Effort-Reward Imbalance Theory and Irritation: The Important Role of Internal and External Work-Family Conflict

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ABSTRACT

The aim of this study was to identify the impact of the variables from a classic occupational mental health model within the context of work-family conflict and stress in order to identify the relevance of work-family conflict for workplace health promotion. It was tested whether internal and external work-family conflicts serve as mediators between the three aspects of the effort-reward imbalance model and irritation. Based on a heterogeneous sample of 627 employees, results confirm overcommitment as a crucial predictor for internal work-family conflict and irritation. Considering the results, in contrast to classic stressors internal work-family conflict was a strong predictor for employees' stress. Moreover, overcommitment played a crucial role regarding this relationship.

Key words: work-family conflict, effort-reward imbalance, overcommitment, irritation, stress

1 Introduction

In times of constant changes and workplace insecurity people need some stability to stay healthy and to recover. Many people are looking for this stability in family life and therefore seek to combine both work demands and family obligations, successfully. Thus, they have to master the challenge of work-family integration in the changing world of work (Allen, Herst, Bruck, & Sutton, 2000; Glass & Finley, 2002). In this context, several studies have shown that the interference of work with family life lower psychological well-being (Greenhaus & Allen, 2011; Mullen, Kelley & Kelloway, 2008).

Though highly relevant, the relationship between work-family conflict and mental health is seldom reflected in the framework of a general mental health model of occupational psychology. Therefrom, the impact of work-family conflict on employees' health in relation to other important mental health predictors remains a gap in research. This study investigates an overall model which regards work-family conflict as an intermediary variable between the independent variables of a classic mental health model (the effort-reward imbalance (ERI) model by Siegrist, 1996), and irritation as a dependent variable. The use of an overall model bears one important advantage: the relevance of work-family conflict for mental health can be evaluated with regard to psychosocial working conditions such as job characteristics as well as personal characteristics, thus integrating relationships assumed highly relevant for a better understanding of work-family conflict. Mostly, these relationships have been investigated separately and have not been integrated into one overall model (cf. Bakker, ten Brummelhuis, Prins, & van der Heijden, 2011; Baltes, Zhdanova, & Clark, 2011). Hence, this study's aim is to broaden a mental health theory through the integration of the construct of work-family conflict.

When investigating work-family conflict in the context of a general mental health model, two classic and predominant models have to be taken into account: 1) the demand-control model by Karasek (1979), and 2) the ERI model by Siegrist (1996). Even though both authors discussed the integration of role conflicts such as work-family conflict, they did not explicitly implement them into their models.

According to the demand-control model, psychological strain is caused by the combination of high job demands and low job control (Bakker & Demerouti, 2007; Karasek, 1979; Theorell, 1998). Butler, Grzywacz, Bass, and Linney (2005) applied the demand-control model to work-family conflict and showed that demands increased work-family conflict and control decreased work-family conflict.

In any event, they did not test an overall model which included a mental health indicator as a criterion. Despite empirical evidence, the demand-control model lacks personal demands and resources. In recent research there is a call for the integration of dispositional characteristics and personal resources in relation to work-family conflict (Greenhaus et al., 2006). As a result of this, the ERI model is used in this study because work-family conflict is influenced by work as well as by family and personal characteristics (see Amstad et al., 2011; Bakker et al., 2011).

In contrast to the demand-control model, the ERI theory claims that a combination of high efforts (e.g., work performance) and low rewards (e.g., career opportunities, monetary or social esteem) impairs employees' physical and mental health (Rödel, Siegrist, Hessel, & Brähler, 2004; Siegrist, 2011). Moreover, it includes a personal characteristic, namely overcommitment. This personality trait describes employees who are overly committed to their job and thus invest many resources (time, thoughts, etc.) at work - while actually working as well as in their

leisure time. Therefore, overcommitment could be quite relevant for the experience of work-family conflict and stress. Moreover, overcommitment is practically relevant in times of a high career orientation and high performance expectations.

