



Research report

Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study

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ABSTRACT

Background: Burnout and work engagement have been viewed as opposite, yet distinct states of employee well-being. We investigated whether work-related indicators of well-being (i.e. burnout and work engagement) spill-over and generalize to context-free well-being (i.e. depressive symptoms and life satisfaction). More specifically, we examined the causal direction: does burnout/work engagement lead to depressive symptoms/life satisfaction, or the other way around?

Methods: Three surveys were conducted. In 2003, 71% of all Finnish dentists were surveyed ($n = 3255$), and the response rate of the 3-year follow-up was 84% ($n = 2555$). The second follow-up was conducted four years later with a response rate of 86% ($n = 1964$). Structural equation modeling was used to investigate the cross-lagged associations between the study variables across time.

Results: Burnout predicted depressive symptoms and life dissatisfaction from T1 to T2 and from T2 to T3. Conversely, work engagement had a negative effect on depressive symptoms and a positive effect on life satisfaction, both from T1 to T2 and from T2 to T3, even after adjusting for the impact of burnout at every occasion.

Limitations: The study was conducted among one occupational group, which limits its generalizability.

Conclusions: Work-related well-being predicts general wellbeing in the long-term. For example, burnout predicts depressive symptoms and not vice versa. In addition, burnout and work engagement are not direct opposites. Instead, both have unique, incremental impacts on life satisfaction and depressive symptoms.

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1. Introduction

Both negative (e.g. burnout) and positive (e.g. being engaged) states experienced at work are related to mental well-being and health (Ahola et al., 2005; Erdogan et al., 2011; Faragher et al., 2005; Hakanen et al., 2008a; Schaufeli et al., 2009a, 2009b). The term burnout was first introduced by psychologist Herbert Freudenberger (1974) who described it as a

negative, job related psychological state comprising a set of symptoms such as physical fatigue, emotional exhaustion, and loss of motivation. Soon after and independently of Freudenberger, Cristina Maslach (1976) defined burnout remarkably similarly as a multi-dimensional stress syndrome consisting of mental fatigue (emotional exhaustion) and negative perceptions and feelings about clients or patients (depersonalization), and somewhat later also a crises in professional competence (reduced personal accomplishment) was included as a third component of burnout (Maslach and Jackson, 1981). Burnout has costs for organizations, as well as for society at large because it is related to higher absenteeism (Ahola et al., 2008), chronic work disability (Ahola et al., 2009a, 2009b), hospital admissions due

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to mental and cardiovascular disorders (Toppinen-Tanner et al., 2009), turnover (Shimizu et al., 2005), and poorer job performance (Taris, 2006a).

The relationship between burnout and depression remains unclear. Already Freudenberg (Freudenberger and Richelson, 1980) argued that the symptoms of burnout are job-related and situation-specific, whereas depressive symptoms are typically generalized to all other situations and spheres of life. Similarly, Warr (1987) made a distinction between job-related burnout and context-free depression. On the other hand, due to conceptual overlap, it has also been questioned whether the two can be distinguished from each other (Taris, 2006b). Empirically, however, previous studies have consistently shown that burnout and depressive symptoms are distinct but inter-related negative moods (e.g. Ahola et al., 2005; Bakker et al., 2000; Glass and McKnight, 1996; Iacovides, et al., 1999; Leiter and Durup, 1994; Shirom and Ezrath, 2003). A crucial unsolved issue is the causal order between both mental states. It has been assumed that burnout is a phase in the development of depression (Ahola et al., 2006; Iacovides, et al., 2003), hence implying that it precedes depression. However, the few existing longitudinal studies are inconclusive. For instance, McKnight and Glass (1995) found that rather than impacting each other, burnout and depressive symptoms may co-develop “in tandem”. A three-year prospective study by Ahola and Hakanen (2007), which included both earlier waves of the present sample, showed that of those dentists with burnout but without depressive symptoms at baseline, 23% reported depressive symptoms at follow-up. Similarly, of those with depressive symptoms at baseline but without burnout symptoms, 63% had developed burnout symptoms three years later. These results seem to suggest that both negative states may foster each other. On the other hand, using the whole sample and a two-wave cross-lagged panel analysis, Hakanen et al. (2008a) found that burnout predicted depressive symptoms (and not the other way round) three years later. Finally, using a cross-sectional retrospective design, Nyklíček and Pop (2005) showed that having experienced a depressive episode earlier in life or a history of depression in close family members independently predicted current burnout. To our knowledge, the present study is the first three-wave study with a long enough follow-period (seven years altogether) to reveal the causal order between burnout and depressive symptoms in the long run.

