliate. Instead, followers may show displaced aggression, that is, they respond aggressively toward uninvolved and innocent other people such as peers, friends, or partners (Marcus-Newhall, Pedersen, Carlson, & Miller, 2000). Accordingly, given that stress reactions and exposure to aggressive behaviors strongly correlate with and predict negative mental health (Keashly & Harvey, 2006), we expect:

*Hypothesis 3:* Destructive leadership behavior will be (a) positively associated with negative mental health and (b) negatively associated with positive mental health (Figure 1).

### *Social interaction*

Leadership, as a social influence process, implies diverse social interaction processes between leaders and followers. In the present study, however, we will concentrate on the following four major leadership-related phenomena, which commonly arise during social interaction. (1) The quality of relationship between leaders and followers from the perspective of the so-called Leader–Member Exchange (LMX) Theory, which assumes that leaders and followers are able to develop differentiated dyads and mature relationships, which are mutually beneficial (Graen & Uhl-Bien, 1995). (2) Communication processes typically involved in the coordination of work routines such as supervisor feedback, participative decision-making processes, and quality and frequency of communication (Carsten & Uhl-Bien, 2012). (3) Emotional interaction processes associated with empathy, emotional intelligence, and discrete emotions (Rajah, Song, & Arvey, 2011). (4) Cognitive processes involved in the recognition of leadership prototypes and the assessment of agreement between experienced and expected leadership. These cognitive processes play a central role in diverse implicit leadership theories according to which followers compare their leaders to implicit leadership prototypes and act in accordance with the outcome of these comparisons (Junker & van Dick, 2014).

Previous meta-analytic findings have indicated statistically significant associations between a high quality of leader–follower dyadic relationship and objective performance, satisfaction with supervision, overall satisfaction, role clarity, and reduced role conflict (Gerstner & Day, 1997). Further, in a field study with information technology employees, manager empathy was positively associated with employee well-being (Scott, Colquitt, Paddock, & Judge, 2010). There is evidence that leader–follower relationships are strongly charged by positive and negative emotions such as recognition, frustration, feelings of norm violation, and uncertainty (Glasø & Einarsen, 2006). A positive association between supervisors’ approaches to emotion (e.g., leader emotion management and emotional intelligence facets) and subordinates emotional outcomes such as positive affect at work and affective well-being has also been reported (Kafetsios, Nezlek, & Vassiou, 2011; Schraub, Michel, Shemla, & Sonntag, 2014). In addition, the association between the quality of the leader–follower relationship (LMX) and well-being was found to be mediated by the need of fulfillment, organizational self-esteem, and distributive and informational fairness (Hepperlen, 2003; Sparr & Sonnentag, 2008).

The mechanisms proposed to explain the links between a high quality of leader–follower relationships and mental health include the following: (1) eliciting of implicit or explicit positive affective processes during social interaction (Barsade, Ramarajan, & Westen, 2009); (2) reduction of stress-evoking uncertainties or conflicts in the work environment through the availability of informative communication flows; (3) endorsement of expectations concerning sense of justice, belongingness, recognition, and reciprocity (Henderson, Wayne, Shore, Bommer, & Tetrick, 2008);

and (4) enhanced experience of self-efficacy or changes in self-views (Lord, Brown, & Freiberg, 1999). Some research has been conducted relating these mechanisms to several health-related outcomes. For instance, a sustained positive affect may contribute to a reduction of neuroendocrine activity responsible for stress reactions (Stephoe, Dockray, & Wardle, 2009), and depressive symptoms (Greenglass & Fiksenbaum, 2009). A high-quality feedback environment has been related to lower job depression and reduced feelings of helplessness (Sparr & Sonnentag, 2008). Furthermore, the endorsement of expectations concerning a sense of justice is positively associated with positive affect, and negatively with negative affect (Colquitt et al., 2013), and therefore, leader–follower relationships reinforcing a sense of justice may also have similar health implications mediated by affective states as described previously. Finally, increased levels of self-efficacy have been found to be positively associated with higher levels of meaning in life (Lightsey et al., 2014). Hence, we predict:

*Hypothesis 4:* A higher quality of social interaction between leaders and followers regarding LMX, communication processes, emotional interaction, and cognitive processes will be (a) positively associated with positive mental health, and (b) negatively related with negative mental health (Figure 1).

### *Mental health as mediator of the leadership–job performance relation*

As stated in the Introduction section, the relationship between different leadership constructs and job performance has traditionally been the focus of a large body of research. Previous meta-analyses have reported a positive relationship between transformational leadership, relations-oriented and task-oriented leadership, higher quality of LMX, and several indicators of performance such as group and organization performance, and individual overall performance (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012; Judge & Piccolo, 2004; Judge et al., 2004). At the same time, several meta-analytical findings indicate the existence of negative associations between job performance and adverse mental health outcomes such as anxiety, depressive symptoms, job stress, and reduced well-being levels (Ford, Cerasoli, Higgins, & Decesare, 2011). In fact, many psychological disorders (e.g., depression and other affective disorders) are characterized by behavioral and cognitive impairments associated with productivity losses and severe reductions of work ability and employability (Kircanski, Joormann, & Gotlib, 2012). Moreover, based on social cognitive theory and cognitive motivation theories, the view that positive mental health outcomes such as self-efficacy and empowerment are major antecedents of job performance has received ample empirical support so far (Maynard, Luciano, D’Innocenzo, Mathieu, & Dean, 2014; Seibert, Wang, & Courtright, 2011).

Based on our main assumption that leadership is related to positive and negative mental health states (*cf.* Hypotheses 1–4) and based on the relation of positive and negative mental health states and performance (e.g., Ford et al., 2011; Seibert et al., 2011), it can thus be expected that the effects of leadership on performance may be (partially) mediated by the effects resulting from specific mental health states of followers. Hence, we expect:

*Hypothesis 5:* The impact of leadership on job performance will be (partially) mediated *via* mental health outcomes (Figure 2).

