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Investigating Occupational Well-Being and Leadership From a Person-Centred Longitudinal

Approach: Congruence of Well-Being and Perceived Leadership

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Abstract

The overall objective of this longitudinal study was to investigate the association between perceived leadership and employee well-being from a person-centred approach utilizing the principles of the conservation of resources theory (Hobfoll, 1989, 2002). First, we aimed to identify latent classes (i.e. subgroups) of employees that demonstrated similar mean levels of stability and change in occupational well-being (i.e. vigour and emotional exhaustion) across a mean time-lag of 14 months. Second, we ascertained whether employees in the latent well-being classes differed in their ratings of transformational, authentic, and abusive leadership behaviours across time. Self-report data were obtained from Finnish employees ($N = 262$, 88% women) working in a variety of municipal jobs. Using factor mixture modelling, four latent well-being classes were identified, indicating good (79%), low (10%), improving (8%), and deteriorating (3%) well-being. Congruence in both level and change of well-being and perceived leadership was found. That is, employees with better well-being across time reported more favourable leadership behaviours at both time points, and changes in employee well-being were reflected as changes in perceived leadership. The close relationship between perceived leadership and well-being is discussed from both a leader-centric (leadership as a resource) and a follower-centric (well-being as a resource) perspective.

Keywords: occupational well-being, vigour, exhaustion, leadership, person-centred approach

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Investigating Occupational Well-Being and Leadership From a Person-Centred Longitudinal

Approach: Congruence of Well-Being and Perceived Leadership

Leadership in relation to employee well-being has been the focus of increasing research interest in recent years. Several studies have demonstrated that positive leader behaviours such as support, feedback, empowerment, integrity, and quality of communication are related to high levels of affective well-being and low stress levels in employees (see Kuoppala, Lamminpää, Liira, & Vainio, 2008; Skakon, Nielsen, Borg, & Guzman, 2010, for reviews). Despite the growing body of research on this topic, the relative scarcity of longitudinal research still limits understanding of the association between leadership and employee well-being. Moreover, research has thus far ignored the heterogeneity of employees with respect to occupational well-being and its development across time. Consequently, there is a lack of knowledge concerning what happens to employee ratings of leadership when employee well-being improves or declines. As changes in occupational well-being may occur in diverse patterns, sample-level analyses do not capture these changes.

To address this gap, we adopted a person-centred approach (e.g. Wang, Sinclair, Zhou, & Sears, 2013) in the present longitudinal study and sought to identify subgroups (i.e. latent classes) of employees demonstrating similar patterns of occupational well-being across time. Subsequently, we investigated whether the employees in these subgroups differed in their ratings of transformational, authentic, and abusive leadership behaviours. Investigating several leadership styles, both positive and negative, in the same study enabled us to address the potential differences in their relations with the patterns of occupational well-being. We based our study on the job demands-resources model (Bakker & Demerouti, 2007) and the conservation of resources theory (Hobfoll, 1989, 2002).

Leadership in the Job Demands-Resources Model

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In the job demands-resources (JD-R) model, job resources refer to physical, psychological, social, or organizational 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 & Demerouti, 2007, p. 312). Consistent with this definition, transformational and authentic leadership styles are posited to foster growth, learning, and development among employees, and accordingly can be considered as job resources for an employee. According to the motivational process outlined in the JD-R model, job resources enhance work engagement, a fulfilling work-related state of mind, which in turn links to favourable organizational outcomes (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004).

Transformational leadership depicts visionary, empowering, and intellectually stimulating leaders who emphasize common goals and are respected by their staff (Bass, 1985; Carless, Wearing, & Mann, 2000). Transformational leadership theory (Bass, 1985) includes several components that can be of motivational and affective value for employees. The well-documented, systematic association between transformational leadership and employee well-being (for reviews, see Arnold & Connelly, 2013; and Skakon et al., 2010) may, for instance, relate to an enhanced sense of meaning (e.g., Ghadi, Fernando, & Caputi, 2013) and optimism (Tims, Bakker, & Xanthopoulou, 2011) among employees due to transformational leaders conveying an attractive vision of the future and their strong sense of mission. Furthermore, transformational leaders inspire their followers by encouraging novel approaches to old problems. Importantly, while nurturing social cohesion among their followers, transformational leaders also attend to followers’ individual developmental needs and concerns, thus providing psychosocial support (Bass, 1985). Regarding the instrumental role of transformational leadership in the achievement of work goals by employees, a large

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body of empirical research supports the functionality of transformational leadership with respect to employee performance (for a review, see Wang, Oh, Courtright, & Colbert, 2011).

Authentic leadership is a relatively new concept and refers to leaders who display high levels of self-awareness and understanding of their own leadership, present their authentic selves to others, and act in accordance with deep personal values while encouraging diverse views (Walumbwa et al., 2008). In a theoretical model presented by Gardner et al. (2005), authentic leadership is mirrored in authentic followership, which in turn is posited to lead to such positive follower outcomes as trust, engagement, and well-being. This model relies particularly on the self-awareness and self-regulatory aspects of authentic leadership, which followers are assumed to model after their leaders.

By nurturing authenticity, authentic leaders help their followers to become more self-concordant at work and to find their true talent (Gardner et al., 2005). Concerning self-awareness, authentic leaders exhibit increased self-perception and insight in relation to their values, strengths and weaknesses, and impact on others (Walumbwa et al., 2008). Self-regulation, in turn, refers to several features, such as actions guided by the leader's self as opposed to external pressures; unbiased processing of information before coming to conclusions; and transparent, open, and truthful relations with others (Gardner et al., 2005; Walumbwa et al., 2008). As these behaviours are likely to build up open and trusting relationships between leaders and followers, authentic leadership is evidently a resource for an employee. Authentic leadership presumably plays an intrinsic motivational role as a job resource, as authentic behaviours can be considered valuable in their own right, without an overt link to goal attainment (Schaufeli & Bakker, 2004).

Both transformational and authentic leaders demonstrate a high level of integrity and clarity in their behaviours (Gardner et al., 2005; Walumbwa et al., 2008), which in itself may lessen the burdening feelings of contradiction among employees. Overall, it appears that

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transformational and authentic leadership are apt to facilitate a sense of meaningfulness among employees, which in turn promotes psychological health and well-being (e.g., Ghadi et al., 2013). Despite some similarities, the theories behind these leadership styles differ, particularly with respect to the processes of influence and follower development. While transformational leaders typically use symbolism, charisma, and inspirational appeal to influence others and are described as developing their followers into leaders, authentic leaders focus on developing their followers toward authenticity (Gardner et al., 2005; Walumbwa et al., 2008). Their impact on others is mostly based on their character and personal example (Walumbwa et al., 2008). Although authentic leadership is close to transformational leadership, at least two studies have reported results indicating that these are distinct constructs (Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008; Walumbwa, Luthans, Avey, & Oke, 2011).

