

The longitudinal development of employee well-being: a systematic review

Anne Mäkikangas^a, Ulla Kinnunen^b, Taru Feldt^a and Wilmar Schaufeli^{c,d}

^aDepartment of Psychology, University of Jyväskylä, Jyväskylä, Finland; ^bSchool of Social Sciences and Humanities, University of Tampere, Tampere, Finland; ^cDepartment of Psychology, Utrecht University, Utrecht, The Netherlands; ^dDepartment of Psychology, KU Leuven, Leuven, Belgium

ABSTRACT

This article reports a systematic review of findings on the long-term development of employee well-being, taking into account the effects of time lag, age, and job change. High-quality quantitative empirical studies focusing on employee affective well-being based on the circumplex model and utilizing measurements at more than two points in time were searched from eight databases. The systematic analysis of the 40 studies revealed that the level of employee well-being was generally high but not fixed – instead changes in mean levels over time were typical. In addition, the stability of well-being was found to be relatively low, as the explained variances were below 50%. Age and change of job were the major factors influencing stability: younger employees and job changers tended to display larger across time changes in well-being than older employees and job stayers, both at the mean level and in terms of their position relative to others. The findings of this review suggest that the indicators of employee affective well-being studied here (i.e. burnout, engagement, and job satisfaction) can meaningfully be applied in future research in measuring changes in employees' well-being. In conclusion, based on the designs, methodologies, and main findings of the reviewed studies, seven avenues for future longitudinal research on employee well-being are proposed.

ARTICLE HISTORY

Received 9 July 2014
Accepted 16 April 2015

KEYWORDS

Employee well-being;
longitudinal; systematic
review

Introduction

Sustaining and improving employee well-being is one of the key issues in the (inter) national scientific and political debate on the extension of occupational careers. Both the early and later career stages of a career may constitute demanding periods in a person's life when work challenges employee well-being (Price, 2015). However, what do we actually know about employee well-being and its development over the different career stages? Previous reviews on the topic have been limited in scope, typically focusing on job stress models such as the Job Demands-Control model (Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010; de Lange, Taris, Kompier, Houtman, & Bongers, 2003) or a single employee well-being construct, such as work engagement (Mäkikangas, Feldt, Kinnunen, & Mauno, 2013; Mauno, Kinnunen, Mäkikangas, & Feldt, 2010). No systematic review has

been conducted on the longitudinal development of employee well-being. We therefore felt that now was a good time to integrate the accumulating body of research on this important topic. Such a review would meet the need for an updated overview of the knowledge gained to date and facilitate future research efforts by revealing gaps in the current research.

Here, we focus on longitudinal studies on affective employee well-being, which is conceptualized by the circumplex model of affect applied in the work context (Bakker & Oerlemans, 2011). The model shows that both positive and negative concepts are needed to comprehensively understand employee well-being. The model has also recently been empirically tested (Mäkikangas et al., 2015; Salanova, Del Libano, Llorens, & Schaufeli, 2014). Thus, we first review the concepts that have typically been used to examine employee well-being and those which remain understudied. Second, we examine different forms of stability (rank-order, absolute, and ipsative), focusing in particular on the level of and changes in employee well-being. Third, we take into account potential factors that may modify long-term stability, such as length of time lag, employee age, and job change.

Our review is based on high-quality quantitative empirical studies employing three or more measurements as suggested for a longitudinal study (Kelloway & Francis, 2013). We also focus on the methodological aspects of the studies, that is, the samples and analytical methods used. Consequently, the main contribution of this systematic review lies in its aim of identifying and evaluating the high-quality empirical studies conducted on employee long-term well-being more broadly than hitherto. Our review also points to the gaps in the literature and hence avenues for future research.

The article is in five parts. First, we introduce the key concept of affective well-being. Second, we give an overview of the different theoretical perspectives on the long-term development of employee well-being. Third, we describe the different forms of longitudinal stability that we apply in analysing the previous studies. Fourth, we review the available empirical studies on longitudinal employee well-being. Finally, on the basis of our findings, we suggest directions for future research.

A model of job-related affective well-being

While affective well-being constitutes the core aspect of subjective well-being at work (Warr, 2007), other aspects of well-being have also been distinguished. For example, social (i.e. environmental mastery, quality of social functioning), cognitive (i.e. cognitive weariness), and psychosomatic well-being (i.e. a lack of symptoms of distress) have also been considered as components of employee well-being (van Horn, Taris, Schaufeli, & Schreurs, 2004). Here, we focus on affective well-being (Warr, 2007), as it is widely considered to be the core of well-being (Diener et al., 2009) and mental health (Keyes, 2005).

We used Warr's (2007) four quadrant model of affective well-being in selecting the key constructs of employee well-being for our review. The model has been developed on the basis of the circumplex model of affect (Russell, 1980; Watson & Tellegen, 1985). In the model, job-related affective states are classified (using two orthogonal axes, representing the pleasure and activation dimensions) into four quadrants that comprise unpleasant affective states of high or low activation, and pleasurable affective states of high or low activation.

As proposed by Bakker and Oerlemans (2011; see also Mäkikangas et al., 2015; Salanova et al., 2014), these four quadrants correspond to the four widely used states of employee cognitive-affective well-being (Warr, 2013). These are work engagement, workaholism, burnout, and job satisfaction. *Work engagement*, characterized by both high activation and high pleasure, is defined as a positive, fulfilling, work-related state of mind described by the dimensions of vigour, dedication, and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002). *Workaholism* is similarly characterized by high activation, but also displeasure, and is defined as a strong inner, compulsive drive to work excessively hard (Schaufeli, Shimazu, & Taris, 2009). *Burnout*, as the opposite pole of work engagement, is characterized by de-activation and displeasure, and defined as a persistent, work-related state of ill-being described by the dimensions of exhaustion (core component of burnout), cynicism, and reduced professional efficacy (Maslach, Jackson, & Leiter, 1996). *Job satisfaction*, as the opposite of workaholism, is characterized by de-activation and pleasure and typically defined as individuals' global positive feeling about their job (Spector, 1997). Applying the quadrant model in selecting the four key concepts of employee well-being for the review enables us to analyse systematically what aspects of employee well-being have previously been emphasized and whether different indicators yield parallel information about the level of employee well-being and its long-term development.

Three theoretical views on the long-term development of employee well-being

Conventional job stress models explain increasing or decreasing well-being via its association with specific job characteristics (e.g. the Job Demands-Control model or Effort-Reward Imbalance model). However, such stress theories cast limited light on the development of employee well-being. They account for what stress symptoms can be caused by specific job characteristics rather than consider the development of employee well-being comprehensively in the long run (cf. Zapf, Dormann, & Frese, 1996; see also Kelloway & Francis, 2013). In contrast, the theories used to explain the development of general, context-free subjective well-being offer different perspectives, specifically on its longitudinal development. These theories suggest alternatively that levels of employee well-being are either stable over time (Cummins, Gullone, & Lau, 2002; Headey & Wearing, 1989), increase or decrease over time (Fredrickson, 1998; Hobfoll, 1989), or change in a favourable direction with age (Baltes & Baltes, 1990; Baltes, Lindenbergh, & Staudinger, 1998; Charles & Carstensen, 2009).

The first category of theories, which emphasize the stability of well-being, includes, for instance, the dynamic equilibrium model (Headey & Wearing, 1989) and the homeostasis model (Cummins et al., 2002). These models assume that each person has a stable, characteristic level of subjective well-being (set point) which is maintained by adaptive mechanisms. This set point is determined by genetic predisposition, core personality traits (e.g. neuroticism), and enduring environmental conditions. Positive or negative changes in a person's life or work situation can temporarily disrupt this equilibrium or homeostasis, causing levels of well-being to fluctuate outside of their ordinary, habitual range (i.e. the set point). In due time, individuals return to their usual, characteristic level of well-being through the deployment of adaptive mechanisms, which may be cognitive (e.g. positive relabelling) or behavioural (e.g. problem-focused coping) in nature. In other words, as

a consequence of these adaptive mechanisms, individuals' levels of well-being remain relatively stable over time.

The second category of theories emphasizes change in well-being. These theories include resource-based theories, such as the conservation of resources (COR) model (Hobfoll, 1989) and the broaden-and-build (B&B) theory (Fredrickson, 1998). The main principle of the COR theory is that people are motivated to gain, maintain, and accumulate resources – which can be anything that is either valuable in its own right or important for protecting other resources or attaining future goals (Hobfoll, 1989, 2002). It also assumes that the relationship between different resources is mutual and dynamic in nature (Hobfoll, 2002). The B&B theory in turn proposes that positive emotions have a twofold adaptive function for an individual. First, they broaden the individual's current awareness and thought-action repertoire. Second, they help to build resources in the long run and have a lasting impact on well-being (Fredrickson, 1998). In both the COR and B&B theories, the increase/decrease in resources is typically dynamic and occurs either as a “gain/loss cycle” or “downward/upward spiral”. Essentially, the resource-based theories assume that employee well-being will increase or decrease over time in response to changes in resources.

The third category comprises life-span theories, which are more specific as they focus more explicitly on the direction of development of well-being. Life-span theories, such as selective optimization with compensation, emphasize that development is an ongoing life-long process (Baltes et al., 1998; Baltes & Baltes, 1990) and that development – which by definition implies change – can be cumulative as well as intermittent. While development can occur in an upward or downward direction, most life-span theories emphasize positive change in personality and socio-emotional development, which occurs via maturation and growth (Charles & Carstensen, 2009; Isaacowitz & Blanchard-Fields, 2012; Staudinger & Kunzmann, 2005). Through self-regulatory processes and increasing maturity, individuals can better maintain and improve their general well-being (Charles & Carstensen, 2009) and work-related well-being over time (Scheibe & Zacher, 2013).