### *Situational and organizational determinants of leadership*

The importance of situational and organizational determinants of leadership, such as responsibility and work patterns of a leader’s role, the nature of work tasks, formal organizational rules, the frequency of personal contact, the job experience of followers, gender, and age of leaders and followers, has long been recognized (Stogdill & Shartle, 1948). Commonly, these determinants are treated in empirical research as moderators of the relationship between

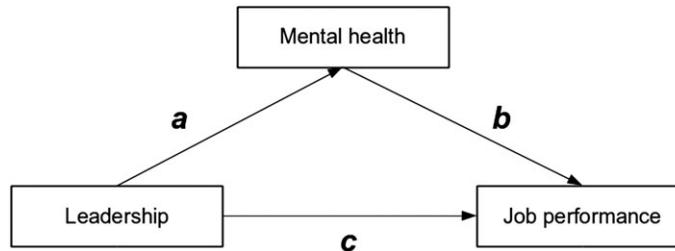


Figure 2. Variables, hypothesis, and relationships of the path analysis.

leadership and criterion variables (Howell, Dorfman, & Kerr, 1986). In particular, the concept of situational leadership states that the more leaders adapt to primary factors of the work situation such as followers' job experience and organizational characteristics, the more effective their efforts will be for attaining organizational goals (Hersey, Blanchard, & Johnson, 2013). However, empirical results evaluating the effects of situational and/or organizational determinants on follower outcomes, especially mental health-related outcomes, are limited and often fail to provide statistical significance (de Vries, Roe, & Taillieu, 2002). Whereas some findings have failed to support the notion that follower developmental level moderates their performance and attitudes (Thompson & Vecchio, 2009), others have found statistically significant moderating effects of the type of organization (private vs. public) on the relationship between transformational leadership and leader effectiveness, for instance (Lowe, Kroeck, & Sivasubramaniam, 1996). Even though a meta-analytic approach for estimating the moderating effects of situational and organizational determinants is feasible, leadership research usually does not provide information on context variables and fails to conceptualize consistent theoretical relationships among central situational variables (Liden & Antonakis, 2009). In spite of this limitation, in the present paper, we make use of available information supplied in the primary studies to explore in a series of additional meta-analytic regressions the potential moderation effects of several situational and organizational factors at the meta-analytic level. In particular, we focus on the role of follower characteristics (age, sex, and occupational class), organizational features (economic sector), and cultural background of the samples.

## Methods

### Study protocol

Studies were identified by screening the following databases: PubMed (PMC), PsycINFO, PsycARTICLES, PSYINDEX (EBSCO), and WISO: Wirtschaftswissenschaften (a German business database). The search was restricted to recent original papers, dissertations, and books published in English or German published between January 2000 and August 2014. Three authors judged the eligibility of approximately 10% of the titles and abstracts independently with an almost perfect inter-rater reliability (Cohen's kappa 0.87 (97% agreement); *cf.* Landis & Koch, 1977). Identical or very similar publications by authors based on the same dataset were not considered. The study selection criteria and the corresponding steps in the selection process are described in detail in the flow diagram depicted in Figure 3. The search strategy was not limited to certain leadership constructs *a priori*; it was rather intended to identify a wide array of different leadership constructs, which were subsequently categorized according to the major categories described subsequently. The complete search strings for each database are reported in the Supporting Information.

### Constructs representing different conceptualizations of leadership

The studies suitable for this meta-analysis could be satisfactorily classified (for the inter-rater consistency, see succeeding text) in the eight major categories of leadership theories described in the Research Hypotheses section,

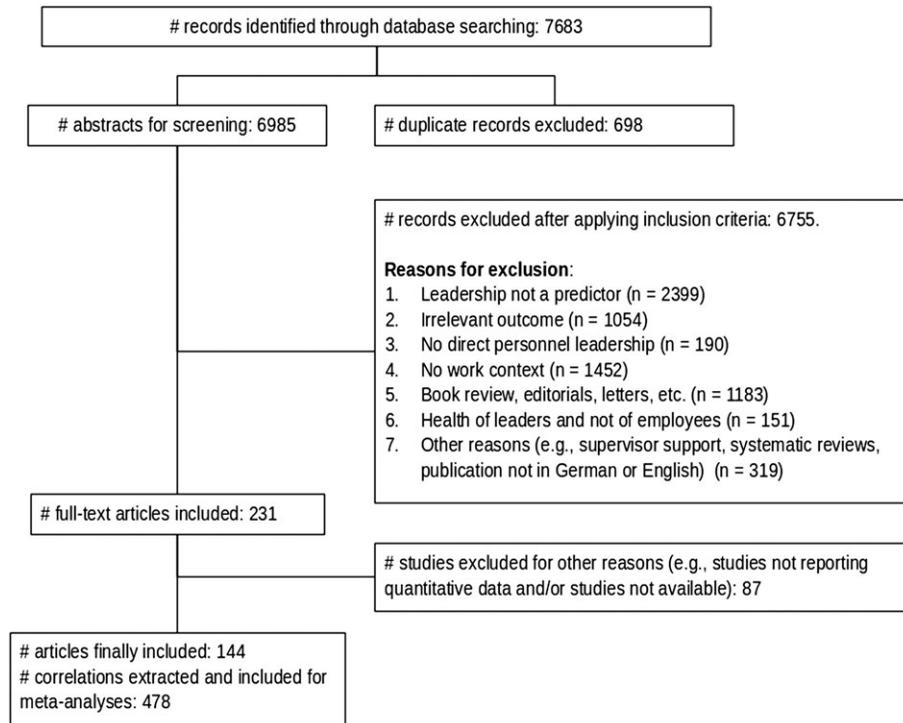


Figure 3. Flow diagram of included studies.

namely: (1) transformational/charismatic leadership theories emphasizing the role and characteristics of leaders; (2) relations-oriented leadership; (3) task-oriented leadership; (4) destructive leadership; (5) LMX; (6) communication processes including quality and frequency of information exchange, availability of communication channels, and degree of interaction availability between leaders and followers; (7) emotional interaction aspects of leader–follower dyads including appraisal of others' emotions, leader's emotional intelligence, and emotional management; and (8) cognitive processes such as recognition of leader prototypes and anti-prototypes in the context of implicit leadership theories.

