

## Personality and Social Sciences

# Personal vulnerability and work-home interaction: The effect of job performance-based self-esteem on work/home conflict and facilitation

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The aim of the present study was to examine the longitudinal relationship between job performance-based self-esteem (JPB-SE) and work-home interaction (WHI) in terms of the direction of the interaction (work-to-home vs. home-to-work) and the effect (conflict vs. facilitation). A sample of 3,475 respondents from eight different occupational groups (lawyers, physicians, nurses, teachers, church ministers, bus drivers, and people working in advertising and information technology) supplied data at two points of time with a two-year time interval. The two-wave, cross-lagged structural equations modeling (SEM) analysis demonstrated reciprocal relationships between these variables, i.e., job performance-based self-esteem may act as a precursor as well as an outcome of work-home interaction. The strongest association was between job performance-based self-esteem and work-to-home conflict. Previous research on work-home interaction has mainly focused on situational factors. This longitudinal study expands the work-home literature by demonstrating how individual vulnerability (job performance-based self-esteem) contributes to the explanation of work-home interactions.

**Key words:** Work/home conflict, work/home facilitation, job performance-based self-esteem, cross-lagged structural equation modeling.

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## INTRODUCTION

In Western societies, the interaction between work and home heavily impacts daily life for most people, and achieving a healthy balance between these arenas may be vital to personal well-being (Allen, Herst, Bruck & Sutton, 2000; Innstrand, Langballe, Espnes, Falkum & Aasland, 2008). There is a growing body of research focusing on possible predictors of work-home interaction (for a review, see Byron, 2005). However, most of the work/home literature has dealt with situational factors. Although the seminal work of Greenhaus and Beutell (1985) proposed that work-family conflict is intensified when either work or family roles are salient and central to the person's self-concept, the effects of individual differences, such as personal vulnerability and motivational traits, are largely understudied (Allen *et al.*, 2000; Byron, 2005; Eby, Casper, Lockwood, Bordeaux & Brinley, 2005). The individual approach is important as it might provide insight into why some people find juggling of work and home life troublesome, whereas others are able to achieve this balance relatively easily.

Moreover, most of the research basically applies a scarcity perspective (or role strain theory) suggesting that all individuals take part in many different role relationships – each with somewhat different obligations. Among these, incompatible performances may be required, and conflicts of time, place, or resources may arise (Goode, 1960). Thus, the focus has been on the construct of work/home conflict (for a review, see Casper, Eby, Bordeaux,

Lockwood & Lambert, 2007), ensuing in a one-sided and negative view of the work-home interaction (Voydanoff, 2004). Hence, we know even less about the antecedents and outcomes associated with the positive aspect of the interaction (Wayne, Grzywacz, Carlson & Kacmar, 2007). In an enhancement perspective (Sieber, 1974), and in line with the development of positive psychology (Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park & Peterson, 2005), there has been growing interest in the positive aspect of the interaction, denoted as work/home facilitation in the present study. Work/home conflict occurs when the demands associated with one domain are incompatible with the demands associated with the other domain (Perrewé, Hochwarter & Kiewitz, 1999), whereas work/home facilitation refers to how participation in one role is made better or easier due to participation in the other role (Wayne, Musisca & Fleeson, 2004). It is widely recognized today that a comprehensive understanding of work-home interaction should include components of both conflict and facilitation and that these components should be regarded as bidirectional in that work can interact with home life, and home life can interact with work (Byron, 2005; Carlson & Frone, 2003; Carlson, Kacmar, Wayne & Grzywacz, 2006; Eby *et al.*, 2005; Ford, Heinen & Langkamer, 2007; Frone, 2003; Greenhaus & Powell, 2006). Even though most research has found a low negative correlation between conflict and facilitation, empirical evidence indicates that conflict and facilitation are not opposite ends of a continuum, nor mutually exclusive (Grzywacz & Butler, 2005; Grzywacz &

Marks, 2000; Kinnunen, Feldt, Geurts & Pulkkinen, 2006; Wayne *et al.*, 2004).

Building upon the Conservation of Resources (COR) theory (Hobfoll, 1989, 2001), the present study aims to address these shortcomings (i.e. the lack of focus on individual differences and the positive aspect of work-home interaction) in the literature by examining the longitudinal relationship between self-esteem that is highly contingent on how the person perceives his/her work performance (job performance-based self-esteem; JPB-SE) and four dimensions of work-home interaction (WHI). WHI refers to the point where “work” and “non-work” meet each other either in a negative or positive way (Geurts & Demerouti, 2003). In this study, WHI is operationalized in terms of the direction of the influence (work-to-home vs. home-to-work) and type of effect (conflict vs. facilitation) as suggested by Frone (2003) among others.

### *Theoretical framework*

The basic tenet of COR theory is that people have a deeply rooted motivation to obtain, retain, and protect what they value, referred to as resources. Resources are defined as those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means to attain these objects, personal characteristics, conditions, or energies (Hobfoll, 1989). According to the COR theory, stress or conflict occurs because resources are lost, threatened, or fail to give anticipated gain in the process of juggling work and home life (Grandey & Cropanzano, 1999). Facilitation follows when resources contribute to the exchange of gains between the domains (Hobfoll, 1989; Wayne *et al.*, 2007).

Western societies typically value confidence, individualism, autonomy, and superiority (Leary, 2007). To many people in the Western culture, personal worth is contingent on accomplishments, appearance, and deeds (Crocker, 2002). Crocker and Park (2004a) suggest that self-esteem pursuits are more prevalent in individualistic societies than in collectivistic ones. Performance-based self-esteem refers to one type of contingent self-esteem that builds upon accomplishments and “doing” rather than on “being” or “having” (Hallsten, Josephson & Torgén, 2005). In the present study, the term *job performance-based self-esteem* is used to describe self-esteem contingent on the person’s perception of his/her performance at work (Hallsten *et al.*, 2005).