Thanks to the rise of *positive psychology* (Seligman and Csikszentmihalyi, 2000), work-related well-being is now better understood, not only as absence of strain like burnout but also as a truly positive state, e.g. as work engagement (Schaufeli and Bakker, 2010). There are two main approaches to conceptualize work engagement. First, it has been considered as a direct opposite of burnout (Maslach et al., 2001). According to this view, work engagement is characterized by energy, involvement, and efficacy, which is opposite to exhaustion, cynicism, and lack of efficacy, respectively – the three constituting elements of burnout (Maslach and Leiter, 1997). Since burnout and engagement are assumed to be ends of the same continuum it is posited that both opposite states can be assessed using the Maslach Burnout Inventory (MBI; Maslach and Jackson, 1981). High scores on the MBI would be indicative of burnout, whereas low scores would be indicative of work engagement. According

to the alternative view, work engagement is considered independently from burnout and defined as “a positive, fulfilling state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al., 2002). Thus, contrary to those who suffer from burnout, engaged employees have a sense of energetic and effective connection with their work activities (Schaufeli and Salanova, 2006). In this alternative view, work engagement and burnout are considered distinct albeit negatively related constructs, and this distinctiveness is indeed confirmed by a recent meta-analysis (Halbesleben, 2010). In addition, longitudinal studies have shown that, for example, work engagement may negatively predict frequency of sickness absences (Schaufeli et al., 2009a, 2009b), and positively influence organizational commitment (Hakanen et al., 2008a), and work–family enrichment (Hakanen et al., 2011b). A recent study also suggests that the vigor dimension of work engagement (operationalized as a direct opposite of exhaustion) may act as an antecedent that reduces future symptoms of depression and anxiety (Seppälä et al., 2012). Thus, work engagement may have positive organizational, individual as well as family-related consequences. This means that work engagement could protect from depression, because engagement is an active and energetic psychological state which fosters the mobilization of resources even in mentally challenging conditions.

Finally, similar to work-related well-being, which consists of both being work engaged (positive state) and lacking burnout symptoms (negative state), general well-being is more than the lack of depressive symptoms (negative state). In addition, general well-being is also constituted by the presence of a positive state; being satisfied with one's life. Life satisfaction refers to a cognitive and global evaluation of the quality of one's life as a whole (McDowell, 2010; Pavot and Diener, 1993). According to two recent reviews life satisfaction has been associated with reduced mortality in healthy population studies (Chida and Steptoe, 2008) and with many other positive outcomes, such as organizational commitment, job performance and turnover intentions (Erdogan et al., 2011). However, life satisfaction research has largely ignored the work domain and has mainly investigated nonwork populations, and when focused on work-life issues, it has remained atheoretical (Erdogan et al., 2011).

In the current study, we examined whether positive (work engagement) and negative (burnout) work-related states would predict both positive (life satisfaction) and negative (depressive symptoms) general well-being (see Table 1). The theoretical rationale for this *spillover hypothesis* can be found in the conservation of resources theory (COR; Hobfoll, 1998). According to COR theory, burnout results from long-term threats (e.g. too high job demands) to one's energetic resources and/or actual loss of these resources after heavily investing in work without appropriate gains in return

Table 1

Conceptual model of the work-specific and general well-being in the present study.

	Work-related mental well-being	General mental well-being
Positive state	Work engagement	Life satisfaction
Negative state	Burnout	Depressive symptoms

(Shirom, 2003). Moreover, COR theory maintains that initial resource loss is likely to lead to *loss spirals*, i.e. to future losses of other resources and to subsequent deteriorated well-being (Hobfoll and Shirom, 1993). Indeed, research shows that burnout is related to several resource losses, e.g. to decreased self-efficacy (Leiter, 1992), increased work-family conflicts (Allen et al. 2000), and poorer coping strategies (Sears et al., 2000). Hence, because burnout is associated with progressive loss of resources which undermines the individual's coping capabilities we expect that this negative work-related state will spill-over and generalize into negative, context-free states like depressive symptoms and life dissatisfaction.

On the other hand, COR theory also assumes the possibility of gain spirals, i.e., those who possess resources, are likely to gain more resources over time (Hobfoll, 2001; Salanova et al., 2010). Work engagement is often experienced in resourceful jobs (that include autonomy, support, feedback etc.) (Halbesleben 2010). Feeling positive and energized (engaged) may be considered a surplus resource resulting from having a resourceful and meaningful job. Being engaged at work may further increase personal resources such as self-efficacy and optimism (Xanthopoulou et al., 2009), work-family enrichment (Hakanen et al., 2011b), and workability (Airila et al., 2012), and may thereby also spill-over to context-free well-being by positively influencing life satisfaction and negatively influencing depressive symptoms.