In the theoretical framework of ERI, researchers have begun to integrate work-family conflict (see Franche et al., 2006; Kinman & Jones, 2008; Willis et al., 2008). For example, Franche et al. (2006) tested a comprehensive model that included inter alia the effort-reward ratio (as independent variable), work-family spillover (as intermediate variable), and depressive symptoms (as dependent variable). They found direct and indirect effects in a very specific sample, which consisted of female employees working in the health-care sector. In contrast to the present study, they used the ERI ratio and overcommitment was not included in their model. Furthermore, in none of these studies an overall model with overcommitment as personal characteristic and irritation as dependent variable had been investigated. Van Vegchel et al. (2005) raised the question of how effort and reward, respectively, influence employees' health independently. Preckel et al. (2007) found that all aspects of the ERI theory have an impact on different mental health indicators but that effort and reward separately have an even bigger impact than their ratio. Further, previous studies have shown that efforts and rewards influenced work-family conflict independently of each other. For example, long working hours which are one aspect of efforts increase work-family conflict (Ford, Heinen, & Langkamer, 2007; Höge, 2009). Therefore, this study examines the impact of all predictor variables of the ERI model, independently.

In conclusion, in view of the need for more research examining job characteristics as well as personal characteristics in relation to work-family conflict (cf. Bakker et al., 2011; Franche et al., 2006) and mental health, the present study contributions are: Firstly, despite the extensive research engagement it is still unclear what impact work-family conflict has with regard to other classic stressors of occupational health models. Closing this research gap is crucial for giving evidence-based recommendations on whether work-family conflict should be included into workplace health promotion or whether classic stressors still have greater impact on employees' health. Therefore, the study focuses on the ERI model as it integrates all of these aspects. Secondly, to extend previous research, it is tested whether internal and external work-family conflict act as mediators between the three ERI aspects (effort, reward, and overcommitment) and irritation in one overall model. Thirdly, by examining the variables of the ERI model separately the study contributes to a better understanding of each ERI variable in the work-family as well as the mental health context.

2 The effort-reward imbalance theory in relation to irritation

As mentioned above, the present study investigates the relationship between all the ERI components and irritation, an important indicator of psychological strain. Irritation indicates work-related strain, which is mainly caused by perceived goal-discrepancy. This discrepancy leads to ruminations (cognitive irritation) and irritability (emotional irritation) (Mohr, Müller, Rigotti, Aycan, & Tschan, 2006). This strain concept is very important in relation to work-family interplay, because these multiple responsibilities raise the likelihood of competing demands and therefore goal-discrepancy in either one or both domains. Moreover, irritation is defined as a psychological state between acute and chronic stress. It relates to both psychosomatic complaints and to physiological stress indicators such as cortisol (Mohr, Müller, & Rigotti, 2005a). Therefore, irritation is an appropriate screening indicator regarding the point where organizational stress interventions could start. Often, prevention in organizations does not begin until high absence or high fluctuation rates persist indicating a strong need for action. However, regarding individuals' health it is also important not to start with prevention engagement too late when the individual for example is already burned out (cf. Maslach, 1982). Therefore, irritation as a screening indicator is a practically advantageous and widely-used concept that has been applied within numerous studies in different countries (cf. Mohr et al., 2006; Mohr et al., 2005b, Müller et al., 2004; Rotheiler & Metz, 2003). Though, to the author's knowledge, this stress-variable has not been investigated in the context of the complete ERI model, yet.

Regarding existing research, Höge (2009) found that time pressure which is one aspect of efforts increased emotional and cognitive irritation. Additionally, Berset, Elfering, Lüthy, Lüthi, and Semmer (2011) found that time pressure was positively related to rumination which is the cognitive aspect of irritation. Further, Preckel et al. (2007) found that efforts were negatively related to mental health and related positively to vital exhaustion and depressed mood. Thus, taking these results together and using irritation as a negative mental health indicator, a positive relationship with efforts is hypothesized.