Job performance-based self-esteem (JPB-SE) is closely related to job involvement as this concept was originally conceived by Lodahl & Kejner (1965). In their seminal article, job involvement is defined as “the degree to which a person’s work performance affects his self-esteem” and “the degree to which a person is identified psychologically with his work, or the importance of work in his total self-image” (Lodahl & Kejner, 1965, p. 24). However, the two dimensions of this notion have produced inconsistencies with regard to nomenclature as perceived centrality of work is found to be theoretically and empirically distinct from job involvement (Paullay, Alliger & Stone-Romero, 1994). Today, most research only measures the “work identity” part of Lodahl and Kejner’s (1965) definition, in line with the work by Kanungo (1982). The work identity part of job involvement has been associated with more time invested in that role (Rothbard & Edwards, 2003), more work-to-family conflict (Adams, King & King, 1996;

Frone, Russell & Cooper, 1992), and more work-family enrichment (Wayne, Randel & Stevens, 2006). Similarly, family involvement has been positively associated with nonwork-to-work facilitation (Allis & O’Driscoll, 2008). Conversely, the performance-self-esteem-contingency part of Lodahl and Kejner’s (1965) job-involvement definition is largely understudied. In the present study, we use the job performance-based self-esteem concept in line with the works of Hallsten (1993, 2005) and Crocker *et al.* (Crocker, 2002; Crocker & Park, 2004a; Crocker & Wolfe, 2001).

Although job-involved persons are found to be high in both internal motivation and global self-esteem (Brown, 1996), performance-based self-esteem describes how self-esteem is shaped and maintained and does not describe a certain level of self-esteem (Hallsten *et al.*, 2005). Whereas a successfully acquired self-esteem (expressed as a feeling of worth, safety, and superiority) may be beneficial to the individual for a short time, the *pursuit* of self-esteem may be costly to mental and physical health in the long run as it might deplete time and energy (Crocker, 2002). For example, empirical evidence indicates that persons with high scores on job performance-based self-esteem tend to bring work home, to reduce lunches, to attend work when they are sick, and to put personal needs aside (Hallsten, 2005; Hallsten *et al.*, 2005). Thus, the pursuit of self-esteem related to one’s performance at work may consume time and energy resources for home life. Whereas job involvement has largely been associated with positive outcomes like employee motivation, personal growth, job satisfaction, organizational effectiveness, and productivity (for a review, see Brown, 1996), job performance-based self-esteem has been related to harmful work-related outcomes like burnout (Dahlin, Joneborg & Runeson, 2007). In line with the COR theory, we propose that JPB-SE is positively associated with work/home conflict as the pursuit of self-esteem indicates that resources (i.e., time/energy) are lost in the juggling of work and home life.

Conversely, the meaning and purpose related to roles that are central to an individual’s self-concept (Thoits, 1991) and the extra energies devoted to work might provide resources (e.g. engagement, financial resources, development of new skills) which can contribute to the exchange of gains between the domains. Thus, as previous studies indicate that conflict and facilitation are not mutually exclusive (i.e., see Grzywacz & Butler, 2005), we also propose a positive association between JPB-SE and bi-directional work/home facilitation. More specifically, we suggest the following:

*Hypothesis 1:* Job performance-based self-esteem at Time 1 will have lagged positive effects on work-to-home conflict at Time 2.

*Hypothesis 2:* Job performance-based self-esteem at Time 1 will have lagged positive effects on work-to-home facilitation at Time 2.

*Hypothesis 3:* Job performance-based self-esteem at Time 1 will have lagged positive effects on home-to-work conflict at Time 2.

*Hypothesis 4:* Job performance-based self-esteem at Time 1 will have lagged positive effects on home-to-work facilitation at Time 2.

Although a causal relationship between certain individual characteristics and work-home interaction is intuitive (denoted as the normal causality), a reversed causality should also be examined. Stressors within roles and domains that are central to an individual's self-concept (e.g. work role) are appraised as being challenges or threats to self-worth, self-esteem and personal images, which bring about a pattern of strenuous self-esteem strivings (Hallsten *et al.*, 2005). In the language of COR theory, this implies that a valued personal characteristic (JPB-SE) is threatened in the process of juggling work and home life. Conversely, a fruitful interaction between work and home life might strengthen one's sense of JPB-SE even more. Since contingencies of self-worth develop over time in response to many forms of socialization and social influences, they are likely to be relatively stable but not immutable experiences (Crocker & Wolfe, 2001; Helson & Stewart, 1994). Crocker's (2002) findings indicate reciprocal associations between contingencies of self-worth and time spent on activities. This is in line with the COR theory's proposition of a spiral of loss or gain in which a negative or a positive development can accelerate (Hobfoll, 1989, 2001). Thus, following the recommendations by Zapf, Dormann, and Frese (1996) to systematically test for reversed causation and reciprocal effects, we also tested for reversed and reciprocal associations.

## METHOD

### *Participants and procedure*

This longitudinal study used questionnaire data gathered in 2003 (T1) and in 2005 (T2) from eight different occupational groups in Norway: lawyers, physicians, nurses, teachers, church ministers, bus drivers, and people working in advertisement and information technology. The rationale behind the sample selection was the need for a broad range of different occupational groups in order to explore diverse proposals in the survey. For each occupational group, a stratified, random sample of 1,000 people was drawn from the central Norwegian registers of employees and employment maintained by Statistics Norway (SN). Equal numbers of males and females were drawn from all occupations except for the population of church ministers, which contained 401 women and 599 men. In the present study, all occupational groups were combined into one sample to increase the statistical power.