### *Outcome constructs representing different conceptualizations of mental health*

The operationalizations of mental health utilized in the studies were categorized by means of a meta-classification, which is largely based on the International Classification of Diseases and Related Health Problems (ICD-10) and the International Classification of Functioning, Disability and Health in order to make our results comparable with health statistics and relevant national health surveys (WHO, 2002, 2011). Importantly, the mental health outcomes considered here do not represent clinical diagnoses but actually the scores of screening instruments commonly employed in empirical research studying non-clinical samples. The following six meta-categories were defined as the outcome:

1 Affective symptoms. In order to categorize follower outcomes in this meta-category, the description of the ICD-10 disorders under diagnoses F30-F39 (mood and affective disorders) and F40-F48 (neurotic, stress-related, and somatoform disorders) was used as a reference guide. This meta-category maps several symptoms associated with anger, anxiety, depression, emotional health, frustration, and fear.

- 2 Burnout. Even though recent research has confirmed that depression and burnout greatly overlap (Ahola, Hakanen, Perhoniemi, & Mutanen, 2014; Ahola et al., 2005), there are various studies focusing on the burnout construct, and therefore, separate analyses seemed to be more appropriate given its widespread consideration. This category includes burnout both as a single score and as emotional exhaustion (*cf.* Maslach, Schaufeli, & Leiter, 2001).
- 3 Stress. In general, stress defines a neuroendocrine hyper-activation state of response mechanisms to environmental (i.e., physical and/or psychosocial) stimuli (so-called stressors) accompanied by heightened alertness, and affective or neurotic symptoms (Contrada, 2010; Dallman & Hellhammer, 2010). Some of the operationalizations of stress are job tension, job strain, distress, conflict stress, and psychological distress.
- 4 Well-being. Well-being is understood here as the experience of joyful and positive feeling states and personal growth (McDowell, 2010). Hence, well-being includes operationalizations such as hedonic and eudaemonic well-being, work-related well-being, positive emotions, and life satisfaction.
- 5 Psychological functioning. Based on the World Health Organization's conceptualization of functioning, psychological functioning encompasses here the positive aspects of the interaction between a mental condition and environmental factors regarding activities and social participation (WHO, 2002). This category used as a reference guide the International Classification of Functioning, Disability and Health domains D1 to D9. Operationalizations in this category cover empowerment, self-worth, fulfillment, job self-efficacy, among others.
- 6 Health complaints. This category covers various mental health-related operationalizations of general health problems including self-assessments of overall health states, psychosomatic complaints, fatigue and/or sleep problems, and subjective vitality. Higher scores indicate more health problems.

### *Coding of predictors and outcomes*

The coding of studies in the eight leadership categories mentioned earlier (i.e., transformational leadership, relations-oriented and task-oriented leadership, destructive leadership, LMX, emotional interaction, communication, and cognitive processes) was performed by two graduate organizational psychologists blind to the present paper's hypotheses. The coders were not among the authors of this study and were trained for the purposes of the meta-analysis. Raters received a document including (1) a general description of the leadership constructs, and (2) a list of items selected from widely applied measurement instruments (such as the measures of transformational leadership and LMX developed by Rafferty and Griffin (2004), and Graen and Uhl-Bien (1995), respectively). Raters were then asked to classify the studies according to the leadership constructs investigated. Studies reporting results on more than one leadership construct were assigned to multiple categories. Inter-rater reliability and agreement were almost perfect for all studies considered (Cohen's kappa = 0.97 and 97% agreement). The few inconsistencies were resolved by discussion. The original instructions given to the raters, and the sorting and matching of studies and categories are provided in detail in the Supporting Information.

The classification of the operationalizations of mental health consisted of two steps. First, the operationalizations were recorded and listed in the same way as they were described in the original studies. Second, each operationalization of mental health was classified in one of the six meta-categories mentioned earlier (coded 1 to 6). Operationalizations that could not be classified appropriately were assigned to the category "other constructs" (coded 7) and were not included in the present study. Before proceeding with the extraction of information, the soundness of the classification of both leadership and mental health operationalizations was checked independently by the first author and a graduate organizational psychologist who is not among the authors of this study, but who was trained for the purposes of the present meta-analysis and acted as a second coder blind to the present paper's hypotheses. The inter-rater reliability was substantial with Cohen's kappa 0.70 and 74% agreement (Landis & Koch, 1977). Inconsistencies were resolved by discussion. The original instructions given to the raters, and the sorting and

matching of studies and categories are provided in detail in the Supporting Information. Studies that did not report quantitative data were excluded.

### *Statistical analysis*

Meta-analyses were estimated by considering the correlations reported in the studies as measures of effect size. Sampling error of individual correlations was estimated by Fisher's z-transformation. For longitudinal studies, the correlations at baseline were considered in order to reduce losses of study participants because of sample attrition, and to ensure a common time point of reference for comparison of effect sizes between longitudinal and cross-sectional studies. Because study heterogeneity was high (refer to the Results section), as expected given the multiplicity of measure instruments and the possibility of misclassifying predictors and outcomes, random-effects models were estimated if more than one correlation was available in order to take into account additional sources of variance between studies (Viechtbauer, 2005). For models with only one correlation, we report the estimated confidence intervals. Furthermore, the reported correlations were adjusted for measurement unreliability of the predictor and outcome variables (Borenstein, Hedges, Higgins, & Rothstein, 2009; especially, equations 38.2 and 38.3), and all random-effects models were re-estimated using the adjusted correlations. The robustness of estimated correlations against publication bias was assessed by inspecting the funnel plots based on the trim and fill analysis of random-effects models (Duval & Tweedie, 2000; Kepes, Banks, McDaniel, & Whetzel, 2012). The trim and fill method imputes the value of estimates required to achieve a symmetric funnel distribution and serves as a way of examining the sensitivity of meta-analytic results to potential selection mechanisms such as publication bias.