Owing to the multifaceted process of development, older individuals might be more competent than their younger counterparts in performing various work-related tasks. Age is also linked to work events faced. For example, young employees may face high levels of job insecurity, middle-aged employees may more frequently experience work-life conflict and older employees may perceive age discrimination (Scheibe & Zacher, 2013). Ageing may also have beneficial effects, via increased maturity and emotion regulation process, on how employees respond to negative events at work (Scheibe & Zacher, 2013). For example, older age has found to buffer against the negative consequences of workload on job and life satisfaction (Mauno, Ruokolainen, & Kinnunen, 2013).

Different forms of long-term stability

Research on long-term development inevitably uses the concept of stability, which has at least three different meanings in employee well-being research (see Caspi & Roberts, 1999). First, *rank-order stability* (called also relative stability) indicates the extent to which the relative differences in well-being among employees remain the same over time. Rank-order stability is typically analysed by means of stability coefficients (e.g. test-retest correlations) in longitudinal data. The higher the test-retest correlation is,

the fewer the changes in the relative differences in well-being between employees. In other words, high test–retest correlations indicate that either the well-being of most of the individual employees in the group studied has not changed over time or, if it has, then it has changed in the same direction across many individuals.

Second, *absolute stability* refers to the mean level of change in employee well-being in a study population (Caspi & Roberts, 1999). Typically, different tests of repeated measures based on well-being mean scores are used to evaluate absolute stability. It is important to distinguish absolute stability from rank-order stability. For example, it is possible, that the rank-order may change over time with or without any change in mean levels. Thus statistically speaking, rank-order change and mean-level change are independent.

Finally, *ipsative stability* indicates the degree of continuity of the configuration of different kinds of employee well-being (Caspi & Roberts, 1999). It provides information on the continuity of the patterning of various well-being indicators (e.g. burnout and work engagement) within an employee across time. To investigate ipsative stability, clustering and profiling methods (e.g. latent class analysis) are necessary. The two main statistical approaches typically used to investigate rank-order and absolute stability are the variable-oriented approach, where the focus is on the mean values of variables, or their relative differences, at the group level (Bergman, Magnusson, & El-Khoury, 2003; Laursen & Hoff, 2006), and the person-oriented approach, in which individuals are taken as the unit of measurement, such as when investigating ipsative stability (Bergman et al., 2003; Laursen & Hoff, 2006).

The aims of the present review

Our review aimed to assess two major questions: (1) Is employee well-being stable or does it change over time? and (2) What impact do time lags, age, and changes of job have on employee well-being?

To answer our first research question, we differentiated between the three types of stability mentioned above: What is the stability of employee well-being across time (rank-order stability)? Do levels of employee well-being change over time (absolute stability)? Do the patterns of different kinds of employee well-being indicators change over time (ipsative stability)? Based on the theoretical considerations and their predictions outlined above, we analysed whether employee well-being appears to be either stable (Cummins et al., 2002; Headey & Wearing, 1989), changeable (Fredrickson, 1998; Hobfoll, 1989), or changes in a favourable direction over the years (Baltes et al., 1998; Charles & Carstensen, 2009). We also analysed whether the different forms of stability are contingent upon study design and sample features, namely time lag, age, and changes of job, that is, factors that are known to have a role in the long-term development of employee well-being (Ford et al., 2014; Mäkikangas, Schaufeli, Tolvanen, & Feldt, 2013; Scheibe & Zacher, 2013). However, this issue has not up to now been investigated systematically, using time lags of different length, different occupational samples, and several employee well-being indicators.

Method

This literature review is an example of a systematic qualitative analysis of quantitative research. This type of review has been considered valuable in reviewing a body of relatively

sparse, but growing literature on a specific topic (Suri & Clarke, 2009). A meta-analysis was not feasible as the included studies were not sufficiently similar (i.e. with employee well-being measured in the same way at identical time intervals) (Grant & Booth, 2009), and imposing these restrictions would limited our perspective on employee well-being. In addition, specific comparisons (young vs. old employees, job changers vs. stayers) were not possible owing to the small number of studies in each category.

Identification of studies and criteria for inclusion

To gather primary studies for this review, we conducted an extensive electronic literature search using the terms “job-related affective well-being”, “job”/“work satisfaction”, “work”/“employee engagement”, “burnout”, “workaholism”, and “occupational well-being” paired with the terms “longitudinal study”/“research”, “multi-wave”, “multiple waves”, or “three-wave”. These terms needed to be either keywords or used in the abstract, title or subject heading of the article depending on the search specification options of the database. An electronic search was run in the following eight databases: (1) PsycInfo, (2) PsycArticles, (3) EBSCO Academic Search Elite, (4) ScienceDirect (Elsevier), (5) ProQuest, (6) SpringerLink, (7) Medline, and (8) Google Scholar. The search was conducted in 2013 with no limitations on publication date. Alongside database searches, we also conducted backwards reference checking of eligible studies. Furthermore, several international experts in the field of employee well-being research were contacted through e-mail to ensure inclusion of all existing published longitudinal studies.

Several inclusion criteria were used. First, studies had to (1) present original empirical results, (2) be reported in English, and (3) be conducted among a working population. Second, the studied had to meet the following quality criteria (see Kelloway & Francis, 2013; de Lange et al., 2003): (4) a multi (i.e. more than two)-wave design, (5) the use of reliable employee well-being scales at every measurement, and (6) time lags between measurements of at least two weeks, as we were interested in stability rather than test-retest reliability (see Nunnally & Bernstein, 1994).

The search yielded 105 potential articles that were screened against the inclusion criteria listed above. In this phase, several exclusion criteria were applied: study samples comprising (1) students, (2) vocational trainers, or (3) unemployed (i.e. measurements without employee well-being information) and (4) short-term diary and (5) intervention studies were all excluded. Also excluded were (6) studies providing neither correlations nor mean level information on the employee well-being constructs. Further, in cases where the same data were used in several studies, only one study was included. The search and selection of the articles were conducted by the first author and a research assistant in such a way that both selected and reviewed the articles by applying the criteria presented above.

The final sample comprised 40 studies accepted by two researchers (i.e. first author and research assistant). These studies had appeared in 25 journals (one-third had been published in either the *Journal of Applied Psychology* or *Journal of Vocational Behavior*), and publication had occurred during the period 1985–2013. In the majority of studies, employee well-being had been treated as a dependent variable, but many independent variables (e.g. individual and job characteristics) had also been measured simultaneously. However, in this review, only content relating to employee well-being constructs was

analysed. In a few studies, several employee well-being constructs had been analysed in different waves, but we focused only on constructs that had been measured at least three times.

Analysis

Table 1 summarizes the reviewed studies, providing information on (a) the employee well-being construct(s) investigated, (b) the participants (i.e. sample size and age), (c) the study design (number of waves and time lags between measurements), (d) the statistical method (s) employed, (e) the levels of the studied employee well-being construct(s), (f) the rank-order stability coefficient, and (g) the absolute stability of the studied employee well-being construct(s). As only one study investigated ipsative stability, this information was not included in **Table 1**.

The sample size information is based on the longitudinal data – that is, it concerns individuals who participated in all the measurements. If such information was not available, the T1 sample size is marked “baseline”. The response scale for the employee well-being constructs varied considerably between the analysed studies (e.g. 0–1, 0–6, 1–7, 1–10). The level of each employee well-being construct was defined according to the middle value of the response scale: a middle value of ± 0.5 was labelled “average”, the values below it “low”, and the values above it “high”. The majority of the studies used Likert scale responses, and therefore low values below the middle point (e.g. 3 on a scale 1–5) indicate disagreement and high values above the middle point agreement with the items. Using this rationale, we were able to capture the overall level of employee well-being in each study despite the differences in response scales. In estimating the level of the employee well-being construct, we used the information from all the measurements.

Results

Investigated employee well-being constructs and their level

The review of the articles (marked with * in the references; see also **Table 1**) revealed that the majority of the longitudinal studies had focused on the negative side of employee well-being: Over half of the analysed articles ($n = 24$) concentrated on burnout. Job satisfaction was investigated in 16, and work engagement in 6 studies. Only one study analysed all four dimensions of job-related affective well-being simultaneously (i.e. anxiety, depression, comfort, and enthusiasm; Mäkikangas, Hyvönen, Leskinen, Kinnunen, & Feldt, 2011). It is noteworthy that no studies of workaholism that would have met the criteria for the review were found.

Sample size used varied from 81 to 5827, although the typical sample size varied between 200 and 300. Of the analysed articles, 56% used occupational/organizational specific samples, whereas heterogeneous samples, that is, samples comprising employees from various occupations, were used in 44% of the studies. Human services (i.e. education, and health and welfare services) were the most frequently investigated. Of the burnout studies, 79% used some version of the Maslach Burnout Inventory, that is, either the GS, ES, or HS version (Maslach et al., 1996), and the Utrecht Work Engagement Scale (Schaufeli et al., 2002) was used in all the studies on work engagement. In contrast, job

Table 1. Summary of the longitudinal employee well-being studies used in the literature review.