Aside from these constructive leadership behaviours, destructive forms of leadership have attracted increased research interest in recent years (Schyns & Schilling, 2012). In the present study we address *abusive supervision* which is defined by Tepper (2000, p. 178) as “subordinates’ perception of the extent to which the supervisors engage in sustained display of hostile verbal and nonverbal behaviours, excluding physical contact”. Albeit displaying emotion, abusive supervision stands in sharp contrast particularly with authentic leaders’ strong self-awareness and self-regulative behaviour (Walumbwa et al., 2008). Abusive supervision is assumed to require sustained psychological effort on the part of the subordinate and is, therefore, associated with physiological and/or psychological costs, consistent with the definition of job demands in the JD-R model (Bakker & Demerouti, 2007). According to the JD-R model’s health impairment process, high job demands exhaust employees’ mental and physical resources and eventually lead to health problems (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). Concerning the strain resulting from abusive supervision, the

experience of unfairness may explain employee reactions. Abusive supervision implies a breach of the interactional form of organizational justice, in other words, a lack of respect and propriety on the part of the organizational representatives (Tepper, 2000; see also Schyns & Schilling, 2012).

Leader- and Follower-Centric Views on Leadership and Employee Well-Being

While associations between leadership and employee well-being have been consistently found in cross-sectional studies, longitudinal studies have thus far not indicated leadership effects on well-being beyond the stability of well-being (Nielsen & Munir, 2009; Nielsen, Randall, Yarker, & Brenner, 2008; Tafvelin, Armelius, & Westerberg, 2011; van Dierendonck, Haynes, Borrill, & Stride, 2004). In fact, reverse causality (or an affect-based appraisal) seems to be at least as likely as normal causality. For example, in Nielsen et al.'s (2008) study, employee well-being actually predicted an increase in transformational leadership, but not vice versa. Furthermore, de Lange et al. (2004) found supervisor support and emotional exhaustion of employees to be in a reciprocal relationship, and job satisfaction predicted an increase in social support from supervisors across time. These results demonstrate the complexity of the association between leadership and employee well-being, and indicate that both leadership and employee well-being may serve as an antecedent for favourable or unfavourable development.

Although evidence of leader impact on employee well-being from longitudinal studies has been rather weak, research thus far can be considered leader-centric, meaning that it has concentrated on leaders influencing followers. The leader-centric perspective is consistent with the JD-R model, incorporating leadership as a resource or, alternatively, as a demand, and proposes that leadership influences employee health and well-being. However, in leadership research, the follower is becoming an integral part of the dynamics of leadership and a focus of growing research attention (Uhl-Bien, Riggio, Lowe, & Carsten, 2014). The

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follower-centric line of research considers the followers' mind-set as a starting point for the evaluation and acceptance of a leader and addresses the characteristics of followers in explaining follower reactions (e.g. Felfe & Schyns, 2010; Howell & Shamir, 2005).

This perspective is of particular importance in employee self-report studies in which leadership is operationalized as employee appraisals of leadership behaviours. While it is true that "leader behavior can only have an effect when it is perceived by followers" (Schyns & Schilling, 2012, p. 3), theoretical and empirical work on followers' affective and cognitive information processing suggests that there is more to employee ratings on leadership than the actual leader behaviour (e.g. Hall & Lord, 1995). In particular, mood-congruent information processing (e.g. Clore & Martin, 2012) may cause inflated relationships in employee self-reports on leadership (Eatough & Spector, 2013), as is suggested by the results of an experimental study (Johnson, 2009). In addition, affect towards the specific leader, such as liking the leader, has been found to be an important factor in employee ratings of transformational leadership (Brown & Keeping, 2005). Despite the affective implications of well-being, the leader-employee relationship has not gained attention from this perspective.

The follower-centric view is in agreement with the results of available studies that employed a multi-level approach to investigate the leader-employee well-being relationship. These studies have indicated that transformational leadership exerts its effects mainly, if not solely, at the individual level of analysis with respect to employee well-being (Kelloway, Turner, Barling, & Loughlin, 2012; Nielsen & Daniels, 2012). Thus, the fact that subordinates rate a shared leader within work units seems to be considerably less important to well-being outcomes than could be expected. In the present study, on the basis of results from follower-centric research, we essentially considered employee ratings of leadership behaviour as perceptions that, by definition, are subject to the rater's state of mind.

Occupational Well-Being as a Resource

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With respect to occupational well-being, this study focuses on vigour and emotional exhaustion, which refer to the energy aspect of work engagement and occupational burnout. Vigour is considered the key dimension of work engagement (Shirom, 2010) and emotional exhaustion the key dimension of burnout (Maslach, Schaufeli, & Leiter, 2001). As a positive indicator of well-being at work, vigour refers to high levels of energy and mental resilience while working, the willingness to invest in one's work, and persistence in the face of difficulties (Schaufeli, Salanova, González-Romá, & Bakker, 2002). As an indicator of ill-being, emotional exhaustion refers to feelings of overstrain, tiredness, and fatigue resulting from long-term involvement in an overly demanding work situation that depletes an individual's overall energy (Maslach et al., 2001). Although both vigour and exhaustion indicate the level of energy at work, they have been shown to be independent constructs to a certain degree, rather than endpoints of the same energy continuum (Demerouti, Mostert, & Bakker, 2010; Mäkikangas, Feldt, Kinnunen, & Tolvanen, 2012).

In addition to favourable leadership, occupational well-being (i.e. high vigour and low exhaustion) is also considered a resource for individuals in the current study. The resource perspective in this study draws on the conservation of resources (COR) theory (Hobfoll, 1989, 2002), which is a general stress theory addressing resource loss and resource gain as the mechanisms driving stress reactions. COR theory also forms the basis of the JD-R model (Bakker & Demerouti, 2007), which can be seen as an elaborate application of COR theory in the work domain. According to the basic tenet of the theory, people strive to retain, protect, and build entities that they value. These valued factors are labelled resources and they include physical objects, personal characteristics, conditions, and energies. In accordance with the definition of resources in COR theory (Hobfoll, 1989, 2002), energy at work is valued in its own right and aids in striving for other goals in a work context.

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Approaching the leadership-employee well-being association from the follower-centric point of view, well-being can be assumed to be the primary resource. In conditions of high well-being, there are more resources available to invest in the relationship with one's leader, more energy to perform according to expectations, and positive interaction with the leader is more likely, compared to conditions of ill-being. In this way, employees' resources of leadership and well-being are linked to each other. According to COR theory, resources form resource caravans as individuals with strong resource pools can invest their resources for further gains (Hobfoll, 1989, 2002). Likewise, individuals without access to appropriate resources are more vulnerable to increased resource loss as they lack the resources to offset further losses (Hobfoll, 1989, 2002). As a result, resources are gained and lost in cycles. COR theory has been applied in numerous studies on burnout (Lee & Ashforth, 1996) and work engagement (Schaufeli, Bakker, & van Rhenen, 2009).