All meta-analytic random-effects regression models were calculated by the restricted maximum-likelihood estimator, an efficient and unbiased estimator (Viechtbauer, 2005). In those meta-analytic regressions where two or more correlations were obtained from a single study, the random-effects model was specified in a linear mixed model nested by publication in order to control for potential stochastic dependence among correlations extracted from a single study (Kalaian & Raudenbush, 1996). Because the direction of the rating scheme of the scales in each study is not always consistent (e.g., a value of 1 can be used either for very positive or very negative mental health outcomes), the sign of the correlation coefficients had to be reversed in a few cases in order to obtain a homogenous interpretation of results for a given combination of predictor and outcome meta-category.

In order to investigate the moderating effects of the situational, organizational, and cultural background factors mentioned in the Present Research section, we performed moderation analyses for those leadership and outcome combinations without missing data. In addition, because moderation analyses for models with only one or two correlations are not well defined, all moderation analyses were based on at least nine correlations in each model. The estimation of moderation parameters was done by meta-analytic mixed-effect models nested by publication. The significance level was adjusted for multiple testing by the Bonferroni method, which takes into account the number of tested models for each moderator. The moderator variables included followers' characteristics (mean age, proportion of females, and main occupational class of the sample: professionals vs. other occupations), organizational factors (economic sector: human health sector vs. other sectors), and the cultural background of the samples (i.e., country where the study was performed: USA vs. other countries). The estimation of regression coefficients was performed by weighted least squares. All calculations and the estimation of meta-analytical models were performed with the programming language and statistical environment R, especially the package "metafor" (Viechtbauer, 2010).

### *Path analysis*

The estimation of the effects mediating the relationship of leadership constructs on job performance *via* mental health was based on the methodology of path analysis as described by Viswesvaran and Ones (1995). For each

leadership construct and health outcome, the structural equation depicted in Figure 2 was defined, and the indirect path  $ab$  was calculated for each mental health outcome and leadership construct. The standard error of the indirect path  $ab$  was estimated by the Sobel test, which shows low bias for sample sizes of at least 50 in single-mediator models (MacKinnon, Fairchild, & Fritz, 2007; Sobel, 1982). The correlation matrix for each path-analytic regression consisted of a  $3 \times 3$  matrix containing the adjusted mean correlations between leadership and mental health obtained in Study 1 of the present paper, and the meta-analytic correlations of leadership, mental health and job performance reported in previous meta-analyses (refer to Table 1 for details). As suggested by Viswesvaran and Ones (1995), we used the integer part of the harmonic mean of the sample sizes reported in the meta-analyses as the sample size for each path-analytic regression (i.e., harmonic mean = 4772, Table 3).

All path analyses were performed with the programming language and statistical environment R, especially the package “lavaan” for the estimation of latent variable models and path-analytic regressions (Rosseel, 2012).

## Results

The mean population correlation coefficients estimated by the meta-analytic random-effects models and additional information on the regression models are reported in Table 2. In addition, the results of the adjusted models are summarized graphically in Figure 4. Because of the comprehensive approach of the present study, and the large amount of information synthesized, a list of all publications included in the meta-analyses and the forest plots of the unadjusted random-effects models are provided in the Supporting Information.

Table 1. Correlations of job performance with mental health and leadership obtained from previous meta-analyses.

Study	$\rho$	$N$	$k$	Predictor of job performance	Performance measure
Correlations of mental health outcomes with job performance					
Ford <i>et al.</i> , 2011	-0.18	4697	14	Affective symptoms (anxiety)	Task performance (not self-rating)
Ford <i>et al.</i> , 2011	-0.16	4598	19	Burnout (depressive symptoms)	Task performance (not self-rating)
Gilboa, Shirom, Fried, & Cooper, 2008	-0.19	22258	114	Stress (role conflict)	Supervisor-rated performance
Ford <i>et al.</i> , 2011	0.37	10754	31	Well-being	Task performance (not self-rating)
Stajkovic & Luthans, 1998	0.34	21616	157	Psychological functioning (self-efficacy)	Task performance
Ford <i>et al.</i> , 2011	-0.09	40188	33	Health complaints (somatic complaints)	Task performance (not self-rating)
Correlations of leadership constructs with job performance					
Wang, In-Sue, Stephen, & Amy, 2011	0.26	6197	41	Transformational leadership	Task performance (not self-rating)
Judge <i>et al.</i> , 2004	0.28	2008	27	Relations-oriented leadership	Group-organization performance
Judge <i>et al.</i> , 2004	0.30	2079	27	Task-oriented leadership	Group-organization performance
Schyns & Schilling, 2013	-0.20	2011	12	Destructive leadership	Individual performance
Dulebohn <i>et al.</i> , 2012	0.34	35322	108	Social interaction (leader-member exchange)	Job performance (no further details supplied)

Note:  $\rho$  = Average correlation of job performance with mental health and leadership adjusted for unreliability.  $N$  = Total sample size, integer part of the harmonic mean  $n = 4772$ .  $k$  = Number of studies included. The operationalization of the corresponding predictor is given in parentheses if a proxy measure was considered (see also Table A2 in the Supporting Information).

Table 2. Estimated mean population correlations between leadership constructs and mental health outcomes.