Thus, based on previous studies and theoretical reasoning, we expect that work-related well-being (burnout and work engagement) spills over to other life domains and generalizes to depressive symptoms and life satisfaction, respectively. In other words, we expect that work-related well-being predicts context-free well-being in the long-term. Alternatively, because the literature on the causal relationships between work-specific and general well-being is still inconclusive and longitudinal research is sparse, we also examined possible reversed or reciprocal effects, i.e., whether depressive symptoms and life satisfaction as indicators of context-free well-being could influence work-specific well-being (burnout and work engagement) rather than the other way around.

2. Methods

2.1. Participants

This study was part of a longitudinal research project that focused on well-being and health in dentistry. At baseline, a questionnaire was sent to all dentist members of the Finnish Dental Association (FDA) ($n = 4588$). Altogether, 3255 (71%) dentists responded to the questionnaire at baseline (T1), and 2555 of those identified three years later ($n = 3035$) took part in the follow-up (T2) (84%). In the third wave, four years after the first follow-up, in addition to having responded to two earlier surveys, 1964 dentists still participated in the study, which is 86% of those Time 2 participants who could be identified and 60% of the baseline participants.

At baseline T1, the sample was representative of all Finnish dentists in terms of age and gender (Hakanen, 2004). The participants of the third wave still accounted for approximately 49% of the dental profession in Finland. A comparison of the demographics and the study variables of the respondents who participated in all three waves ($N = 1964$) with those

who dropped out after T1 ($N = 702$) revealed some selective dropout. Namely, women (76.6% vs. 64.4%; $\chi^2(1) = 32.79$, $p < .001$), and after taking into account the retirement during the follow-up, older participants (average age of participants was 43.92 vs. 42.31 years for the dropouts; $p < .001$) were slightly over-represented. Concerning the study variables, respondents participating at each of the time points showed a somewhat greater dedication than the non-respondents ($F(1) = 7.93$, $p < .01$) and less depressive symptoms ($F(1) = 6.12$, $p < .05$) at T1. Because the participants did not differ on the basis of the other study variables (i.e. vigor, absorption, exhaustion, depersonalization, and life satisfaction) it seems unlikely that these differences biased our results.

2.2. Measures

2.2.1. Work engagement

Work engagement was assessed with three subscales of the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002). *Vigor* was assessed with six items ($\alpha_{T1} = .73$, $\alpha_{T2} = .75$, and $\alpha_{T3} = .81$), *dedication* with five items ($\alpha_{T1} = .87$, $\alpha_{T2} = .86$, and $\alpha_{T3} = .84$), and *absorption* with six items ($\alpha_{T1} = .81$, $\alpha_{T2} = .83$, and $\alpha_{T3} = .81$). Items of work engagement were rated on a seven-point scale ranging from 0 ("never") to 6 ("always").

2.2.2. Burnout

Burnout was measured with two scales from the Maslach Burnout Inventory (MBI; Maslach and Jackson, 1981): *emotional exhaustion* (9 items; $\alpha_{T1} = .90$, and $\alpha_{T2} = \alpha_{T3} = .91$) and *depersonalization* (5 items; $\alpha_{T1} = .73$, $\alpha_{T2} = .77$, and $\alpha_{T3} = .78$). The items were scored on a 7-point frequency rating scale ranging from 0 ("never") to 6 ("daily"). Originally the MBI includes also a third dimension, namely personal accomplishment which refers to the tendency to evaluate oneself negatively, particularly with regard to work with clients. However, evidence has accumulated that compared to emotional exhaustion and depersonalization reduced personal accomplishment plays a divergent role (Lee and Ashforth, 1996) and therefore exhaustion and depersonalization are considered the core dimensions of burnout (Schaufeli and Taris, 2005).

2.2.3. Life satisfaction

Life satisfaction was measured with the widely used Satisfaction with Life Scale (Pavot and Diener, 1993). The scale includes 5 items that are assessed on a 7-point scale (1 = "strongly disagree", 7 = "strongly agree"). Cronbach alphas were $\alpha_{T1} = .90$, $\alpha_{T2} = .90$, $\alpha_{T3} = .91$.

2.2.4. Depressive symptoms

Depressive symptoms were measured with the short form of the Beck Depression Inventory (BDI; Beck and Beck, 1972) which consists of 13 items with four alternatives for intensity; higher scores indicate more severe depressive symptoms. After examining the factorial structure of the measure we used two scales to indicate depressive symptoms (see also Byrne et al., 1996): *negative emotions and attitudes* (seven items covering such topics as sadness; $\alpha_{T1} = .78$, $\alpha_{T2} = \alpha_{T3} = .81$) and *performance difficulties and somatic complaints* (six items like social withdrawal; $\alpha_{T1} = .71$, $\alpha_{T2} = .72$, and $\alpha_{T3} = .71$).