Leadership Behaviours in Relation to Work Engagement and Burnout Among Employees

Overall, the association between leadership and employee burnout has been examined intensively. Transformational leadership has been found to be associated with low burnout, or specifically, low exhaustion in employees (e.g. Corrigan, Diwan, Campion, & Rashid, 2002; Hetland, Sandal, & Johnsen, 2007; Kanste, Kyngäs, & Nikkilä, 2007). More recently, positive associations between transformational leadership and employee work engagement have also been reported (Ghadi et al., 2013; Salanova, Lorente, Chambel, & Martínez, 2011; Tims et al., 2011). Looking at engagement from a broader perspective, research on leadership and employee engagement has a long tradition, as noted by Parker and Griffin (2011). For example, the motivational effects of transformational leadership have been examined for decades (e.g. Bono & Judge, 2003). Although empirical research on authentic leadership in relation to employee well-being is still scarce, recent studies in nursing have found authentic

leadership to relate positively with work engagement (e.g. Bamford, Wong, & Laschinger, 2013) and negatively with employee exhaustion (Laschinger, Wong, & Grau, 2013).

Concerning the dark side of leadership, a positive association between abusive supervision and employee exhaustion has been reported in several studies (Harvey, Stoner, Hochwarter, & Kacmar, 2007; Tepper, 2000; Wu & Hu, 2009), but so far, abusive supervision seems not to have been examined in relation to work engagement (including vigour). In addition to the specific leadership styles mentioned above, leadership behaviour in the form of social support from supervisors has been negatively linked to employee exhaustion in numerous studies (see Lee & Ashforth, 1996, for a meta-analysis). In sum, based on the existing evidence, there is good reason to believe that constructive (transformational and authentic) leadership behaviours are negatively related to exhaustion and positively related to work engagement among employees, while destructive leadership behaviours (abusive supervision) are positively related to exhaustion and negatively related to work engagement. However, studies on these relationships have been variable-oriented in their approach and thus, have not provided information about subgroups of individuals nor changes in mean values of well-being and leadership across time.

The Present Study

The present study was guided by two aims. First, we aimed to identify latent classes of individuals with similar mean levels and mean-level changes in occupational well-being (vigour and exhaustion) across time. Second, we aimed to ascertain whether the latent classes differed from each other with respect to ratings of transformational, authentic, and abusive leadership behaviours.

With respect to the first aim, the exact number and characteristics of the classes of occupational well-being could not be hypothesized due to the exploratory nature of the study. Nevertheless, it was reasonable to expect that our data on Finnish employees from a variety

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of municipal work units and occupations would be heterogeneous with respect to patterns of occupational well-being over the 14-month follow-up time. Thus, we expected several latent classes to be identified. Regarding level of occupational well-being, prior longitudinal research has reported fairly high values of vigour and fairly low or moderate values of exhaustion in terms of whole sample means (e.g. Dunford, Shipp, Boss, Angermeier, & Boss, 2012; Schaufeli et al., 2009; Toppinen-Tanner, Kalimo, & Mutanen, 2002). On the basis of these results, a large proportion of the sample was expected to display good occupational well-being. In addition, an atypical small class exhibiting ill-being was likely to be found.

With regard to changes in occupational well-being, emotional exhaustion has been reported to vary more between individuals than within individuals across time (Dunford et al., 2012). However, distinct changes in mean values of both burnout and work engagement have been found in studies on subpopulations (Dunford et al., 2012; Mäkikangas et al., 2012). For instance, while Dunford et al. (2012) found burnout to be relatively stable across two years and five measurements, subgroups of job changers displayed changes particularly in emotional exhaustion and depersonalization. Furthermore, a person-centred study conducted among Finnish managers across a time-lag of two years revealed latent subpopulations of exhaustion and vigour separately (Mäkikangas et al., 2012). Latent classes demonstrating strong increases or decreases were rather small, while slight changes in either direction were more common. Based on the aforementioned studies, in the present study we expected distinct changes in occupational well-being to be rather atypical (occurring only in small latent classes) and the stable classes to include a majority of the employees.

Related to the second aim, on the basis of the tendency of resources to link with other resources as proposed in COR theory (Hobfoll, 1989, 2002), we expected that leadership ratings would differ between classes exhibiting different levels of occupational well-being. Specifically, employees displaying good well-being in terms of high vigour and low

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exhaustion would report more favourable leadership ratings (i.e. higher transformational and authentic leadership, and lower abusive supervision), as compared to employees displaying ill-being in terms of low vigour and high exhaustion. Furthermore, according to COR theory, a decreasing or increasing level of well-being can be interpreted as a resource loss or gain, respectively. Accordingly, we tentatively expected that distinct changes in well-being would likely be associated with concurrent changes in perceived leadership. We expected this to apply especially to transformational leadership, due to the affective nature of transformational leadership ratings (Brown & Keeping, 2005; George, 2000).

Methods

Participants and Procedure

The current two-wave study conducted among Finnish employees working in various occupations in the public sector ($N = 262$) is part of an international research project entitled, [Project name removed for anonymity]. As reported previously [Citation removed for anonymity], four out of nine municipalities that were initially contacted agreed to participate in the study. The human resources management in these four municipalities decided themselves which work units they would have participate in the study. Our main criterion for participation was that the participants worked in units that each had a leader.

The questionnaire data were gathered through paper and electronic questionnaires in the spring of 2011 and again in the early summer of 2012 with a mean time-lag of 14 months. The participants completed questionnaires on their work and psychological health and were asked to rate the behaviours of their nearest supervisor. They received information about the goals of the study with the assurance that responses would be treated confidentially and that participation was voluntary.

At the first questionnaire wave (T1), of the 891 eligible municipal employees contacted, 557 returned the completed questionnaire after two reminders, yielding a response

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rate of 62.5% (for T1 sample, see [Citation removed for anonymity]). Of the employees who responded to the first wave questionnaire, 47.2% responded to the second wave questionnaire (T2) (excluding two former subordinates who responded from a leader position at T2). The sample used in the present study consisted of 262 employees who responded to both questionnaires.

The majority of the two-wave participants were women (87.8%), with a mean age of 48.49 years (range = 21–65 years, $SD = 9.09$). The highest completed level of education was comprehensive school for 10.8% of the participants, vocational qualifications or matriculation examination for 43.6%, a bachelor's degree or equivalent for 22.8%, and (at least) a master's degree or equivalent for 22.8%. The most common fields in which participants were employed were childcare (27.5%), teaching (20.2%), cleaning (14.9%), catering (8.4%), and property maintenance (8.4%). Most of the participants (96.2%) had a permanent work contract, and they primarily (75.6%) worked full-time (at least 37 hours a week). Of the 262 employees, 80.2% rated the same leader at both time points.