	<i>N</i>	<i>k</i>	<i>r</i>	$\rho$	LB 95%	UB 95%	<i>Q</i>	<i>p</i> -value <i>Q</i>
Transformational leadership								
Affective symptoms	10 619	25	-0.16	-0.19	-0.25	-0.12	86.62	0.00
Burnout	14 553	28	-0.18	-0.21	-0.26	-0.16	123.30	0.00
Stress	12 096	37	-0.17	-0.20	-0.24	-0.16	70.60	0.00
Well-being	8 798	34	0.27	0.31	0.23	0.40	304.93	0.00
Psychological functioning	13 034	38	0.22	0.26	0.19	0.32	152.90	0.00
Health complaints	32 142	6	-0.20	-0.23	-0.26	-0.20	9.64	0.09
Relations-oriented leadership								
Affective symptoms	15 041	21	-0.21	-0.25	-0.37	-0.14	216.28	0.00
Burnout	8 838	14	-0.33	-0.40	-0.49	-0.31	53.95	0.00
Stress	22 914	22	-0.20	-0.23	-0.31	-0.16	117.53	0.00
Well-being	7 174	15	0.28	0.34	0.27	0.40	45.26	0.00
Psychological functioning	3 971	11	0.29	0.35	0.20	0.49	87.67	0.00
Health complaints	74 593	11	-0.15	-0.18	-0.26	-0.10	49.75	0.00
Task-oriented leadership								
Affective symptoms	3 477	5	-0.17	-0.20	-0.33	-0.06	29.12	0.00
Burnout	2 241	5	-0.09	-0.10	-0.24	0.04	40.11	0.00
Stress	6 693	9	-0.12	-0.14	-0.22	-0.07	30.87	0.00
Well-being	1 322	1	0.45	0.50	0.44	0.56		
Psychological functioning	1 322	1	0.43	0.48	0.42	0.53		
Health complaints	7 239	4	-0.07	-0.09	-0.21	0.04	52.72	0.00
Destructive leadership								
Affective symptoms	10 257	19	0.25	0.29	0.23	0.35	52.32	0.00
Burnout	8 181	16	0.31	0.36	0.30	0.41	56.49	0.00
Stress	6 440	15	0.27	0.32	0.20	0.43	137.83	0.00
Well-being	2 805	7	-0.16	-0.19	-0.29	-0.08	12.84	0.05
Psychological functioning	3 355	8	-0.27	-0.33	-0.49	-0.16	39.21	0.00
Health complaints	1 991	5	0.10	0.11	-0.04	0.27	7.94	0.09
Leader-Member Exchange (LMX)								
Affective symptoms	17 763	38	-0.25	-0.28	-0.40	-0.17	366.65	0.00
Burnout	8 596	16	-0.25	-0.28	-0.39	-0.18	205.18	0.00
Stress	4 678	11	-0.27	-0.30	-0.42	-0.18	119.94	0.00
Well-being	6 921	12	0.39	0.44	0.38	0.51	62.05	0.00
Psychological functioning	4 282	12	0.19	0.22	0.15	0.30	28.89	0.00
Health complaints	28 713	3	-0.33	-0.36	-0.57	-0.15	34.55	0.00
Communication processes								
Affective symptoms	1 634	4	-0.14	-0.17	-0.40	0.06	7.32	0.06
Burnout	1 844	5	-0.26	-0.31	-0.48	-0.13	15.29	0.00
Stress	1 792	2	-0.12	-0.14	-0.42	0.13	21.13	0.00
Well-being	332	1	0.18	0.24	0.09	0.38		
Psychological functioning	200	1	0.07	0.08	-0.08	0.25		
Health complaints	200	1	-0.28	-0.34	-0.51	-0.17		
Emotional interaction								
Burnout	493	1	-0.40	-0.45	-0.55	-0.35		
Well-being	300	1	0.28	0.32	0.19	0.45		
Health complaints	414	2	-0.34	-0.39	-0.50	-0.28	0.06	0.81
Cognitive processes								
Well-being	4 319	11	0.27	0.31	0.26	0.36	55.90	0.00

Note: *N* = Total sample size per model. *k* = Number of studies included. *r* = Unadjusted average correlation.  $\rho$  = Average correlation adjusted for unreliability. LB 95% = 95% lower bound of the adjusted correlation  $\rho$ . UB 95% = 95% upper bound of the adjusted correlation  $\rho$ . *Q* = test statistic for residual heterogeneity of the adjusted models (*k* > 1). *p*-value *Q* = *p*-value for the test of residual heterogeneity in the adjusted models. Total sample size across studies 112 532.