Authors	Well-being construct	Participants	Design	Statistical analysis	Level of well-being construct	Rank-order stability	Absolute stability
Amati et al. (2010)	Job satisfaction	Italian nurses ($n = 101$), mean age 36.7 (SD = 7.5)	4 waves, 4-month time lags	Analysis of covariance	High	Not provided	Heterogeneous
Boswell et al. (2009)	Job satisfaction	Newcomer employees of a American public sector service organization ($n = 132$), mean age 39 (SD = 10.7)	4 waves, 3- and 6-month time lags	General linear model, Random coefficient modelling	High	.01 T0–T1; .62 T1–T2; .61 T2–T3 ^a	Increased (T0–T1)
Brauchli et al. (2013)	Burnout, work engagement	Heterogeneous sample of Swiss employees ($n = 1033$), mean age 39.4 (SD = 10.55)	3 waves, 1-year time lags	SEM	Burnout: Average; Work engagement: High	Burnout: .59–.61 T1–T2; .64–.65 T2–T3. Work engagement: .62 T1–T2; .66–.68 T2–T3 ^a	Heterogeneous
Capel (1991)	Burnout	British teachers ($n = 232$), age ^b	3 waves, 5- and 4-month time lags	Profile analysis	Average	.66 T1–T2; .59 T2–T3 ^a	Heterogeneous
Castanheira and Chambel (2010)	Burnout	Portuguese clothing department sales people ($n = 94$), mean age 28.3 (SD = 5.67)	3 waves, 6-month time lags	Regression analysis	Low	.48–.57 T1–T2; .21–.44 T2–T3 ^c	Not inferential
De Cuyper, Raeder, Van der Heijden, and Wittekind (2012)	Burnout	Swiss logistics company employees undergoing reorganization process ($n = 287$), mean age 43.5 (SD = 9.47)	3 waves, 10-month and 9-month time lags	Hierarchical linear modelling	Low	Not provided	Stable ^d
de Lange, Taris, Kompier, Houtman, and Bongers (2002)	Job satisfaction	Heterogeneous sample of Dutch employees ($n = 1477$), mean age 35.4 (SD = 8.8)	4 waves, 1-year time lags	Analysis of variance	High	Not provided	Heterogeneous
de Lange et al. (2004)	Burnout, job satisfaction	Heterogeneous sample of Dutch employees who stayed in the same job ($n = 668$), mean age 35.4 (SD = 8.7)	4 waves, 1-year time lags	SEM	Burnout: Low; job satisfaction: High	Burnout: .58 T1–T2; .62 T2–T3; Job satisfaction: .53 T1–T2; .58 T2–T3; .62 T3–T4 ^a	Burnout: Stable, job satisfaction: Decreased ^d
Demerouti et al. (2004)	Burnout	Dutch employment agency employees ($n = 335$), mean age 30 (SD = 6.0)	3 waves, 6-week time lags	SEM	Low	.66 T1–T2; .70 T2–T3 ^c	Stable ^d
Demerouti, Le Blanc, Bakker, Schaufeli, and Hox (2009)	Burnout	Dutch nurses ($n = 258$), mean age 37 (SD = 8.5)	3 waves, 12- and 6-month time lags	SEM	Low	.58–.66 T1–T2; .64–.71 T2–T3 ^a	Stable ^d

(Continued)

Table 1. Continued.

Authors	Well-being construct	Participants	Design	Statistical analysis	Level of well-being construct	Rank-order stability	Absolute stability
Dormann et al. (2006)	Job satisfaction	Heterogeneous sample of German employees who stayed in the same job ($n = 157$), mean age 39 (SD = 11.42)	4 waves, 1-year time lags	SEM	Average	.56 T1–T2; .61 T2–T3; .66 T3–T4 ^c	Heterogeneous
Dunford et al. (2012)	Burnout	American health-care employees ($n = 2,089$), mean age 41 (range = 18–82)	5 waves, 6-month time lags	Random coefficient modelling	Low	.53–.60 T1–T2; .59–.69 T2–T3; .59–.67 T3–T4; .61–.73 T4–T5 ^a	Heterogeneous
Evolahti et al. (2013)	Burnout	Heterogeneous sample of Swedish female employees ($n = 116$), age range at T1 49–53.	3 waves, 2- and 5-6-year time lags	Hierarchical cluster analysis, Analysis of variance	Low (whole data)	Not provided	Heterogeneous
Farkas and Tetrick (1989)	Job satisfaction	American first-term navy enlisted male employees ($n = 440$), mean age 19 ^b	3 waves, 8–10 and 11–12 month time lags	SEM	High	.44 T1–T2; .44 T2–T3 ^c	Decreased
Feldt et al. (2013)	Burnout, work engagement	Finnish managers ($n = 298$), mean age 31 (SD = 3.22)	3 waves, 2-year time lags	Latent profile analysis, multivariate analysis of covariance	Burnout: Low; work engagement: High	Not provided	Heterogeneous
Hakanen and Schaufeli (2012)	Burnout, work engagement	Finnish dentists ($n = 1964$), mean age 43.9 (range 26–72)	3-waves, 3- and 4-year time lags	SEM	Burnout: Low; work engagement: High	Burnout: .76 T1–T2; .77 T2–T3 ^c Work engagement: .78 T1–T2; .77 T2–T3 ^c	Work engagement stable, burnout not inferential
Houkes, Winants, Twellaar, and Verdonk (2011)	Burnout	Dutch physicians ($n = 212$), mean age = 48.4 (SD = 6.25)	3 waves, 2-year time lags	General linear model, SEM	Low	.49–.71 T1–T2; .31–.59 T2–T3 ^c	Heterogeneous
Hultell et al. (2013)	Burnout	Swedish newly graduated teachers ($n = 816$), mean age = 34.95 (SD = 7.87)	3 waves, 1-year time lags	Analysis of variance, cluster analysis	Low (whole data)	Not provided	Heterogeneous
Kiely (1986)	Job satisfaction	Employees of four English manufacturing companies ($n = 108$), age ^b	4 waves, 4–6-month time lags	Repeated measures, mean scores	High	Not provided	Heterogeneous
Kim, Ji, and Kao (2011)	Burnout	American social workers ($n = 285$), mean age = 45.6 (SD = 12)	3 waves, 1-year time lags	Analysis of variance, SEM	Low	Not provided	Heterogeneous

Leone et al. (2008)	Burnout	Heterogeneous sample of Dutch employees ($n = 1207$), mean age = 41.7–42.4 (SD = 7.6–7.8)	4 waves, 1-year time lags	Mean change scores, logistic regression analysis	Heterogeneous	Not provided	Heterogeneous
Leung et al. (2010)	Job satisfaction	Heterogeneous sample of Chinese employees ($n = 400$), 60.5% between 31 and 50 years, 24.5% above 50 years ^b	3 waves, 6-month time lags	SEM	Average	High subjective well-being group ($n = 192$): .32 T1–T2; .20 T1–T2 ^c Low subjective well-being group ($n = 208$): .29 T1–T2; .17 T2–T3 ^c	Stable ^d
Liu, Mitchell, Lee, Holtom, and Hinkin (2012)	Job satisfaction	American recreation and hospitality employees ($n = 5270$), mean age = 41.8 (SD = 13.9)	3 waves, 6-month time lags	Hierarchical generalized linear modelling	High	Not provided	Increased
Lizano and Mor Barak (2012)	Burnout	American public child welfare workers ($n = 335$), mean age = 36.8 (SD = 11.46)	3 waves, 6-month time lags	Two-level growth curve analysis	Low/average	.51–.64 T1–T2; .44–.52 T2–T3 ^a	Increased
Luyckx et al. (2010)	Burnout, work engagement	Heterogeneous sample of Belgium employees ($n = 300$), mean age = 29.1 (SD = 4.86)	3 waves, 6-month time lags	Cluster analysis, analysis of variance	Burnout: Low; work engagement: Average	.47–.65 T1–T2; .48–.64 T2–T3 ^a (not differentiated between Burnout–Work engagement)	Heterogeneous
Maier and Brunstein (2001)	Job satisfaction	Heterogeneous sample of German newcomer employees ($n = 81$), mean age = 27.9 (SD = 2.4)	3 waves, 4-month time lags	Regression analysis	High	.23 T1–T2; .39 T1–T3 ^a	Heterogeneous
Mäkikangas et al. (2011)	Job-related affective well-being	Finnish managers ($n = 402$), mean age = 41.9 (SD = 6.9)	3 waves, 3- and 7-year time lags	Growth mixture modelling	Anxiety: Low; Comfort: Average; Depression: Low; Enthusiasm: Average	Anxiety: .58 T1–T2; .47 T2–T3. Comfort .48 T1–T2; .41 T2–T3, Depression .52 T1–T2; .37 T2–T3. Enthusiasm .55 T1–T2; .45 T2–T3 ^a	Heterogeneous
Nagy and Nagy (1992)	Burnout	American rural school teachers ($n = 566$), age ^b	3 waves, 3- and 2-year time lags	Mean scores	Low/average	Not provided	Heterogeneous
Rudman and Gustavsson (2011)	Burnout	Swedish nurses ($n = 997$), mean age = 30.5 (range = 21–52)	3 waves, 1-year time lags	Analysis of variance; Cluster analysis	Low (whole data)	.59 T1–T2; .61 T2–T3 ^a	Heterogeneous
Salmela-Aro et al. (2011)	Burnout	Finnish academically educated employees (baseline $n = 292$), age at T1 18–25 (SD = 1.8)	3 waves, 4-year time lags (T4–T6)	Latent growth curve modelling	Low	.40–.58 T4–T5; .55–.63 T5–T6 ^a	Heterogeneous

(Continued)

Table 1. Continued.