Attrition Analyses

The attrition analysis revealed that the employees who continued participation at the second wave did not significantly differ from those respondents who left the study after the baseline ($n = 294$, i.e. dropouts) in terms of gender, $\chi^2(1) = 2.932$, $p = .087$, or age, $t(544.731) = -.591$, $p = .555$. However, dropouts and longitudinal cases differed somewhat with respect to education level, $\chi^2(3) = 8.214$, $p = .042$. Employees in the middle range of education (i.e. above comprehensive school but below master's level degrees) were more likely to take part in the study at T2 than were employees with lower or higher educational backgrounds. In addition, we found that dropouts and longitudinal cases did not differ in their ratings of the study variables (i.e. leadership and well-being) at T1. We concluded that the longitudinal data were not seriously biased as a result of those who did not participate after T1.

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Measures

Vigour was measured with three items (e.g. “At my job, I feel strong and vigorous”) from the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006) for which construct validity has been found to be high in Finnish occupational samples (Seppälä et al., 2009). The items were rated on a scale from 0 (*never*) to 6 (*every day*).

Emotional exhaustion was measured with three items (e.g. “I feel emotionally drained from my work”) from the Maslach Burnout Inventory-General Survey (Maslach, Jackson, & Leiter, 1996), which has been validated in Finland (Kalimo, Hakanen, & Toppinen-Tanner, 2006). The items were rated on a scale from 0 (*never*) to 6 (*every day*).

Transformational leadership was assessed with the Global Transformational Leadership Scale (GTL; validated by Carless et al., 2000). The GTL measure includes seven items describing various transformational leadership behaviours (e.g. “My immediate superior treats staff as individuals, and supports and encourages their development”). The items were scored from 1 (*to a very small extent*) to 5 (*to a very large extent*).

Authentic leadership was assessed with the 16-item Authentic Leadership Questionnaire (Walumbwa et al., 2008) consisting of self-awareness, relational transparency, balanced processing of information, and internalized moral perspective (e.g. “My nearest superior demonstrates beliefs that are consistent with actions”). The rating scale varied from 0 (*not at all*) to 4 (*frequently, if not always*). Confirmatory factor analyses have revealed that the four subscales form a second-order factor of authentic leadership (Walumbwa et al., 2008).

Abusive behaviours were measured with the shortened abusive supervision scale, consisting of five items that depict active-aggressive interpersonal abuse by the supervisor (e.g. “My nearest superior puts me down in front of others”). The scale was originally developed by Tepper (2000) and the subscales reflecting active-aggressive and passive-

aggressive forms of abusive supervision were discerned by Mitchell and Ambrose (2007).

We used only the active-aggressive scale, as our interest was to include one clearly negative leader behaviour scale. The rating scale was from 1 (*strongly disagree*) to 7 (*strongly agree*).

All the measures were assessed at both T1 and T2. Correlations of the study variables and Cronbach's alphas are presented in Table 1.

(Table 1 about here)

Statistical Analyses

In this study, a person-centred approach was utilized to investigate the heterogeneity of the developmental patterns of occupational well-being. While the traditional variable-oriented approaches describe associations between variables (e.g. regression analysis), person-centred approaches identify distinct naturally occurring categories (i.e. latent classes) of individuals characterized by attributes that are similar within these categories and different between categories (Laursen & Hoff, 2006; Lubke & Muthén, 2005). Thus, person-centred approaches acknowledge the differences among individuals in the relations between variables, which means that characteristics are bundled differently in different types of individuals. In addition, person-centred analyses are well suited for examining group differences in patterns of development (Laursen & Hoff, 2006). After identifying the latent well-being classes, the relations of the classes with perceived leadership behaviours were investigated with traditional variable-oriented methods. Accordingly, the statistical analyses consisted of two main phases.

First, factor mixture modelling with the Mplus program version 7.11 (Muthén & Muthén, 1998–2012) was employed to extract latent classes of individuals that indicate similar patterns of level and change of occupational well-being (i.e. vigour and emotional exhaustion) between the two measurement points. Factor mixture modelling is a model-based method for analysing unobserved population heterogeneity (Lubke & Muthén, 2005).

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Compared with traditional cluster analysis, model-based mixture methods have the advantage that alternative models, and in particular solutions with varying numbers of latent classes, can be compared using several statistical criteria in order to determine the appropriate number of classes (Nylund, Asparouhov, & Muthén, 2007; Wang et al., 2013). A factor mixture model consists of a single categorical latent variable, for which categories represent the clusters of participants in the sample, and one or more continuous latent variables (Lubke & Muthén, 2005).

In the present study, graphs on the intraindividual development in occupational well-being across time indicated that (a) there were considerable differences in the levels of vigour and exhaustion between the study participants, and (b) there were a lot of stable cases. Our primary interest was to capture the change that still occurred in vigour and emotional exhaustion during the study period, despite their relatively high stability. Accordingly, a level factor which models the individual variation in the level of occupational well-being across time was specified for both vigour and emotional exhaustion. Due to the level factors, which govern the stability of the constructs to a certain degree, change in the study variables emerges more clearly. The factor loadings of the observed variables were fixed to 1 at both time points. The method of estimation was maximum likelihood with robust standard errors (MLR).

Several criteria were used to determine the final number of latent classes (Nylund et al., 2007). In terms of the Akaike's Information Criteria (AIC), Bayesian Information Criterion (BIC), and sample-size adjusted BIC, the lowest value indicates the best solution. The Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR), Lo-Mendel-Rubin likelihood ratio test (LMR), and (parametric) bootstrapped likelihood ratio test (BLRT) compare solutions with different numbers of latent classes. A low p -value ($<.05$) indicates that a model with k classes has to be rejected in favour of a model with at least $k + 1$ classes ($k + 1$ refers

to the analysis which produces the test statistic). An entropy value close to 1 indicates that the mixture model has produced highly separated classes (Celeux & Soromenho, 1996). In addition, substantive interpretability and clarity of the class solutions were carefully evaluated when determining the final number of classes.

In the *second* phase, a multivariate repeated measures analysis in a general linear model (GLM) was conducted with IBM SPSS Statistics version 21. First, differences in vigour and exhaustion between the extracted latent classes were statistically tested, and second, the ratings of leadership behaviours were compared between the latent well-being classes. In these analyses, the well-being class was treated as a fixed factor and time as a repeated measure. When an interaction effect was found in the GLM analysis, the change in the variable (well-being or leadership variable) from T1 to T2 was examined with a separate paired sample *t*-test for each well-being class. To investigate the differences in the level of well-being or leadership behaviours between the well-being classes at T1 and T2, a one-way analysis of variance (ANOVA) was used. Differences in background factors were also examined, either with a chi-square test or with an ANOVA.