In both study rounds, the questionnaires were mailed to the employee's home address together with a one-page cover letter stating the goals of the survey and ensuring confidentiality. In the first round (T1), 5,017 participants returned the questionnaire (response rate = 63%). The follow-up questionnaire (T2) was sent only to those who responded to T1 and was still alive, not hospitalized or emigrated ( $N = 4969$ ). Seventy percent of these returned the questionnaire. Thus, the final panel consisted of 3,475 respondents including 412 lawyers, 523 physicians, 496 nurses, 504 teachers, 500 church ministers, 381 bus drivers, 301 employees in advertisement, and 358 employees in information technology.

The mean age of the respondents was 42 years, and the average working hours were 41 as compared to the Norwegian norm of 37.5 hours a week. The majority were married or cohabiting (79.4%) and had children (75.5%) at baseline.

### *Measures*

All measures in this study were scored on a five-point Likert scale (1 = *totally disagree*; 5 = *totally agree*).

*Work-home interaction.* Work-home interaction was measured by 12 items from a study by Wayne *et al.* (2004) developed by Grzywacz and

Marks (2000). This four-dimensional scale describes the directions of influence (work-to-home and home-to-work) and the effects (conflict and facilitation). Originally, each dimension was assessed by four items. However, the separate confirmatory factor analyses for each occupational group revealed difficulties with some of the items (Innstrand, Langballe, Falkum, Espnes & Aasland, 2009) in line with findings from previous studies (e.g., Carlson, Kacmar & Williams, 2000; Geurts, Taris, Kompier *et al.*, 2005; Grzywacz & Bass, 2003; Grzywacz & Butler, 2005; Grzywacz & Marks, 2000; Kinnunen *et al.*, 2006). Hence, a modified scale was used.

Work-to-home conflict was measured by three items describing the extent to which time pressure and strain in one role interfered with performance in the other role (e.g., "my job reduces the effort I can give to activities at home"). Home-to-work conflict was measured by four items (e.g., "responsibilities at home reduce the effort I can devote to my job").

Work-to-home facilitation was described by three items measuring the positive influence on home life by resources at work (e.g., "skills developed at work are useful at home"), whereas home-to-work facilitation was assessed by two items (e.g., "talking with someone at home helps me deal with problems at work"). The internal consistencies of the variables were satisfactory ranging from  $\alpha \geq 0.71$  to  $\alpha \geq 0.78$  (Table 1).

*Job performance-based self-esteem.* Job performance-based self-esteem was assessed by three items describing self-worth generated at work: (1) "If I fail in my job, I am a failure as a person," (2) "I must succeed in my work to have a sense of worth," and (3) "If I do not do a really good job, I will lose the respect of others." The job performance-based self-esteem items were developed for the present study based on a concept developed by Hallsten (Hallsten, 1993; Hallsten *et al.*, 2005). The internal consistencies of the variables were satisfactory with  $\alpha \geq 0.80$  at Time 1 and  $\alpha \geq 0.81$  at Time 2.

### *Statistical analysis*

The hypothesized relationships were examined by cross-lagged structural equation modeling (SEM) using LISREL 8.7 (Jöreskog and Sörbom 2004). SEM has the advantage of determining causal priority and causal predominance when reciprocal relationships are found (de Lange, Taris, Kompier, Houtman & Bongers, 2004). Cross-lagged techniques are particularly designed to test causal structures where measurements of the same variables have been made at two different times in the same sample (Edwards, Guppy & Cockerton, 2007). Preliminary analyses of the distribution of data indicated no serious deviations from normality (West, Finch & Curran, 1995), permitting the use of maximum likelihood estimations. Due to the sensitivity of sample size in chi-square statistics (Diamantopoulos & Siguaaw, 2000; Hair, Anderson, Tatham & Black, 1998; Hu & Bentler, 1995; Sharma, 1996), the root mean square error of approximation (RMSEA), the non-normed fit index (NNFI), and the comparative fit index (CFI) were used as additional measures of fit. By convention, there is a good model fit if the RMSEA is less than or equal to 0.05, and there is an adequate fit if the RMSEA is less than or equal to 0.08. The NNFI and CFI should be equal to or greater than 0.90 for the model to be accepted (Diamantopoulos and Siguaaw 2000).

Before comparing competing causal models, and examining the hypothesized relationships in the cross-lagged structural equation analyses, the measurement model at Time 1 was tested by confirmatory factor analyses (CFA). The CFA provided a good fit to the observed data ( $\chi^2(80) = 1039.85$ ,  $p < 0.001$ , RMSEA = 0.051, NNFI / CFI = 0.95 / 0.96). All items were significant ( $p < 0.05$ ) and loaded positively and clearly on their intended latent variable with factor loadings ranging from 0.64 to 0.82 (standardized solution). To ensure measure invariance across time, two multigroup CFAs (T1 and T2) were performed and compared against each other: one with constrained parameters (invariant factor loadings) and the other with unconstrained parameters. A chi-square difference test showed a significant increase in the chi-square ( $\Delta\chi^2(10) = 22.48$ ,  $p < 0.01$ ) indicating that the two multigroup models may not be invariant across time. However, given the limitation of the  $\chi^2$ -statistics

Table 1. Means, standard deviations (SD), Cronbach's  $\alpha$  (on the diagonal in italics), and correlations for the study variables