Authors	Well-being construct	Participants	Design	Statistical analysis	Level of well-being construct	Rank-order stability	Absolute stability
Schaufeli et al. (2011)	Burnout	Dutch physicians ($n = 165$), age ^b	3 waves, 5-year time lags	SEM	Average	.58–.66 T1–T2; .57–.63 T2–T3 ^a	Heterogeneous
Simbula et al. (2011)	Work engagement	Italian schoolteachers ($n = 104$), age = 14% under 35, 26% 36–45, 27% 46–50 and 33% over 50 years ^b	3 waves, 4-month time lags	SEM	High	.81 T1–T2; .78 T2–T3 ^a	Stable ^d
Staw and Ross (1985)	Job satisfaction	Heterogeneous sample of American male employees ($n = 3200$), age = 45–59 ^b	3 waves, 3- and 2-year time lags	Regression analysis	Not provided	.32 T1–T2; .42 T2–T3 ^a	Not provided
Taris, Le Blanc, Schaufeli, and Schreurs (2005)	Burnout	Dutch oncology care providers ($n = 218$), mean age = 37 (SD = 8.5)	3 waves, 1-year time lags	SEM	Low	.50–.67 T1–T2; .45–.51 T2–T3 ^c	Stable ^d
Vandenbergh et al. (2011)	Job satisfaction	Heterogeneous sample of French newly graduated employees ($n = 170$), mean age = 25.4 ^b	3-waves, 3-month time lags	Latent growth modelling	High	.51 T1–T2; .62 T2–T3 ^a	Decreased
Weigl et al. (2010)	Work engagement	German hospital physicians ($n = 416$), mean age = 30.5 (SD = 2.7)	3 waves, 14- and 19-month time lags	SEM	High	.59 T1–T2; .64 T2–T3 ^c	Decreased (T2–T3)
Wong et al. (1998)	Job satisfaction	Heterogeneous sample of Chinese newly graduated employees who stayed in the same job ($n = 196$), age ^b	3 waves, 1-year time lags	SEM	Average	.64 at both waves ^c	Not inferential
Wu and Griffin (2012)	Job satisfaction	Heterogeneous sample of British employees ($n = 5827$), mean age = 34.6 (SD = 11.7)	10 waves, 1-year time lags	Latent growth curve modelling	High	.66 T1–T4 → T5 .71 T6–T9 → T10 ^c	Increased (T6–T10)
Ybema et al. (2011)	Job satisfaction, burnout	Heterogeneous sample of Dutch employees ($n = 1004$), mean age = 41 (SD = 9.3)	3 waves, 1-year time lags	SEM	Job satisfaction: High; burnout: Low	Job satisfaction at both waves: .32 ^c Burnout at both waves: .57 ^c	Stable ^d
Ybema et al. (2010)	Job satisfaction, burnout	Heterogeneous sample of Dutch employees ($n = 844$), mean age = 35 (SD = 9)	4 waves, 1-year time lags	SEM	Job satisfaction: High; Burnout: Low	Job satisfaction at all waves: .43 ^c Burnout at all waves: .48 ^c	Job satisfaction decreased

Note: SEM = structural equation modelling.

^aBased on correlation matrix.

^bAge or its standard deviation/range not provided.

^cBased on standardized stability coefficients/beta-values.

^dBased on descriptive information, not statistically tested.

satisfaction was operationalized in various ways: the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967) was used in two studies, whereas the remaining studies all used different measures.

The overall mean level of employee well-being is presented in Table 1 and is based on the three-level categorization (i.e. low, average, and high) constructed for the purposes of this review study. According to this categorization, the level of employee well-being was typically high: In 80% of the analysed studies, the level of job satisfaction was high and in 20% it was average. Similarly, the mean level of work engagement was also high, and average in only one study. Furthermore, in 75% of the studied cases, the level of burnout (or certain sub-dimension of it) was low. In the remaining studies (25%), burnout was at most at the average level. The studies reporting average levels of burnout were typically conducted among the human services professions. Overall, in more than three-quarters of the reviewed studies, high levels of employee well-being were reported (i.e. low levels of burnout, high levels of job satisfaction, or work engagement).

Stability of employee well-being

The minimum of three measurements was met in 75% of the studies and more than three measurement points, typically four waves (20%), in the remainder. However, in one study, 10 waves were used (Wu & Griffin, 2012). The length of the time lag between measurements was typically six months (25%) or one year (38%), although the overall range was from six weeks up to seven years (see Table 1). The majority of the studies (73%) used time lags of the same length, while the remaining studies, using different time lags, showed no clear pattern: in some cases the time lag either doubled or halved, or remained about the same.

Rank-order stability

Typically, the reviewed studies analysed long-term stability with rank-order stability as an indicator. This was clearly evident in the majority of the studies (73%), which used either correlations or regression estimates. The rank-order stability for *job satisfaction* varied from .32 to .71 across one year, which was the commonest time lag ($n = 7$). The average value of the reported rank-order stability over this period was .54. A similar mean level of stability was found in time lags shorter than one year (i.e. 3–10 months). As with job satisfaction, the rank-order stability for *burnout* was most typically studied over a period of six months or one year. The average rank-order estimate was .56 over six months ($n = 5$) and .57 over one year ($n = 10$). The information on rank-order stability was provided in five *work engagement* studies, each with a different time lag (from four months to four years). The average rank-order stability estimate for work engagement was .66 (evaluated across all five studies).

In light of these stability coefficients, the previous measurement explained under half of the variance of the latter measurement(s) in these three indicators of employee well-being. Job satisfaction, burnout, and work engagement did not differ in their stabilities: the coefficients were approximately the same. This is noteworthy, as the time lags differed between studies. Overall, to have a decreasing effect on stability estimates, differences in time lags

should exceed one year. For example, the rank-order stability of burnout and work engagement was found to be the same whether the time lag was three or four years (Hakanen & Schaufeli, 2012). However, when the difference increased, that is, from three to seven years, stability was found to decrease (e.g. Mäkikangas et al., 2011). Taken together, however, the impact of the time lag on the rank-order stability of the employee well-being measures was relatively minor.

In contrast, the rank-order stability estimates showed that the employees' mean age played a larger role in stability than the time lag used. In work engagement studies where the average age of employees was around 30 years, rank-order stability varied from .47 to .65 with a time lag of 6 months (Luyckx, Duriez, Klimstra, & De Witte, 2010) was .59 with a time lag of 14 months and .64 with a time lag of 19 months (Weigl et al., 2010). However, in a sample where the employees were over 40 years old (Hakanen & Schaufeli, 2012), the rank-order stability for work engagement varied from .77 to .78 for time lags of 3–4 years. Moreover, in a sample where over one-third of the participants were over age 50 (Simbula, Guglielmi, & Schaufeli, 2011), stabilities varied from .78 to .81 over a 4-month time lag. Thus, it seems that rank-order stabilities are higher among older than younger workers, independently of the time lag used.

A similar observation was made in the burnout studies. Over a 4-year time period, the rank-order stabilities of burnout for young adult employees (28–35 years) varied between .40 and .63 (Salmela-Aro, Tolvanen, & Nurmi, 2011), whereas for over 40-year-old employees stabilities varied between .76 and .77 (Hakanen & Schaufeli, 2012). However, an interesting exception was the study by Demerouti, Bakker, and Bulters (2004), in which burnout was studied among employees around age 30. Although the rank-order stabilities in this study were high (.66–.70), they may be explained by the short time lag of six weeks, which, in fact, reflects the test–retest reliability of the burnout measure rather than the long-term stability of the construct itself.

The effect of age on the rank-order stability of job satisfaction was less evident when compared with the effects of work engagement and burnout. One reason for this may be the fact that the great majority of the job satisfaction studies were conducted among relatively young employees. Nevertheless, there was a tendency towards low rank-order stability for job satisfaction, compared to the average rank-order estimate, in the samples of young employees: For example, the stability for employees with a mean age of 19 years was .44 over 10 months (Farkas & Tetrick, 1989).

It emerged that job changes had been studied only in relation to job satisfaction (Boswell, Shipp, Culbertson, & Payne, 2009; Staw & Ross, 1985). The results of these two studies either showed zero stability for satisfaction between the previous and current job (Boswell et al., 2009) or the stability estimate was very small (.13; Staw & Ross, 1985). In addition, in many (5 out of 16) of the job satisfaction studies, the sample was confined to either job stayers (Dormann, Fay, Zapf, & Frese, 2006; Wong, Hui, & Law, 1998) or new employees (Farkas & Tetrick, 1989; Maier & Brunstein, 2001; Vandenberghe, Panaccio, Bentein, Mignonac, & Roussel, 2011). Job change was not examined in the work engagement or burnout studies from the viewpoint of rank-order stability. To conclude, both young age and job change during the study period seemed to be the factors that reduced the rank-order stability of employee well-being.

Absolute stability

Mean levels of employee well-being over time were reported in all except one study. However, typically, the significance of mean-level changes was not statistically tested. In these cases, the label of absolute stability in Table 1 is naturally only indicative, as it is based on our reasoning. In three studies (Castanheira & Chambel, 2010; Hakanen & Schaufeli, 2012; Wong et al., 1998), firm conclusions cannot be drawn because the mean changes in employee well-being were minor and also not statistically tested.

In one-fifth of the reviewed studies, the level of employee well-being remained stable over time. A decrease in mean scores, in turn, was observed in more than every tenth (13%) study and between at least two measurement occasions. An increase in well-being scores was reported in 10% of studies. The most typical finding (in half of the studies) was, however, that heterogeneous patterns of change emerged. That is, employees showed, for example, increasing, decreasing and stable profiles across time.

Overall, it can be concluded that a mean level of change over time was more common than stability. The three studies that focused on the amount of stability or change variance (Brauchli, Schaufeli, Jenny, Füllemann, & Bauer, 2013; Dormann et al., 2006; Schaufeli, Maassen, Bakker, & Sixma, 2011) reported that the proportion of change variance was larger than the proportion of stability variance. Mean-level change was not related to the specific indicator of employee well-being, that is, change and stability were equally distributed among work engagement, burnout, and job satisfaction. The studies applying a person-centred methodology (e.g. cluster analysis) showed greater diversity in the direction of change. In the four burnout studies (Evolanti, Hultell, & Collins, 2013; Hultell, Melin, & Gustavsson, 2013; Leone, Huibers, Knottnerus, & Kant, 2008; Rudman & Gustavsson, 2011), all the possible directions (e.g. stable, increasing, decreasing, and curvilinear) of mean-level change were detected in each study. In all four studies, mean-level changes over time were more prominent than mean-level stability. In the work engagement or job satisfaction studies, the use of a person-centred methodology was, however, rare.