Results

Identifying Latent Classes of Well-Being

Table 2 presents the alternative class solutions with fit indices, test results, and number of employees per class. With regard to the various tests and indices, we decided to follow primarily the BIC and BLRT, which have been recognized as the most reliable criteria in simulation studies (Nylund et al., 2007; Tolvanen, 2007). The BIC was lowest at the solution of five latent classes. The BLRT became non-significant at the seven-class solution, suggesting that six classes fit the data best. Nevertheless, the significance level of the BLRT declined at the six-class solution, which can be interpreted as indicating partial support for five classes as the final model, in accordance with the BIC. In addition, the best log-

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likelihood values were replicated only up to five classes, indicating that models with more than five classes were not as reliable.

(Table 2 about here)

Considering theoretical meaningfulness and replication of the results, the final decision was made between the four-class and five-class solutions, which were scrutinized and compared. The five-class solution presented two classes that both demonstrated increasing vigour and decreasing exhaustion, one with steep changes ($n = 4$) and the other with more moderate changes ($n = 30$). Because our goal was a parsimonious solution that could be replicated in other studies, and because the class of four participants with steeply improving well-being did not add to the theoretical interpretation of the results, we chose the four-class solution as the final model. In addition, the entropy value was highest at four classes. One of the classes was very small ($n = 7$), but it consisted of exactly the same persons across the 4- to 7-class solutions, which strongly supports the distinct nature of this class. The overall distinctiveness of the four latent classes was ascertained by the average probabilities for most likely latent class membership, which varied between highly acceptable values of .885 and .986.

The selected four-class solution is illustrated in Figure 1, and the mean values of vigour and exhaustion in the whole sample and within the identified latent classes are presented in Table 3. The majority of participants ($n = 207$, 79.0%) belonged to Class 1, which was labelled “*good well-being*”. The participants in this class experienced high vigour and relatively low exhaustion at both measurement points. Class 2 displayed favourable change in well-being in the form of increasing vigour and decreasing exhaustion. Therefore, it was labelled as “*improving well-being*” ($n = 21$, 8.0%). Participants in Class 3 reported rather stable ill-being, as their vigour was low and exhaustion relatively high at both measurement points. Class 3 was thus entitled “*low well-being*” ($n = 27$, 10.3%). Class 4

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(“*deteriorating well-being*”) is a small class that seemed to be a risk group, in that it displayed a clear unfavourable change in well-being in terms of decreasing vigour and increasing exhaustion ($n = 7$, 2.7%).

(Figure 1 about here)

(Table 3 about here)

Multivariate GLM for repeated measures revealed a significant multivariate 4 (class) $\times$ 2 (time) interaction effect (Table 4). At the univariate level, the interaction effect was significant for both vigour and exhaustion. *T*-tests demonstrated significant changes in vigour and exhaustion in the improving and deteriorating classes, as well as an increase in vigour in the good well-being class (Table 3). In addition, the classes differed in the levels of vigour and exhaustion (see Tables 3 and 4 for details). Thus, the classes differed significantly from each other for vigour and exhaustion.

(Table 4 about here)

Finally, to better understand the extracted well-being classes, we analysed whether they differed with respect to background factors. No significant differences emerged in demographic variables (sex, age, education, and living with a partner) or employment-related variables (contract type, work schedule, working hours in a week, and tenure with the leader). The only significant background factor was change of the leader, $\chi^2(3) = 10.733$, $p = .013$, which was most common in the stable low well-being class. In this class, in 11 out of 27 cases (40.7%), a different leader was rated at T2 as compared to T1. In contrast, the proportions in the good well-being class, the improving well-being class, and the deteriorating well-being class were 33 out of 207 (15.9%), 6 out of 21 (28.6%) and 2 out of 7 (28.6%), respectively. Nevertheless, due to the small sizes of the classes, testing of these background variables can be considered only tentative, as there were cells with as few as one participant.

Differences in Leadership Ratings Between the Latent Classes of Occupational Well-Being

Multivariate GLM analysis was used to test the differences in perceived leadership behaviours between the latent classes of well-being (see Table 5 for GLM results and Table 6 for mean values). The results revealed a significant multivariate 4 (class) $\times$ 2 (time) interaction effect, which means that leadership ratings changed differently for the four classes. The univariate results revealed a significant interaction effect for all three of the leadership behaviours.

(Tables 5 and 6 about here)

The participants in the improving well-being class and the deteriorating well-being class reported opposite trends in their leadership ratings (see Figure 2 for transformational leadership as an example). The improving well-being class demonstrated increasing transformational, $t(20) = -.4.795, p < .001$, and authentic leadership behaviours, $t(20) = -2.392, p = .027$, and decreasing abusive leadership behaviours, $t(20) = 2.698, p = .014$, across time. Conversely, the deteriorating well-being class displayed decreasing trends in transformational and authentic leadership behaviours and an increasing trend in abusive leadership behaviours. However, these changes were statistically non-significant, which may be due to the lack of statistical power ($n = 7$). Moreover, transformational leadership behaviours increased in the good well-being class, $t(203) = -3.078, p = .002$, which indicated a significant increase in vigour as well. Thus, leadership ratings seem to change concurrently with well-being, and in the same direction with regard to favourableness of the change.

(Figure 2 about here)

In addition to the interaction effect, a significant multivariate main effect of class on leadership was also found; however, there was no main effect of time, which is in accordance with the results on vigour and exhaustion within the well-being classes. At the univariate

level, classes differed in levels of transformational and authentic leadership behaviours. The pairwise comparisons (performed separately at T1 and T2) revealed that at both time points, participants in the good well-being class reported transformational and authentic leadership behaviours at a higher level than participants in the low well-being class (Table 6). In addition, at T1, transformational leadership was lower in the improving well-being class as compared to the good well-being class. At T2, participants in the deteriorating well-being class rated their leaders significantly less transformational than participants in the good well-being class. Regarding abusive supervision, mean values in the low well-being class were only slightly and non-significantly higher than in the good well-being class. The distribution of abusive supervision was positively skewed, such that a large part of participants indicated little or no abusive supervision.

Discussion

In accordance with the first aim of this study, four latent classes of occupational well-being were identified. Consistent with our expectations, the majority of participants (79.0%) exhibited good well-being in terms of high levels of vigour and relatively low levels of exhaustion. Partly contrasting our expectations, in this most typical pattern of well-being, vigour increased slightly during the study period of 14 months. An atypical pattern of well-being was also found which indicated rather stable ill-being in the form of vigour below the (sample) mean level and exhaustion above the (sample) mean level at both measurement points (low well-being, 10.3%). Regarding change, which was expected to occur in small latent classes, the improving well-being class (8.0%) and deteriorating well-being class (2.7%) demonstrated opposite trends in well-being. Vigour increased and exhaustion decreased in the improving well-being class, while vigour decreased and exhaustion increased in the deteriorating well-being class, which was thus identified as a risk group.