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.JPB-SE 1	2.47	0.86	<i>0.80</i>									
2.JPB-SE 2	2.47	0.85	0.64**	<i>0.81</i>								
3.WHC 1	2.67	0.91	0.30**	0.26**	<i>0.72</i>							
4.WHC 2	2.66	0.88	0.25**	0.31**	0.63**	<i>0.71</i>						
5.WHF 1	2.55	0.84	0.04**	0.02	-0.08**	-0.04*	<i>0.72</i>					
6.WHF 2	2.59	0.83	0.04*	0.04*	-0.05**	-0.06**	0.54**	<i>0.73</i>				
7.HWC 1	2.07	0.80	0.16**	0.16**	0.40**	0.33**	0.09**	0.06**	<i>0.78</i>			
8.HWC 2	2.06	0.78	0.15**	0.19**	0.33**	0.40**	0.03	0.06**	0.59**	<i>0.78</i>		
9.HWF 1	3.49	0.97	-0.06**	-0.05**	0.05**	0.05**	0.31**	0.23**	0.01	0.01	<i>0.72</i>	
10.HWF 2	3.48	0.95	-0.04*	-0.04*	0.03	0.04*	0.22**	0.32**	0.00	-0.01	0.57**	<i>0.73</i>

Note: 1 = Time1; 2 = Time 2; WHF = Work-to-home conflict; WHF = Work-to-home facilitation; HWC = Home-to-work conflict; HWF = Home-to-work facilitation; JPB-SE = Job performance-based self-esteem.

\*  $p < 0.05$ ; \*\*  $p < 0.01$ .

with large sample sizes, and consistent with recommendations set forth in the literature (Cheung & Rensvold, 2002; Steenkamp & Baumgartner, 1998), we examined the change in CFI and two other practical fit measures, including the RMSEA and NNFI. Changes in CFI values of 0.01 or less are indicative of factor invariance (Cheung & Rensvold, 2002). Metric invariance (i.e., equal factor loadings) across time was demonstrated as the CFI and NNFI was the same in these two models (0.96 and 0.95 respectively), whereas the RMSEA actually improved slightly in the more stringent model (0.051 vs. 0.050).

In addition to testing the hypothesized relationships (denoted as normal causality) we also tested for reversed causation and reciprocal effects as recommended by Zapf *et al.* (1996).

Hence, three competing models representing normal ( $M_1$ ), reversed ( $M_2$ ), and reciprocal ( $M_3$ ) causality were nested individually within a stability model ( $M_0$ ) without lagged causal effects and compared against one another by means of  $\chi^2$  differences tests. As is conventional in SEM for longitudinal models, the measurement errors of indicators measuring the same factors on both occasions were allowed to correlate in all of the estimated models. More specifically, the stability model ( $M_0$ ) is a constrained model without cross-lagged effects but with temporal stabilities for all the latent variables at Time 1 and correlations over time points. The normal causality model ( $M_1$ ) is identical to the stability model ( $M_0$ ), except for the structural paths from the job performance-based self-esteem variable at Time 1 to the four work-home interaction variables at Time 2. Conversely, the reversed causality model ( $M_2$ ) has structural paths from the four work-home interaction variables at Time 1 to the job performance-based self-esteem variable at Time 2. Finally, the reciprocal causality model ( $M_3$ ) integrates all the previous models by letting the structural paths between the four work-home interaction variables and the job performance-based self-esteem variable be bidirectional.

## RESULTS

Table 1 display the means, standard deviations, Cronbach's  $\alpha$  coefficients, and correlations of the variables used in the analysis. All variables had test-retest reliabilities of at least 0.54. The zero-order correlations between the job performance-based self-esteem variable at Time 1 (T1) and the four work-home interaction variables at Time 2 (T2) were significant and in line with the hypothesized associations. One exception is the negative association found between job performance-based self-esteem (T1) and home-to-work facilitation (T2).

Hypotheses 1–4 suggesting positive lagged effect from JPB-SE at Time1 on work/home conflict and facilitation at Time 2 was partly supported. Lagged positive paths from T1 job performance-based self-esteem to both T2 work-to-home conflict ( $\beta = 0.20$ ,

$p < 0.001$ ) and T2 home-to-work conflict ( $\beta = 0.16$ ,  $p < 0.001$ ) were found, supporting hypothesis 1 and 3 respectively. This indicates that high T1 job performance-based self-esteem was associated with high T2 work-to-home and high T2 home-to-work conflict. Job performance-based self-esteem at baseline was not associated with work-to-home facilitation two years later. Hence, hypothesis 2 was rejected. In contrast to our expectation, lagged negative paths were demonstrated from job performance-based self-esteem at Time 1 to home-to-work facilitation at Time 2 ( $\beta = -0.05$ ,  $p < 0.001$ ), rejecting hypothesis 4. The squared multiple correlations for structural equations indicated that the model explained about 8% of the variance of work-to-home conflict and 4% of the variance of home-to-work conflict. The explained variances of both work-to-home and home-to-work facilitation were negligible.

Following the recommendations of Zapf *et al.* (1996), we also systematically tested for reversed and reciprocal associations between the hypothesized relationships. As can be seen in Table 2, all of the competing models had good fit to the observed data (RMSEA  $\leq 0.05$  and NNFI/CFI  $\geq 0.90$ ). The chi-square difference tests in Table 2 revealed that all the alternative causal models ( $M_1 - M_3$ ) fit the data significantly better than the stability model ( $M_0$ ), indicating longitudinal relationships between job performance-based self-esteem and work-home interaction (conflict and

Table 2. Goodness-of-fit indices and chi-square differences tests of nested structural models

	$\chi^2$	df	RMSEA	NNFI	CFI	$\Delta\chi^2$	$\Delta df$
$M_0$ Stability model	3359.54	375	0.051	0.95	0.96		
$M_1$ Normal causality	3040.75	371	0.048	0.95	0.96	318.79	4
$M_2$ Reversed causality	3220.18	371	0.049	0.95	0.96	139.36	4
$M_3$ Reciprocal causality	2727.86	367	0.046	0.96	0.96	631.68	8

Notes: All chi-square values significant at  $p < 0.001$ ; coefficients and numbers refer to model fit indices:  $\chi^2$  = chi-square. df = degrees of freedom. RMSEA = Root Mean Square Error of Approximation. NNFI = Non-Normed Fit Index. CFI = Comparative Fit Index.  $\Delta\chi^2$  = difference in chi-square compared to stability model;  $\Delta df$  = difference in degrees of freedom compared to stability model.

facilitation). Overall, the reciprocal model ( $M_3$ ) accounted best for the data, suggesting a mutual influence between job performance-based self-esteem and work-home interaction.