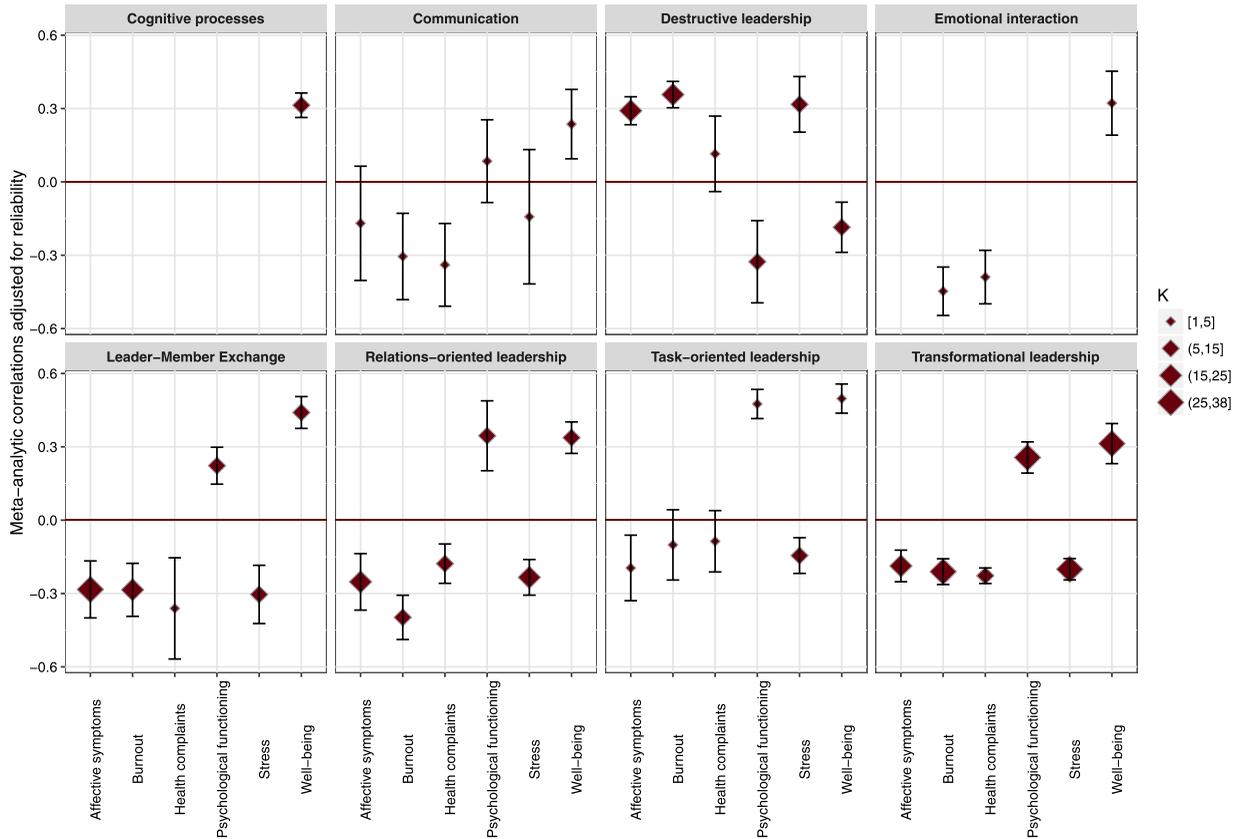


Figure 4. Adjusted mean population correlations and 95% confidence intervals for each predictor outcome combination. The area of the depicted diamonds is proportional to the number of studies *K* in each model. [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)].

Regarding our research hypotheses, the results depicted in Figure 4 generally confirm the hypothesized direction of associations and reveal statistically significant mean population correlations. Transformational leadership is negatively associated with negative mental health states (affective symptoms, burnout, stress, and health problems) and positively associated with positive mental health (well-being, psychological functioning), thereby confirming Hypotheses 1a and b. Supporting Hypotheses 2a and b, a high quality of relations-oriented leadership behavior may act as a protective factor as it is negatively related with adverse mental health states (affective symptoms, burnout, stress, and health problems) and positively with positive mental health states (well-being and psychological functioning). The validity of Hypotheses 2a and b concerning task-oriented leadership behavior is very limited given the few correlations available. However, at least for selected outcomes, higher levels of task-oriented leadership might be associated negatively with stress, and positively with well-being and psychological functioning.

On the other hand, destructive leadership behaviors characterized by higher levels of verbal and non-verbal aggressiveness, disrespectfulness, authoritarian, and punitive behaviors are associated with more frequent affective symptoms, burnout, and stress, and lower levels of well-being and psychological functioning, which confirms Hypotheses 3a and b for all outcomes except for health complaints. These associations are at least as large as the correlations related to traditional leadership conceptualizations such as transformational and relations-oriented leadership, and confirm the existence of substantial mental health risks involving destructive leadership behaviors. Regarding Hypothesis 4a and b, the results obtained for LMX confirm that a higher quality of leader-follower

relationships is associated with higher levels of well-being and functioning, and decreased affective symptoms, burnout, stress, and health complaints. Unfortunately, the low number of correlations for communication processes, emotional interaction, and cognitive processes limits the generalizability of results. Nonetheless, available data for selected models suggest that a higher quality of communication processes and emotional interaction, and a higher agreement between experienced and expected leadership are associated with reduced levels of burnout and health complaints, and on the other side, with increased levels of well-being.

The results of the meta-analytic moderation analysis for each leadership construct described in the Present Research and Statistical Analysis sections (refer to Figure A0 in the Supporting Information) do not suggest substantial systematic or theoretically meaningful evidence for potential moderators of the relationship between single leadership constructs and mental health. Concerning follower characteristics, neither the proportion of females nor the mean age of the sample in the primary studies seem to moderate the relationships between leadership and mental health at the meta-analytic level, because the corresponding regression coefficients are practically zero across all leadership constructs considered. Although it is likely that occupational class determines to some extent the manner in which leadership is being enacted, the moderation analyses do not point to large systematic differences at the meta-analytic level between professionals and workers of other occupations. Neither the economic sector (health sector vs. other sectors) nor the country of publication (USA vs. other countries) seems to have any effect on the meta-analytic estimates.

As stated previously, potential publication bias was assessed by the funnel plots based on the trim and fill method. The corresponding funnel plots are reproduced in full length in Figure A2 of the Supporting Information. The results suggest that, albeit some outliers and wide 95% confidence envelopes, the distribution of estimates is rather symmetric. The fact that only few imputed values were necessary in order to attain symmetry indicates that publication bias is unlikely in our meta-analysis. Moreover, the raw meta-analytic estimates are practically identical with the estimates obtained with the imputed values obtained with the trim and fill method (orange and black lines in the funnel plots of Figure A2, respectively). This finding indicates that the reported estimates of the present meta-analysis are rather robust.

Concerning Hypothesis 5, the estimated indirect effects *ab* of the path analyses reported in Table 3 support at least to some extent the assumption that the main effect of leadership on job performance is mediated by mental health outcomes. The majority of mediation effects are larger than zero, and the explained variance between mediated and reduced models is overall significant. The partial mediation effects reported in Table 3 (column 2) are substantial, especially for job stress, well-being, and psychological functioning. Moreover, the larger the partial mediation effects, the more important the indirect role of leadership could be as an occupational health factor for reducing the negative effects of affective symptoms, burnout, and job stress, and for enhancing the positive effects of well-being and psychological functioning on job performance. On the other hand, we found that four of the estimated indirect effects in Table 3 are very small for some leadership constructs and mental health outcomes such as relations-oriented and task-oriented leadership and health complaints.