2.3. Statistical analyses

In order to investigate the cross-lagged longitudinal relationships between the study variables, we employed structural equation modeling (SEM) techniques using the AMOS 18.0 software package. Multiple indicators for each latent variable were used in the tested models. Work engagement was indicated by its three dimensions: vigor, dedication, and absorption. Burnout was indicated by its two core dimensions: exhaustion and depersonalization. Depressive symptoms were indicated by: (1) negative emotions and attitudes; and (2) performance difficulties and somatic complaints. Finally, uni-dimensional life satisfaction was indicated using five items. Several complementary fit indices were used to examine the overall quality and fit of the hypothesized and alternative models to the data: Comparative Fit Index (CFI), Normed Fit Index (NFI), Tucker Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). For CFI, NFI, and TLI, values greater than .90 (and preferably greater than .95) indicate a good fit between the model and the data (Hoyle and Panter, 1995; Hu and Bentler, 1999). An RMSEA value of .05 or less indicates a close fit, and values up to .08 would still indicate a reasonable error of approximation (Browne and Cudeck, 1993). The fit of nested models was compared by examining the significant changes in the Chi-square values and corresponding degrees of freedom. As regards non-nested models, we compared the chi-square/degrees of freedom ratio to evaluate the best fitting model: the smaller that value, the better the fit of the model (Wheaton et al., 1977).

As a preliminary step in the analyses, we tested the measurement model that defines the relations between all observed and unobserved study variables. The Confirmatory Factor Analytic (CFA) measurement model specifies the pattern by which each measure loads on a particular factor (Byrne, 2001, p. 12) and presented a good fit to the data ($\chi^2 = 3018.04$; $df = 512$; CFI = .95; TLI = .94; NFI = .95; RMSEA = .050). In addition, we investigated the time invariance of the factor loadings at T1, T2, and T3. We found that the average difference in the factor loadings was only 0.026 and that the biggest difference in standardized factor loadings was between depersonalization measured at T1 and T3 (0.084). Therefore, we consider the factor loadings as invariant across the 7-year period. Taken together, our preliminary analyses confirm that the study variables can be distinguished from each other and that the contribution of the observed variables to the latent variables is rather stable across time.

Next, we tested the hypothesized spill-over model (M_{work}) in which both work engagement and burnout at T1 and T2 predict both life satisfaction and depressive symptoms at T2 and T3, respectively. We compared the hypothesized model with three alternatively plausible models using full panel designs, namely; (1) *the stability model* (M_{stabil}), which included the autoregressive effects over time of each latent variable but with all cross-lagged associations constrained to zero; (2) *from general well-being to work-related well-being model* ($M_{general}$), which included the autoregressive effects as in M_{stabil} combined with the reversed effects compared to M_{work} , i.e., paths from life satisfaction and depressive symptoms from T1 and T2 to work engagement and burnout at T2 and T3 were added to the model; and (3) *the reciprocal model* (M_{recipr}) which was a combination of M_{work} and $M_{general}$.

Comparing these four models enabled us to test our spill-over hypothesis and also the direction of causality, for example, whether burnout predicts depressive symptoms or the other way around, or whether both mental states mutually influence each other.

All tested models included auto-regression effects in order to control for baseline levels, as suggested by Gollob and Reichardt (1991, p. 243–259). In addition, synchronous correlations between the latent variables were allowed in all tested models. Finally, the error terms of each indicator at T1, T2, and T3 were allowed to covary with each other, as is the recommended procedure in longitudinal structural equation models (Anderson and Williams, 1992).

3. Results

3.1. Sample descriptives

Table 2 shows that the dentists were mostly women (76%) who had a permanent work contract (94%). In addition, the majority worked full-time (83%) and in the public sector (64%).

3.2. Bivariate relationships between the study variables

Means, standard deviations, and Pearson correlations of all study variables are presented in Table 3.

3.3. Longitudinal relationships

Table 4 shows the fit indices of all tested models. The hypothesized spill-over model M_{work} fitted the data well. Moreover, model comparison with the Chi-square difference test showed that M_{work} had a significantly better fit to the data than the alternative stability model M_{stabil} ($\Delta\chi^2 = 99.37$, $\Delta df = 8$, $p < .001$). In addition, the fit indices showed that the

Table 2
Baseline characteristics of the study population ($n = 1964$).