Further, rewards are defined as "money, esteem and career opportunities" (Siegrist, 2002, p. 264). In contrast to job insecurity which relates positively to psychological strain rewards are assumed to be negatively related to irritation (cf. Siegrist, 1996). This negative relationship to irritation is assumed because "rewards consist of the perceived adequacy of salary or wage, promotion prospects, job security, and esteem in which the worker is held by supervisors and colleagues" (Preckel et al., 2007, p. 92). This perceived equity of the cost-benefit relationship strengthens employees' insight into the achievement of objectives and should therefore reduce irritation. Thus, while goal-discrepancy increases irritation, the achievement of targets should decrease it. Preckel et al. (2007) found that rewards were positively related to mental health and negatively related to vital exhaustion and depressed mood. Thus, it is assumed that rewards are also negatively associated with irritation. In contrast, according to the ERI model overcommitment should increase irritation. With respect to this intrinsic overcommitment hypothesis, van Vegchel et al. (2005) found consistent results showing that overcommitment decreases mental health outcomes. Concerning irritation, Rotheiler and Metz (2003) found a high positive correlation with overcommitment. Mohr et al. (2006) also described overcommitment as being principally related with cognitive irritation.

According to Müller et al. (2004), cognitive irritation can occur together with work engagement to increase the probability of objectives' achievement. In contrast, emotional irritation leads to lower work engagement through negative emotions and thoughts which increase the disengagement from the goal to be achieved. Even if overcommitment has a stronger impact on cognitive irritation than on emotional irritation with regard to the overall concept of irritation in terms of work-related psychological strain, it is assumed that someone who is overcommitted to his occupational goals feels stressed if his achievement of goals is threatened. Thus, taking all aspects of the ERI theory into account the following hypothesis is proposed:

H1: Effort (H1a) and overcommitment (H1b) have positive relationships with irritation, while reward has a negative relationship (H1c).

3 Work-family conflict in relation to irritation

As described above, many employees face the challenge of meeting expectations of their work and family roles, alike. Research on the work-family domain distinguishes between negative as well as positive effects from work to family and from family to work (see Carlson & Frone, 2003; Greenhaus & Allen, 2011). Thus, each domain can influence the other: work can impair or facilitate family, and vice versa (Frone, 2003; Greenhaus & Allen, 2011). Amstad et al. (2011) showed in their meta-analysis that work interference with family relates more strongly to psychological strain and to work-related stress than family interference with work. Hence, this study will concentrate on the direction of work-family conflict. Following the theoretical concept of Carlson and Frone (2003), work-to-family conflict means that work-related role demands interfere with demands in family life. According to Siegrist (1996), these social roles interfere with each other. Consequently, work-family conflict can be defined as the interruption of family roles by work roles – an inter-role conflict emerges (see Greenhaus & Beutell, 1985). Carlson and Frone (2003) further distinguish between internal and external conflicts within work-family conflict. Internal conflicts are caused by psychological aspects, e.g., worrying about work problems while caring for the children at home. In contrast, external conflicts are based on behavioral conflicts, such as if someone has to do extra hours at work although he/she has to pick up his/her children from the kindergarten.

Despite this conflict aspect, these crucial social roles "help to define who we are" (Frone, 2003, p. 143) and thus are very important for our self-concepts and self-evaluations. The integration of work and family roles may be successful, but it is also stressful and therefore potentially deleterious to employees' health (Frone, 2003; Weinberg & Cooper, 2011). According to Siegrist (1996) irritation can be triggered "[…] if the continuity of crucial social roles is interrupted […]" (p. 30). Taking the achievement of objectives into account, this experience of a discrepancy between actual performance and goal performance leads to irritation (Müller et al., 2004). Precisely, it induces rumination and increasing performance efforts (cognitive irritation) or verbal-aggressive behavior (irritability) and goal disengagement (emotional irritation; Müller et al., 2004). If someone has important goals for his life in more than one life-domain, it is likely that some of these goals will be in competition with one another. The greater the number of goals someone sets for himself, the more probable it is that some of them turn out not to be fully achievable (cf. role theory; Mullen et al., 2008). Thus, it is assumed that both internal and external work-family conflict lead to irritation, because both aspects of work-family conflict indicate different aspects of goal, i.e. role conflicts.

Related research in these fields is still limited. In a study conducted in Turkey, Mohr et al. (2006) found that work-family overload was related to both aspects of irritation. These results were only described by correlations and are limited in the international scope. Additionally, Höge (2009) found a positive relationship between work-family conflict and both cognitive and emotional irritation. These results are restricted to a sample of female nurses. Furthermore, Müller et al. (2004) found that negative work-home interaction correlated with cognitive and emotional irritation as well as with the overall index. These authors investigated a heterogeneous sample but described correlations, only, and - in accordance with the other studies mentioned - did not differentiate between external and internal work-family conflict. Therefore, as the relation between internal and external work-family conflict and irritation has not been sufficiently investigated to date and more research is needed to close this gap, the following hypothesis is proposed:

H2: External (H2a) and internal (H2b) work-family conflicts have positive relationships with irritation.