Like rank-order stability, absolute stability was also affected more by employee age and change of job than by the time lags used. Moreover, an increase in the mean level of employee well-being was mostly observed in studies of older employees, whereas a mean-level decrease was detected (or prevalent) in the studies conducted among younger employees (Amati et al., 2010; Farkas & Tetrick, 1989; Maier & Brunstein, 2001; Vandenberghe et al., 2011; Weigl et al., 2010; Ybema, Smulders, & Bongers, 2010). In addition, the job change studies revealed increased job satisfaction directly after job change (Boswell et al., 2009). However, among job changers the levels of burnout first increased and then decreased, whereas no mean-level changes were observed for job stayers (Dunford, Shipp, Boss, Angermeier, & Boss, 2012). Overall, it seems that the first years of employment/after a starting new job be labelled as years of turbulence, as the mean-level changes typically occurred in this career phase.

Ipsative stability

Ipsative stability was investigated only in one study, where the focus was on all four dimensions of job-related affective well-being, that is, anxiety, depression, comfort, and

enthusiasm (Mäkikangas et al., 2011). Using a person-centred method, it was found that for the majority (86%) of employees' job-related affective well-being remained high and slightly increased over time. Notable mean level changes (i.e. either decreasing or increasing) occurred among only a small minority (6–8%). Although this study suggested the existence of variety of well-being trajectories, it also showed that positive development in well-being was more predominant than negative development.

Discussion

The aim of this article was to review, summarize and evaluate the longitudinal research on employee well-being. Well-being was conceptualized by the four quadrant model of affective well-being (Warr, 2007) in terms of burnout, workaholism, work engagement, and job satisfaction. Along with several quality criteria, our review focused on studies with at least three measurement times, as this is considered a requirement for an adequate longitudinal study (Kelloway & Francis, 2013). Altogether, 40 longitudinal studies were identified. Our systematic literature review revealed that employee well-being was more variable than stable over time in both rank-order and absolute stability. In addition, age and job change emerged as the major factors influencing rank-order and absolute stability: for younger employees and for job changers, stabilities were found to be lower than for older employees and job stayers. The review further indicated that the level of employee well-being was found to be relatively high in the great majority (over three-quarters) of the reviewed longitudinal studies. Job satisfaction and work engagement did not fall below average levels over time, whereas burnout was typically at a low level.

Change more frequent than stability

Our first research question was, is well-being stable over time? The average of the mean rank-order estimates showed that less than 50% of the variance at a particular time point was explained by the values estimated at the previous time point(s). Compared, for example, with the rank-order stability of personality dispositions (self-esteem, optimism, and sense of coherence .73–.85; Mäkikangas, Feldt, & Kinnunen, 2007; Mäkikangas, Kinnunen, & Feldt, 2004) and Big Five personality traits (.65–.97; Rantanen, Metsäpelto, Feldt, Pulkkinen, & Kokko, 2007), the rank-order stability of employee well-being seemed to be substantially lower. We may therefore conclude that, over time, the ordering of employees in their relative levels of well-being changed more often than remained the same. It was also found that positive (job satisfaction and work engagement) and negative employee well-being indicators (burnout) did not differ in their rank-order stability when compared with their average rank-order estimates. In addition, the rank-order stabilities were about the same when the continuity of both positive and negative employee well-being indicators (e.g. work engagement and burnout) was investigated in the same study (Brauchli et al., 2013; Hakonen & Schaufeli, 2012).

The findings of rank-order stability go hand in hand with the findings related to absolute stability. This is exemplified by the finding that in three-quarters of the reviewed studies the mean employee well-being scores changed over time. In every case where change was investigated at either the between-person or within-person level, employee

well-being appeared to be variable rather than stable. However, the direction of change was not unequivocal, but varied widely. In 13% of the reviewed studies, the mean level of employee well-being decreased over time, whereas an increase was detected in a similar proportion of studies. Typically, then, change varied in nature, meaning that within the same study, increasing, decreasing, and stable developmental patterns were found. As mean-level change was not statistically tested in the majority of the reviewed studies, these findings can only be indicative. A convincing finding was, however, that in every case where change was examined its variance was larger than the variance of stability (Brauchli et al., 2013; Dormann et al., 2006; Schaufeli et al., 2011).

How are these findings explained theoretically? It is clear that no one of the three theories presented in the introduction – the set point, change, or life-course theories – sufficiently explains the heterogeneous patterns of change observed in the reviewed studies. Overall, the results would seem to favour the theories that emphasize change over time (Baltes et al., 1998; Fredrickson, 1998; Hobfoll, 1989) than stability (Cummins et al., 2002; Headey & Wearing, 1989). This can be concluded from the rank-order and absolute stabilities, which indicated that mean-level changes across time were rather typical and the explained variances were usually under 50%. However, as the time lags used were relatively short, no far-reaching theoretical conclusions can be drawn. Interestingly, however, the studies with the longest follow-up time (i.e. 10 years) supported the life-course theories that predict that well-being develops favourably over time (Baltes et al., 1998). For example, Wu and Griffin (2012) found increased job satisfaction over the last five-year period of their nine-year study. Mäkikangas and her colleagues (2011), in turn, reported that among the majority of employees well-being developed in a positive direction across 10 years: job-related feelings of anxiety and depression decreased, and feelings of comfort and enthusiasm increased. However, as both studies are based on very age-heterogeneous samples, no definitive conclusions can be drawn concerning maturity and growth with increasing age (Charles & Carstensen, 2009).

Employee well-being less stable among younger employees and job changers

Age and job change were found to affect the stability of well-being. Compared with this, the time lag effect was minor. For age, the rank-order stabilities were lower and mean-level changes more prevalent among younger than older employees. Several alternative explanations can be suggested for this novel finding. It could be that younger employees face several detrimental stressors, such as job insecurity (Scheibe & Zacher, 2013), that have shown great variability over time (Kinnunen, Mäkikangas, Mauno, Cuyper, & Witte, 2014), thereby also contributing to instability in levels of employee well-being. It might be also that instability among young employees is caused by changing attitudes towards the job; that is, young employees start their first job with a rosy outlook which, however, becomes less rosy over time, as suggested by the curvilinear trend found in job satisfaction (Boswell et al., 2009). In addition, older employees with more work experience might be better adjusted to cope with various stressors (Mauno et al., 2013), that is, reactivity to different stressors differs as a function of age (Scheibe & Zacher, 2013). The result concerning employee age could also be interpreted in the light of the life-course theories (Baltes et al., 1998). According to this approach, adaptation and stress management improve with age thus contributing to favourable well-being development (Baltes & Baltes,

1990; Charles & Carstensen, 2009; Isaacowitz & Blanchard-Fields, 2012; Staudinger & Kunzmann, 2005).

Job change was associated with both low rank-ordering and change in the mean level of well-being. These findings are largely based on the job satisfaction studies, which clearly indicated no or only low continuity between the satisfaction scores for the previous and current job (Boswell et al., 2009; Staw & Ross, 1985). As voluntary job change is typically to a better job, such positive development in well-being can be viewed as natural (see Mäkikangas, Schaufeli et al., 2013). On the other hand, these findings might also be explained by the “honeymoon effect”, which refers to employees’ tendency to paint an overly positive picture of their new job (Boswell et al., 2009). Therefore, longer follow-ups with several additional measurements are needed to further investigate this issue, as it has been suggested that it takes about two years to return to one’s normal equilibrium after job change (Dunford et al., 2012).

Limitations

Our literature review suffers from certain limitations. In selecting the studies, we used the quadrant model of job-related affective well-being (Warr, 2007) as a conceptual framework. However, the conceptual jungle that currently characterizes the employee well-being literature hampered the search for the relevant studies. In addition, restricting employee well-being concepts limited our investigation, as several other relevant employee well-being concepts are also commonly used, such as commitment or psychosomatic health (see e.g. van Horn et al., 2004). It is also possible that despite our careful search methods, we were not able to identify all the relevant studies, if the search criteria concepts employed were not mentioned in the title, abstract, or keywords of the articles.

In addition, it should be borne in mind that the results of the review may suffer from the healthy worker effect (see Schaufeli, Bakker, Hoodguin, Schaap, & Kladler, 2001), as we only included studies where participants evaluated their job-related well-being (i.e. were employed) on all measurement occasions. It can also be speculated that healthier employees have a greater tendency to participate in longitudinal studies than unhealthy employees; therefore, the selected studies could suffer from attrition per se. It is, perhaps, partly for these reasons that the average level of employee well-being was so high. Furthermore, as job change was reported and analysed in only a minority of the reviewed studies, our understanding of the impact of job change on employee well-being cannot but be rather limited. Job change within the samples (changes inside the organization or changes between jobs) might have occurred, but not been reported in the sample description.

Also, the impact of age was investigated at the general level, that is, combining results based on both heterogeneous and homogeneous (i.e. job-specific and organization-based) samples, as well as not using any specific thresholds for age. As age may affect the work context in several ways – that is, what work events are encountered and how they are appraised and what reactions they evoke (Scheibe & Zacher, 2013) – it would be illuminating to compare younger and older employees within the same occupation, an approach that was not possible in this review.

The mean-level estimates of well-being (i.e. low, average, or high) constructed for the purpose of our study can be considered rough approximations. In addition, the label

absolute stability was inexact, as the mean-level changes usually went untested in the reviewed studies. Furthermore, the rank-order stability estimates were either based on correlation information or on the results of structural equation modelling or regression analysis. Since the correlations between the latent factors will be higher due to the estimation of measurement error, the resulting rank-order stabilities, based on sum squares (i.e. correlations), may have underestimated the longitudinal stability of well-being. Moreover, given that people have their own idiosyncratic ways of answering psychological questionnaires, for example, owing to their personality (Furnham, 1986), pseudo-stability is a possible outcome of the answering style of some individuals. Although employee affective well-being is difficult to investigate using other than by self-report methods, it would be worthwhile to try.