## DISCUSSION

The goal of the present study was to obtain a more comprehensive picture of factors related to work-home interaction by examining a personal characteristic closely related to an individual's performance at work, namely job performance-based self-esteem. One of the central hypotheses was that a strong job performance-based self-esteem would act as a vulnerability factor, thereby increasing work/home conflict. Cross-lagged structural equation analysis supported these assumptions. In line with the propositions of Crocker and colleagues (i.e., Crocker, 2002; Crocker & Park, 2004a, 2004b) concerning the cost of seeking self-esteem, high levels of job performance-based self-esteem at Time 1 were associated with greater bidirectional work/home conflict at Time 2. In the language of COR theory this implies that in order to obtain, retain, and protect a valued personal characteristic such as the PBSE, resources (i.e. time and energy) are lost in the process of juggling work and home life (Grandey & Cropanzano, 1999). These results agree with related research, suggesting that people who are very involved in their work tend to have higher levels of work-home conflict of all types (for a review, see Kossek & Ozeki, 1999). The strongest association was found between T1 job performance-based self-esteem and T2 work-to-home conflict. This is in line with prior findings suggesting that work-home conflict and home-work conflict are predominantly driven by demands in the domain in which the conflict originates (Brotheridge & Lee, 2005; Mesmer-Magnus & Viswesvaran, 2005). Only self-esteem contingent on performance at work was examined in the present study. Further studies should explore the effects of analogous vulnerability factors related to home life, i.e. self-esteem contingent on performance at home (perfect home, partner, parent etc.).

Job performance-based self-esteem and work/home facilitation were only weakly associated. Whereas higher T1 job performance-based self-esteem was associated with lower T2 home-to-work facilitation (and not higher as hypothesized) no significant paths were observed from T1 job performance-based self-esteem to T2 work-to-home facilitation. However, the explained variances of both work-to-home and home-to-work facilitation were negligible. Nevertheless, this indicates that a performance-based self-esteem is different from the work identity that has been associated with more work-family enrichment (Wayne *et al.*, 2006). Whereas a strong work identity might be beneficial and contribute to the exchange of gains between the domains, the self-esteem strivings related to the job involvement might be harmful. This has extensive theoretical implications as more refined conceptualization of job involvement is needed. The most important principle following from the basic tenet of COR theory is that "resource loss is more disproportionately more salient than is resource gain" (Hobfoll, 1998, p. 63). Thus, although the extra energies devoted to work might provide resources (i.e. engagement, financial resources, development of new skills), the resource loss (i.e. time for family, energy) might be more salient. The findings that job performance-based self-esteem is largely

related to conflict and not to facilitation of further support, previous studies suggesting that work/home facilitation is not simply the opposite of work/home conflict but rather a different construct with distinct antecedents (Grzywacz & Butler, 2005).

In line with the recommendations of Zapf *et al.* (1996), we systematically tested for reversed and reciprocal associations between the hypothesized relationships. Comparing the fit of the three competing causal models indicated that the reciprocal model had a significantly better fit than the other models. These findings suggest a mutual influence between job performance-based self-esteem and work-home interaction. This is in line with Crocker's (2002) findings that contingencies of self-worth and time spent on activities are reciprocally related, possibly creating vicious circles in which one is reinforcing the other as suggested by the COR theory (Hobfoll, 1989, 2001). Such negative processes may maintain self-esteem instability, which may, in turn, promote depressive reactions (Crocker & Wolfe, 2001). Previous studies found that both job performance-based self-esteem and work/home conflict were positively related to burnout (Dahlin *et al.*, 2007; Innstrand *et al.*, 2008). The present study indicates that these variables are likely to be connected.

### Strengths and limitations

We believe that the present study contributes to current work-home literature in several ways. Researchers have explicitly called for greater attention to individual differences in studies of work-home interaction and underlined the need to examine both the positive and negative aspects of this interaction (Allen *et al.*, 2000; Byron, 2005; Eby *et al.*, 2005; Frone, 2003; Greenhaus, 2008; Heraty, Morley & Cleveland, 2008). The present study examines the relationship between an individual vulnerability characteristic (job performance-based self-esteem) and bidirectional work-home interaction (conflict *and* facilitation). Moreover, the use of longitudinal data and sophisticated analyses on a large sample strengthens the analyses of the predicted associations.

However, the findings should be interpreted with the following limitations in mind. First, all of the variables were measured by self-report instruments. Such measures may have introduced common method variance, inflating the relationship among the study variables.

Second, it should be noted that the present study focused on the causal relationship between job performance-based self-esteem and the four dimensions of work-home interaction only, largely ignoring other contextual information. Although Brown (1996) demonstrated that job involvement is not generally predictable from demographic variables (i.e., age group, length of time in the organization, education level, gender, marital status, and salary), the demonstrated longitudinal associations may still partly rely on variables that were not measured in the present study.

Third, although statistically significant, some of the parameter estimates as well as the explained variance (8% and 4%) in work-home conflict were rather small. However, Zapf *et al.* (1996) argue that such small effects are common in longitudinal research due to the fact that stress is most often caused by many different factors. Correlations between 0.20 and 0.30 are common in stress research and explained variances larger than 10% cannot be expected due to the complex etiology of the proposed relation-

ships (Semmer, 2003). Similarly, it has been argued that self-views are variously determined and that small correlations may yet be important (Swann, Chang-Schneider & McClarty, 2007). Nevertheless, the small-effect sizes (Cohen, 1988) indicate that the significance of some of the associations may have resulted from the statistical power produced by the large sample used in the present study (Hair *et al.*, 1998).