Characteristic	<i>n</i> (%)	Characteristic	<i>n</i> (%)
Sex		Job tenure	
Women	1485 (76)	0–4 years	113 (6)
Men	479 (24)	5–9 years	240 (12)
		10–19 years	689 (35)
		20–29 years	729 (37)
		30 years or more	185 (10)
		Missing data	8 (0)
Age		Supervisory position	
26–35 years	294 (15)	Yes	518 (26)
36–45 years	769 (39)	No	1390 (71)
46–55 years	759 (39)	Missing data	56 (3)
56–72 years	142 (7)	Working hours	
Marital status		Full-time	1626 (83)
Unmarried	147 (7)	Shortened	104 (5)
Married or cohabiting	1651 (84)	Part-time	220 (11)
Divorced or widowed	159 (8)	Missing data	14 (1)
Missing data	7 (1)	Professional sector	
Professional sector		Employment	
Public	1254 (64)	Permanent	1849 (94)
Private	697 (35)	Fixed-term	103 (5)
Missing data	13 (1)	Missing data	12 (1)

Table 3
Means, standard deviations, and correlations between the study variables ($N = 1964$).

Variables	M	Sd	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	
<i>T1 (2003)</i>																											
1. Vigor _{T1}	4.54	.99	-																								
2. Dedication _{T1}	5.01	1.02	.72	-																							
3. Absorption _{T1}	3.78	1.36	.51	.50	-																						
4. Exhaustion _{T1}	2.09	1.23	-.32	-.37	.01	-																					
5. Depersonalization _{T1}	1.19	1.04	-.22	-.28	-.01	.47	-																				
6. Life satisfaction _{T1}	5.30	1.20	.34	.40	.18	-.45	-.26	-																			
7. Depression: negative attitudes _{T1}	1.14	.26	-.35	-.39	-.10	.46	.28	-.56	-																		
8. Depression: performance difficulties _{T1}	1.35	.36	-.39	-.40	-.09	.61	.36	-.51	.62	-																	
<i>T2 (2006)</i>																											
9. Vigor _{T2}	4.60	.91	.67	.55	.39	-.27	-.21	.31	-.29	-.31	-																
10. Dedication _{T2}	4.99	.96	.56	.70	.38	-.29	-.25	.35	-.31	-.32	.73	-															
11. Absorption _{T2}	3.79	1.34	.39	.37	.66	.02	-.05	.14	-.08	-.09	.51	.48	-														
12. Exhaustion _{T2}	2.22	1.28	-.25	-.30	-.01	.69	.36	-.37	.36	.47	-.37	-.39	-.03	-													
13. Depersonalization _{T2}	1.36	1.14	-.19	-.23	-.02	.37	.64	-.20	.21	.27	-.27	-.32	-.06	.53	-												
14. Life satisfaction _{T2}	5.25	1.18	.29	.34	.15	-.37	-.23	.66	-.45	-.41	.40	.44	.16	-.46	-.29	-											
15. Depression: negative attitudes _{T2}	1.16	.28	-.28	-.33	-.11	.38	.24	-.42	.63	.45	-.35	-.40	-.11	.48	.28	-.60	-										
16. Depression: performance difficulties _{T2}	1.38	.38	-.28	-.33	-.07	.49	.29	-.41	.45	.63	-.41	-.43	-.12	.64	.36	-.56	.63	-									
<i>T3 (2010)</i>																											
17. Vigor _{T3}	4.59	.97	.61	.52	.38	-.24	-.20	.26	-.25	-.29	.67	.56	.39	-.28	-.23	.29	-.26	-.30	-								
18. Dedication _{T3}	4.98	.95	.48	.62	.37	-.24	-.21	.28	-.25	-.26	.54	.69	.39	-.26	-.23	.32	-.29	-.30	.75	-							
19. Absorption _{T3}	3.80	1.37	.38	.37	.65	.00	-.07	.09	-.05	-.06	.41	.39	.70	-.03	-.07	.11	-.08	-.07	.54	.53	-						
20. Exhaustion _{T3}	2.09	1.29	-.18	-.24	-.01	.62	.33	-.32	.36	.41	-.24	-.28	-.02	.68	.40	-.37	.39	.47	-.34	-.33	-.04	-					
21. Depersonalization _{T3}	1.28	1.12	-.16	-.21	-.03	.37	.61	-.18	.22	.25	-.22	-.25	-.08	.41	.68	-.30	.25	.31	-.28	-.30	-.11	.56	-				
22. Life satisfaction _{T3}	5.40	1.15	.28	.33	.15	-.37	-.21	.61	-.44	-.37	.32	.37	.13	-.39	-.23	.67	-.48	-.44	.35	.37	.15	-.46	-.30	-			
23. Depression: negative attitudes _{T3}	1.16	.28	-.24	-.29	-.08	.35	.23	-.37	.56	.38	-.25	-.32	-.07	.38	.24	-.42	.64	.45	-.33	-.35	-.12	.49	.33	-.59	-		
24. Depression: performance difficulties _{T3}	1.39	.37	-.25	-.29	-.08	.43	.25	-.36	.41	.53	-.30	-.33	-.11	.48	.29	-.40	.47	.61	-.40	-.38	-.12	.62	.40	-.55	.62	-	

Correlations $\geq .08$ are statistically significant, $p < .001$; correlations between $.06$ and $.07$ are statistically significant, $p < .01$; correlation $.05$ is statistically significant, $p < .05$.