Overall, in the future, when sufficient studies have been reported, it would be important to verify the results of this review on stability coefficients, as along with age and job change, by using meta-analytic methods. Finally, as employee low scores on well-being are primarily viewed as a consequence of a mismatch between the individual and the environment (Lazarus & Folkman, 1984), the role of job-related factors that have the potential to create strain or motivation for individuals in the short and long run, should not be neglected.

Recommendations for future research

We believe that this review complements the literature on employee well-being by providing theoretical arguments and empirical evidence for development of well-being. On the basis of the current review, we identify seven main issues that merit consideration in future longitudinal studies on employee well-being. These are as follows:

(1) More comprehensive investigation of employee well-being. The focus of most previous studies has been on the longitudinal development of employee ill-health rather than on positive well-being. Only eight studies (out of 40) simultaneously investigated two or more employee well-being constructs. In these studies, the dual construct positive–negative was usually explored (i.e. burnout–work engagement/job satisfaction) (see Brauchli et al., 2013; Feldt et al., 2013; Hakanen & Schaufeli, 2012; de Lange, Taris, Kompier, Houtman, & Bongers, 2004; Luyckx et al., 2010; Ybema et al., 2010; Ybema, Evers, & van Scheppingen, 2011). However, they were typically analysed as separate constructs. Therefore, in future research, more emphasis should be placed on a comprehensive investigation of employee well-being. Employee well-being, like other psychological phenomena, cannot be properly understood without taking both positive and negative experiences simultaneously into account (Wong, 2011).

(2) Longer follow-up times needed. Typically, the reviewed studies utilized relatively short time lags (i.e. 6 months to 1 year), and consequently the period analysed in the longitudinal studies was mostly 1.5–3 years, with a maximum of 10 years. As the typical work career is around 40 years in duration, the follow-ups used can only offer a snapshot of well-being development over the entire working career. Therefore, more multi-wave studies over longer time periods are needed to understand the development of well-being over the entire career.

(3) *More research on older employees needed.* None of the reviewed studies focused solely on 50- to 60-year-old employees. Instead the research focused on early careers or used samples comprising individuals of various ages, but typically comprising middle-age employees. Therefore, we urgently need studies on older employees to investigate the development of employee well-being during the pre-retirement years. In addition, longitudinal age-cohort studies, also absent among the reviewed studies, would yield important knowledge about the development of employee well-being from the life-course perspective.

(4) *Simultaneous investigation of different forms of stability.* The great majority of the reviewed studies focused on rank-order stability. Simple rank-order stability estimates do not reveal what happens at the mean level, and in order to obtain a balanced view of different aspects of employee well-being stability and change across time, rank-order and absolute stability need to be investigated simultaneously. This is a crucial issue, as the different forms of stability are largely independent of each other. For example, although rank-order stability may be very high, the mean-level may nevertheless increase or decrease across the participants. As the reported rank-order stabilities for employee well-being varied typically between .54 and .66, it is highly probable that employees varied in absolute stabilities. Overall, more flexible data analytical methods that could capture the means as well as the covariance structure of the data are called for (see Duncan, Duncan, Strycker, Li, & Alpert, 1999).

(5) *More person-oriented studies needed.* In rare cases a person-oriented approach was used, that is, employee well-being was investigated in subgroups of employees (Bergman et al., 2003; Laursen & Hoff, 2006). These studies usually focused on a single indicator of employee well-being, namely burnout (Evolahiti et al., 2013; Hultell et al., 2013; Leone et al., 2008; Rudman & Gustavsson, 2011). Only one study simultaneously modelled the mutual development of several employee ill-health and well-being indicators at the intra-individual level (see Mäkikangas et al., 2011). The person-oriented methods used illustrated the diverse nature of employee well-being development: employees differed from each other at the baseline level as well as in the direction of long-term development taken at the mean level. Therefore, more person-oriented studies are needed to gain a more comprehensive view on intra-individual well-being development.

(6) *Moderators of stability need investigation.* More research on the factors playing a significant role in stability – age and job change – is needed. For example, to what extent are these two factors inter-related? What is the impact of job change that occurs later in the career? Although job change seems to be beneficial in terms of employee well-being (Boswell et al., 2009; Mäkikangas, Schaufeli et al., 2013), the motivation for job change should be more closely investigated, that is, is it voluntary or involuntary? Involuntary job change caused by, for example, occupational disease or unemployment could have an opposite impact on employee well-being compared to that following voluntary job change. Furthermore, job change within or between jobs should be better taken into account in future longitudinal studies, as it clearly has effects on the stability estimates (Boswell et al., 2009; Staw & Ross, 1985).

(7) *Theories should be developed.* As the time perspective of traditional job stress models is rather limited, that is, they focus on specific job characteristics and their increasing or decreasing impact on well-being at the very general level (Kelloway & Francis, 2013), the life-span perspective and knowledge relating to it should be integrated with job stress theories. For example, the set point theories (Cummins et al., 2002; Headey, 2006, 2007; Headey & Wearing, 1989) could also be a good starting point for understanding employee well-being development, as they take into account the facts that (a) major life events can change the set point of subjective well-being permanently, (b) subjective well-being slightly increases over time, and (c) individual subjective well-being profiles show variation in the nature and direction of developmental paths, although subjective well-being typically remains stable in most individuals.

In addition, a hypothesis on the maintenance of levels of well-being discussed in the context of personality development (Antonovsky, 1987; see also Feldt et al., 2011) could also be a useful theoretical underpinning when seeking to explain the long-term development of employee well-being. According to the level hypothesis, individuals with a high level of positive personality traits tend to maintain a high level of well-being. However, among those whose level of positive personality traits is low, stability would also be lower, with a tendency towards an even lower future level of well-being (Antonovsky, 1987; see also Feldt et al., 2011). Some support for the level hypothesis was offered by Leung, Ip, and Leung (2010), who showed that rank-order stability over a six-month follow-up was higher in the high compared to low subjective well-being group.

Conclusions

To summarize, the findings of this systematic review showed that employee well-being varied, especially in the early career. However, employee well-being was not rigidly fixed in the later career either. Hence it is important to ensure that employee well-being is maintained throughout all career phases. Furthermore, since age and job change played a major role in the long-term stability of employee well-being, these issues warrant more emphasis in job stress research, which has tended to focus on the role of job characteristics. Lastly, the findings of this review showed that the indicators studied here can meaningfully be used to measure employees' affective well-being in future longitudinal research.

Funding

This study was supported by a grant from the Academy of Finland to Anne Mäkikangas [grant number 258882].

References

*Articles included in the analysis.

*Amati, M., Tomasetti, M., Ciuccarelli, M., Mariotti, L., Tarquini, L. M., Bracci, M., ... Santarelli, L. (2010). Relationship of job satisfaction, psychological distress and stress-related biological parameters among healthy nurses: A longitudinal study. *Journal of Occupational Health*, 52, 31–38. doi:10.1539/joh.L9042

- Antonovsky, A. (1987). *Unraveling the mystery of health. How people manage stress and stay well*. San Francisco, CA: Jossey-Bass.
- Bakker, A. B., & Oerlemans, W. (2011). Subjective well-being in organizations. In K. S. Cameron & G. M. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 178–189). New York, NY: Oxford University Press. doi:10.1093/oxfordhb/9780199734610.013.0014
- Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P. B. Baltes & M. M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 1–34). New York, NY: Cambridge University Press. doi:10.1017/CBO9780511665684
- Baltes, P. B., Lindenbergh, U., & Staudinger, U. M. (1998). Life-span theory in developmental psychology. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Volume 1: Theoretical models of human development* (5th ed., pp. 1029–1143). Hoboken, NJ: Wiley. doi:10.1002/9780470147658.chpsy0111
- Bergman, L. R., Magnusson, D., & El-Khoury, B. M. (2003). *Studying individual development in an interindividual context: A person-oriented approach*. Mahwah, NJ: Lawrence Erlbaum Associates.
- *Boswell, W. R., Shipp, A. J., Culbertson, S. S., & Payne, S. C. (2009). Changes in newcomer job satisfaction over time: Examining the pattern of honeymoons and hangovers. *Journal of Applied Psychology*, 94, 844–858. doi:10.1037/a0014975
- *Brauchli, R., Schaufeli, W. B., Jenny, G. J., Füllemann, D., & Bauer, G. F. (2013). Disentangling stability and change in job resources, job demands, and employee well-being – A three-wave study on the job-demands resources model. *Journal of Vocational Behavior*, 83, 117–129. doi:10.1016/j.jvb.2013.03.003
- *Capel, S. A. (1991). A longitudinal study of burnout in teachers. *British Journal of Educational Psychology*, 61, 36–45. doi:10.1111/j.2044-8279.1991.tb00959.x
- Caspi, A., & Roberts, B. W. (1999). Personality change and continuity across the life course. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality theory and research* (Vol. 2, pp. 300–326). New York, NY: Guilford Press.
- *Castanheira, F., & Chambel, M. J. (2010). Burnout in salespeople: A three-wave study to examine job characteristics' predictions and consequences for performance. *Economic and Industrial Democracy*, 31, 409–429. doi:10.1177/0143831X10365573
- Charles, S. T., & Carstensen, L. L. (2009). Social and emotional aging. *Annual Review of Psychology*, 61, 383–409. doi:10.1146/annurev.psych.093008.100448
- Cummins, R. A., Gullone, E., & Lau, A. L. D. (2002). A model of subjective well being homeostasis: The role of personality. In E. Gullone & R. A. Cummins (Eds.), *The universality of subjective well-being indicators: Social Indicators Research Series* (pp. 7–46). Dordrecht: Kluwer. doi:10.1007/978-94-010-0271-4_3
- *De Cuyper, N., Raeder, S., Van der Heijden, B., & Wittekind, A. (2012). The association between worker's employability and burnout in a reorganization context: Longitudinal evidence building upon the conservation of resources theory. *Journal of Occupational Health Psychology*, 17, 162–174. doi:10.1037/a0027348
- *Demerouti, E., Bakker, A. B., & Bulters, A. J. (2004). The loss spiral of work pressure, work-home interference and exhaustion: Reciprocal relations in a three-wave study. *Journal of Vocational Behavior*, 64, 131–149. doi:10.1016/S0001-8791(03)00030-7
- *Demerouti, E., Le Blanc, P. M., Bakker, A. B., Schaufeli, W. B., & Hox, J. (2009). Present but sick: A three-wave study on job demands, presenteeism and burnout. *Career Development International*, 14, 50–68. doi:10.1108/13620430910933574
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2009). New measures of well-being: Flourishing and positive and negative feelings. *Social Indicators Research*, 39, 247–266. doi:10.1007/978-90-481-2354-4_12
- Dormann, C., Fay, D., Zapf, D., & Frese, M. (2006). A state-trait analysis of job satisfaction: On the effect of core self-evaluations. *Applied Psychology: An International Review*, 55, 27–51. doi:10.1111/j.1464-0597.2006.00227.x
- Duncan, T. E., Duncan, S. S., Strycker, L. A., Li, F., & Alpert, A. (1999). *An introduction to latent variable growth curve modeling: Concepts, issues, and applications*. Mahwah, NJ: Erlbaum.