## Discussion

The results of the present meta-analytic regressions confirm not only the existence of statistically significant mean population correlations between leadership and several mental health-related outcomes of followers, but also the hypothesized direction of these associations. These results are based on a classification scheme of leadership constructs showing almost perfect inter-rater reliability and agreement. Moreover, we found at least partial support for mental health outcomes as a mediator of the leadership–job performance relationship. Even though there is almost certainly some reverse causation involved in the link between mental health and leadership (e.g., van Dierendonck, Haynes, Borrill, & Stride, 2004), the path analyses revealed for mental health outcomes such as job stress, well-being, and psychological functioning substantial partial mediation effects. Because these indirect

Table 3. Results of the Sobel test of the path-analytic regressions described in Figure 2.

	<i>ab</i>	LB <sub><i>ab</i></sub> 95%	UB <sub><i>ab</i></sub> 95%	$\rho$	$\Delta R^2$
Transformational leadership					
Affective symptoms	0.030	0.020	0.040	-0.19	0.023
Burnout	0.030	0.020	0.030	-0.16	0.014
Stress	0.030	0.020	0.040	-0.19	0.023
Well-being	0.090	0.080	0.110	0.33	0.077
Psychological functioning	0.080	0.070	0.090	0.34	0.087
Health complaints	0.010	0.000	0.010	-0.08	0.001
Relations-oriented leadership					
Affective symptoms	0.030	0.020	0.040	-0.19	0.015
Burnout	0.020	0.010	0.030	-0.16	0.002
Stress	0.030	0.020	0.040	-0.19	0.017
Well-being	0.090	0.080	0.100	0.33	0.062
Psychological functioning	0.100	0.080	0.110	0.34	0.067
Health complaints	0.010	0.000	0.010	-0.08	0.001
Task-oriented leadership					
Affective symptoms	0.030	0.020	0.030	-0.19	0.018
Burnout	0.010	0.010	0.020	-0.16	0.017
Stress	0.020	0.020	0.030	-0.19	0.022
Well-being	0.120	0.100	0.140	0.33	0.043
Psychological functioning	0.120	0.110	0.140	0.34	0.050
Health complaints	0.000	0.000	0.010	-0.08	0.003
Destructive leadership					
Affective symptoms	-0.040	-0.050	-0.030	-0.19	0.019
Burnout	-0.040	-0.050	-0.030	-0.16	0.009
Stress	-0.040	-0.050	-0.030	-0.19	0.018
Well-being	-0.060	-0.070	-0.050	0.33	0.088
Psychological functioning	-0.100	-0.110	-0.090	0.34	0.084
Health complaints	-0.010	-0.010	0.000	-0.08	0.003
Social interaction					
Affective symptoms	0.030	0.020	0.040	-0.19	0.010
Burnout	0.020	0.010	0.030	-0.16	0.005
Stress	0.030	0.020	0.040	-0.19	0.008
Well-being	0.100	0.080	0.110	0.33	0.040
Psychological functioning	0.060	0.050	0.070	0.34	0.074
Health complaints	-0.020	-0.030	-0.010	-0.08	0.002

Note: *ab* = Sobel test of the mediation of leadership via mental health on job performance (LB 95% = lower bound of the mediation effects. UB 95% = 95% upper bound of the mediation effects.  $\rho$  = Average correlation between mental health outcomes and job performance adjusted for measurement error [obtained from Table 1]).  $\Delta R$  = Difference in  $R^2$  between the mediation and the reduced models. For all mediation models,  $df=0$ , and  $p < 0.001$  for all  $\Delta R^2$ .

effects depend on the magnitude of the correlations between mental health and performance, it is worth noting that the positive aspects of mental health such as psychological functioning and well-being might be the most relevant factors concerning the mediated influence of leadership on performance.

This finding seems to be supported by the results obtained in other studies. For instance, Wang, Tsai, and Tsai (2014) found a positive relationship between transformational leadership and creative self-efficacy. However, on the basis of further mediation analyses, the authors conclude that the association between transformational leadership and follower creativity — a proxy for employee performance — is fully mediated by followers' creative self-efficacy — which may be considered a proxy for psychological functioning. These results of Wang et al. (2014) correspond well with our own analyses confirming the substantial mediation effects between transformational leadership, psychological functioning, and job performance reported in Table 3 (for similar results concerning

transformational leadership and overall employee productivity and aggregate task behavior, as well as leader-member exchange quality and job performance, see the primary studies of Menges, Walter, Vogel, and Bruch (2011) and Harris, Wheeler, and Kacmar (2009), respectively).

Despite the fact that the observed associations might partially reflect a common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012), it is rather unlikely that this bias fully accounts for the estimated mean population correlations. In fact, some primary studies that we included in our meta-analysis tested for the presence of common method bias by the single-factor-method or confirmatory factor analysis (Podsakoff et al., 2012), but did not find evidence of a systematic bias in their results (Chi & Liang, 2013; Graves & Luciano, 2013; Johnson, 2008; Liu, Siu, & Shi, 2010; Mackey, Ellen, Hochwarter, & Ferris, 2013; Perry, Witt, Penney, & Atwater, 2010; Walsh, Dupré, & Arnold, 2014). Moreover, some longitudinal primary studies reveal that the systematic associations between leadership and mental health outcomes remain rather constant over time (e.g., Britt, Dickinson, Moore, Castro, & Adler, 2007; Burnfield, 2005; Epitropaki & Martin, 2005; Feldt, Kinnunen, & Mauno, 2000; van Dierendonck et al., 2004), and therefore, they seem to be relatively robust against biases arising from the specific circumstances of measurement at a single time point.