Table 4Fit statistics for the alternative study models ($N = 1964$).

Model	Model description	χ^2	df	CFI	NFI	TLI	RMSEA	AIC	Model comparisons	$\Delta\chi^2$	Δdf
MM	Measurement model	3018.04	512	.95	.95	.94	.050	3398.04			
M _{stabil}	Stability model	2444.21	543	.96	.96	.96	.042	2762.21			
M _{work}	From work-related well-being to general well-being model	2344.85	535	.97	.96	.96	.042	2678.85	M _{stabil} vs. M _{work}	99.36 ^{***}	8
M _{general}	From general well-being to work-related well-being model	2416.69	535	.97	.96	.96	.042	2750.69	M _{stabil} vs. M _{general}	27.52 ^{**}	8
M _{recipr}	Reciprocal model	2327.48	527	.97	.96	.96	.042	2677.48	M _{work} vs. M _{recipr}	17.36 [*]	8
									M _{stabil} vs. M _{recipr}	89.81 ^{***}	8
									M _{general} vs. M _{recipr}	116.73 ^{***}	16

Note.

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

fit of M_{work} was superior to that of M_{general} which included cross-lagged paths from general well-being (depressive symptoms and life satisfaction) to work-related well-being (burnout and work engagement). Finally, according to the Chi-square difference test, the reciprocal model M_{recipr} had a slightly better fit than M_{work} ($\Delta\chi^2 = 17.36$, $\Delta df = 8$, $p < .05$), although the other fit indices were practically the same and the χ^2/df ratio was lower for M_{work} (4.38) than for M_{recipr} (4.42), which suggests that M_{work} would be a better fitting model. Indeed, both models had similar hypothesized cross-lagged effects and none of the reversed effects was significant in the reciprocal model. For these reasons, we report the results of the more parsimonious model M_{work} in Fig. 1.

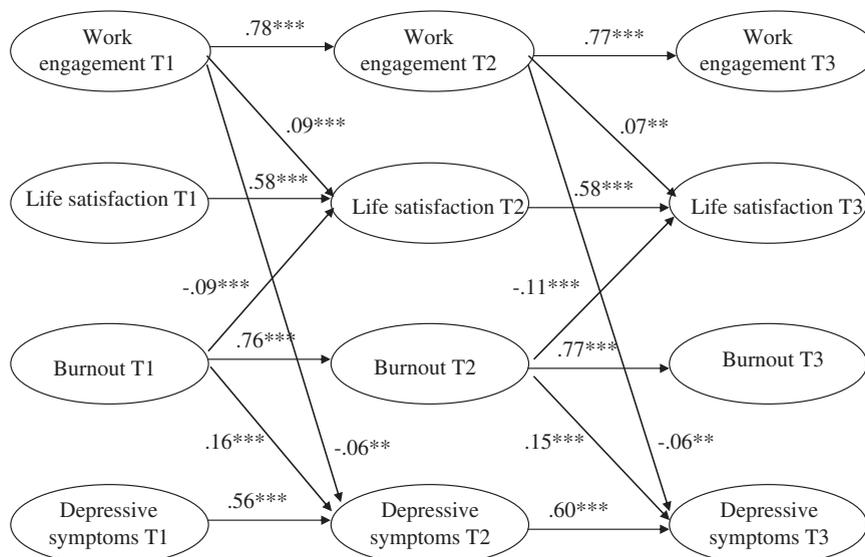
According to M_{work} burnout at T1 predicted life dissatisfaction at T2 ($st.\beta$ was $-.09$, $p < .001$) and similarly burnout at T2 predicted life dissatisfaction at T3 ($st.\beta$ was $-.11$, $p < .001$). In addition, burnout at T1 impacted depressive symptoms at T2 ($st.\beta$ was $.16$, $p < .001$) and burnout at T2 influenced depressive symptoms at T3 ($st.\beta$ was $.15$, $p < .001$). Please note that independently from the impacts of earlier life satisfaction, depressive symptoms and burnout, work engagement had significant cross-lagged effects on both life satisfaction and depressive

symptoms. More specifically, work engagement predicted life satisfaction from T1 to T2 ($st.\beta$ was $.09$, $p < .001$) and from T2 to T3 ($st.\beta$ was $.07$, $p < .01$). In addition, work engagement had cross-lagged effects on depressive symptoms from T1 to T2 and from T2 to T3 (at both times, $st.\beta$ was $-.06$, $p < .01$). The best fitting model M_{work} explained 57% (T2) and 59% (T3) of the variance of burnout, and 61% (T2) and 59% (T3) of the variance of work engagement. In addition, 54% of the variance of depressive symptoms and 48% of the variance of life satisfaction both at T2 and T3 were explained by the model.