- *Dunford, B. B., Shipp A. J., Boss, R. W., Angermeier, I., & Boss, A. D. (2012). Is burnout static or dynamic? A career transition perspective of employee burnout trajectories. *Journal of Applied Psychology*, 97, 637–650. doi:10.1037/a0027060
- *Evoluhti, A., Hultell, D., & Collins, A. (2013). Development of burnout in middle-aged working women: A longitudinal study. *Journal of Women's Health*, 22, 94–103. doi:10.1089/jwh.2012.3507
- *Farkas, A. J., & Tetrick, L. E. (1989). A three-wave longitudinal analysis of the causal ordering of satisfaction and commitment of turnover decisions. *Journal of Applied Psychology*, 74, 855–868. doi:10.1037//0021-9010.74.6.855
- *Feldt, T., Huhtala, M., Kinnunen, U., Hyvönen, K., Mäkikangas, A., & Sonnentag, S. (2013). Long-term patterns of effort-reward imbalance and over-commitment: Investigating occupational well-being and recovery experiences as outcomes. *Work & Stress*, 27, 64–87. doi:10.1080/02678373.2013.765670
- Feldt, T., Leskinen, E., Koskenvuo, M., Suominen, S., Vahtera, J., & Kivimäki, M. (2011). Development of sense of coherence in adulthood: A person-centered approach. A population-based HeSSup cohort study. *Quality of Life Research*, 20, 69–79. doi:10.1007/s11136-010-9720-7
- Ford, M. T., Matthews, R. A., Wooldridge, J. D., Mishra, V., Kakar, U., & Strahan, S. R. (2014). How do occupational stressor-strain effects vary with time? A review and meta-analysis of the relevance of time lags in longitudinal studies. *Work & Stress*, 28, 9–30. doi:10.1080/02678373.2013.877096
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2, 300–319. doi:10.1037//1089-2680.2.3.300
- Furnham, A. (1986). Response bias, social desirability and dissimulation. *Personality and Individual Differences*, 7, 385–400. doi:10.1016/0191-8869(86)90014-0
- Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, 26, 91–108. doi:10.1111/j.1471-1842.2009.00848.x
- *Hakanen, J., & Schaufeli, W. B. (2012). Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. *Journal of Affective Disorders*, 141, 415–424. doi:10.1016/j.jad.2012.02.043
- Häusser, J. A., Mojzisch, A., Niesel, M., & Schulz-Hardt, S. (2010). Ten years on: A review of recent research on the job demand–control (-support) model and psychological well-being. *Work & Stress*, 24, 1–35. doi:10.1080/02678371003683747
- Headey, B.W. (2006). *Happiness: Revising set point theory and dynamic equilibrium theory to account for long term change* (DIW Discussion Paper No. 607). Berlin: DIW.
- Headey, B.W. (2007). *The set-point theory of well-being needs replacing – On the brink of a scientific revolution?* (DIW Discussion Paper No. 753). Berlin: DIW.
- Headey, B.W., & Wearing, A. (1989). Personality, life events, and subjective well-being: Toward a dynamic equilibrium model. *Journal of Personality and Social Psychology*, 57, 731–739. doi:10.1037//0022-3514.57.4.731
- Hobfoll, S. E. (1989). Conservation of resources. A new attempt at conceptualizing stress. *American Psychologist*, 44, 513–524. doi:10.1037//0003-066X.44.3.513
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6, 307–324. doi:10.1037//1089-2680.6.4.307
- van Horn, J. E., Taris, T., Schaufeli, W. B., & Schreurs, P. J. G. (2004). The structure of occupational well-being: A study among Dutch teachers. *Journal of Occupational and Organizational Psychology*, 77, 365–375. doi:10.1348/0963179041752718
- *Houkes, I., Winants, Y., Twellaar, M., & Verdonk, P. (2011). Development of burnout over time and the causal order of the three dimensions of burnout among male and female GPs. A three-wave panel study. *BMC Public Health*, 11, 240–252. doi: 10.1186/1471-2458-11-240
- *Hultell, D., Melin, B., & Gustavsson, J. P. (2013). Getting personal with teacher burnout: A longitudinal study on the development of burnout using a person-based approach. *Teaching and Teacher Education*, 32, 75–86. doi:10.1016/j.tate.2013.01.007

- Isaacowitz, D. M., & Blanchard-Fields, F. (2012). Linking process and outcome in the study of emotion and aging. *Perspectives on Psychological Science*, 7, 3–17. doi:10.1177/1745691611424750
- Kelloway, E. K., & Francis, L. (2013). Longitudinal research and data analysis. In L. E. Tetrick, M. Wang, & R. R. Sinclair (Eds.), *Research methods in occupational health psychology: Measurement, design, and data analysis* (pp. 374–393). New York, NY: Routledge.
- Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, 73, 539–548. doi:10.1037/0022-006X.73.3.539
- *Kiely, J. (1986). The dynamics of job satisfaction – A longitudinal study. *Personnel Review*, 15, 7–13. doi:10.1108/eb055543
- *Kim, H., Ji, J., & Kao, D. (2011). Burnout and physical health among social workers: A three-year longitudinal study. *Social Work*, 56, 258–268. doi:10.1093/sw/56.3.258
- Kinnunen, U., Mäkikangas, A., Mauno, S., Cuyper, N., & Witte, H. (2014). Development of perceived job insecurity across two years: Associations with antecedents and employee outcomes. *Journal of Occupational Health Psychology*, 19, 243–258. doi:10.1037/a0035835
- *de Lange, A. H., Taris, T. W., Kompier, M. A. J., Houtman, I. L. D., & Bongers, P. M. (2002). Effects of stable and changing demand-control histories on worker health. *Scandinavian Journal of Work, Environment, & Health*, 28, 94–108. doi:10.5271/sjweh.653
- de Lange, A. H., Taris, T. W., Kompier, M. A. J., Houtman, I. L. D., & Bongers, P. M. (2003). “The very best of the millennium”: Longitudinal research and the demand-control-(support) model. *Journal of Occupational Health Psychology*, 8, 282–305. doi:10.1037/1076-8998.8.4.282
- *de Lange, A. H., Taris, T. W., Kompier, M. A. J., Houtman, I. L. D., & Bongers, P. M. (2004). The relationships between work characteristics and mental health: Examining normal, reversed and reciprocal relationships in a 4-wave study. *Work & Stress*, 18, 149–166. doi:10.1080/02678370412331270860
- Laursen, B., & Hoff, E. (2006). Person-centered and variable-centered approaches to longitudinal data. *Merrill-Palmer Quarterly*, 52, 377–389. doi:10.1353/mpq.2006.0029
- Lazarus, R., & Folkman, S. (1984). *Stress, appraisal and coping*. New York, NY: Springer.
- *Leone, S. S., Huibers, M. J. H., Knottnerus, J. A., & Kant, I. (2008). A comparison of the course of burnout and prolonged fatigue: A 4-year prospective cohort study. *Journal of Psychosomatic Research*, 65, 31–38. doi:10.1016/j.jpsychores.2008.03.018
- *Leung, K., Ip, O. K. M., & Leung, K.-K. (2010). Social cynicism and job satisfaction: A longitudinal analysis. *Applied Psychology: An International Review*, 59, 318–338. doi:10.1111/j.1464-0597.2009.00392.x
- *Liu, D., Mitchell, T. R., Lee, T. W., Holtom, B. C., & Hinkin, T. R. (2012). When employees are out of step with coworkers: How job satisfaction trajectory and dispersion influence individual- and unit-level voluntary turnover. *Academy of Management Journal*, 55, 1360–1380. doi:10.5465/amj.2010.0920
- *Lizano, E. L., & Mor Barak, M. E. (2012). Workplace demands and resources as antecedents of job burnout among public child welfare workers: A longitudinal study. *Children and Youth Services Review*, 34, 1769–1776. doi:10.1016/j.childyouth.2012.02.006
- *Luyckx, K., Duriez, B., Klimstra, T. A., & De Witte, H. (2010). Identity statuses in young adult employees: Prospective relations with work engagement and burnout. *Journal of Vocational Behavior*, 77, 339–349. doi:10.1016/j.jvb.2010.06.002
- *Maier, G. W., & Brunstein, J. C. (2001). The role of personal work goals in newcomers’ job satisfaction and organizational commitment: A longitudinal analysis. *Journal of Applied Psychology*, 86, 1034–1042. doi:10.1037//0021-9010.86.5.1034
- Maslach, C., Jackson, S., & Leiter, M. P. (1996). *MBI: Maslach Burnout Inventory manual* (3th ed.). Palo Alto, CA: Consulting Psychologists Press.
- Mauno, S., Kinnunen, U., Mäkikangas, A., & Feldt, T. (2010). Job demands and resources as antecedents of work engagement: A qualitative review and directions for future research. In S. Albrecht (Ed.), *The handbook of employee engagement: Perspectives, issues, research and practice* (pp. 111–128). Cheltenham: Edward Elgar and Associates. doi:10.4337/9781849806374.00016