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Regarding the second study aim (comparison of leadership ratings between the latent classes of well-being), we found congruence between well-being and perceived leadership in terms of level and change of the constructs. In accordance with our expectations and COR theory (Hobfoll, 1989, 2002), participants in the good well-being class reported more favourable perceived leadership than participants in the low well-being class with respect to transformational and authentic leadership at both measurement points. However, contrary to the hypothesis, the differences in abusive supervision were not significant between the classes. This may be due to the fact that abusive supervision was unusual and was not experienced at all by most of the participants. Furthermore, participants in the improving and deteriorating well-being classes reported increasing and decreasing transformational and authentic leadership behaviours, respectively. In a corresponding manner, they indicated decreasing and increasing abusive supervision. Hence, in accordance with the gain and loss cycles posited by COR theory (Hobfoll, 1989, 2002), resource gain in the form of favourable change, and resource loss in the form of unfavourable change in well-being, were both associated with congruent changes in perceived leadership as well.

Concerning the role of leadership in changes of occupational well-being, almost a third of employees in the change classes actually rated a different leader at T1 than at T2, denoting the possibility of a real change in leadership behaviour. However, the congruent changes of well-being and perceived leadership could also be replicated in that part of the sample that rated the same leader at both measurement points ($n = 210$). As it may be deemed unlikely that the same leader would change his or her behaviour as strongly as the leadership ratings in the change classes indicate, we interpret the results concerning the change classes to mainly support the notion of occupational well-being as the primary resource, in line with the follower-centric view. However, the change classes comprised only about one-tenth of the

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participants, and we can only speculate theoretically regarding the nature of the obtained relationships.

As expected, the ratings of transformational leadership, in particular, seemed to match the level and change of well-being. Specifically, in the increasing well-being and good well-being classes, transformational leadership increased significantly in congruence with increasing vigour (despite the same leader across time). In contrast, authentic leadership remained stable in the good well-being class. As the good well-being class demonstrated mild exhaustion symptoms in spite of high levels of vigour, it appears that transformational leadership may be better at increasing vigour than decreasing exhaustion. This finding is in line with the JD-R model's motivational path; resources are linked to work engagement (Schaufeli & Bakker, 2004). Moreover, the congruence of transformational leadership and vigour is also compatible with the results of several studies that have found relations between positive, but not negative, emotions and ratings of transformational (Brown & Keeping, 2005; Kelloway, Weigand, McKee, & Das, 2013) or charismatic leadership (Johnson, 2009). In particular, the results of an experimental study (Johnson, 2009) imply the possibility that perceptions of charismatic/transformational leadership may be inflated by a positive affective state of employees.

Altogether, the results of this study strongly suggest that well-being and leadership ratings are tightly interwoven phenomena. While causality of the relations remains an open issue and a variety of mechanisms may exist behind the observed congruence of leadership ratings and well-being, the congruence itself is in accordance with the idea of resource caravans in COR theory (Hobfoll, 2002). According to COR theory, individuals equipped with appropriate resources (e.g. constructive leadership, good well-being) can invest resources for development and growth instead of being forced to defend against further resource losses.

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The observed congruence can be approached from both leader-centric and follower-centric points of view. From the leader-centric perspective and in accordance with the JD-R model (Bakker & Demerouti, 2007), the well-being of employees can be enhanced by motivational and supportive acts of transformational and authentic leaders, both of which may convey, in different forms, a sense of purpose and meaning to their employees. Conversely, when leaders fail to display transformational and authentic leadership behaviours, and perhaps act in abusive ways, employees are at risk for decreasing enthusiasm and developing burnout symptoms, particularly in stressful situations when work demands are high and resources few. For a majority of the participants in this study, leadership seemed to fulfil its function as a resource, while those for whom it did not, experienced low or decreasing well-being.

From the follower-centric perspective, followers' well-being may be primary for the resource gain and loss cycles with regard to leadership. Energy at work is a key resource, without which it is difficult to reach work goals and relate favourably to the work environment. Concerning perceptions, exhausted employees may find it hard to see the leader in positive light. According to de Lange et al. (2004), the mechanisms of gloomy perception and rosy perception potentially explain the reversed relations between perceived work characteristics, including supervisor support, and health across time. Beyond employee perceptual issues, leader behaviour towards an exhausted follower may actually be reactive and diminish in positive characteristics, as discussed in one of the early studies on leadership and employee well-being (van Dierendonck et al., 2004).

The present study provides added value to the understanding of the leadership-employee well-being relationship. Without identifying latent subgroups of employees with different well-being patterns, we would not know how leadership ratings are affected when well-being changes. The synchronous changes in perceived leadership and well-being

observed in our study, together with the relatively high overall stability of the well-being constructs (e.g. Schaufeli et al., 2009) may explain why in prior longitudinal studies, leadership has typically not explained additional variance in employee well-being across time (i.e. cross-lagged effects). The pattern of results found in the current study emphasizes the timing of observations in longitudinal research on leadership and employee well-being. As Kelloway and Francis (2013) suggest regarding occupational health psychology in general, more descriptive studies on change (as opposed to explanatory studies) should be conducted “in order to understand the nature and timing of change in the variables we study” (p. 379). In our view, this pertains particularly well to research on leadership and employee well-being.

Limitations and Suggestions for Further Research

Aside from the strengths of longitudinal design and the innovative approach to leadership-employee well-being research, this study has some limitations that should be considered when interpreting the results. First, while self-report may be the most appropriate method for gathering information on the subjective experience of an employee regarding his or her leader’s behaviour, to date little is known about the degree to which the association between leadership (as rated by employees) and employee well-being is attributable to confounding of mood and other affect factors (Eatough & Spector, 2013). Therefore, to gain further understanding of the phenomena and to address interventions in an effective way, more objective measures of leadership behaviour (e.g. colleague ratings) should be used in addition to employee self-report measures.

Second, the sample characteristics may limit generalizability of the results. The sample in this study was rather small, especially with regard to the purpose of identifying latent classes and examining background factors in these classes. It is likely that with a larger sample, a greater number and variety of latent classes would have been identified. In addition, with the strongly female-dominated sample, it is unclear to what extent the results

apply to men. Moreover, the response rate was rather low, as only 47% of the first wave participants continued participation at the second questionnaire wave. Therefore, our results should be replicated in future longitudinal studies with larger samples.