4 The effort-reward theory in relation to work-family conflict

"Work […] demands are the dominant cause of WIF [work interference with family life]" (Greenhaus et al., 2006, p. 64). Thus, if someone has to put in a high level of efforts into his/her work, it is likely that he/she will have to work longer. Accordingly, this person will experience external work-family conflict. On the other hand if he/she will be cognitively solving job problems at home internal work-family conflict could be the consequence (cf. Kinman & Jones, 2008). Further, it is assumed that rewards at work reduce both types of work-family conflict because rewards are a compensation for a finished job (Ross & Mirowsky, 1996). According to the work-family conflict definition by Greenhaus et al. (2006, p. 63), "work-family conflict occurs when experiences in a role interfere with meeting the requirements and achieving effectiveness in the other role". Rewards serve as signals to the employee that he can be satisfied with his work (and thus has met the requirements of the work). He therefore does not have to work extra hours (external work-family conflict) or think about work issues at home (internal work-family conflict), which in turn should lower work-family conflict. Moreover, if someone is overcommitted to his/her work, he/she will - according to his/her personality traits - invest much external and internal effort into his/her work and thus might have less capacity for his/her family life. Therefore, overcommitment is assumed to strengthen work-family conflict (cf. Kinman & Jones, 2008).

In addition to the study from Franche et al. (2006) which was described in the introduction Kinman and Jones (2008) found main effects from effort and reward on work-family conflict. Their results showed a positive effect of overcommitment on work-family conflict in a sample of university employees. Willis et al. (2008) found a significant influence from effort on work-family conflict in a longitudinal study of police employees. Thus, indicators as well as methods, samples, and results differed from each other. The implications of these three studies are limited to very specific groups of employees. None of these studies differentiated between external and internal conflicts. The present study will close this research gap and investigate this differentiation for the first time using a heterogeneous sample. Hence, it is assumed that:

H3: Effort (H3a) and overcommitment (H3b) have a positive relationship with (both external and internal) work-family conflict, while reward (H3c) has a negative relationship.

In Figure 1, the complete research model derived through Hypotheses 1-3 is depicted.

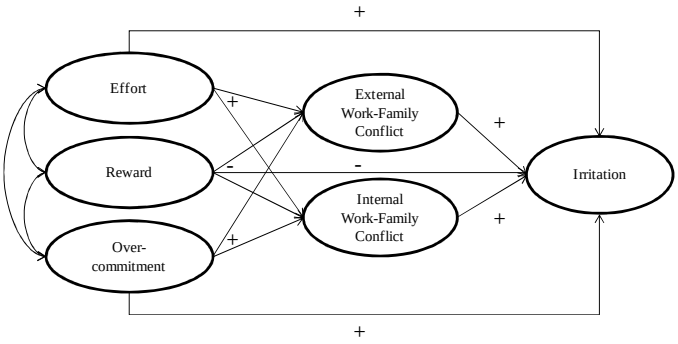

Figure 1: Hypothesized model

5 Method

5.1 Study design

An effort was made to gain a heterogeneous sample of employees from various organizational settings plus a company-independent sample. All participants received a self-report questionnaire with a similar set of items. In each case, the survey was voluntary as well as anonymous. In all companies the procedure was part of an employee survey aiming at the evidence-based development of company-specific mental health interventions.

First, a travel company was recruited (n = 358). Additional interviews with the management directors about organizational health, and one workshop with employees and works councils were conducted here. Two more employee samples were based on employees working in the health-care sector: a care facilities sample (n = 113) and psychiatry sample (n = 63). In order to get a more company-independent and more heterogeneous sample, an additional snowball-sample (n = 93) was recruited through personal contacts and numerous internet forums. To encourage participation, respondents were given the chance to win prizes in a lottery.