Fourth, it should be noted that WHI was measured with a modified scale in which some of the items were deleted. The reduction of items may have affected the complexity of some of the constructs. Hence, a possible reason for the negligible explained variance in facilitation may lie in problems with the measurement of this construct. Further studies are needed before firm conclusion of the relationship between PBSE and work-home facilitation can be made.

Finally, in the present study, a two-year interval was used between the two waves. Hence, we can only generalize our results in relation to this measurement interval (Taris, 2000). Whether the two-year period is appropriate for the psychological processes underlying the hypothesized associations has to be examined further. A study design with different time lags would allow for a more complete understanding of the nature of such effects.

#### *Implications for practice*

The present study suggests that job performance-based self-esteem predicts work-home conflict. If replicated, this finding may have bearings on preventive measures to avoid or reduce work-home conflict, which has been associated with impaired health, burnout, absenteeism, job turnover, and use of health services (Allen *et al.*, 2000; Carr, Boyar & Gregory, 2008; Duxbury & Higgins, 2001; Duxbury, Higgins & Johnson, 1999; Innstrand *et al.*, 2008; Frone, 2000; Väänänen, Kumpulainen, Kevin *et al.*, 2008), and may even influence partner well-being (Bakker, Demerouti & Dollard, 2008; Dikkers, Geurts, Kinnunen, Kompier & Taris, 2007). Thus, performance-based self-esteem may be regarded as a “vulnerability factor” in relation to WHI when it is excessive and interferes with other areas of a person’s life. However, a person might have very high PBSE but is also involved in other life domains, for example family, recreational, community activities. Under these circumstances, high PBSE would probably not create vulnerability.

Highly motivated and job-involved employees are often sought after from an organizational view. However, this study indicates that self-esteem that is contingent on performance at work might be costly as it affects the work-home interaction negatively. A central question which arises is when would PBSE become problematic, that is, at what level? Hallsten (1993) distinguishes between persons with an absorbing and a more balanced commitment to work. Although both are strongly goal-oriented in their jobs, the balanced persons lack the idealized, anxiety-driven qualities that color the behavior of those with an absorbing commitment. The latter seem to be more vulnerable to stressful events due to their intense self-definitional strivings. Theoretically, this implies that researchers should differentiate between the “work identity” the “performance-self-esteem-contingency” part of the job-involvement definition (Lodahl & Kejner, 1965). Although both relates to a sincere interest in their jobs, they differ with

regards to self-definitional strivings. This might partly explain the inconsistencies in research related to job-involvement and work-home interaction (i.e. Brown, 1996 vs. Kossek & Ozeki, 1999).

Practically, the challenge for organizations seems to be how to create highly motivated individuals with less insecure self-definitional strivings. As suggested by Crocker and Park (2004b), rather than boosting self-esteem, one should try to adopt a learning orientation (Dweck, 1999) to reduce anxiety and instability of self-esteem and promote commitment to goals beyond self-interests.

In summary, self-esteem highly contingent on job performance may be seen as a vulnerability factor for work/home conflict. As people in Western societies generally tend to view identity as merited by one’s own acts and accomplishments, a deeper understanding of how such motivational structures may impact individuals’ health and well-being is highly warranted.

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#### REFERENCES

- Adams, G. A., King, L. A. & King, D. W. (1996). Relationships of job and family involvement, family social support, and work-family conflict with job and life satisfaction. *Journal of Applied Psychology, 81*, 411–420.
- Allen, T. D., Herst, D. E. L., Bruck, C. S. & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for future research. *Journal of Occupational Health Psychology, 5*, 278–308.
- Allis, P. & O’Driscoll, M. (2008). Positive effects of nonwork-to-work facilitation on well-being in work, family and personal domains. *Journal of Managerial Psychology, 23*, 273–291.
- Bakker, A. B., Demerouti, E. & Dollard, M. F. (2008). How job demands affect partners’ experience of exhaustion: Integrating work-family conflict and crossover theory. *Journal of Applied Psychology, 93*, 901–911.
- Brotheridge, C. M. & Lee, R. T. (2005). Impact of work-family interference on general well-being: A replication and extension. *International Journal of Stress Management, 12*, 203–221.
- Brown, S. (1996). A meta-analysis and review of organizational research on job involvement. *Psychological Bulletin, 120*, 235–255.
- Byron, K. (2005). A meta-analytic review of work-family conflict and its antecedents. *Journal of Vocational Behavior, 67*, 169–198.
- Carlson, D. S. & Frone, M. R. (2003). Relation of behavioral and psychological involvement to a new four-factor conceptualization of work-family interference. *Journal of Business and Psychology, 17*, 515–535.
- Carlson, S. C., Kacmar, K. M., Wayne, J. H. & Grzywacz, J. G. (2006). Measuring the positive side of the work-family interface: Development and validation of a work-family enrichment scale. *Journal of Vocational Behavior, 68*, 131–164.
- Carlson, D. S., Kacmar, K. M. & Williams, L. J. (2000). Construction and initial validation of a multidimensional measure of work-family conflict. *Journal of Vocational Behavior, 56*, 249–276.
- Carr, J. C., Boyar, S. L. & Gregory, B. T. (2008). The moderating effect of work-family centrality on work-family conflict, organizational attitudes, and turnover behaviour. *Journal of Management, 34*, 244–262.
- Casper, W. J., Eby, L. T., Bordeaux, C., Lockwood, A. & Lambert, D. (2007). A review of research methods in IO/OB work-family research. *Journal of Applied Psychology, 92*, 28–43.
- Cheung, G. W. & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*, 233–255.