Third, to enhance understanding of the interwoven relationships between well-being and leadership, it would be useful for future studies to focus on what really happens between leaders and employees. This call could be fulfilled, for instance, by diary studies focusing on interactions between leaders and followers. Finally, we concur with calls for more research on affect and emotion in both leader- and follower-centric leadership research (Brown & Keeping, 2005; George, 2000). In our view, this pertains particularly to research on leadership and employee well-being and concerns both substantive relationships between leaders and followers, as well as possible confounding due to affective factors.

Conclusion

In sum, our study demonstrated that the resources of occupational well-being and perceived leadership are interwoven within the latent classes of occupational well-being. The results based on person-centred analysis revealed even stronger congruence than could be observed by examining data from the whole sample. First, consistent differences in levels were found such that individuals with better well-being reported more favourable leadership behaviours. Second, when well-being changed, ratings of both positive and negative leadership changed concurrently in a congruent direction with well-being. Thus, the results of this study support the notion of resource caravans outlined in COR theory and highlight the role of energy at work as a resource. With regard to practical implications for organizations, straightforward conclusions on leaders as the cause of employee well-being are not warranted on the basis of current knowledge. It is important to note that employee ratings of the behaviours of their nearest superiors may not be independent of the effect of employee well-being as such. Therefore, we suggest that when leadership is rated by employees, employee

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well-being and other work-related factors affecting well-being should also be assessed. In particular, the ratings of transformational leadership corresponded with patterns of vigour. Further research may reveal whether this finding is attributable to the resource enhancing aspects of transformational leadership, or to followers' affective factors in leadership perception and evaluation.

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Table 1

Correlations and Cronbach's Alphas of the Study Variables

	1	2	3	4	5	6	7	8	9	10
1. Vigour T1	.87									
2. Exhaustion T1	-.45***	.87								
3. Transf. leadership T1	.32***	-.18**	.90							
4. Authentic leadership T1	.31***	-.15*	.86***	.94						
5. Abusive supervision T1	-.16**	.11	-.44***	-.47***	.91					
6. Vigour T2	.68***	-.29***	.20**	.22***	-.06	.88				
7. Exhaustion T2	-.23***	.54***	-.12	-.14*	.12	-.43***	.83			
8. Transf. leadership T2	.22***	-.11	.56***	.55***	-.34***	.32***	-.27***	.90		
9. Authentic leadership T2	.20**	-.05	.53***	.62***	-.38***	.29***	-.22***	.88***	.94	
10. Abusive supervision T2	-.05	.03	-.30***	-.33***	.55***	-.13*	.23***	-.51***	-.56***	.91

Note. $N = 262$. Transf. = Transformational. T1 = Wave 1; T2 = Wave 2. Cronbach's alphas are presented on the diagonal.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2

Fit Indices and Likelihood-Ratio Tests for Different Class Solutions (Factor Mixture Modelling)

Number of classes	LogL (no. of free parameters)	AIC	BIC	Adj. BIC	VLMR	LMR	BLRT	Class sizes based on the most likely latent class membership	Entropy
1	-1486.619 (13)	2999.238	3045.627	3004.411	-	-	-	262	-
2	-1445.382 (18)	2926.765	2990.995	2933.927	0.0460	0.0501	0.0000	38, 224	0.907
3	-1421.590 (23)	2889.179	2971.251	2898.331	0.0718	0.0779	0.0000	219, 35, 8	0.934
4	-1399.734 (28)	2855.467	2955.381	2866.608	0.4749	0.4825	0.0000	207, 21, 27, 7	0.938
5	-1381.507 (33)	2829.015	2946.770	2842.146	0.1200	0.1241	0.0000	201, 20, 7, 30, 4	0.932
6	-1370.171 (38)	2816.342	2951.939	2831.462	0.7790	0.7855	0.0128	7, 6, 4, 29, 26, 190	0.924
7	-1361.076 (43)	2808.152	2961.591	2825.262	0.1238	0.1273	0.1017	5, 20, 137, 7, 29, 60, 4	0.864

Note. AIC = Akaike's Information Criteria; BIC = Bayesian Information Criterion; Adj. BIC = sample-size-adjusted BIC; VLMR = Vuong-Lo-Mendell-Rubin likelihood ratio test; LMR = Lo-Mendel-Rubin likelihood ratio test; BLRT = (parametric) bootstrapped likelihood ratio test. Figures indicating the most statistically favourable class solution are in bold.

Table 3

Means for Vigour and Exhaustion Across the Whole Sample and Within the Latent Classes.

		Whole sample		(1) Good well-being (<i>n</i> = 207, 79.0%)		(2) Improving well-being (<i>n</i> = 21, 8.0%)		(3) Low well-being (<i>n</i> = 27, 10.3%)		(4) Deteriorating well-being (<i>n</i> = 7, 2.7%)	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Well-being	Scale	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Vigour	0–6	4.72 (1.08)	4.89 (0.98)	5.14 (0.59)	5.21 (0.56)	2.98 (0.59)	4.98 (0.62)	2.74 (0.82)	2.83 (0.79)	5.19 (0.54)	3.05 (0.45)
Exhaustion	0–6	2.31 (1.43)	2.13 (1.34)	2.10 (1.32)	1.98 (1.24)	3.11 (1.84)	1.60 (1.22)	3.49 (1.18)	3.27 (1.41)	1.67 (1.28)	3.62 (1.27)

Note. T1 = Wave 1; T2 = Wave 2. Pairwise comparisons using Bonferroni's (equal variances assumed) or Tamhane's test (equal variances not assumed, only for exhaustion at T1): at T1, vigour (1, 4 > 2, 3); exhaustion (3 > 1, 4). At T2, vigour (1, 2 > 3, 4); exhaustion (1, 2 < 3, 4). Paired sample *t*-tests: Class 1: vigour T1 < T2, *p* = .048. Class 2: vigour T1 < T2, *p* < .001; exhaustion T1 > T2, *p* < .001. Class 4: vigour T1 > T2, *p* < .001; exhaustion T1 < T2, *p* = .011.