5.2 Participants

Summarizing the final sample, 627 employees of different organizations in Germany participated in this study. The largest proportion (57 %) worked at a travel company, 28 % worked in two organizations in the health-care sector (18 % in care facilities and 10 % in psychiatry). A further 15 % of the participants were recruited by a snowball procedure. Of these employees, 63 % worked full-time and 28 % had leadership responsibilities. The majority (74 %) of the respondents were female. The age groups were: under 31 years, between 31 and 40 years, and between 41 and 50 years, each of which accounted for some 30 % of the sample, leaving only 9 % aged over 51 years. 58 % had no children, 24 % had one, 15 % had two, 2 % had three, and 1 % had more than three children. In this sample, 23 % had elder care responsibilities. Thus, results of this study are based on a diverse sample, which included employees with children and without children as well as employees with elder care responsibilities.

5.3 Measures

Effort, reward, effort-reward imbalance and overcommitment were measured with a short-form of the ERI-questionnaire (Siegrist et al., 2009). Effort was measured using three items and reward was measured using seven items. One effort item example is "I have constant time pressure due to a heavy work load". One reward item example is "Considering all my efforts and achievements, my job promotion prospects are adequate". Overcommitment was measured by six items (e.g., "As soon as I get up in the morning I start thinking about work problems"). On a five-point Likert-scale respondents were asked to indicate whether they more or less *strongly disagree* (1) or *strongly agree* (5). Cronbach's alpha for effort was .71, for reward .70 and for overcommitment .77. Moreover, the scales are factorial valid and reliable over time (Rantanen et al., 2013; de Jonge et al., 2008).

Work-family conflict. The six items measuring work-family conflict originally derive from Carlson and Frone (2003). In the present study a German version developed by Wiese (see Seiger & Wiese, 2009) was used. One sample question for internal work-family conflict is "When you are at home, how often do you think about things you need to accomplish at work?" An example for external work-family conflict is "How often does your job or career keep you from spending the amount of time that you would like to spend with your family?" On a five-point Likert-scale respondents were asked to indicate how often they more or less experience work-family conflict: *never* (1) or *always* (5). Cronbach's alpha for external work-family conflict was .80, and for internal work-family conflict .69.

Irritation was assessed with the Irritation Scale (Mohr et al., 2005a). The scale consists of eight items. Three items measure cognitive irritation (e.g., "Sometimes even on vacation I have to think about problems at work.") and five items measure emotional irritation (e.g., "I am quick-

ly annoyed."). On a seven-point Likert-scale respondents were asked to indicate if the items are more or less true on a scale ranging from: ***not*** *correct at all* (1) to *completely correct* (7). The internal consistency for the total-scale is .88.

5.4 Analytical strategy

Structural equation modeling using IBM SPSS Amos 19 tested Hypotheses 1-3. Maximum likelihood (ML) estimation was used for parameter estimation. To avoid overestimation of results (see Curran, Finch, & West, 1996) and to ensure accuracy of the results in this study, the bootstrap method (see Byrne, 2004; Enders, 2001) was used additionally.

All data were gathered from a single source, therefore it was tested for common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Hence, Harman's one-factor test was used. The unrotated factor analysis results found that there were several factors with an eigenvalue above 1.0 each. Therefore, no general factor indicating common method bias could be identified.

6 Results

6.1 Descriptive statistics

Table 1 shows the internal consistencies, means, standard deviations, and correlations of all variables. The mean irritation sum score was 22.6, which equated to a percentile ranking of 47, an average value (see Mohr et al., 2005a). All correlations were in line with the hypotheses.

Table 1: Correlations, Means, Standard Deviations and Internal Consistencies

Variables	*M*	*SD*	1	2	3	4	5	6	7	8
1 Gender	1.26	0.44	/							
2 Effort	3.69	0.94	ns	(.71)						
3 Reward	3.12	0.72	ns	-.24**	(.70)					
4 Effort-reward imbalance	1.28	0.56	ns	.72**	-.75**	/				
5 Overcommitment	16.23	5.08	ns	.39**	-.24**	.39**	(.77)			
6 External Work-Family Conflict	2.35	0.70	ns	.23**	-.24**	.28**	.34**	(.80)		
7 Internal Work-Family Conflict	2.41	0.62	.14	.23**	-.13**	.21**	.55**	.50**	(.69)	
8 Irritation	2.83	1.25	ns	.29**	-.30**	.38**	.60**	.36**	.52**	(.88)