On the other hand, in spite of the fact that most of our research hypotheses have received substantial empirical support, the majority of included primary studies are cross-sectional, and therefore, they do not allow an unequivocal causal interpretation of results because it was not possible to analyze in detail further mechanisms linking leadership variables with mental health such as reverse causation and followers' influence on leaders. Moreover, even though the moderation analyses of situational and organizational determinants failed to provide evidence of moderating effects, the data collection of the leadership context is still inappropriate and insufficient for a more detailed analysis (e.g., missing values for central variables such as frequency of contact with supervisor, tenure time, mean age and proportion of females in the sample, or inaccurate information on occupational class, nature of work tasks, etc.). Future research should assess in detail to which extent leadership and performance vary given a certain level of particular mental health outcomes, or the adequacy of causal linking mechanisms; for instance, the extent to which goal-setting and self-efficacy mechanisms, and affective, cognitive or appraisal mechanisms mediate the relationships reported in the present study (Gross, 2002; Liu et al., 2010; Locke & Latham, 2002). Further aspects requiring more research evidence relate to potential moderating effects of leadership in the relationship between work demands and strain, and to the fact that supervisors and (line) managers may determine to a large extent different working conditions such as time schedules, assignment of tasks, workload and work intensity, formal feedback, and decision-making channels. For example, results reported by Stordeur, D'Hoore, and Vandenberghe (2001) reveal that when controlling for known work stressors such as role ambiguity, physical stressors, and role conflict, leadership dimensions contribute only 2% to the total explained variance (Stordeur et al., 2001). Similarly, role ambiguity was found in one study to fully mediate the association between general leadership and employees' irritation (Gurt, Schwennen, & Elke, 2011). In another relevant study, the relation between leadership behavior (empowerment, distributive, and interpersonal justice) and perceived stress was fully mediated by organizational and psychosocial risk factors including job demands, role expectations, and mastery and control at work (Testad, Mikkelsen, Ballard, & Aarmland, 2010).

### *Practical implications*

The present study has synthesized a large body of research evidence concerning the most popular leadership conceptualizations and their associations with major mental health-related outcomes and job performance. In this section, we would like to discuss some practical implications that may result from the present investigation. First, the consistent associations of destructive leadership behaviors and poor mental health should induce organizations to prevent all forms of aggressive or abusive leadership behaviors, because destructive leadership seems not only to deteriorate mental health but also to reduce the levels of positive mental health states. Second, although motivational and inspirational leadership, intellectual stimulation, shared vision, encouragement and empowering leadership, at least as captured to some extent

by the concept of transformational leadership, are usually evaluated regarding their contribution to leader effectiveness, they may also act as instruments of an overall occupational health strategy fostering positive mental health and reducing the risk of mental health symptoms. Leaders may thus motivate followers by providing the necessary tools for increasing job self-efficacy and a higher sense of personal accomplishment. Third, in line with Hypothesis 2, it is desirable that the well-known conceptualizations of task-oriented and relations-oriented leadership are appropriately combined in order to increase the positive effects resulting from each class of behaviors. For instance, whereas task-related behaviors may increase well-being and psychological functioning by means of a well-designed assignment of work tasks and a transparent planning and monitoring of work processes, a relations-oriented leadership may be enacted to reduce negative mental health states associated with followers' socio-emotional needs. Fourth, communicative processes such as feedback, availability of information, and communicative support may reduce role, task, and interpersonal conflicts and contribute to the formulation of efficient problem-solving strategies. At the same time, emotion-related processes such as leaders' emotional intelligence skills and appraisal of emotions are also important to enhance, because they may play a fundamental role in emotion regulation, stress coping, and fostering of positive affect experiences in occupational contexts (Rajah et al., 2011).

### *Limitations*

The present study has several limitations. First, model heterogeneity could not be explained by further moderation analyses based on theoretical considerations of situational and organizational determinants, and adjusting for several study characteristics. Because heterogeneity,  $I^2$ , is a function of the random effects  $\tau^2$  and the sampling variance  $s^2$ ,  $I^2 = \tau^2 / (s^2 + \tau^2)$  (Higgins & Thompson, 2002), the large heterogeneity observed in this review means that the between-study variance is substantially larger than the total within-study variance. The relatively large differences among observed correlations are likely to depend on the measurement instruments, the cultural setting (e.g., Kara, Uysal, Sirgy, & Lee, 2013; Muhonen, Jönsson, Denti, & Chen, 2013; *cf.* forest plots in the Supporting Information), and some degree of misclassification of predictor and outcome constructs, rather than on the study characteristics considered in the sensitivity analysis reported in the Results section. Nonetheless, a visual inspection of the funnel plots included in Figure A2 in the Supporting Information indicates that most of the correlations included in each random-effects model show a similar pattern of associations. This suggests that the meta-categories of predictors and health outcomes are indeed capturing systematic relationships between leadership and followers' mental health, in spite of the fact that the point estimates of the single studies fluctuate largely around the mean population correlation. Second, there are also methodological weaknesses in the studies included in this review such as deficient study design (e.g., overuse of convenience samples, deficient reporting of sampling procedures and sample characteristics), estimation biases due to the widespread omission of important control variables (e.g., age, gender, branch, company size, etc.), and a paucity of longitudinal studies. These weaknesses may imply an overestimation of effects and an underestimation of total variance, but they could not be avoided as they directly concern the body of included primary studies. Third, the generalizability of results for some combinations of leadership constructs and mental health outcomes is limited by the reduced number of correlations available. This was particularly common for leadership phenomena associated with communication processes, emotional interaction, and cognitive processes. Finally, the mediation analyses are mostly based on cross-sectional data, and therefore, results must be interpreted with due caution.

## **Conclusions**

Leadership has been usually investigated as an instrument for accomplishing strategic management goals. The present meta-analysis suggests that leadership most likely is an important occupational health factor in its own right, irrespective of its instrumental value. Leader behaviors and characteristics of the leader–follower relationship may act both as a preventive and a risk factor of mental health. Moreover, our mediation analyses indicate that mental health levels may significantly influence the levels of organizational performance and productivity. These results

emphasize the need of involving and targeting leadership in the design and implementation of occupational health policies and interventions, and may contribute to the ongoing research on health-specific leadership behavior within the broader context of workplace health promotion (Franke, Felfe, & Pundt, 2014).

## Acknowledgements

We would like to thank Alexander Saupe for supporting the process of literature search and identification. Thanks are also due to Elena Schleu and Marc Mertes who performed the coding of studies in the present meta-analysis.

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