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd edn). Hillsdale, NJ: Lawrence Erlbaum.
- Crocker, J. (2002). The cost of seeking self-esteem. *Journal of Social Issues*, 58, 597–615.
- Crocker, J. & Park, L. E. (2004a). The costly pursuit of self-esteem. *Psychological Bulletin*, 130, 392–414.
- Crocker, J. & Park, L. E. (2004b). Reaping the benefits of pursuing self-esteem without the cost? Replay to DuBois and Flay (2004), Sheldon (2004), and Pyszczynski and Cox (2004). *Psychological Bulletin*, 130, 430–434.
- Crocker, J. & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological Review*, 108, 593–623.
- Dahlin, M., Joneborg, N. & Runeson, B. (2007). Performance-based self-esteem and burnout in a cross-sectional study of medical students. *Medical Teacher*, 29, 43–48.
- 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.
- Diamatopoulos, A. & Sigua, J. A. (2000). *Introducing LISREL. A guide for the uninitiated*. London: SAGE.
- Dikkers, J. S. E., Geurts, S. A. E., Kinnunen, U., Kompier, M. A. J. & Taris, T. W. (2007). Crossover between work and home in dyadic partner relationships. *Scandinavian Journal of Psychology*, 48, 529–538.
- Duxbury, L. & Higgins, C. (2001). *Work-life balance in the new millennium: Where are we? Where do we need to go?* Ottawa: Canadian Policy Research Networks, Discussion Paper No. W-12 [http://www.cprm.org].
- Duxbury, L., Higgins, C. & Johnson, K. L. (1999). *An examination of the implications and costs of work-life conflict in Canada*. Ottawa, ON: Health Canada.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Taylor & Francis.
- Eby, L. T., Casper, W. J., Lockwood, A., Bordeaux, C. & Brinley, A. (2005). Work and family research in IO/OB: Content analysis and review of the literature (1980–2002). *Journal of Vocational Behavior*, 66, 124–197.
- Edwards, J. A., Guppy, A. & Cockerton, T. (2007). A longitudinal study exploring the relationship between occupational stressors, non-work stressors, and work-performance. *Work & Stress*, 21, 99–116.
- Ford, M. T., Heinen, B. A. & Langkamer, K. L. (2007). Work and family satisfaction and conflict: A meta-analysis of cross-domain relations. *Journal of Applied Psychology*, 92, 57–80.
- Frone, M. R. (2000). Work-family conflict and employee psychiatric disorders: The national comorbidity survey. *Journal of Applied Psychology*, 85, 888–895.
- Frone, M. R. (2003). Work-family balance. In J. Campbel Quick & L. E. Tetrick (Eds.), *Occupational Health Psychology* (pp. 143–162). Washington, DC: American Psychological Association.
- Frone, M. R., Russell, M. & Cooper, M. L. (1992). Antecedents and outcomes of work-family conflict: Testing a model of the work-family interface. *Journal of Applied Psychology*, 77, 65–78.
- Geurts, S. A. E. & Demerouti, E. (2003). Work/non-work interface: A review of theories and findings. In M. J. Schabracq, J. A. M. Winnubst & C. L. Cooper (Eds.), *The handbook of work and health psychology* (pp. 279–312). New York: John Wiley & Sons.
- Geurts, S. A. E., Taris, T. W., Kompier, M. A. J., Dikkers, J. S. E., Van Hooff, M. L. M. & Kinnunen, U. M. (2005). Work-home interaction from a work psychological perspective: Development and validation of a new questionnaire, the SWING. *Work & Stress*, 19, 319–339.
- Goode, W. J. (1960). A theory of role strain. *American Sociological Review*, 25, 483–496.
- Grandey, A. A. & Cropanzano, R. (1999). The conservation of resources model applied to work-family conflict and strain. *Journal of Vocational Behavior*, 54, 350–370.
- Greenhaus, J. H. (2008). Innovations in the study of the work-family interface: Introduction to the special section. *Journal of Occupational and Organizational Psychology*, 81, 343–348.
- Greenhaus, J. H. & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, 10, 76–88.
- Greenhaus, J. H. & Powell, G. N. (2006). When work and families are allies: A theory of work-family enrichment. *Academy of Management Review*, 31, 72–92.
- Grzywacz, J. G. & Bass, B. L. (2003). Work, family, and mental health: Testing different models of work-family fit. *Journal of Marriage and Family*, 65, 248–262.
- Grzywacz, J. G. & Butler, A. B. (2005). The impact of job characteristics on work-to-family facilitation: Testing a theory and distinguishing a construct. *Journal of Occupational Health Psychology*, 10, 97–109.
- Grzywacz, J. G. & Marks, N. F. (2000). Reconceptualizing the work-family interface: An ecological perspective on the correlates of positive and negative spillover between work and family. *Journal of Occupational Health Psychology*, 5, 111–126.
- Hair, J. F. Jr, Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). *Multivariate data analysis*. New Jersey: Prentice-Hall International.
- Hallsten, L. (1993). Burning out: A framework. In W. Schaufeli, C. Maslach & T. Marek (Eds.), *Professional burnout. Recent developments in theory and research* (pp. 95–113). Washington: Taylor & Francis.
- Hallsten, L. (2005). Burnout and wornout: Concepts and data from a national survey. In A.-S. G. Antoniou & C. L. Cooper. Cheltenham (Eds.), *Research companion to organizational health psychology* (pp. 516–536). Cheltenham: Elgar.
- Hallsten, L., Josephson, M. & Torgén, M. (2005). Performance-based self-esteem: A driving force in burnout processes and its assessment. *Arbete och Hälsa*, 4, 1–35.
- Helson, R. & Stewart, A. (1994). Personality change in adulthood. In T. F. Heatherton & J. L. Weinberger (Eds.), *Can personality change?* (pp. 201–225). Washington, DC: American Psychological Association.
- Heraty, N., Morley, M. J. & Cleveland, J. N. (2008). Complexities and challenges in the work-family interface. *Journal of Managerial Psychology*, 23, 209–214.
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44, 513–524.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources. *Applied Psychology*, 50, 337–421.
- Hu, L. & Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modelling. Concepts, issues, and applications* (pp. 76–100). Thousand Oaks, CA: Sage.
- Innstrand, S. T., Langballe, E. M., Espnes, G. A., Falkum, E. & Aaland, O. G. (2008). Positive and negative work-family interaction and burnout: A longitudinal study of reciprocal relations. *Work & Stress*, 22, 1–15.
- Innstrand, S. T., Langballe, E. M., Falkum, E., Espnes, G. A. & Aasland, O. G. (2009). Gender specific perceptions of four dimensions of the work/family interaction. *Journal of Career Assessment*, 17, 402–416.
- Jöreskog, K. & Sörbom, D. (2004). *LISREL 8.7 for Windows (Computer Software)*. Lincolnwood, IL: Scientific Software International.
- Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology*, 67, 341–349.
- Kinnunen, U., Feldt, T., Geurts, S. & Pulkkinen, L. (2006). Types of work-family interface: Well-being correlates of negative and positive spillover between work and family. *Scandinavian Journal of Psychology*, 47, 149–162.
- Kossek, E. E. & Ozeki, C. (1999). Bridging the work-family policy and productivity gap: A literature review. *Community, Work & Family*, 2, 7–32.
- Leary, M. (2007). Motivational and emotional aspects of the self. *Annual Review of Psychology*, 58, 317–344.
- Lodahl, T. M. & Kejner, M. (1965). The definition and measurement of job involvement. *Journal of Applied Psychology*, 49, 24–33.
- Mesmer-Magnus, J. R. & Viswesvaran, C. (2005). Convergence between measures of work-to-family and family-to-work conflict: A meta-analytic examination. *Journal of Vocational Behavior*, 67, 215–232.