Note: N = 627. ** < .01 two-tailed; ns = not significant

6.2 Hypotheses 1-3

As indicated by the fit indices of the measurement model, empirical data fitted well to the proposed theoretical factorial structure (SRMR = .05, GFI = .95, AGFI = .92, NFI = .93, CFI = .96). The structural model showed high squared multiple correlations for the dependent variables (irritation: .75, internal work-family conflict: .71 and external work-family conflict: .26), thus the predictors in the model explained good proportions of variance of these variables. A closer look at the results revealed that *Hypothesis 1* was partially supported. Effort (H1a; $ß$ = -.07, p > .10) and reward (H1c; $ß$ = -.09, p > .05) did not have significant direct influence on irritation on the 5% significance level. In contrast, overcommitment (H1b) was positively ($ß$ = .54, p < .001) related to irritation. Further, *Hypothesis 2* was also partially supported because external work-family conflict (H2a) was not associated with irritation ($ß$ =.05, p > .10). Nevertheless, internal work-family (H2b) conflict was positively related to irritation (ß = .35, p < .001). Regarding *Hypothesis 3*, effort (H3a) had no significant influence on internal ($ß$ = -.01, p > .10), but on external ($ß$ = .13, p < .05) work-family conflict. Overcommitment (H3b) was positively related to external ($ß$ = .31, p < .001) and internal ($ß$ = .88, p < .001) work-family conflict. Moreover, reward (H3c) had a positive effect on internal work-family conflict ($ß$ = -.13, p < .001), but a negative effect on external work-family conflict ($ß$ = -.21, p < .001). Thus, *Hypothesis 3* was partially supported. Figure 2 summarizes these results. Additionally, the standardized indirect effect from overcommitment on irritation was significant with .32 (p < .001), in contrast to the indirect effects from reward and effort which were not significant. Therefore, the relationship between overcommitment and irritation was mediated through work-family conflict.

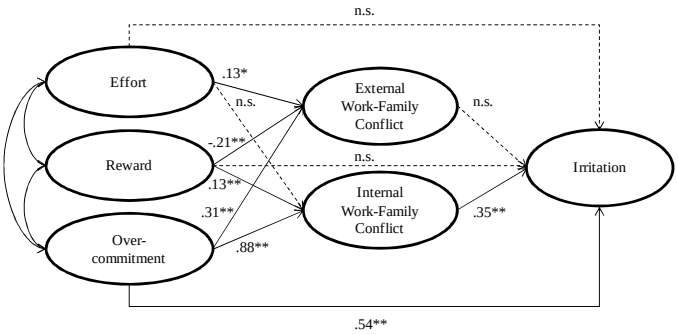

Figure 2. Summarized SEM results. *Note:* *= < .05, ** = < .01, ns = not significant

7 Discussion

This study is an example for the successful integration of work-family conflict in a general and predominant model of mental health. The study shows the importance of overcommitment in relation to negative effects of work-family conflict and irritation in a heterogeneous sample. Another contribution of this study is the differentiation of internal and external work-family conflict, which was important for an accurate evaluation of their relationship to the other variables mentioned above.

Summarizing the results, it can be concluded that within the framework of the three ERI components, work-family conflict is an important mediating variable concerning irritation. In the study's model, overcommitment has the biggest impact on external and internal work-family conflict as well as on irritation. In addition, internal work-family conflict has an important impact on irritation.