All in all, our hypothesis on the spill-over of work-related positive and negative states on general well-being were fully supported, meaning that both burnout and work engagement predicted, albeit in opposite directions, life satisfaction and depressive symptoms both from T1 to T2 and from T2 to T3.

4. Discussion

We used a three-wave seven-year follow-up design and a national sample of Finnish dentists to investigate cross-lagged associations between burnout and work engagement (work-related mental well-being) on the one hand, and depressive

**Fig. 1.** The results of the final model ($N = 1964$).

symptoms and life satisfaction (general well-being) on the other hand. The results supported our hypothesis that work-related well-being spills-over to general, context free well-being, i.e. burnout and work engagement predict depressive symptoms and life satisfaction over time.

The current study contributes in four ways to the existing literature. First, it showed that burnout predicted depressive symptoms over periods of 3- and 4-years and *not* the other way round. Previous studies have shown that burnout and depressive symptoms are different nosological entities (Iacovides et al., 2003) and can be differentiated psychometrically, but yet share considerable variance (Schaufeli and Enzmann, 1998). So far longitudinal studies have found mixed results: burnout would precede depressive symptoms (Hakanen et al., 2008a); one's own or close family member's earlier depressive episodes would increase one's vulnerability to later burnout (Nyklíček and Pop, 2005); burnout could predict new cases with depressive symptomatology and also vice versa (Ahola and Hakanen, 2007); burnout and depressive symptoms would co-develop without influencing each other (McKnight and Glass, 1995). The present study is unique in that it included a prospective, three-wave design spanning seven years, so far the longest follow-up period. Therefore, the present findings lend considerable support for the assumption that burnout might be a phase in the development of depression (Ahola et al., 2006; Iacovides, et al., 2003).

Second, we found that the positive state of work engagement negatively predicted depressive symptoms over the seven-year study period. To our knowledge, the present study is the third longitudinal study showing that work engagement may have positive consequences for health and well-being. Previously Schaufeli et al. (2009a, 2009b) found that work engagement negatively predicted frequency of sickness absences (but was unrelated to the duration of sickness absences), and recently Innstrand et al. (2012) found that the vigor dimension of work engagement predicted low levels of depressive symptoms. In support of the present findings, previous cross-sectional studies have shown, for example, that work engagement is positively related to healthy, adaptive cardiac autonomic activity, particularly increased parasympathetic activity (Seppälä et al., 2012), to low levels of distress (Schaufeli et al., 2008), and to work-ability (Airila et al., 2012). A simple explanation for the negative association between engagement and depressive symptoms is that engaged employees are rarely burned out, as shown by the negative correlations between the dimensions of work engagement and burnout, and therefore they are not depression prone. In addition, being engaged, i.e., feeling vigorous and enthusiastic at work, is related to proactive behavior (Hakanen et al., 2008b; Salanova and Schaufeli, 2008) and to self-efficacy beliefs (Salanova et al., 2011), which may protect from depressive symptoms. Moreover, Hakanen et al. (2011b) showed that work engagement reciprocally and positively predicted positive work-family enrichment, which suggests that positive emotions and attitudes related to work engagement also spill over to private life and may thereby contribute to general well-being. In short, it seems that engaged employees can draw upon many resources that make it likely that they are caught in a gain spiral, which also produces context-free, general well-being.

Third, the current study showed that both burnout and work engagement had long-term effects on both depressive

symptoms and life satisfaction, even after controlling for each other's effects on the alternative outcome variables. This finding attests that burnout and work engagement are *not* direct opposites as suggested by Maslach and Leiter (1997) and that they both contribute *independently* to the prediction of general well-being. In other words, burnout and work engagement have incremental validity vis-à-vis each other, the effect of one measure cannot be reduced to that of the other one, and vice versa. Thus, in order to protect employees from depressive symptoms and increase life satisfaction, the best option would be to focus on *both* factors and thus simultaneously prevent burnout and build work engagement.

Fourth, similarly to the discussion of the causal order of burnout and depressive symptomatology, it is unclear whether life satisfaction, being an indicator of context-free subjective well-being, influences domain-specific (e.g. work related) well-being, or the other way round (e.g. Pavot and Diener, 2008). In our study, both indicators of work-related well-being predicted generalized context-free well-being (depressive symptoms and life satisfaction). We did not find any reversed effects indicating that general well-being influences work-related well-being. This finding suggests that experiences at work are particularly important for the individual's overall level of well-being and mental health in the long-term. In contrast, for work-related well-being other issues in life (e.g. life events, marital relationships) that influence general well-being (e.g. Pavot and Diener, 2008; Ryan and Deci, 2001) may not be so important as those that are work-related.