- Mauno, S., Ruokolainen, M., & Kinnunen, U. (2013). Does aging make employees more resilient to job stress? Age as a moderator in the job stressor well-being relationship in three Finnish occupational samples. *Aging and Mental Health*, 17, 411–422. doi:10.1080/13607863.2012.747077
- Mäkikangas, A., Feldt, T., & Kinnunen, U. (2007). Warr's scale of Job-related affective well-being: A longitudinal examination of its structure and relationships with work characteristics. *Work and Stress*, 21, 197–219. doi:10.1080/026783707016662151
- Mäkikangas, A., Feldt, T., Kinnunen, U., & Mauno, S. (2013). Does personality matter? A review of individual differences in occupational well-being. In A. B. Bakker. (Ed.), *Advances in positive organizational psychology* (Vol. 1. pp. 107–143). Bingley: Emerald. doi:10.1108/S2046-410X(2013)0000001008
- *Mäkikangas, A., Hyvönen, K., Leskinen, E., Kinnunen, U., & Feldt, T. (2011). A person-centered approach to investigating the development trajectories of job-related affective well-being: A 10-year follow-up. *Journal of Occupational and Organizational Psychology*, 84, 327–346. doi:10.1111/j.2044-8325.2011.02025.x
- Mäkikangas, A., Kinnunen, U., & Feldt, T. (2004). Self-esteem, dispositional optimism and health: Evidence from cross-lagged data on employees. *Journal of Research in Personality*, 38, 556–575. doi:10.1016/j.jrp.2004.02.001
- Mäkikangas, A., Rantanen, J., Bakker, A. B., Kinnunen, M.-L., Pulkinen, L., & Kokko, K. (2015). The circumplex model of occupational well-being: Its relation with personality. *Journal for Person-Oriented Research*, 1, 114–129. doi:10.17505/jpor.2015.13
- Mäkikangas, A., Schaufeli, W., Tolvanen, A., & Feldt, T. (2013). Engaged managers are not workaholics: Evidence from longitudinal person-centered analysis. *Journal of Work and Organizational Psychology*, 29, 135–143. doi:10.5093/tr2013a19
- *Nagy, S., & Nagy, M. C. (1992). Longitudinal examination of teacher's burnout in a school district. *Psychological Reports*, 71, 523–531. doi:10.2466/pr0.1992.71.2.523
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3th ed.). New York, NY: McGraw-Hill.
- Price, R. (2015). Changing life trajectories, employment challenges and worker health in global perspective. In J. Vuori, R. Blonk, & R. Price (Eds.), *Sustainable working lives – managing work transitions and health throughout the life course* (pp. 3–16). Dordrecht: Springer.
- Rantanen, J., Metsäpelto, R.-L., Feldt, T., Pulkinen, L., & Kokko, K. (2007) Long-term stability in the Big Five personality traits in adulthood. *Scandinavian Journal of Psychology*, 48, 511–518. doi:10.1111/j.1467-9450.2007.00609.x
- *Rudman, A., & Gustavsson, J. P. (2011). Early-career burnout among new graduate nurses: A prospective observational study of intra-individual change trajectories. *International Journal of Nursing Studies*, 48, 292–306. doi:10.1016/j.ijnurstu.2010.07.012
- Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, 39, 1161–1178. doi:10.1037/h0077714
- Salanova, M., Del Libano, M., Llorens, S., & Schaufeli, W. (2014). Engaged, workaholic, burned-out or just 9-to-5? Toward a typology of employee well-being. *Stress & Health*, 30, 71–81. doi:10.1002/smi.2499
- *Salmela-Aro, K., Tolvanen, A., & Nurmi, J.-E. (2011). Social strategies during university studies predict early career work burnout and engagement: 18-year longitudinal study. *Journal of Vocational Behavior*, 79, 145–157. doi:10.1016/j.jvb.2011.01.002
- Schaufeli, W. B., Bakker, A. B., Hoodguin, K., Schaap, C., & Kladler, A. (2001). On the clinical validity of the Maslach Burnout Inventory and the burnout measure. *Psychology and Health*, 16, 565–582. doi:10.1080/08870440108405527
- *Schaufeli, W. B., Maassen, G. H., Bakker, A. B., & Sixma, H. J. (2011). Stability and change in burnout: A 10-year follow-up study among primary care physicians. *Journal of Occupational and Organizational Psychology*, 84, 248–267. doi:10.1111/j.2044-8325.2010.02013.x
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71–92. doi:10.1023/A:1015630930326

- Schaufeli, W. B., Shimazu, A., & Taris, T. W. (2009). Being driven to work excessively hard: The evaluation of a two-factor measure of workaholism in the Netherlands and Japan. *Cross-cultural Research*, 43, 320–348. doi:10.1177/1069397109337239
- Scheibe, S., & Zacher, H. (2013). A lifespan perspective on emotion regulation, stress, and well-being in the workplace. In P. L. Perrewé, C. C. Rosen, & J. Halbesleben (Eds.), *The role of emotion and emotion regulation in job stress and well being* (pp. 163–194). Bingley: Emerald Group Publishing.
- *Simbula, S., Guglielmi, D., & Schaufeli, W. B. (2011). A three-wave study of job resources, self-efficacy and work engagement among Italian schoolteachers. *European Journal of Work and Organizational Psychology*, 20, 285–304. doi:10.1080/13594320903513916
- Spector, P. E. (1997). *Job satisfaction. Application, assessment, cause, and consequences*. Thousand Oaks, CA: Sage.
- Staudinger, U., & Kunzmann, U. (2005). Positive adult personality development. Adjustment and/or growth? *European Psychologist*, 10, 320–329. doi:10.1027/1016-9040.10.4.320
- *Staw, B. M., & Ross, J. (1985). Stability in the midst of change: A dispositional approach to job attitudes. *Journal of Applied Psychology*, 70, 469–480. doi:10.1037//0021-9010.70.3.469
- Suri, H., & Clarke, D. (2009). Advancements in research synthesis methods: From a methodologically inclusive perspective. *Review of Educational Research*, 79, 395–430. doi:10.3102/0034654308326349
- *Taris, T. W., Le Blanc, P. M., Schaufeli, W. B., & Schreurs, P. J. G. (2005). Are there causal relationships between the dimensions of the Maslach Burnout Inventory? A review and two longitudinal tests. *Work & Stress*, 19, 238–255. doi:10.1080/02678370500270453
- *Vandenberghe, C., Panaccio, A., Bentein, K., Mignonac, K., & Roussel, P. (2011). Assessing longitudinal change of and dynamic relationships among role stressors, job attitudes, turnover intention, and well-being in neophyte newcomers. *Journal of Organizational Behavior*, 32, 652–671. doi:10.1002/job.732
- Warr, P. (2007). *Work, happiness, and unhappiness*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Warr, P. (2013). How to think about and measure psychological well-being. In R. R. Sinclair, M. Wang, and L. E. Tetrick (Eds.), *Research methods in occupational health psychology* (pp. 76–90). London: Routledge.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, 98, 219–235. doi:10.1037//0033-2909.98.2.219
- *Weigl, M., Hornung, S., Parker, S. K., Petru, R., Glaser, J., & Angerer, P. (2010). Work engagement accumulation of task, social, and personal resources: A three-wave structural equation model. *Journal of Vocational Behavior*, 77, 140–153. doi:10.1016/j.jvb.2010.03.002
- Weiss, D. J., Dawis, R. V., England, G. W., & Lofquist, L. H. (1967). *Manual for the Minnesota Satisfaction Questionnaire: Minnesota studies on vocational rehabilitation* (Vol. 22). Minneapolis: Work Adjustment Project, Industrial Relations Center, University of Minnesota.
- *Wong, C.-S., Hui, C., & Law, K. S. (1998). A longitudinal study of the job perception-job satisfaction relationship: A test of the three alternative specifications. *Journal of Occupational and Organizational Psychology*, 71, 127–146. doi:10.1111/j.2044-8325.1998.tb00667.x
- Wong, P. T. P. (2011). Positive psychology 2.0: Towards a balanced interactive model of good life. *Canadian Psychology*, 52, 69–81. doi:10.1037/a0022511
- *Wu, C.-H., & Griffin, M. A. (2012). Longitudinal relationships between core self-evaluations and job satisfaction. *Journal of Applied Psychology*, 97, 331–342. doi:10.1037/a0025673
- *Ybema, J. F., Evers, M. S., & van Scheppingen, A. R. (2011). A longitudinal study on the effects of health policy in organizations on job satisfaction, burnout, and sickness absence. *Journal of Occupational and Environmental Medicine*, 53, 1251–1257. doi:10.1097/JOM.0b013e318234e2b0
- *Ybema, J. F., Smulders, P. G. W., & Bongers, P. M. (2010). Antecedents and consequences of employee absenteeism: A longitudinal perspective on the role of job satisfaction and burnout. *European Journal of Work and Organizational Psychology*, 19, 102–124. doi:10.1080/13594320902793691
- Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: A review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology*, 1, 145–169. doi:10.1037/1076-8998.1.2.145