As proposed in Hypothesis 1, results of this study show a positive relationship between overcommitment and irritation whereas in the case of effort no significant effect could be obtained and a direct negative effect between rewards and irritation was significant only on the 10% significance level. These findings are in line with earlier results (Preckel et al., 2007) which found weaker impact of effort in relation to reward when using the variables independently in the analysis. Regarding effort, an exponential connection might be more appropriate: Not any effort per se, only too much effort should lead to increased irritation. However, in Preckel et al.'s study (2007) reward had an even bigger impact on several health indicators than overcommitment. It may be that the extremely high impact of overcommitment on irritation (as well as on internal work-family conflict) is caused by some conceptual overlap. Cognitive irritation is characterized by rumination on work-related problems. This is also some aspect of overcommitment and work-family conflict. Indeed, one item is nearly identical in all three concepts. In any case, despite this overlap, all variables explain unique variance in irritation. The results of this study are in line with the study conducted by Höge (2009) which found that "concepts of cognitive irritation and work-family conflict can be distinguished theoretically" (p. 46) and empirically. The coincidence of these three variables named above is both limitation and strength of this study. It is a limitation because these constructs are interconnected by definition and item similarity (e.g., rumination aspects) and, for this reason, are not fully distinct. Still, the strength of this study is that this model which contains overcommitment, internal and external work-family conflict as additional components was statistically validated. In consequence, results confirm not only a theoretical but also an empirical distinction of these constructs. Thus, it is concluded that it is important to investigate similar constructs and their impact on other variables in order to discover their similarities and differences even more clearly. Hence, future research should try to identify the predominant aspects of overcommitment, work-family conflict, and irritation more thoroughly.

With the separation of internal and external work-family conflict, this study has taken a first step in the right direction to more detailed insights, which is another important strength. According to the results of Hypothesis 2, only internal and not external work-family conflict intensifies irritation. Thus, it is not the work-family conflict per se but it is primarily the psychological role conflict that increases mental strain. Hence, even if it is impossible for someone to successfully organize and satisfy all requirements on the behavioral level, this does not have a detrimental effect on mental health by itself. Any effects which may result rather depend on the individual's personal expectations, goals and level of success he perceives in fulfilling them.

The influence of overcommitment, effort, and reward on work-family conflict was the content of Hypothesis 3. Findings indicate that effort increases external but not internal work-family conflict. This fits the argumentation above. More efforts induce the need for more or better organization and can thus lead to higher behavioral conflict (external work-family conflict). But if one's own priorities are well-considered with regard to the personal aspiration level and correspondingly organized, efforts have no influence on internal work-family conflict (or on irritation). In contrast, while reward lowers external, it (against the proposed direction of the hypothesis) strengthens internal work-family conflict. If the work setting is rewarding and employees perceive that they have done their work well, they can go home and do not have to work extra hours. In consequence, their external work-family conflict lowers. Concerning internal work-family conflict, results could be an expression of the motivational component of a rewarding work setting. While staying at home, employees might not only think about work problems but, given a rewarding job environment, also about new work ideas, new career opportunities, or something else which distracts them from their family responsibilities without putting extra pressure on them. This is one possible explanation and it is actually supported by a relatively low effect size. However, current research mainly focuses on work problems. Hence, further exploration should incorporate aspects of work engagement to make these connections clearer (see Bakker & Leiter, 2010). Further, rewards in this study go along with job security. Kinnunen and Mauno (1998) showed that job insecurity is a predictor of work-family conflict in Finland, and within the women of their sample it decreased family-work conflict but increased work-family conflict. Therefore, research on the influence of rewards on dependent variables such as work-family conflict as well as job satisfaction should include a gender perspective (cf. Mottazl, 1986; Ross &

Mirowsky, 1996). Thus, this relationship is still unclear and needs further research to be better understood.

8 Further limitations and directions for future research

Taking the complete study into account, it can be concluded that it is worth including work-family variables in general models of mental health in work psychology. To expand the present study, future research should also make allowance for different additional variables: internal and external family-to-work conflict would be interesting variables to complete the conflict aspect. Because family-to-work conflict is more strongly influenced by family than by work variables (Greenhaus et al., 2006), future research should additionally be expanded by the aspect of social effort-reward balance, in view of the fact that even in social relations of non-work domains, an imbalance between efforts and rewards can occur (see Sperlich et al., 2009). This social imbalance may increase family-work conflict. Furthermore, the direct and indirect effects of positive work-family interaction should be integrated in order to investigate potential buffering effects (see Wiese et al., 2010). Moreover, moderators such as gender and resources (cf. Greenhaus et al., 2006) such as health-related self-efficacy (see Wieland & Hammes, 2010) would be worth examining. Especially the different responsibilities of participants for children, elder care, children and elder care, or no caring responsibility at all should be further addressed by multi-group analysis. Finally, positive (e.g., work engagement) and objective health indicators (e.g., cortisol as biomarker of stress, see Lundberg, 2011) should be included to develop a full model.