Table 4

Differences in Vigour and Exhaustion Between the Four Latent Classes (GLM for Repeated Measures)

	Class effect				Time effect				Class × time effect			
	<i>F</i>	<i>df</i>	<i>p</i>	η^2	<i>F</i>	<i>df</i>	<i>p</i>	η^2	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Multivariate	44.262	6,514	<.001	.341	.017	2, 256	.983	.000	37.473	6, 514	<.001	.304
Univariate												
Vigour	176.719	3, 257	<.001	.674	.002	3, 257	.969	.000	130.727	3, 257	<.001	.604
Exhaustion	11.246	3, 257	<.001	.116	.026	3, 257	.871	.000	14.944	3,257	<.001	.149

Table 5

Differences in Leadership Ratings Between the Four Latent Classes (GLM for Repeated Measures)

	Class effect				Time effect				Class × time effect			
	<i>F</i>	<i>df</i>	<i>p</i>	η^2	<i>F</i>	<i>df</i>	<i>p</i>	η^2	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Multivariate	2.322	9, 759	.014	.027	1.023	3, 251	.383	.012	3.421	9, 759	<.001	.039
Univariate												
Transformational	6.101	3, 253	.001	.067	.599	1, 253	.440	.002	7.072	3, 253	<.001	.077
Authentic	4.504	3, 253	.004	.051	.000	1, 253	.997	.000	3.190	3, 253	.024	.036
Abusive	.940	3, 253	.422	.011	1.174	1, 253	.280	.005	6.260	3, 253	<.001	.069

Table 6

Means of Leadership Ratings Across the Whole Sample and Within the Latent Classes of Well-Being

Leadership behaviours	Scale	Whole sample		(1) Good well-being (<i>n</i> = 207, 79.0%)		(2) Improving well-being (<i>n</i> = 21, 8.0%)		(3) Low well-being (<i>n</i> = 27, 10.3%)		(4) Deteriorating well-being (<i>n</i> = 7, 2.7%)	
		T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Transformational	1–5	3.19 (0.82)	3.36 (0.78)	3.29 (0.78)	3.44 (0.75)	2.63 (0.83)	3.33 (0.61)	2.81 (0.82)	2.95 (0.84)	3.29 (1.04)	2.57 (1.03)
Authentic	0–4	2.46 (0.73)	2.53 (0.74)	2.54 (0.69)	2.59 (0.72)	2.10 (0.66)	2.46 (0.70)	2.12 (0.80)	2.17 (0.79)	2.50 (1.03)	2.04 (0.79)
Abusive	1–7	1.44 (0.89)	1.46 (0.93)	1.39 (0.82)	1.43 (0.91)	1.99 (1.56)	1.40 (0.98)	1.45 (0.62)	1.56 (0.96)	1.20 (0.45)	2.09 (1.37)

Note. Pairwise comparisons using Bonferroni's (equal variances assumed) or Tamhane's test (equal variances not assumed, only for abusive supervision at T1): at T1, transformational leadership, 1 > 2, 3; authentic leadership, 1 > 3. At T2, transformational leadership, 1 > 3, 4; authentic leadership, 1 > 3.

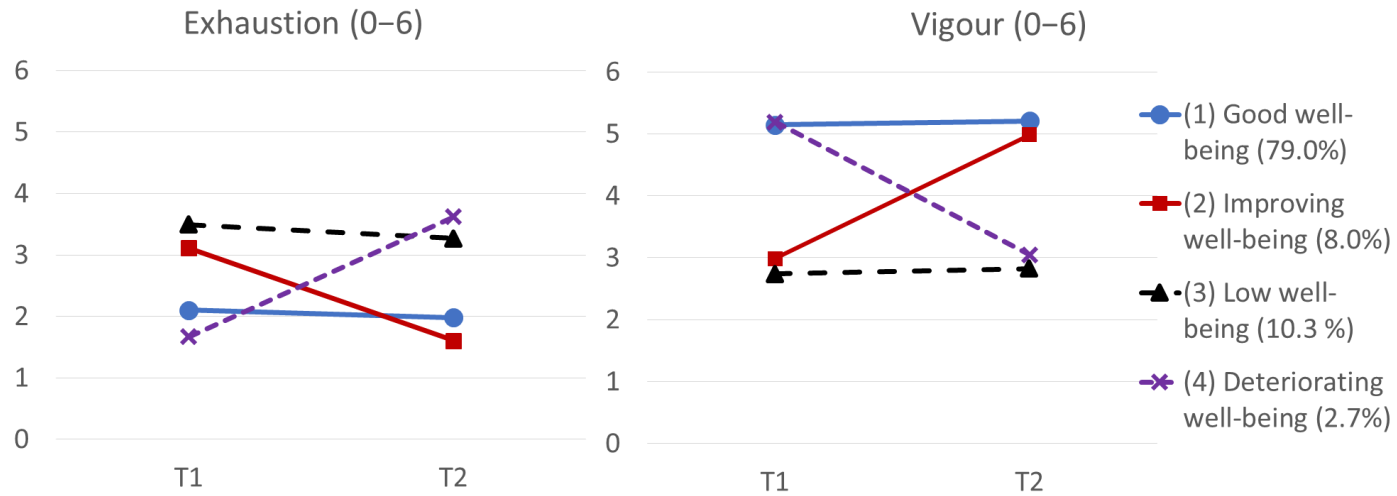


Figure 1. Mean levels of vigour and exhaustion within the four latent classes (mean time lag 14 months).

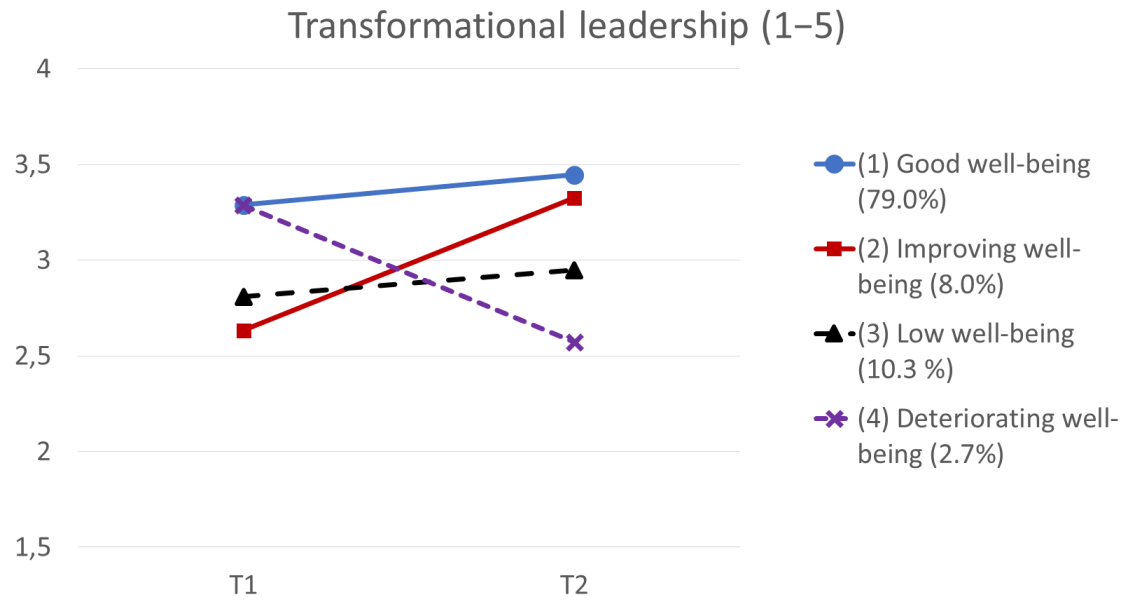


Figure 2. Mean levels of transformational leadership within the four latent classes of occupational well-being.