4.1. Limitations

At least five limitations should be discussed. First, our study was based on self-reports which runs the risk of common method variance. However, the longitudinal full panel design which controls for baseline levels of the study variables diminishes the risk for problems related to common method variance (Doty and Glick, 1998). In addition, Ahola et al. (2006) found a positive relationship between burnout and depression regardless of the depression measure, although the associations were stronger with self-report measures than with the use of a structured psychiatric interview. Nevertheless, it would be important for future research to replicate the present study by also including information on well-being from other sources, such as interviews, psycho-physiological parameters, or medical records.

Second, we focused on one professional group only; dentists. However, we assume that there are no reasons to expect that when using a similar design the effects found in the present study would not replicate in other samples as well. In addition, at baseline 71% of the whole profession of dentists participated in the study and the response rates in the follow-ups have been high (84% and 86%, respectively). Consequently, there were only minor differences between the respondents and the non-respondents in the follow-ups so that selection bias is unlikely to play a role.

Third, although we investigated cross-lagged effects with a three-wave prospective design, strictly and philosophically speaking our study did not demonstrate causality between the study variables, i.e., relationships between an event (the *cause*) and a second event (the *effect*), where the second event is understood as a consequence of the first. However,

we assessed all study variables three times which is considered a prerequisite for a truly longitudinal study (Ployhart and Vandenberg, 2010).

Fourth, we measured burnout by focusing on its two core symptoms, i.e., emotional exhaustion and depersonalization (Schaufeli and Taris, 2005), and excluded personal accomplishment which is included in the Maslach Burnout Inventory (MBI). It is noteworthy that Maslach and her colleagues originally had a working definition of burnout that only included its two core symptoms, and that on second thoughts and after a factor analysis personal accomplishment was added to the MBI (Maslach, 1993, p. 26). Since that time several studies have questioned the validity of this third burnout dimension, for example on the basis that rather than a burnout component it could reflect a personal characteristic (Cordes and Dougherty, 1993) or be a sequel of burnout (Shirom, 2003). Importantly, studies on the clinical validity of Maslach Burnout Inventory have shown that those who have received professional psychotherapeutic treatment and who have been diagnosed as “burned-out”, report high levels of exhaustion and depersonalization (cynicism) but not reduced personal accomplishment (Roelofs et al., 2005; Schaufeli et al., 2001). Empirically, personal accomplishment (or professional efficacy as defined in the general version of MBI; MBI-GS) is relatively modestly related with both other burnout dimensions (Lee and Ashforth, 1996) and actually loaded on a work engagement factor (Schaufeli et al. 2002). Finally, in their multi-sample study Schaufeli and Salanova (2007) included a scale consisting of negatively worded items on professional inefficacy and showed that, whereas professional efficacy included in the MBI-GS loaded on the engagement factor, genuinely measured professional inefficacy loaded on the burnout factor. Thus, to measure personal accomplishment (or professional efficacy) as a dimension of burnout, it is not right to reverse the scale as is the practice in studies using MBI, but perhaps a measure of genuine inefficacy should be used. Because of the questionable role of personal accomplishment in burnout we focused on emotional exhaustion and depersonalization.

It can be considered a final limitation that we only examined relations between four types of psychological states over time. For example, we did not include variables related to working conditions that may influence burnout and work engagement and similarly, many other factors, such as marital relationships, life events, and economic subsistence may have effects on depressive symptoms and life satisfaction. However, many previous studies have focused on various life and working conditions as antecedents of the same indicators of well-being that were studied in the present study (e.g. Adams et al., 1996; Hakanen et al., 2011a; Schaufeli et al., 2009; Ylipaavalniemi et al., 2005), but there has been a lack of knowledge concerning longitudinal relationships between these indicators: burnout, work engagement, life satisfaction, and depressive symptoms.

5. Conclusions

Work-related states of mind such as burnout and work engagement, predict both depressive symptoms and life satisfaction in the long-term, rather than the other way around. The positive effects of work engagement go beyond the negative impact of burnout, which suggests that work can also benefit one's general well-being. Thus, it is important to consider

simultaneously both negative (burnout) and positive (work engagement) states at work, and although inter-related, their effects do not completely overlap. In contrast, burnout and work engagement contribute independently and uniquely to predicting depressive symptoms and life satisfaction. Similarly, our study supports the view (e.g. McDowell, 2010) that health-related research should not only focus on symptoms and disease but also on dimensions reflecting health-related quality of life and truly positive well-being, e.g. work engagement and life satisfaction. Practically, workplace interventions to reduce burnout and foster work engagement may also extend their influence beyond work and build general well-being among employees.

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Conflict of interest

The authors declare we have no conflicts of interests.

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