Another limitation is the cross-sectional design of the study, which weakens the causal interpretation of the results. Recent literature has called for more longitudinal research in the work-family domain (Greenhaus et al., 2006). For example, Innstrand et al. (2008) showed in their longitudinal study that there are reciprocal effects between positive and negative work-family interaction and burnout. Thus, the relation described in the present study should also be investigated in a longitudinal design to test reciprocal effects and to achieve better causal interpretations.

9 Implications for practice

The study's aim was to combine research on mental health and work-family in order to gain practical insights. Therefore, the present study shows that commitment to the workplace can be too strong including undesirable effects on work-family integration and mental health. Thus, at the end of a work day it is important to let employees go and fulfill other aspects of life in order to recover and to come back every next day. Acknowledgement of employees with multiple interests in combination with flexible working arrangement would be beneficial. To gain high performance it is necessary to build up resources – which is in responsibility of the person, and the organizational climate.

Organizations have no influence on the stable personality traits of their employees, however they have - to some degree - an impact on which behavioral patterns are rewarded by the organization and its culture as well as the question whether offers for personal development are made. Thus, regarding this aspect and in consequence of the present study, Berg et al. (2003) showed that there are high-commitment work environments that aren't beneficial for work-family conflict and health. Therefore, organizations should reflect on the extent of benefits of commitment and work engagement concerning organizational success and a potential situation of people sitting in their bureaus long hours, making more mistakes than working effectively, neglecting their family responsibilities and impairing their own health in the worst case. Rather they should reward if people actively set limits to their commitment, seek relaxation to renew their resources and come back to work dedicatedly.

Another important aspect includes the responsible handling of new technologies and the associated knowledge, to which extent these technologies are, on one side, beneficial for the reduction of work-family conflict and stress, such as having the ability to use flexible office arrangements to some degree. And on the other side, it is about the extent to which these technologies determine our lives stronger than our intellect and the feeling of exhaustion. This is one of the real challenges of the workforce, but, with the aim to stay healthy as individuals as well as companies, the view has to be changed from fast successes to being successful in the long run.

Therefore, first and foremost the highest management level of the organization is in responsibility to highlight the importance of workplace health promotion and work-life-balance. This is especially important in fast changing, cost-sensitive and high pace working situations, where these aspects are normally deprioritized but needed the most. If organizations are under pressure they tend to neglect that if less people should produce more outcomes, these high performing employees have to build up their energy to stay successful and healthy in the long run. And according to the ERI model, if employees give more from themselves (e.g. time with their families which is used for work) to the company, they want to get out more for themselves from the company to ensure the effort-reward balance. Therefore, it is crucial for companies to identify if they are just raising the effort side and harm people's values or if they give their employees opportunities reaching appropriate rewards. Otherwise exactly these high performing employees, which are willing and able to increase their efforts, will - without appropriate reward – seek alternatives and leave the company in the long run, which would be in accordance with the ERI model. In relation to the ERI components as predictors of work-family conflict, one practical implication is to sensitively observe what kind of effects rewards have on potential conflict experiences of followers. And what resources help which individual the most, so maybe time is given back to the individual and his/her family instead of sending him/her to a sales incentive trip with colleagues.

Moreover, especially the focus on this culture dimensions is important because the organizational culture also defines what is expected of men and women in the organization regarding their work but also family roles – including

what is expected of leaders with familiar responsibilities. So it is also important that people leader are role models for an appropriate level of commitment, work-life-balance and healthy behavior.

Moreover, the employees have the responsibility to care for themselves. Thus, at an early stage, they have to learn that it is important to build up resources in order to prevent loss cycles and therefore, care for their own health. As a conclusion of this study, the impact of internal work-family conflict on mental health leads to the practical implication that it is important to set life-domain priorities (over different phases of life) and life goals for oneself and to organize everyday life, which may help to deal with overcommitment tendencies – if reflected on a regular base. Last but not least everyone is part of the organizational culture and has to ask him-/herself if he/she acts family-friendly in the daily routine and is a role-model for his colleagues.

Finally, in consequence of the study results it seems to be necessary to integrate work-family activities with mental health engagement in work (and scientific) practice.

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