- Paullay, I. M., Alliger, G. M. & Stone-Romero, E. F. (1994). Construct validation of two instruments designed to measure job involvement and work centrality. *Journal of Applied Psychology*, 79, 224–228.
- Perrewé, P., Hochwarter, W. & Kiewitz, C. (1999). Value attainment: An explanation for the negative effects of work-family conflict on job and life satisfaction. *Journal of Occupational Health Psychology*, 4, 318–326.
- Rothbard, N. P. & Edwards, J. R. (2003). Investment in work and family roles: A test of identity and utilitarian motives. *Personnel Psychology*, 56, 699–730.
- Seligman, M. E. P. & Csikszentmihalyi, M. (2000). Positive psychology. An introduction. *American Psychologist*, 55, 5–14.
- Seligman, M. E. P., Steen, T. A., Park, N. & Peterson, C. (2005). Positive psychology progress. *Empirical validation of intervention. American Psychologist*, 60, 410–421.
- Semmer, N. K. (2003). Individual differences, work, stress and health. In M. J. Schabracq, J. A. M. Winnubst & C. L. Cooper (Eds.), *The handbook of work and health psychology* (pp. 83–120). Chichester: Wiley & Sons.
- Sharma, S. (1996). *Applied multivariate techniques*. New York: John Wiley & Sons.
- Siebert, S. D. (1974). Towards a theory of role accumulation. *American Sociological Review*, 39, 567–578.
- Steenkamp, J-B. E. M. & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research*, 25, 78–90.
- Swann, W. B. Jr, Chang-Schneider, C. & McClarty, K. L. (2007). Do people's self-views matter? Self-concept and self-esteem in everyday life. *American Psychologist*, 62, 84–94.
- Taris, T. W. (2000). *A primer in longitudinal data analysis*. London: SAGE.
- Thoits, P. A. (1991). On merging identity theory and stress research. *Social Psychology Quarterly*, 54, 101–112.
- Väänänen, A., Kumpulainen, R., Kevin, M. V., Ala-Mursula, L., Kouvo-nen, A., Kivimäki, M., Toivanen, M., Linna, A. & Vahtera, J. (2008). Work-family characteristics as determinants of sickness absence: A large-scale cohort study of three occupational grades. *Journal of Occupational Health Psychology*, 13, 181–196.
- Voydanoff, P. (2004). The effects of work demands and resources on work-to-family conflict and facilitation. *Journal of Marriage and Family*, 66, 398–412.
- Wayne, J. H., Grzywacz, J. G., Carlson, D. S. & Kacmar, K. M. (2007). Work-family facilitation: A theoretical explanation and model of primary antecedents and consequences. *Human Resource Management Review*, 17, 63–76.
- Wayne, J. H., Musisca, N. & Fleeson, W. (2004). Considering the role of personality in the work-family experience: Relationships of the big five to work-family conflict and facilitation. *Journal of Vocational Behavior*, 64, 108–130.
- Wayne, J. H., Randel, A. E. & Stevens, J. (2006). The role of identity and work-family support in work-family enrichment and its work-related consequences. *Journal of Vocational Behavior*, 69, 445–461.
- West, S. G., Finch, J. F. & Curran, P. J. (1995). Structural equation models with nonnormal variables. Problems and remedies. In R. H. Hoyle (ed.), *Structural equation modelling: Concepts, issues, and applications* (pp. 56–75). Thousand Oaks, CA: Sage.
- Zapf, D., Dormann, C. & Frese, M. (1996). Longitudinal studies in organizational stress research: A Review of the literature with references to methodological issues. *Journal of Occupational Health Psychology*, 1, 145–169.

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